JURNAL BINA PRAJA
Journal of Home Affairs Governance

ARTICLE

Implementation of Batang Arau Watershed Management with Good Environmental Governance Perspective

Irvan Renaldi [1], **Aldri Frinaldi** [2]

[1]Department of Public Administration of Universitas Negeri Padang

[2]Policy, Law and Political Research Center LPPM Universitas Negeri Padang

aldri@fis.unp.ac.id

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Citation: Renaldi, I., & Frinaldi, A. (2022). Implementation of Batang Arau Watershed Management with Good Environmental Governance Perspective. *Jurnal Bina Praja, 14*(2), 225–237. https://doi.org/10.21787/jbp.14.2022.225-237

Received: 14 May 2022

Accepted: 5 July 2022

Published: 23 August 2022

Abstract: The relationship between the environment and economy and people's consumption is still contradictory in efforts to save the environment. Excessive consumption and production patterns lead to polluted rivers. This qualitative research aims to describe the management of the Batang Arau watershed from a GEG perspective. Primary data was collected with in-depth interviews regarding the condition. Secondary data was obtained study of documentation related to laws and regulations. Informants are determined by the purposive sampling method (Sugiyono, 2017). Informants are parties related to the watershed. Data obtained were analyzed with Manual Data Analysis Procedure (MDAP) technique 1. Results showed the management of the Batang Arau watershed had not been implemented following principles of Good Environmental Governance; findings in the field found that; Public awareness is low, the law of environmental protection has not been optimal, and access to industrial waste information has not been opened, the government response is quite good, and environmental consensus has not been reached, there is a sectoral ego, a long bureaucratic path, environmental responsibility is lacking. Constraints, unified management vision among stakeholders, insufficient budget and fleet, low supervision, IPAL facilities have not integrated, Illegal logging, and inter-sectoral coordination are still problematic. Efforts made by the government: Conducting socialization to the community, cleaning and dredging watershed, and normalizing and rehabilitating critical land. Management must be carried out thoroughly, so there is no gap between upstream and downstream. We argue to create a balanced ecosystem. The government needs to improve management as a whole with a Good Environmental Governance approach in every management action to create sustainable management.

Keywords: Good Environmental Governance; Watershed; Management

1. Introduction

Environmental management challenges (Environmental Governance) are increasingly complex along with the times. Population growth and overexploitation of nature cause scarcity and ecosystem damage (Mitchell et al., 2010). The impact of natural exploitation and the disposal of consumption and production residues is evident in the pollution in river flows. Pollution is a challenge for environmental management. Analysis of UNDP Regional Bureau for Europe and the Commonwealth of Independent States (2003) describes that environmental pollution is the result of community production and consumerism that is not managed in a sustainable manner, which has an impact on the pollution of water supplies such as rivers and watersheds (DAS).

Tang and Adesina (2022) describe what is meant by a watershed as a series of water networks in which there are ecological, political, and social activities that interact with each other for certain purposes. The watershed is a center for hydrological activities ranging from conservation, agricultural, and plantation productivity to meeting human water needs (Kerr, 2007). Hanlon (2017) explains watershed governance refers to the cooperation of actors (individuals or institutions) to gain access to water resources that are used for various purposes.

The government has regulated the guidelines and rules for watershed governance at the central level, and the focus area of this research is West Sumatra. In the Government Regulation of the Republic of Indonesia Number 22 of 2021 concerning the Implementation of the Protection and Management of the Living Environment, it has been explained about the purpose of the watershed itself, namely that the watershed, which is abbreviated as DAS, is a land area which is a unit of a river and its tributaries, which plays a role in storing, storing, and naturally flowing water that comes from rainfall in lakes or the sea. As for the provincial level itself, it has regulated the management of watersheds at the West Sumatra level, which is contained in the West Sumatra Regional Regulation No. 8 of 2014 concerning Watershed Management. Where the watershed in this regulation is part of the main water source that stretches from upstream to downstream and is the mother of the tributaries that flow in an area.

As one of the lowland areas of West Sumatra, Padang has several large rivers flowing from the Bukit Barisan mountains to the city of Padang. There are 6 (six) large watersheds that cross the city of Padang, namely the watersheds of Air Dingin, Batang Kandis, Batang Kuranji, Air Timbalun, Batang Arau, and Sungai Pisang. This research focuses on the management of the Batang Arau watershed. This watershed is located in the Lubuk Peraku Hills and ends in the Muaro area, Batang Arau Village, Padang City (Putri, 2007).

The reason for choosing the Batang Arau watershed as the main focus of the research object is because the Batang Arau watershed is located at the epicenter of the business, industry, and population mobility areas. It is also the author's attention that the Batang Arau watershed is the most polluted compared to other watersheds in the city of Padang.

