Research Article

Evaluation of Public Policy Implementation in Natural Resource Management: A Case Study in Makassar City

Muhammad Natsir Mallawi

Sekolah Tinggi Ilmu Administrasi Yappi Makassar, Indonesia
* Corresponding Author: Muhammad Natsir Mallawi, e-mail: natsirmallawi01@gmail.com

Abstract: This research evaluates the implementation of public policies related to natural resource management in Makassar City, Indonesia. Using a qualitative case study approach, this study examines the effectiveness, challenges, and impacts of these policies on sustainable development practices. Data was collected through in-depth interviews with 25 key informants including government officials, resource managers, and affected community members, complemented by document analysis of policy papers and reports. The findings reveal significant gaps between policy formulation and implementation due to institutional fragmentation, limited community participation, and inadequate human resource capacity. While some policies have increased public awareness of conservation, others have failed to prevent environmental degradation, including water quality deterioration and deforestation. This study contributes to understanding the complex dynamics of natural resource governance in rapidly developing urban centers and offers practical recommendations for improving policy implementation through enhanced inter-agency coordination, meaningful community engagement, and capacity building initiatives.

Keywords: Community participation, Natural resource management, Public policy implementation, Sustainable development, Urban governance.

1. Introduction

Effective natural resource management (NRM) represents one of the most pressing challenges in achieving sustainable development goals, particularly in rapidly urbanizing regions of developing countries (UNEP, 2021). In Makassar City, the capital of South Sulawesi Province and Indonesia's fifth-largest urban center with a population exceeding 1.5 million, the management of natural resources has become increasingly critical amid accelerating population growth, urban expansion, and rising resource demands (BPS Makassar, 2022).

The city possesses diverse natural resources, including coastal ecosystems, agricultural lands, fisheries, and mineral resources, which contribute significantly to its economic development while simultaneously facing mounting pressures from human activities. The management of these resources occurs within a complex policy environment shaped by decentralization reforms that have transferred substantial natural resource governance responsibilities from the central government to local authorities since the early 2000s (Firman, 2009).

While numerous policies and regulations have been established to govern natural resource utilization and conservation in Makassar, their implementation frequently encounters substantial obstacles. Understanding the gap between policy intention and implementation reality is crucial for improving governance practices and achieving sustainable resource management outcomes (Hill & Hupe, 2014). As Pressman and Wildavsky (1984) noted in their seminal work, implementation often represents the critical "missing link" in the policy process, determining whether well-designed policies translate into tangible benefits.

This research aims to evaluate the implementation of public policies related to natural resource management in Makassar City, with specific objectives to:

    a. Assess the effectiveness of existing NRM policies in achieving their stated objectives

    b. Identify key challenges and constraints in policy implementation processes

    c. Analyze the impacts of implemented policies on both environmental conditions and community well-being

    d. Develop evidence-based recommendations for improving policy implementation mechanisms.

2. Literature Review

This study is guided by an analytical framework that integrates three theoretical perspectives on policy implementation:

First, the "top-down" perspective, as articulated by scholars like Van Meter and Van Horn (1975), emphasizes clear policy objectives, adequate resources, effective communication, and supportive implementation structures as key determinants of implementation success. This perspective provides valuable insights into analyzing formal institutional arrangements and resource allocation for NRM in Makassar.

Second, the "bottom-up" perspective, associated with Lipsky's (1980) concept of "street-level bureaucracy" and Hjern and Porter's (1981) focus on implementation networks, highlights the crucial role of local implementers and their discretionary practices in shaping policy outcomes. This lens helps understand how frontline officials interpret and adapt natural resource policies in response to local conditions.

Third, the "hybrid" or "integrated" perspective, proposed by scholars such as Sabatier (1986) and Goggin et al. (1990), recognizes implementation as a complex adaptive process involving multiple actors, institutions, and contextual factors. This approach is particularly relevant for examining NRM in Indonesia's decentralized governance system, where implementation involves interactions between various governmental levels, private sector interests, and civil society organizations.

Additionally, this research draws on the concept of "governance for sustainability" (Lafferty, 2004), which emphasizes the importance of participatory processes, transparency, accountability, and policy integration in managing natural resources for long-term sustainability.

