

Collaborative Governance In The Management Of The Ciliwung River Basin: A Stakeholder Analysis Of Tanah Abang Downstream Segment

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Abstract

The Ciliwung River Basin is one of the strategic areas that plays an important role in maintaining ecosystem balance and the sustainability of water resources. However, the management of the Ciliwung Watershed still faces various problems, including weak coordination among stakeholders. This study aims to analyze the relationships among stakeholders in the management of the Ciliwung Watershed and to formulate strategies for optimizing watershed management based on collaborative governance. This research uses a stakeholder mapping analysis approach based on the Integrated Watershed Management theory, which emphasizes the importance of integrating ecological, social, economic, and institutional aspects, as well as the Collaborative Governance theory proposed by Ansell & Gash. The method used in this study is the Systematic Literature Review (SLR) method to analyze collaborative governance in the management of the Ciliwung Watershed, particularly in the downstream segment of the Tanah Abang area, Central Jakarta. This study found that the management of the Ciliwung Watershed in the downstream segment of Tanah Abang still faces complex environmental and governance problems, where weak law enforcement (89%) and inter-institutional coordination issues (88%) represent the primary barriers. Consequently, this study highlights the urgent need to formalize cross-regional collaborative forums, establish an integrated watershed data system, and enhance community-based environmental stewardship to achieve sustainable river basin governance.

Keywords: Collaborative Governance, Ciliwung Watershed, Stakeholder Analysis, Environmental Policy, Urban Flood Control.

1063

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INTRODUCTION

A Watershed Area, or Daerah Aliran Sungai (DAS), is an integrated ecological region that plays an important role in maintaining environmental balance. A watershed is not merely a river flow system, but an ecological system that encompasses the interactions among land, water, vegetation, humans, and socio-economic activities within it. In the context of sustainable development, watershed management is highly important because the quality of a watershed determines water availability, the region's capacity to control flooding, environmental quality, and the sustainability of communities living in upstream, middle-stream, and downstream areas.

The Ciliwung Watershed is one of the strategic watersheds in Indonesia. The Ciliwung River flows from the upstream area in Puncak, Bogor Regency, passing through Bogor City and Depok City before emptying into Jakarta. This watershed plays a major role for the Greater Jakarta (Jabodetabek) region, particularly in water supply, flood control, and as part of the urban ecological system. However, the condition of the Ciliwung Watershed is currently under significant pressure due to population growth, urbanization, residential development, land-use changes, and economic activities that do not fully consider environmental carrying capacity (Asdak, 2018).

The downstream area of the Ciliwung Watershed, including Tanah Abang area in Central Jakarta, is one of the regions directly affected by poor watershed governance. Problems such as flooding, water pollution, waste accumulation, sedimentation, river narrowing, and dense settlements along the riverbanks continue to occur repeatedly. These conditions indicate that the problems of the Ciliwung Watershed are not merely technical in nature, but are also closely related to social, institutional, policy, and stakeholder coordination aspects (Herpriyono, 2023; Ridlo, 2018; Rizki, 2023).

The management of the Ciliwung Watershed involves many actors, including the central government, local governments, the River Basin Management Agency (Balai Besar Wilayah Sungai), environmental agencies, water resource agencies, riverside communities, environmental communities, academics, and the private sector. The involvement of many actors should ideally become a strength in watershed management. However, in practice, the involvement of multiple parties often creates coordination problems, overlapping authorities, conflicting interests, and weak program integration.

These issues indicate that the management of the Ciliwung Watershed requires a more collaborative governance approach. A sectoral approach that relies solely on a single institution



is insufficient to address the complex problems of the watershed. Therefore, collaborative governance becomes a relevant approach because it emphasizes cooperation among actors in decision-making processes, program implementation, resource sharing, and policy evaluation.

Ansell and Gash (2007) explain that collaborative governance is a governance process involving both governmental and non-governmental actors in a collective forum to make decisions collaboratively, consensus-oriented, and aimed at solving public problems. In the context of the Ciliwung Watershed, this approach is important because river-related issues cannot be resolved solely through infrastructure development, but also require changes in community behavior, institutional strengthening, law enforcement, and cross-regional coordination.

This study analyzes the relationships among stakeholders in the management of the Ciliwung Watershed, particularly in the downstream segment of Tanah Abang, Central Jakarta. The focus on the downstream segment is important because the downstream area represents the accumulation point of various problems occurring in the upstream and middle-stream areas. Therefore, studying the downstream segment can provide a comprehensive overview of the complexity of watershed governance as a whole.

