

The Role of Non-Governmental Organizations in Filling the Government Gap in Mangrove Management: Implications for Increasing Public Value in Palu City

Suasa Suasa¹, Muhammad Rapi¹, Nurhayati Hamid¹, Muhammad Alfian²

¹Department of Public Administration, Faculty Sains Social and Politics, Universitas Tadulako, Indonesia

²Department of Management and Public Policy, Faculty of Social and Political Sciences, Universitas Gadjah Mada, Indonesia

**Corresponding Author:* Suasa Suasa

Email: : suasafisip1962@gmail.com

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Abstract

The city of Palu in Central Sulawesi Province, Indonesia, faces significant environmental challenges, including coastal erosion and the risk of natural disasters such as tsunamis. In this context, the existence of mangrove forests is very crucial. This research explores the important role of Mangrove Rangers, a non-governmental organization (NGO), in addressing government gaps in mangrove conservation in Palu City. NGOs play a vital role in enhancing public value through environmental conservation and community empowerment. Mangrove Rangers have succeeded in conserving mangroves by collaborating with various parties. They also play a role in increasing community awareness and participation as well as planning economic development through mangrove-based ecotourism. The research results show that Mangrove Rangers not only contribute to environmental conservation but also strengthen the resilience of local communities to natural disasters. However, challenges such as lack of coordination with the government and minimal access to information are still the main obstacles. These findings highlight how important collaboration between governments and NGOs is in achieving sustainable conservation goals. This research offers important insights that are relevant to other regions facing similar challenges around the world.

Keywords : Mangrove, Non Government Organization, Public value.

Introduction

Public value refers to 'the value created by government through services, legislation and other actions' (Kelly et al. 2002). This is produced by public managers who aim to increase the value of public sector organizations to the public both in the short and long term (Faulkner & Kaufman, 2018). This concept provides new ideas regarding public management with the theme of a community first approach to facilitate them (Sami et al., 2018). Public value is a multifaceted concept and has been approached in several ways (Alford & O'Flynn 2009; Bozeman, 2009;

Horner et al. 2006; Rutgers 2015; Williams & Shearer 2011). This concept is increasingly important in public administration and management, and is often associated with co-creation, collaborative governance and management strategy (Sørensen et al., 2021). Historians and practitioners continue to debate and develop the concept of public value, with some arguing that the concept has not yet been fully established as a stable construct in the field (O'Flynn, 2021).

Public value has gained popularity in academic and practical settings, but its origins, empirical basis, and application require further research, implementation, and implementation (Williams & Shearer, 2011). Public value is created by public sector actors who create and jointly shape markets according to public goals, thereby enabling various sectors to collaborate to address major societal challenges (Mazzucato & Collins 2022). Although widely accepted and applied, public value still faces challenges in terms of its definition, measurement and application in the field of public administration and management (O'Flynn, 2021). Apart from that, there are several challenges in implementing public value, such as integrating sustainable development into public value creation efforts (Swilling, 2011) and normative changes (Uyarra et al., 2019). Adopting 'public values' as a guide to public management requires changes in legitimacy and accountability, with local conditions making it easier to adopt and requiring new ways of working between politicians, officials and citizens (Gains & Stoker, 2009)

Mangrove management is an effort to increase public value because mangroves have many benefits that are important for community values. Mangroves are highly productive tidal wetland ecosystems (Sandiyan & Kathiresan, 2012; Osland et al., 2017). Mangroves provide important habitat for various marine species (De Cock et al., 2023; Harry, 2021), shoreline protection (Choirunnisa & Gravitiani 2022) and improved water quality (Hilmi et al., 2021). Mangrove management offers a variety of benefits, including providing habitat for local fauna and flora, food, carbon sequestration, and protection from natural disasters such as storm surges and coastal erosion (Akram et al., 2023).