Previous research from Satria et al. (2017) found the cause of pollution in the Batang Arau watershed due to be factory and community domestic waste. In the upstream part, there is a mine excavation for cement processing materials. The middle region is inhabited by the rubber industry area, crude palm oil processing, and

Figure 1. Downstream of the Watershed from Batang Arau

Source: Researcher's document conducted on March 1, 2022

MSME factories. In contrast, a downstream part is a place for community mobility populated by hospitals, community businesses, hotels, markets, and boat berths. Lopez Porras et al. (2019) found cases from the Rio Del Carmen watershed in Chile caused by mismanagement of water and corruption that occurred there and did not meet the conservation requirements that had been set. The latest news is an investigation by sampling conducted in May 2022 by the Sungai Nusantara Expedition Team, West Sumatra, which found 420 microplastic particles in 100 liters of water in the Batang Arau River. The microplastic particles are 1,000-2,500 microns in size with fiber and filament types (Padek, 2022).

Sith et al. (2019) stated that in maintaining the water quality of the production system used, best management practices (BMPs) are needed to overcome the decline in water quality. Added, Kagaya and Wada (2021) explained that watershed management must prioritize strengthening discussions such as Forum Discussion Groups (FGD) between stakeholders. The watershed problem so far is the work system between stakeholders in unifying concepts for better watershed management. Research from Goodspeed et al. (2018) provides solutions to uncertainties from the state of the environment; the government needs to create a framework with a cross-stakeholder approach.

Management of water resources from upstream and downstream requires watershed management that is supported by all individuals and state institutions (Floress et al., 2015; Heberlein, 2012). Patel et al. (2008) describes environmental management as consisting of individuals and state institutions comprising the community, government, and private sectors that are integrated. Therefore, Good Environmental Governance is needed to create interaction between all elements of the country to produce sustainable management.

Feris (2010) said Good Environmental Governance is the key to interaction between government, private sector, and community elements to form a framework for participation, accountability, and transparency in environmental decision-making. Fulfilling human and economic consumption clashes with environmental decision-making processes, and these factors must be protected with good environmental management. Good Environmental Governance aims to increase the protection of natural resources from the threat of environmental damage (Wurzel et al., 2013). Effective environmental protection requires community support to monitor the environment. Kanie and Haas (2004) said that Environmental Governance prioritizes participation in effective environmental monitoring actions. Environmental protection is also strengthened by other elements such as participation, legal certainty, transparency, responsiveness, consensus orientation, inclusiveness, effectiveness and efficiency, and accountability. These elements become the fundamentals of the principles of Good Environmental Governance.

This study will provide a new picture of previous studies and news about watershed management using the theory of Good Environmental Governance with data analysis techniques using a coding system to fully describe the results of interviews from 10 sources that resulted in the findings of research in the field. The research will find answers on how to manage the Batang Arau watershed using the 8 Principles of Good Environmental Governance (UN Institute for Training and Research, 2017) and also describes the Government's efforts to overcome the obstacles that occur in the management of the Batang Arau watershed in Padang City.

2. Methods

This research is qualitative with a descriptive approach. So, the results of this study will describe the implementation of Batang Arau watershed management using the perspective of Good Environmental Governance. The research was conducted for four months, from January to April 2022. Data collection used interviews with informants, and observations were made by visiting Batang Arau conditions directly to see the garbage and garbage containers found along the Batang Arau watershed settlements

and data collection and conducting a study of documentation from legislation, books, and research data.

Interview results from resource persons were made in the form of transcripts and analyzed using the Manual Data Analysis Procedure (MDAP) technique. Bungin (2021) mentioned that the Manual Data Analysis Procedure (MDAP) technique is qualitative data carried out manually and consists of several stages, namely, diaries, transcripts, coding, categories, themes, and memos. Withdrawal of informants using a purposive sampling technique considering informants are parties related to Batang Arau both from the authorities, the community who are members of the river care community, and the private sector. To facilitate the coding process, the researchers used initial coding by giving P1 to P10 to the interviewed informants.