LITERATURE REVIEW

a. Previous Studies

Studies concerning the integration of Ciliwung Watershed management have gained significant attention. Research on watershed management has been widely conducted. However, most studies primarily focus on the technical aspects of management, particularly those related to water quality, soil quality, and environmental quality. This study focuses on governance in watershed management in accordance with Government Regulation Number 37 of 2012 concerning Watershed Management, which is examined through several stages, including planning, implementation, monitoring and evaluation, as well as guidance and supervision.



Table 1. Relevant Previous Studies

No	Author, Year, and Research Title	Research Objective	Relevance to This Study
1	Formanek et al. (2013), Two Dimensional Model of Ciliwung River Flood in DKI Jakarta for Development of the Regional Flood Index Map	To develop flood control methods in DKI Jakarta Province	Discusses flood problems in the DKI Jakarta area, which is also the focus of this study
2	Purnawerni (2014), Environmental Management Policy in the North Kendeng Area of Central Java Province	To identify environmental policies and environmental management in the North Kendeng Area	Discusses environmental management using a policy approach
3	Susmarkanto (2002), River Water Environmental Pollution as One of the Factors Causing Floods in DKI Jakarta	To identify the socio-cultural behavioral background of communities in disposing waste into rivers	Discusses river problems related to social aspects
4	Sutopo (2015), Ciliwung River Management Has Not Been Optimal Due to Weak Coordination Between Central and Local Government Institutions	To analyze weak coordination between central and local governments	Discusses integrated coordination from a governmental perspective



No	Author, Year, and Research Title	Research Objective	Relevance to This Study
5	Wahyuni and Pramono (2017), Ciliwung Watershed Management from an Environmental Perspective	To identify the implementation of Ciliwung River water quality degradation caused by irresponsible violators	Discusses violators contributing to the decline of Ciliwung River water quality

Source: Compiled by authors from literature review (2026)

Previous studies have shown the importance of coordination in watershed management. Most of the problems related to the weakness of coordination, poor policy, and ineffective management. These issues need the solution from the perspectives of public policy and communication aspects.

b. Watershed and Its Management

Watershed Area or Daerah Aliran Sungai (DAS), is a land area that is topographically bounded by ridgelines and functions to collect, store, and channel rainwater into the main river. A watershed has ecological, hydrological, social, and economic functions. The ecological function of a watershed is related to its ability to maintain environmental balance, while its hydrological function is associated with water management and flood control (Suripin, 2004; Seyhan, 1990).

Watershed management must be carried out in an integrated manner because damage in one part of the watershed area can affect other parts. Damage in upstream areas, for example due to land-use changes and reduced vegetation cover, can lead to increased surface runoff, sedimentation, and flooding in downstream areas. Therefore, watershed management cannot be conducted partially, but must consider the interconnections between upstream, middle-stream, and downstream areas (Sudaryanti et al., 2021; Damanik, 2022).

Based on the explanation above, it can be analyzed that a watershed is an interconnected ecological system linking upstream, middle-stream, and downstream areas, so that damage occurring in one part of the region will have impacts on other parts. The function of a watershed



is not only limited to hydrological aspects as a regulator of water systems, but it also has ecological, social, and economic functions that influence environmental sustainability and community livelihoods. Therefore, watershed management requires an integrated and sustainable approach. In the context of the Ciliwung Watershed, issues such as flooding, sedimentation, pollution, and environmental degradation in downstream areas indicate an imbalance in the management between upstream and downstream regions.

c. Collaborative Governance

Collaborative Governance is a governance approach that emphasizes the importance of cooperation among stakeholders in the process of solving public problems. According to Chris Ansell and Alison Gash (2007), collaborative governance has several key elements, including the existence of a collaborative forum involving governmental and non-governmental actors in joint decision-making processes through face-to-face dialogue, trust building, shared commitment, and consensus-oriented approaches. This approach aims to create a governance process that is more participatory, inclusive, and effective in addressing complex public issues (Ansell & Gash, 2007; Emerson & Nabatchi, 2015).

Collaborative Governance differs from conventional administrative coordination. Conventional coordination tends to be formal and bureaucratic, whereas collaborative governance requires the active involvement of all stakeholders, equality of roles, mutual trust, and shared responsibility in decision-making and policy implementation processes. In the context of Watershed Area (DAS) management, this approach becomes important because each actor has different interests, authorities, and resources, thus requiring a collaborative mechanism capable of integrating these various interests in a sustainable manner (Bryson et al., 2015; Emerson & Nabatchi, 2015).