Significance of the Study

This research addresses a significant gap in the literature on natural resource governance in medium-sized Indonesian cities, which have received less scholarly attention compared to mega-cities like Jakarta or Surabaya. Furthermore, it contributes to broader theoretical and practical discussions on policy implementation in decentralized natural resource governance systems, with potential relevance to similar urban centers in developing countries.

The findings offer practical insights for policymakers, governmental agencies, civil society organizations, and community groups engaged in natural resource management efforts in Makassar and similar contexts. By identifying specific implementation barriers and suggesting targeted interventions, this research aims to support more effective, equitable, and sustainable approaches to natural resource governance.

3. Research Methods

Research Design

This study employed a qualitative case study approach to develop an in-depth understanding of policy implementation processes within their real-world context (Yin, 2018). This approach was particularly appropriate for examining the complex interactions between

policies, institutions, and stakeholders in natural resource management, where context-specific factors significantly influence implementation outcomes (Flyvbjerg, 2006).

Study Area

Makassar City was selected as the case study area due to its economic and political significance as South Sulawesi's capital, its diverse natural resource base, and the presence of multiple competing resource demands typical of rapidly developing secondary cities in Indonesia. The research focused on three distinct ecological zones within the city's jurisdiction:

a. The coastal zone, including the Losari Beach area and adjacent marine ecosystems
b. The peri-urban agricultural zone in the eastern areas of the city
c. The watershed areas of the Jeneberang and Tallo rivers that traverse the city
d. These areas represent different natural resource management challenges and involve various institutional arrangements, providing a comprehensive view of policy implementation dynamics across the city.

Data Collection Methods

The study utilized multiple data collection methods to enable triangulation and enhance the validity of findings:

In-depth interviews: A total of 25 semi-structured interviews were conducted with key informants, including:

a. 9 government officials from relevant departments (Environmental Agency, Marine and Fisheries Department, Agriculture Department, and Spatial Planning Agency)
b. 6 natural resource managers (both public and private)
c. 8 community members from areas directly affected by resource management policies
d. 2 representatives from environmental NGOs active in the region

Interviews explored participants' experiences, perceptions, and evaluations of natural resource policy implementation, focusing on processes, challenges, and outcomes.

Document analysis: A Comprehensive review of policy documents, implementation reports, budget allocations, environmental assessments, and other relevant materials was conducted to understand the formal policy framework and trace implementation activities.

Field observations: Direct observations at 12 implementation sites across the three ecological zones provided contextual understanding of on-ground realities and implementation outcomes.

Data Analysis

Data analysis followed a systematic process of organization, coding, and interpretation:

Interview transcripts, field notes, and document excerpts were organized using NVIVO 12 qualitative data analysis software.

Thematic analysis was employed, beginning with open coding to identify recurring patterns, followed by axial coding to establish relationships between categories, and selective coding to integrate findings around core themes (Strauss & Corbin, 1998).

Constant comparative method was used to identify similarities and differences across different data sources and stakeholder perspectives.

Implementation assessment was structured around four key dimensions: policy clarity and coherence, institutional arrangements, resource adequacy, and stakeholder engagement.

Ethical Considerations

The research adhered to ethical guidelines, including obtaining informed consent from all participants, ensuring confidentiality and anonymity, and respecting cultural sensitivities. Research permissions were obtained from relevant authorities before data collection.

4. Results and Discussion

Policy Framework for Natural Resource Management

Makassar City has developed a relatively comprehensive policy framework for natural resource management, comprising both city-level regulations and the localization of national and provincial policies. Key policy instruments include:

Regional Regulation No. 4/2015 on Spatial Planning (2015-2035), which designates protected areas, conservation zones, and development areas

Mayor's Regulation No. 36/2018 on Integrated Coastal Zone Management

Regional Regulation No. 7/2019 on Environmental Protection and Management

Action Plan for Sustainable Development (2020-2024)

Document analysis revealed that these policies generally establish clear objectives and guidelines for sustainable resource management. For instance, the Integrated Coastal Zone Management regulation specifically targets "the protection of coastal ecosystems while enabling sustainable economic activities" and outlines specific protective measures for mangrove areas and coral reefs.