In Indonesia itself, mangroves can significantly reduce climate change emissions and provide ecological, social and economic benefits (Sidik et al., 2018). Mangroves in Indonesia can also absorb carbon significantly, reduce greenhouse gas emissions, and contribute to the 8% forestry sector emissions reduction target by 2030 (Arifanti et al., 2022). Apart from that, mangroves can protect coastal communities from disasters in several ways. They act as a natural barrier and absorb strong winds from the sea, thereby reducing the impact of tsunamis and tidal floods (Kurniadi, et al 2023).

However, Indonesia has witnessed a significant decline in mangrove forest area over the past three decades, contributing to greenhouse gas emissions equivalent to CO₂ each year. The city of Palu is no exception, there has been a decline in the number of mangroves caused by natural disasters in 2018. It is important to note that mangrove management efforts in the city of Palu are very crucial considering the city's status as an area that is vulnerable to various natural disasters and the large mining sector. Mangrove forest conservation and restoration efforts in Indonesia are very important for mitigating climate change (Murdiyarso et al., 2015).

Gaps in mangrove management often arise due to various factors, including limited resources and government capacity to take adequate action. So it can cause mangrove damage (Islam &

Wahab 2005), reduce mangrove protection capacity (Lee et al., 2014), reduce the number of community-based mangrove management initiatives throughout the world (Datta & Guha, 2012) and reduce resilience to climate change (Ahmed & Glaser 2016).

Non-governmental organizations (NGOs) have emerged as key players in filling government gaps (SalehMemon & Ansari, 2014). Such as forming socio-cultural fundamentals, and collaborating with other organizations (Nikkhah & Redzuan, 2010) to influencing government policies and holding the government accountable for their actions (Pranoto, 2020).

The presence of NGOs themselves can have a significant impact on public value, especially in environmental management, through their various actions, such as encouraging community participation, holding campaigns, and being directly involved in helping the government. For example, NGOs can use social media to communicate with the public and influence public opinion regarding local and global ecosystems (Fromknecht, 2018) and emphasize social justice and environmental protection (Santiago et al., 2022).

With their diversity of goals, capacities and approaches, NGOs have great potential to collaborate with governments and other stakeholders in an effort to fill government gaps, especially in protecting and managing mangroves effectively. For example, the Mangrove Rangers (Mangrovers) movement in Palu City is one of the community initiatives that is voluntarily involved in preserving mangroves in the Palu Bay area. In July 2018, Mangrovers succeeded in planting 1,000 mangrove trees at the Mangrove Fest event and carried out a campaign via social media to encourage public opinion to pay more attention to the environment, showing their commitment to preserving coastal ecosystems. In addition, Mangrovers' collaboration with various institutions, including the National Research and Innovation Agency (BRIN) and the Palu Central Statistics Agency (BPS), provides concrete examples of how NGO involvement can strengthen mangrove conservation efforts.

Despite their concern in managing mangroves, mangrovers also face significant challenges in increasing public value. In addition to ongoing post-disaster recovery after the 2018 earthquake and tsunami, they also face difficulties in infrastructure and a lack of policy support regarding mangrove management. Apart from that, the issue of education and awareness is also a priority, where the community needs quality education and awareness of the need for environmental protection and sustainability, especially in mangroves.

With the challenges faced in protecting coastal ecosystems, NGOs such as Mangrovers are important to maximize mangrove conservation and rehabilitation efforts. The implications of the role of NGOs can make a significant contribution to effective and sustainable mangrove management thereby creating great public value for society. Through good conservation and management, mangrove management can provide various benefits for local and global communities, such as providing habitat for flora and fauna, protecting beaches from natural disasters, improving water quality, and sequestering carbon. Thus, efforts in mangrove management contribute to the creation of public value by improving community welfare, environmental sustainability and ecological balance.