In this study, the authors view collaborative governance as a relevant approach in the management of the Ciliwung Watershed because the complexity of watershed problems cannot be resolved solely by a single government institution. Issues such as flooding, river pollution, sedimentation, waste management, and riverbank area arrangement involve many parties with different interests, authorities, and resources. Therefore, a governance mechanism is needed that is capable of integrating the roles of government, communities, the private sector, academics, and environmental communities in joint decision-making and policy implementation processes.



d. Stakeholders in Watershed Management

Stakeholders are individuals, groups, or institutions that have interests, influence, or are affected by a policy. In the management of the Ciliwung Watershed, stakeholders can be categorized into several groups.

First, the central government, which has authority in formulating national regulations, watershed conservation, and water resource management. Second, local government, which play roles in environmental management, spatial planning, settlement supervision, and flood management. Third, communities living around the watershed, who have direct influence on river conditions through their daily behavior. Fourth, the private sector, which has responsibilities in waste management as well as potential support through Corporate Social Responsibility (CSR) programs. Fifth, academics and non-governmental organizations (NGOs), which play roles in research, advocacy, education, and social supervision.

e. Public Policy Implementation

Edwards III (1980) states that the success of policy implementation is influenced by four main factors: communication, resources, implementers' disposition, and bureaucratic structure. The communication factor relates to the clarity, consistency, and delivery of policy information to policy implementers. The resource factor includes the availability of budgets, personnel, technology, information, and infrastructure that support policy implementation. Disposition refers to the attitudes, commitment, and responses of implementers toward the policies being carried out. Meanwhile, bureaucratic structure relates to the distribution of authority, work procedures, inter-organizational coordination, and supervision mechanisms in policy implementation (Edwards III, 1980; Nugroho, 2017).

Edward III's policy implementation theory is used as an analytical framework to understand various obstacles in the management of the Ciliwung Watershed (DAS). This study views that the suboptimal management of the Ciliwung Watershed is not only caused by technical environmental factors, but is also influenced by aspects of policy implementation involving many institutions and stakeholders. The complexity of watershed management, which crosses various administrative regions, makes inter-agency coordination a major challenge in implementing watershed management policies.

From the communication aspect, weak coordination and information exchange among institutions are still found, causing watershed management programs to often operate partially and without integration. From the resource aspect, limitations in budget, infrastructure,



technology, and human resource capacity also affect the effectiveness of watershed management program implementation. In addition, the lack of commitment and consistency among policy implementers in carrying out environmental management programs has become another obstacle in realizing sustainable watershed management.

This study also finds that the complex bureaucratic structure and overlapping authorities among institutions make the decision-making process less effective. These conditions indicate that the implementation of Ciliwung Watershed management policies requires strengthened institutional coordination, improved resource capacity, and shared commitment among stakeholders so that watershed management can be carried out more effectively, integratively, and sustainably.

RESEARCH METHOD

a. Research Method

This study employs a Systematic Literature Review (SLR) approach to synthesize evidence from several peer-reviewed studies concerning watershed management, community empowerment, Integrated Watershed Management, and Collaborative Governance. This method was chosen to integrate findings from various disciplines, including hydrology, ecology, sociology, public policy, and regional planning, as well as to identify best practices that have proven effective in local contexts.

b. Data Sources and Selection Criteria

The literature search was conducted through academic databases such as Scopus, Web of Science, and Google Scholar using the keywords: *Collaborative Governance*, *Watershed*, and *Stakeholders*. The inclusion criteria were:

1. Peer-reviewed studies published between 2019–2025;
2. Studies focusing on the Ciliwung Watershed or similar watersheds in Indonesia;
3. Studies providing empirical data or policy analysis;
4. Studies available in English or Indonesian.

c. Data Analysis

This study employs a Systematic Literature Review (SLR) approach to synthesize evidence from several peer-reviewed studies concerning watershed management, community empowerment, Integrated Watershed Management, and Collaborative Governance. This method



was chosen to integrate findings from various disciplines, including hydrology, ecology, sociology, public policy, and regional planning, as well as to identify best practices that have proven effective in local contexts.

d. Data Sources and Selection Criteria

The analysis was conducted through three stages:

1. Data Extraction: Identifying key findings, methodologies, study locations, and recommendations from each study.
2. Thematic Synthesis: Grouping findings based on four strategic pillars, namely Integrated Watershed Management (IWM), Collaborative Governance, community empowerment, and governance.
3. Comparative Analysis: Comparing strategies, identifying success factors, and measuring observable outcomes from implemented interventions.