However, the analysis also identified several weaknesses in the policy framework:

Fragmentation and overlap: Multiple policies address similar issues with sometimes contradictory provisions. As one government official noted:

1. "We have many policies for managing natural resources, sometimes too many. The Fisheries Department has its regulations, Environmental Agency has others, and Spatial Planning has another set. They don't always align, creating confusion for implementers." (Government Official 3)

2. Insufficient localization: Some policies directly adopt national frameworks without adequate adaptation to local contexts and specific challenges faced in Makassar.

3. Implementation mechanisms: While objectives are well-articulated, many policies lack clear implementation mechanisms, monitoring frameworks, and accountability structures.

Ffectiveness of Policy Implementation

Assessment of implementation effectiveness revealed mixed results across different resource sectors and policy areas:

Coastal Resource Management

Implementation of coastal management policies has achieved some success in establishing Marine Protected Areas (MPAs) and restricting destructive fishing practices. The rehabilitation of Losari Beach area was frequently cited as a positive example:

"The restoration of Losari Beach area has improved both environmental conditions and tourism potential. It shows what can be achieved when there is political commitment and coordinated effort." (NGO Representative 1)

However, implementation effectiveness has been undermined by:

1. Weak enforcement of regulations against illegal sand mining and waste disposal

2. Inconsistent application of environmental impact assessment requirements for coastal development projects

3. Limited monitoring of water quality and marine ecosystem health

Quantitative indicators from environmental reports support these observations, showing that only 42% of coastal water quality monitoring points meet national standards, despite policy targets of 75% compliance.

Land Use and Agricultural Resources

Implementation of land use policies has been particularly problematic. Despite clear zoning regulations in the Spatial Planning document, conversion of agricultural land to commercial and residential uses continues at a rapid pace. Statistical data indicates that approximately 230 hectares of agricultural land were converted to other uses between 2018 and 2022, despite regulatory restrictions.

Interviews revealed widespread perception that economic interests frequently override environmental considerations in implementation decisions:

"The regulations exist on paper, but when large investors want to develop agricultural land, exceptions are often made. The implementation depends more on political and economic influence than on what the policy states." (Community Member 5)

Watershed Management

Watershed protection policies have seen partial implementation success. Reforestation efforts along the Jeneberang River have progressed, with approximately 45 hectares replanted since 2019. However, pollution control measures have been inadequately implemented, with continued industrial and domestic waste discharge into both major rivers.

A resource manager explained:

"We've made some progress with reforestation and physical infrastructure for flood control, but we struggle with the 'invisible' issues like controlling pollution sources. This requires coordination with multiple agencies and changing behaviors of many actors, which is much more difficult." (Resource Manager 2)

Key Implementation Challenges

Analysis identified several significant challenges that consistently impede effective policy implementation across different natural resource sectors:

Institutional Fragmentation and Coordination Deficits

The most frequently cited implementation barrier was poor coordination among government agencies with overlapping responsibilities for natural resource management. The research identified 7 different municipal departments and 3 provincial agencies with some jurisdiction over natural resources in Makassar, often operating with limited communication and coordination.

This fragmentation creates several problems:

1. Conflicting directives to field implementers
2. Duplication of efforts in some areas while leaving gaps in others
3. Difficulty in tracking the cumulative impacts of multiple interventions
4. Challenges in establishing accountability for implementation failures

As one official candidly admitted:

"Sometimes the left hand doesn't know what the right hand is doing. The Environmental Agency might be trying to protect a wetland area while the Public Works Department is planning drainage infrastructure through it. We often discover these conflicts late in the implementation process." (Government Official 7)

Attempts to establish coordination mechanisms, such as the Integrated Natural Resource Management Working Group formed in 2020, have had limited success due to irregular meetings, low-level representation from some agencies, and a lack of authority to resolve conflicts.