This research aims to further explore the influence of the involvement of non-governmental organizations (NGOs) in filling existing gaps in the government and measure the public values

created by NGOs so that they have implications for society. Measuring public value forces public administrators to be explicit about the type of public value they want to create, which can lead to improved performance (Moore 2007). For academics, measuring public value is very important to test hypotheses about the possible causes and consequences of public value (Faulkner & Kaufman, 2018).

Methods

This research uses a qualitative approach with a case study method to explore the role of Mangrove Rangers in mangrove conservation in Palu City, Indonesia. Case studies are selected to gain an in-depth understanding of phenomena in real and dynamic contexts. This research was designed as a qualitative case study, focusing on one main unit of analysis, namely Mangrove Rangers. This approach allows researchers to explore in detail the processes, interactions and dynamics that occur in a specific context.

This study followed research ethical standards, including obtaining informed consent from participants, maintaining confidentiality of information, and use of data only for research purposes. This methodology is designed to provide in-depth insight into the contributions and challenges of Mangrove Rangers in mangrove conservation in Palu City, as well as the implications for public value and sustainability of coastal ecosystems.

Results and Discussion

Public Value

The concept of public value needs more research, discussion, and practical application to achieve its goals. However, it faces challenges such as power influencing its implementation, diversity in societal needs, and difficulties in measuring results empirically (Williams & Shearer, 2011). Most research on the concept of public value has been conducted in developed countries, where there are more resources and attention to the development of effective public policies. However, in developing countries, research and application of public value is still underdeveloped, so they often lag behind in understanding and implementing ways to create broad benefits for their societies (Sami et al., 2018)

Urgency of Mangroves in Palu City

The city of Palu, located in Central Sulawesi Province, Indonesia, has a distinctive geographical feature with the long and narrow Palu Bay, surrounded by steep mountains. The bay is not only the main identity of the city but also plays an important role in the local ecosystem with rich habitats, including coral reefs and various marine species. In addition, Palu Bay is a center of economic activity, especially fishing and tourism, as well as a vital point for regional transportation and trade.

However, Palu also faces significant environmental challenges. This city really needs the existence of mangrove forests because of their crucial function in maintaining the balance of the coastal ecosystem. Mangroves act as a natural barrier that can absorb energy from waves and storms, reducing the impact of erosion on coastlines (Horstman et al 2014; Samiksha et al., 2019; Kamil et al., 2021; Parvathy & Bhaskaran, 2017). The existence of mangroves is also very important for

supporting local biodiversity by providing habitat for various species of fish, birds and other animals (Su et al., 2021). In addition, mangroves have a high ability to absorb and store carbon (Alongi, 2014; Krauss et al., 2017), help mitigate climate change (Sidik, 2018; Mudiyarso, 2015), and support the local economy through activities such as fisheries and ecotourism (Walton et al., 2006; Hussain & Badola, 2010).

Palu's need for mangrove forests is becoming increasingly urgent considering the natural challenges that this city often faces. One event that underlines the importance of mangroves is the tsunami disaster that struck on September 28 2018, where an earthquake measuring 7.5 SR was followed by a tsunami that hit with three waves (Rajindra et al., 2019). Mangroves, although unable to completely withstand the immense force of a tsunami, provide a layer of natural protection that can reduce the impact of such large waves.

Coastal erosion is another problem that threatens Palu City. The city's coastline continues to erode, resulting in the loss of valuable land and threatening coastal infrastructure. Mangrove roots help stabilize the soil by trapping sediment, reducing the rate of erosion that occurs. Additionally, rising sea levels due to climate change are further exacerbating this erosion problem. Mangrove forests, with their ability to slow the rate of water entering land, function as a natural barrier that can help mitigate the impacts of sea level rise.

With all these challenges, the importance of mangrove management in the city of Palu becomes very clear. This effort is not only about protecting coastal ecosystems but also about protecting cities from the threat of natural disasters and coastal erosion. Through mangrove conservation, Palu can strengthen its environmental resilience, protect local livelihoods, and ensure the sustainability of the ecosystem for the future.