RESULTS AND DISCUSSION

a. Ciliwung Watershed Management in Tanah Abang Downstream Segment

The downstream segment of the Ciliwung Watershed in Tanah Abang area demonstrates complex conditions. As part of a densely populated urban area, this region faces significant environmental pressures. Residential activities, trade, transportation, and other economic activities place a substantial burden on the river's environmental quality.

One of the main issues is water pollution. The pollution originates from domestic waste, household garbage, and economic activities of communities living around the river. Public awareness regarding river cleanliness is still uneven. There are still practices of disposing waste into drainage channels or directly into the river due to limited waste management facilities, longstanding habits, and weak supervision.

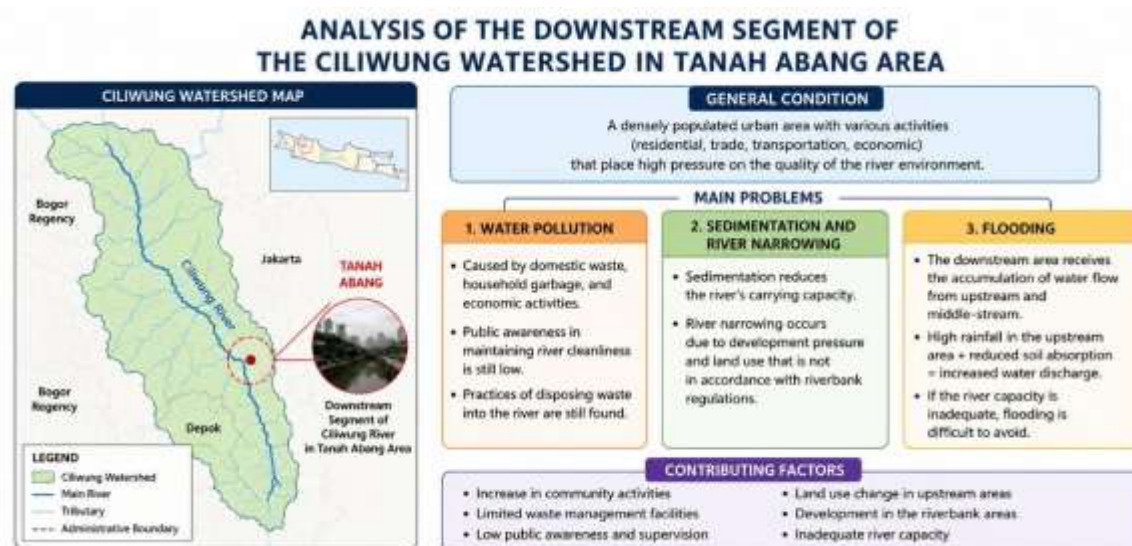
The second issue is sedimentation and river narrowing. Sedimentation reduces the river's carrying capacity, thereby increasing the risk of flooding during periods of high rainfall. River narrowing also occurs as a result of development pressures and land utilization that do not fully comply with riverbank regulations.

The third issue is flooding. The downstream area receives accumulated water flow from the upstream and middle-stream regions. When upstream areas experience heavy rainfall and



reduced soil absorption due to land-use changes, the volume of water flowing downstream increases. If the river capacity is inadequate, flooding becomes difficult to avoid.

Table 2. Existing Conditions of the Ciliwung Watershed in the Tanah Abang Area



Source: Processed by the Author based on data from BBWS Ciliwung-Cisadane, Ministry of Environment and Forestry, and literature review results, (2025).

The table illustrates the analysis of the downstream segment condition of the Ciliwung Watershed in Tanah Abang area, which is experiencing significant environmental pressure due to urban activities such as residential settlements, trade, transportation, and other economic activities. The main problems identified include water pollution, sedimentation and river narrowing, as well as flooding influenced by conditions occurring from the upstream to downstream areas of the watershed.

b. Stakeholder Mapping in the Management of the Ciliwung Watershed

The management of the Ciliwung Watershed involves many stakeholders. Each stakeholder has different roles, interests, and capacities. The management of the Ciliwung Watershed is viewed as a governance process involving multiple stakeholders with different roles, interests, capacities, and authorities. The complexity of the problems in the Ciliwung Watershed, particularly in the downstream segment of the Tanah Abang area, indicates that watershed

management cannot be carried out by a single institution alone, but instead requires integrated cross-sectoral and cross-regional collaboration (Ansell & Gash, 2007; Emerson & Nabatchi, 2015).