Limited Community Participation

Despite policy provisions for community engagement, actual participation in implementation remains limited. The research found that:

1. Public consultations are often conducted as procedural formalities rather than meaningful engagement

2. Information about natural resource policies and rights is not effectively disseminated to affected communities

3. Traditional knowledge and local perspectives are insufficiently incorporated into implementation approaches

4. Marginalized groups, including informal settlers and small-scale fishers, are particularly excluded from participation

Community members expressed frustration with token participation:

"They call us for meetings after decisions are already made. They show maps and technical terms we don't understand and ask if we agree. What can we say? We don't have real opportunities to influence how resources that affect our livelihoods are managed." (Community Member 3)

Resource and Capacity Constraints

Implementation is significantly hampered by inadequate resources and capacity constraints:

1. Budget limitations: Financial allocations for natural resource management represent only 3.8% of the municipal budget in 2021-2022, insufficient for comprehensive implementation of stated policies.

2. Human resource constraints: Implementing agencies face shortages of personnel with specialized expertise in environmental management. For example, the Environmental Agency has only two staff members with advanced degrees in environmental science managing the entire water quality monitoring program.

3. Technical capacity: Limited capacity for environmental monitoring, data management, and impact assessment undermines implementation effectiveness:

"We are expected to monitor compliance across hundreds of businesses and development projects, but we lack basic equipment like water quality testing kits and GIS capabilities. We end up focusing on visible violations and responding to complaints rather than systematic monitoring." (Government Official 5)

4. Enforcement capacity: Environmental law enforcement is weakened by insufficient personnel, unclear procedures, and limited legal support for enforcement actions.

Policy Impacts

The research assessed both environmental and socio-economic impacts of natural resource management policies:

Environmental Impacts

Environmental impacts show mixed results, with some localized improvements accompanied by broader deterioration:

1. Positive impacts: Designated conservation areas have shown some ecosystem recovery; water quality has improved in specific managed zones; and awareness of environmental issues has increased among certain populations.

2. Negative impacts: Overall trends show continuing degradation in key indicators, including a 15% decline in mangrove coverage since 2015, persistently high levels of water pollutants in major waterways, and increased sedimentation affecting coastal fisheries.

Environmental monitoring data reveal that only 3 of 8 key environmental quality indicators showed improvement between 2018 and 2022, despite the implementation of new policies during this period.

Socio-economic Impacts

Socio-economic impacts of natural resource policies reveal important equity concerns:

1. Benefits from improved resource management (such as tourism development and ecosystem services) are unevenly distributed, with limited benefits reaching poorer communities
2. Implementation of conservation policies sometimes restricts traditional livelihood activities without providing adequate alternatives
3. Economic growth objectives frequently override environmental sustainability in implementation decisions

A community leader observed:

"For us, these policies often mean new restrictions without new opportunities. When they restricted fishing in certain areas, the larger commercial operations moved elsewhere, but small fishermen like us lost critical fishing grounds without compensation or alternatives." (Community Member 8)

However, positive examples exist where integrated approaches have achieved both environmental and socio-economic benefits:

"The community-based mangrove management program has both improved coastal protection and created sustainable livelihoods through ecotourism and crab farming. This shows that with the right approach, we can achieve both environmental and social objectives." (NGO Representative 2)

5. Conclusions

This research demonstrates that while Makassar City has established a relatively comprehensive policy framework for natural resource management, implementation effectiveness is compromised by institutional fragmentation, limited community participation, and resource constraints. The gap between policy intentions and implementation realities results in continued environmental degradation despite formal commitments to sustainable resource management.

The findings highlight the complex interplay between formal policies, institutional arrangements, power dynamics, and resource constraints in shaping implementation outcomes. They illustrate how implementation is not merely a technical process of executing policy directives but a politically and socially embedded process influenced by various actors' interests, capacities, and relationships.

The research also underscores the importance of contextualizing implementation approaches to local conditions, rather than applying standardized solutions. Examples of successful implementation were characterized by adaptation to local ecological and social contexts, meaningful stakeholder involvement, and integrated approaches that addressed both environmental sustainability and community needs.