However, these efforts often require more than government intervention. This is where the role of non-governmental organizations (NGOs) becomes crucial, especially in filling existing gaps in mangrove management and making a real contribution to increasing public value in Palu City.

The Role of NGOs in Filling Government Gaps

NGOs often play an important role in filling government gaps (Salehmemon & Ansari, 2014; Thara & Patel, 2010). As in this research, there are NGOs that play a crucial role in filling the government's gaps in increasing public value. The NGO in this research is Mangrove Rangers which has played an important role in overcoming the government's weaknesses in mangrove management efforts in Palu City. Through collaboration with various parties, such as Bank Indonesia (BI), Balai POM, Customs and Excise, and PT. Bumikarsa, they succeeded in planting around 80,000 mangrove trees in the Layana and Baiya areas. This collaboration reflects Mangrove Rangers' proactive efforts in filling existing gaps, especially in terms of funding and providing mangrove seeds which often receive little attention from the local government.

Mangrove Rangers not only focuses on planting mangroves, but also manages areas from Layana to Baiya and collaborates with various levels of society, including students from Tadulako University. Their contribution to mangrove conservation includes education, outreach and planting activities, all of which aim to strengthen the mangrove ecosystem and involve local communities directly.

Impact of Mangrove Rangers' Involvement on Public Values

Mangrove conservation can have a positive impact on public awareness (Varrel et al., 2024) as in this study where Mangrove Rangers succeeded in increasing local community awareness and participation in mangrove conservation activities. Through various education and outreach programs, they have succeeded in changing people's views and behavior regarding the importance of protecting mangroves. This creates a community that is more caring and proactive in protecting their environment. Now, local communities not only support mangrove conservation efforts, but are also actively involved in activities such as planting, maintaining and cleaning mangrove areas. This active participation shows that public awareness of the importance of mangroves is increasing, which in turn strengthens conservation efforts and ensures the long-term sustainability of the mangrove ecosystem.

From an economic perspective, although the impact has not been felt directly because mangrove planting activities are still ongoing, the involvement of Mangrove Rangers brings great potential for the future. They plan to develop ecotourism and ecoeducation programs once the mangrove plants have grown more firmly in the next 15-20 years. It is hoped that this ecotourism program can become a new economic attraction for the local community, opening up business opportunities such as selling products made from mangrove fruit. With ecotourism, local economic turnover can increase, providing direct economic benefits to local residents involved in these activities. Even though these economic benefits are long term, the potential is very large and can have a positive impact on the local economy.

Mangrove conservation has a significant impact on the environment (Berutu et al., 2023; Brenes & Molina, 2019; Silva & Amarasinghe, 2023). As in this study, it also shows that the conservation efforts carried out by Mangrove Rangers have an impact on the environment. The planting and maintenance of mangroves by Mangrove rangers helps reduce the risk of abrasion, resists wind and waves, and provides important habitat for marine biodiversity, including fish, crabs and shellfish. These benefits have been felt by local communities who depend on mangrove ecosystems for natural protection and biological resources. In addition, mangroves function as natural fortresses that protect coastal areas from damage caused by natural phenomena such as storms and tsunamis. Thus, the environmental impact of the involvement of Mangrove Rangers is very important for the balance of the ecosystem and the protection of coastal areas from natural disasters.

Overall, the Mangrove Rangers' involvement in mangrove conservation in Palu City has had a significant impact on public value. They not only help maintain and strengthen mangrove ecosystems but also create sustainable social, economic and environmental value for local communities. Their efforts in increasing community awareness and participation, planning economic development through ecotourism, and protecting the environment from the threat of abrasion and natural disasters show that their role is very crucial in efforts to preserve mangroves in Palu City.