Table 3. Stakeholder Mapping in the Management of the Ciliwung Watershed



Source: Analyzed by authors based on governance frameworks (2026)

The central government holds a strategic position in formulating national policies, establishing regulations, and managing cross-regional water resources. In the context of Ciliwung Watershed management, the Ministry of Environment and Forestry plays a role in environmental conservation, watershed rehabilitation, and pollution control, while the Ministry of Public Works and Housing, through the Ciliwung-Cisadane River Basin Agency is responsible for river infrastructure management, river normalization, and flood control. On the other hand, local governments are responsible for urban environmental management, flood control, waste management, settlement arrangement, and community development. However, this study finds

that differences in policy priorities among administrative regions often become challenges in creating integrated watershed management programs (Herpriyono, 2023; Edwards III, 1980).

In addition to the government, communities are highly important actors because they have direct connections to the condition of the river environment. Community behavior in maintaining environmental cleanliness, managing waste, and participating in conservation activities greatly influences watershed quality. This study considers that low public environmental awareness remains one of the factors contributing to pollution and environmental degradation in the river area (Damanik, 2022; Ridlo, 2018).

Meanwhile, the private sector has significant potential to support watershed management through financial support, technological innovation, and Corporate Social Responsibility (CSR) programs. However, the involvement of the private sector needs to be directed so that it is not merely symbolic or ceremonial, but capable of providing tangible contributions to watershed rehabilitation and environmental restoration efforts (Bryson et al., 2015).

This study also positions academics and NGOs as strategic stakeholders in supporting the management of the Ciliwung Watershed. Academics play a role in providing scientific foundations through research, policy studies, and technical recommendations, while NGOs and environmental communities contribute through public education, policy advocacy, and social supervision of environmental policy implementation. Therefore, the success of Ciliwung Watershed management greatly depends on synergy and collaboration among stakeholders in realizing watershed governance that is more effective, participatory, and sustainable (Ansell & Gash, 2007; Emerson & Nabatchi, 2015).

c. Obstacles in the Management of the Ciliwung Watershed

1. Weak Coordination Among Institutions

The management of the Ciliwung Watershed faces various institutional, social, and regulatory obstacles. The complexity of watershed problems is influenced not only by environmental conditions, but also by governance among stakeholders that has not yet functioned optimally. These obstacles have resulted in the low effectiveness of watershed management policies and the slow achievement of sustainable environmental development goals.

One of the main obstacles in the management of the Ciliwung Watershed is weak coordination among the institutions involved. Various government agencies, both at the central



and regional levels, often implement programs according to their respective sectoral authorities without strong integration. This condition leads to program duplication, unsynchronized activities, and differences in policy priorities among institutions. As a result, watershed management implementation becomes less effective and unable to produce optimal impacts on improving river environmental conditions. In addition, weak coordination also hinders the overall process of program supervision and evaluation. According to Alviya et al. (2014), the main problem in the institutional aspect of Ciliwung Watershed management is weak coordination among institutions, causing watershed management to remain insufficiently integrated.

2. Overlapping Authorities

The Ciliwung Watershed crosses several administrative regions involving various governmental authorities, such as the Provincial Governments of DKI Jakarta and West Java, as well as district and municipal governments located from the upstream to downstream areas. This situation creates overlapping authorities in various aspects of watershed management, including spatial planning, environmental supervision, pollution control, and infrastructure development. It is not uncommon for each institution to have different policies and approaches in addressing watershed problems. This overlap causes the decision-making process to become slow and less effective because it requires complex cross-regional and cross-sectoral coordination. In the long term, this condition may hinder the implementation of integrated policies in the management of the Ciliwung Watershed.

3. Low Community Participation

Community participation also remains an important challenge in the management of the Ciliwung Watershed. Many government programs are still top-down in nature, where communities are more often positioned as policy objects rather than subjects actively involved in planning, implementation, and supervision processes. In fact, the success of watershed management is greatly influenced by public awareness and community behavior in maintaining the river environment. Low community participation can be seen from the continued practices of disposing waste into rivers, inappropriate land use, and limited involvement in environmental conservation activities. Therefore, a more participatory approach is needed so that communities develop a shared sense of responsibility for watershed sustainability. Research by Susilowati



(2012) indicates that low public awareness and ineffective environmental empowerment and socialization are factors contributing to the decline in the quality of the Ciliwung Watershed.

4. Limited Integrated Data

Effective watershed management requires accurate, complete, and integrated data support. However, data concerning water quality, land cover, pollution points, settlement conditions, and inter-agency programs are still scattered across various institutions and have not yet been integrated into a unified information system. This data limitation causes planning and policy-making processes to often lack a strong evidence base. In addition, differences in data collection and updating methods among institutions also become obstacles in producing consistent information. As a result, the policies formulated are less targeted and difficult to evaluate comprehensively. Therefore, the development of an integrated information system is needed to support cross-sectoral coordination in the management of the Ciliwung Watershed.