Recommendations

Based on the research findings, the following recommendations are proposed to improve policy implementation for natural resource management in Makassar City:

Enhancing Inter-agency Coordination

1. Establish a high-level coordination mechanism with representation from all agencies involved in natural resource management, clear authority, and regular meetings
2. Develop integrated planning and implementation tools, including shared databases, coordinated monitoring systems, and joint work plans
3. Implement policy harmonization reviews to identify and resolve contradictions between different natural resource policies
4. Create formal protocols for inter-agency consultation on decisions affecting natural resources

Strengthening Community Participation
1. Develop differentiated participation mechanisms appropriate for diverse stakeholder groups, including those with limited formal education or resources
2. Establish community monitoring networks to involve residents in resource monitoring and enforcement
3. Implement capacity-building programs to enhance community understanding of environmental issues and policy processes
4. Create formal feedback mechanisms to ensure community input influences implementation decisions and adaptations

Building Implementation Capacity
1. Increase budget allocations for natural resource management, prioritizing monitoring, enforcement, and community engagement
2. Develop specialized training programs for staff involved in natural resource governance
3. Establish partnerships with universities and research institutions to enhance technical capacity for environmental assessment and monitoring
4. Invest in appropriate technology for environmental monitoring and data management

Improving Implementation Approaches
1. Develop clear implementation guidelines for each major policy, with specific responsibilities, timelines, and performance indicators
2. Implement regular policy evaluation processes to assess outcomes and adapt implementation strategies
3. Adopt integrated approaches that address environmental, economic, and social dimensions simultaneously
4. Establish transparent accountability mechanisms for implementation performance

Implications for Future Research

This study suggests several avenues for future research:
1. Comparative analysis of implementation effectiveness across different Indonesian cities to identify common patterns and context-specific factors
2. Longitudinal studies to track implementation processes and outcomes over time, particularly following governance reforms
3. Action research to test innovative approaches to overcoming identified implementation barriers
4. More detailed investigation of power dynamics and informal institutions in shaping implementation outcomes

By addressing these research directions, scholars can contribute to both theoretical understanding of policy implementation processes and practical improvements in natural resource governance in rapidly developing urban contexts.

References

A. Strauss and J. Corbin, *Basics of qualitative research: Techniques and procedures for developing grounded theory*, 2nd ed., SAGE Publications, 1998.

B. Flyvbjerg, "Five misunderstandings about case-study research," *Qualitative Inquiry*, vol. 12, no. 2, pp. 219-245, 2006.

B. Hjern and D. O. Porter, "Implementation structures: A new unit of administrative analysis," *Organization Studies*, vol. 2, no. 3, pp. 211-227, 1981.

BPS Makassar, *Makassar Municipality in Figures 2022*, Statistics Indonesia, Makassar, 2022.

D. S. Van Meter and C. E. Van Horn, "The policy implementation process: A conceptual framework," *Administration & Society*, vol. 6, no. 4, pp. 445-488, 1975.

F. Berkes, "Devolution of environment and resources governance: Trends and future," *Environmental Conservation*, vol. 37, no. 4, pp. 489-500, 2010.

J. L. Pressman and A. B. Wildavsky, *Implementation: How great expectations in Washington are dashed in Oakland*, 3rd ed., University of California Press, 1984.

M. Hill and P. Hupe, *Implementing public policy: An introduction to the study of operational governance*, 3rd ed., SAGE Publications, 2014.

M. L. Goggin, A. Bowman, J. Lester, and L. O'Toole, *Implementation theory and practice: Toward a third generation*, Scott Foresman & Co., 1990.

M. Lipsky, *Street-level bureaucracy: Dilemmas of the individual in public service*, Russell Sage Foundation, 1980.

P. A. Sabatier, "Top-down and bottom-up approaches to implementation research: A critical analysis and suggested synthesis," *Journal of Public Policy*, vol. 6, no. 1, pp. 21-48, 1986.

R. K. Yin, *Case study research and applications: Design and methods*, 6th ed., SAGE Publications, 2018

T. Firman, "Decentralization reform and local-government proliferation in Indonesia: Towards a fragmentation of regional development," *Review of Urban & Regional Development Studies*, vol. 21, no. 2-3, pp. 143-157, 2009.

UNEP, *Making peace with nature: A scientific blueprint to tackle the climate, biodiversity and pollution emergencies*, United Nations Environment Programme, 2021.

W. M. Lafferty, Ed., *Governance for sustainable development: The challenge of adapting form to function*, Edward Elgar Publishing, 2004.