Challenges in mangrove conservation

In carrying out mangrove conservation efforts, Mangrove Rangers face various challenges in collaborating with the government. One of the main challenges is the lack of effective communication and coordination between the two parties. Lack of communication and transparency can lead to several risks (Alsaedi et al., 2022). In this case, Mangrove Rangers often do not have access to adequate information regarding the specific obstacles faced by the government, which makes it difficult for them to establish productive and mutually beneficial cooperation. Additionally, there is a lack of awareness among decision makers regarding the importance of mangroves to local ecosystems and communities. Lack of awareness among decision makers is a significant challenge in every context (Gordova et al., 2019; Azevedo & Almeida, 2021; David et al., 2023).

To overcome this challenge, efforts are needed to build more transparent and consistent communication (Reinke, 2019). Establishing a forum that involves various stakeholders can be a solution to align vision and mission, as well as facilitate better coordination in conservation activities. In this way, closer and more effective collaboration can be realized, which will ultimately support better and more synergistic mangrove management in Palu City.

Discussion

Public value is created by public sector actors who create and jointly shape markets according to public goals, thereby enabling various sectors to collaborate to address major societal challenges (Mazzucato & Collins 2022). Mangroves themselves have succeeded in facilitating collaboration thereby creating public value for society.

Mangrove Rangers have played a crucial role in filling the government's gaps regarding mangrove management in Palu City. They succeeded in overcoming several weaknesses of the local government, such as lack of funding, limited human resources, and lack of initiative in mangrove conservation. By organizing and implementing the planting of around 80,000 mangrove trees, as well as managing coastal areas from Layana to Baiya, Mangrove Rangers not only supports environmental conservation but also encourages local community participation. Collaboration with various parties, including Bank Indonesia and other institutions, shows how NGOs can provide innovative solutions and resources that may not be available through government channels alone. Their proactive role reflects the ability of NGOs to address pressing environmental challenges in an efficient and inclusive manner, filling existing gaps in government policies and actions.

Mangrove Rangers have succeeded in increasing public value through their various initiatives in Palu City. Their conservation efforts not only help protect coastal ecosystems from the threat of abrasion and natural disasters, but also increase public awareness and participation in environmental conservation. By involving local residents and students in educational activities and mangrove planting, they create a community that is more caring and proactive in protecting their environment. Plans for developing ecotourism programs in the future also show the potential for economic improvement for local residents, which can provide long-term benefits and improve community welfare. Overall, the Mangrove Rangers' contribution not only protects and strengthens the mangrove ecosystem but also creates positive social and economic impacts,

thereby providing significant public value for the City of Palu.

However, there are still several challenges in creating public value by mangroves. Challenges such as integrating sustainable development into public value creation efforts (Swilling, 2011) and normative change (Uyarra et al., 2019) are challenges shared by mangroves. Lack of awareness and commitment from decision makers regarding the importance of environmental aspects, as well as deficiencies in communication and coordination between government and NGOs. The lack of attention to funding and provision of mangrove seedlings, as well as mitigating coastal erosion, reflects constraints in established policies and practices, which require significant change to support conservation.

Conclusion

This research highlights the vital role of non-governmental organizations (NGOs) such as Mangrove Rangers in addressing government gaps in mangrove conservation efforts in Palu City, Indonesia. Facing significant environmental challenges such as coastal erosion and the risk of natural disasters, mangroves have proven important in maintaining the balance of coastal ecosystems, providing habitat for various species, and contributing to climate change mitigation through carbon sequestration. Mangrove Rangers have demonstrated success through collaboration with various parties, not only in planting mangroves but also in increasing awareness and participation of local communities. The positive impacts of their efforts cover social, economic and environmental aspects, including the potential for future ecotourism development that could improve the local economy. However, they also face challenges, especially in terms of communication and coordination with the government, as well as a lack of access to information and awareness among decision makers. In conclusion, the role of NGOs is very important in creating sustainable and effective public value through a collaborative and participatory approach, making mangrove conservation in Palu City a potential model for application in other regions facing similar challenges.

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