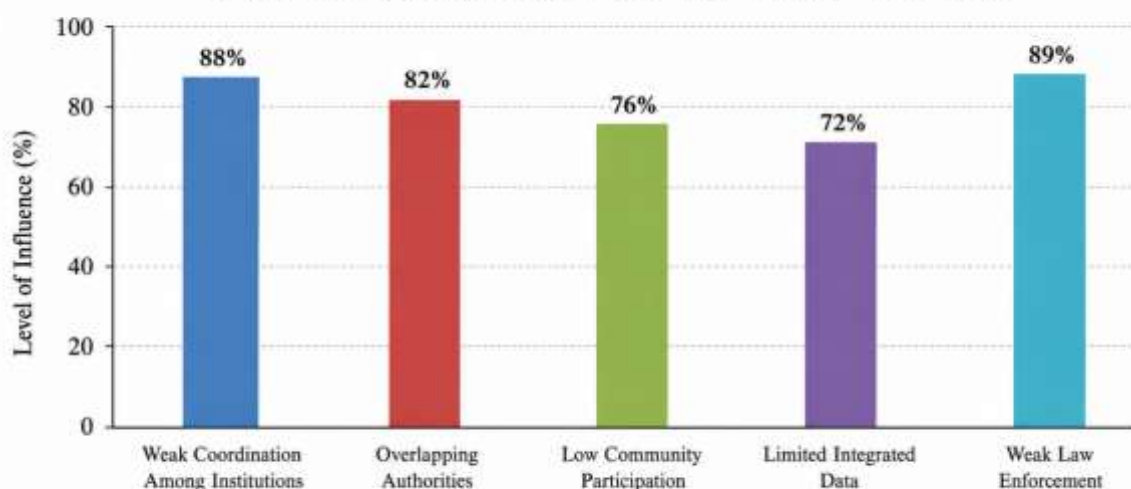
5. Weak Law Enforcement

Another serious obstacle is weak law enforcement against various violations occurring within the Ciliwung Watershed area. Practices such as waste disposal into rivers, construction along riverbanks, and various forms of environmental pollution are still frequently found. This condition indicates that supervision has not been carried out optimally and the implementation of sanctions against violations remains insufficiently strict and inconsistent. Weak law enforcement causes violations to continue recurring and reduces the effectiveness of environmental conservation efforts. Susilowati (2012) states that weak enforcement of regulations allows community activities that contradict environmental rules to continue repeatedly. Therefore, strengthening the supervision system, improving the capacity of law enforcement officers, and implementing stricter sanctions are necessary to create a deterrent effect and increase compliance among communities and business actors with environmental regulations.

Table 4. Obstacles in the Management of the Ciliwung Watershed



Figure 4.3
Obstacles in the Management of the Ciliwung Watershed



Source: Alviya et al. (2014); Susilowati (2012); Ministry of Public Works and Housing (PUPR) (2019); Rizki (2023)

The table illustrates various major obstacles in the management of the Ciliwung Watershed along with their levels of influence on the effectiveness of environmental management. Based on the chart, weak law enforcement has the highest level of influence at 89%, followed by weak coordination among institutions at 88% and overlapping authorities at 82%. Meanwhile, low community participation and limited integrated data have influence levels of 76% and 72%, respectively.

These data indicate that institutional and regulatory issues remain the main challenges in the management of the Ciliwung Watershed. Therefore, strengthening cross-sector coordination, increasing community participation, developing an integrated data system, and enforcing stricter law enforcement are necessary to support effective and sustainable watershed management.

d. Collaborative Governance in the Management of the Ciliwung Watershed

The concept of collaborative governance is considered a relevant approach in the management of the Ciliwung Watershed because of the complexity of the problems involving many parties with different interests. According to Chris Ansell and Alison Gash, collaborative governance is a process of decision-making and public policy implementation that involves various actors collectively through dialogue, cooperation, and the sharing of responsibilities. In

the context of Ciliwung Watershed management, this approach is important to create synergy among stakeholders in order to achieve effective and sustainable environmental management.

1. Dialogue Among Stakeholders

Dialogue is the main foundation in the implementation of collaborative governance. In the management of the Ciliwung Watershed, dialogue forums need to involve various stakeholders, such as the central government, local governments, communities, environmental groups, academics, the private sector, and non-governmental organizations. The dialogue conducted should not merely be administrative formalities, but should become a communication space capable of producing mutual agreements, role-sharing arrangements, and integrated action plans. Through open and participatory dialogue, each party can convey its interests, problems, and solutions so that the resulting policies become more inclusive and responsive to field conditions.

2. Building Trust

Trust among stakeholders is an essential requirement in building effective collaboration. In the management of the Ciliwung Watershed, the relationship between the government and the community often faces challenges in the form of low levels of trust. Communities tend to distrust government programs due to inconsistent policies, limited public involvement, and lack of transparency in program implementation. On the other hand, the government often views communities as parties that are less compliant with environmental regulations. These conditions can hinder the collaboration process if not managed properly. Therefore, trust-building efforts need to be carried out through open communication, information transparency, policy consistency, and sustainable programs that actively involve communities in every stage of watershed management.

3. Shared Commitment

The management of the Ciliwung Watershed requires a shared commitment that is long-term and sustainable in nature. Watershed problems cannot be resolved merely through temporary activities such as community clean-up programs or short-term socialization efforts. A collective commitment from all stakeholders is needed to maintain program sustainability and ensure that policy implementation is carried out consistently. Such commitment must be



reflected in the form of clear action plans, adequate budget support, structured distribution of responsibilities, and measurable indicators of success that can be objectively evaluated. With a shared commitment, watershed management can be conducted in a more directed manner and maintain continuity in the long term.

4. Role Distribution

The success of collaborative governance is greatly influenced by the clarity of role distribution among stakeholders. In the management of the Ciliwung Watershed, each party has different yet complementary functions and responsibilities. The government plays a role in formulating regulations, conducting supervision, and providing supporting infrastructure. Communities are responsible for maintaining environmental cleanliness and supporting river conservation efforts. The private sector can contribute through program funding, technology, and environmental innovation. Academics contribute through research and scientific studies as the basis for policy formulation, while non-governmental organizations play roles in education, community assistance, and environmental advocacy. A clear distribution of roles will facilitate coordination and improve the effectiveness of watershed management program implementation.

5. Measurable Intermediate Outcomes

In the collaborative governance approach, early achievements or intermediate outcomes become important factors in maintaining the sustainability of collaboration. Small successes that can be tangibly experienced will increase motivation and trust among stakeholders in continuing cooperation. In the context of the management of the Ciliwung Watershed, measurable intermediate outcomes may include the reduction of illegal waste disposal points, increased community participation in environmental activities, reduced waste volume in rivers, improved water quality, and the establishment of river conservation community groups. These achievements can serve as indicators that the collaboration undertaken has begun to provide positive impacts on watershed management. In addition, measurable outcomes are also important as evaluation materials to improve environmental management strategies and policies in the future.

Based on the explanation above, the concept of collaborative governance is highly relevant in the management of the Ciliwung Watershed because it is capable of involving various



stakeholders collectively in addressing complex environmental problems. Through dialogue among stakeholders, trust-building, shared commitment, clear role distribution, and the achievement of measurable outcomes, collaboration can create watershed management that is more effective, participatory, and sustainable. This approach also encourages synergy among the government, communities, the private sector, academics, and non-governmental organizations so that each party can contribute according to its duties and responsibilities. Therefore, collaborative governance becomes an important strategy in supporting efforts to preserve and improve the condition of the Ciliwung Watershed in a sustainable manner.

e. Comparative Analysis: Successful Case Studies

In an effort to understand effective watershed management strategies, this study conducts a comparative analysis of several successful case studies in watershed management and environmental governance based on collaborative governance. This comparative analysis aims to identify success factors that can serve as lessons for the management of the Ciliwung Watershed, particularly in the downstream segment of Tanah Abang, Central Jakarta.

One example of successful watershed management can be seen in the implementation of the Integrated Watershed Management approach in several regions, which emphasizes the integration of ecological, social, economic, and institutional aspects. In various studies, the success of watershed management is generally determined by strong inter-agency coordination, active community involvement, clear regulatory support, and the sustainability of environmental programs. This approach demonstrates that watershed management does not only focus on physical river development, but also on strengthening governance and changing community behavior toward the environment.

In addition, the success of river rehabilitation programs in several regions also highlights the importance of collaborative forums involving the government, communities, academics, the private sector, and environmental groups. In practice, these collaborative forums have been able to create more open communication, clear role distribution, and increased trust among stakeholders. The success of collaboration is usually marked by increased community participation in maintaining river cleanliness, reduced environmental pollution, and improved effectiveness of supervision over environmental violations.

When compared with the condition of the Ciliwung Watershed, there are several fundamental differences that become challenges in its management. The management of the Ciliwung Watershed still faces weak coordination among stakeholders, overlapping authorities,



limited integrated data, and low community participation. These conditions cause watershed management programs to remain suboptimal and still tend to be sectoral in nature. In contrast, in successful case studies, collaboration among stakeholders has been built through more integrated and sustainable coordination mechanisms.

Table 5. Comparative Analysis of Successful Practices

No.	Case Study	Main Problems	Collaborative Governance Strategies	Success Outcomes	Relevance to the Ciliwung Watershed
1	Ciliwung Watershed Management, Jakarta	Flooding, river pollution, sedimentation, riverbank encroachment, and weak coordination among stakeholders.	Strengthening cross-sector coordination, dialogue among stakeholders, clear role sharing, and continuous collaboration.	Establishment of coordination forums, increased community participation, and the initiation of integrated watershed management programs.	Becomes the main focus of research in building collaborative-based watershed governance.
2	Surabaya River Rehabilitation	River pollution and low public awareness.	Community-based programs, environmental education, and active community involvement.	Reduced level of river pollution and increased public awareness.	Demonstrates the importance of community participation in watershed management.
3	Brantas Watershed Management	Environmental degradation, land-use conflicts, and overlapping authorities.	Integration of cross-regional policies, institutional strengthening, and coordination among stakeholders.	Better coordination among stakeholders and more integrated watershed management programs.	Relevant for strengthening cross-regional coordination in the Ciliwung Watershed.
4	Cheonggyecheon Stream, South Korea	Environmental degradation due to urbanization and river pollution.	River revitalization through government-community-private sector collaboration.	Improved environmental quality and enhanced public space in the city.	Serves as a successful example of collaborative river revitalization.
5	River Cleanup Singapore	Pollution caused by domestic and industrial waste.	Strict law enforcement and continuous environmental education.	Significant improvement in river water quality.	An example of the importance of law enforcement in watershed management.

Source: Compiled by the author based on various research literature (2023–2025).

Based on the comparative analysis above, this study found that the success of watershed management is strongly influenced by the implementation of collaborative governance principles. Dialogue among stakeholders, trust-building, shared commitment, clear role distribution, and continuous evaluation are the main factors in creating effective watershed governance. Therefore, the management of the Ciliwung Watershed needs to strengthen cross-sector collaboration mechanisms by actively involving all stakeholders so that watershed management can be carried out in a more integrated, participatory, and sustainable manner.

CONCLUSION AND RECOMMENDATIONS

a. Conclusion

Based on the results of this study, the management of the Ciliwung Watershed in the downstream segment of Tanah Abang, Central Jakarta, still faces various complex problems, both from environmental and institutional aspects. Problems such as river pollution, sedimentation, river narrowing, flooding, and low public awareness indicate that watershed management has not yet been implemented optimally and sustainably. These conditions are influenced not only by environmental factors, but also by weak coordination and collaboration systems among the parties involved in watershed management.

From the institutional aspect, this study finds the main obstacles are weak coordination among stakeholders, overlapping authorities among institutions, limited integrated data, low community participation, and weak environmental law enforcement. The large number of actors involved in watershed management has not yet been able to create effective synergy because the existing coordination forums have not functioned optimally and still tend to be sectoral in nature. As a result, various environmental management programs often operate independently and have not been comprehensively integrated.

b. Recommendations

Collaborative governance is expected to become more integrated, participatory, effective, and sustainable. An integrated watershed information system needs to be developed as the basis for planning and decision-making, communities should be involved as the main subjects in watershed management through community-based programs, the private sector should be encouraged to support watershed rehabilitation through measurable Corporate Social Responsibility programs, and academia need to be more practical in contributing through applied based research, advocacy, and policy supervision.

Collaborative governance is expected to become more integrated, participatory, effective, and sustainable. Based on the study findings, several concrete recommendations are proposed:

1. **Develop an Integrated Watershed Information System:** An integrated data network needs to be developed across agencies as the primary empirical foundation for watershed planning and decision-making.



2. **Promote Community-Based Stewardship:** Communities should be involved as main active subjects in watershed management through continuous community-based empowerment programs.
3. **Leverage Private Sector CSR:** The private sector should be encouraged to support watershed rehabilitation through measurable, non-ceremonial Corporate Social Responsibility programs.
4. **Enhance Applied Academic Engagement:** Academia needs to contribute practically through applied research, advocacy, and independent policy supervision.
5. **Enforce Environmental Laws Consistently:** Legal enforcement must be strengthened alongside stricter sanctions to ensure public and corporate compliance with watershed protection laws.

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