Table 1. Characteristics of Informants List of Interview Participants

Participant	Name	Position/Agency
P1	MK	Head of structuring and enforcement of environmental law
P2	DPM	Implementing operational technical I from Sungai V Padang
P3	NH	Junior clerk of functional planning (Regional Planning and Development Agency) Padang city
P4	IM	Head in charge of Padang sanitation operations
P5	NH	PSDA Staff of the Padang City Public Works and Spatial Planning Office
P6	BH	Headman, urban village of Batang Arau
P7	ZN	Controlling the protected forest ecosystem, watershed management center and protected forest AGAM KUANTAN
P8	WP	Executive Director for West Sumatra, Indonesia's Environmental Forum
P9	AY	Executor of Batang Arau River Care Community
P10	DN	HRD of PT. Teluk Luas

Source: Data processed by the researcher (2022)

Furthermore, the interview data, which is the main source of the research, will go through a coding process to get MEMOS or the main research topic which consists of; First, Open Coding is grouping or disaggregating data into groups of initial concepts about the phenomenon being studied. Secondly, Axial Coding is the unification of categories from the Open Coding concepts that have been identified into subcategories groupings to see the compaction of data in the interview transcription data. Third, Selective Coding integrates data organized from categories and themes by articulating new understandings and findings from the phenomena studied (Bungin, 2021).

After coding, the final result of the Selective Coding analysis will be obtained, which will be continued in the Memos process or visualize the existing data to describe the research results. In the MDAP series of research, the researcher modifies by placing memos after Coding and continues with the theme, which is the discussion or discussion of this research.

3. Results and Discussion

3.1. Results

3.1.1.General Findings Management of the Batang Arau Watershed

Following the explanation in the research method section, the researcher will explain the findings of the researchers from the interview data that the author has carried out, along with a description of the coding carried out:

a. Open Coding

The open coding that the researchers did came from interview data that the researchers used as transcription, the following researchers show a snippet of the results of the open coding data that came from the transcription of the interview:

Table 2. Analysis of Open Coding

Participants	Transcription	Draft Compaction
P1	Participation already exists and involves several sectors, but the problem of watersheds has not been resolved. Waste control program to invite the community is not optimal (interviewed on February 1, 2022)	#1 Participation already exists but public awareness is still low
P2	We participate in protecting, physically maintaining the watershed and in collaboration with the Batang Arau River Care Community. There we provide training to KPSs (Interviewed on March 07, 2022)	#2 education about environmental management to the community has not been optimal
	The forum between government, community, private sector already exists but lacks public participation and awareness (Interviewed on April 12, 2022)	
P3	Public awareness of domestic WWTPs is still low and sometimes there is a misunderstanding about what a Septitank is which causes the waste to be dumped directly into the river,	
P4	even the results of public bathing, washing, and toilet facilities are not noticed, so when it rains the color of the water is cloudy.	

The above is a snippet of the Open Coding analysis in which the initial data came from transcripts of interviewees from P1-P10. The interview part does come directly from the words of the interviewees. The Open Coding coding process results are #29 concept codes that have been compressed. Therefore, the researchers only show a snippet of Open Coding, which further compaction of concepts will be continued in the Axial Coding Process.

b. Axial Coding

In this axial coding section, the researcher inputs 29 codes of concept compaction, which in this axial coding is a combination of concept codes with subcategories, this subcategory is 10 (ten) with the principles of Good Environmental Governance, which consists of 8 (eight) principles and constraints as well as efforts in managing the Batang Arau watershed, the following data are presented in Table 3.

Table 3. Axial Coding Analysis

Draft	Subcategory
Draft #1 **Draft #2**	**Subcategory #1** public awareness is low and environmental management education is not optimal
Draft #3 **Draft #4** **Draft #5**	**Subcategory #2** environmental protection law is still not running optimally
Draft #6 **Draft #7**	**Subcategory #3** reporting of industrial waste and MSME waste is not yet open
Draft #8 **Draft #9** **Draft #10**	**Subcategory #4** the government's response is quite good, but some aspirations have not been heard
Draft #11 **Draft #12** **Draft #13**	**Subcategory #5** there is no agreement yet on the management of the Batang Arau watershed between sectors
Draft #14 **Draft #15**	**Subcategory #6** the ego-sectoral of each Stakeholder is still happening and there is no synergy between sectors yet
Draft #16 **Draft #17**	**Subcategory #7** the long bureaucratic path makes the Batang Arau watershed management between sectors not yet effective and efficient and the management program from upstream to downstream has not been maximized
Draft #18 **Draft #19**	**Subcategory #8** the government is still encouraging the provision of environmental services that have not been maximized from actors using the Batang Arau watershed
Draft #20 **Draft #21** **Draft #23** **Draft #24** **Draft #25**	**Subcategory #9** 1. There is no intersectoral cohesiveness 2. Less budget and fleet 3. Supervision is still low 4. City scale domestic WWTP not yet available 5. Illegal logging still occurs in the upstream watershed 6. The lack of coordination between sectors in the management of the Batang Arau watershed
Draft #26 **Draft #27** **Draft #28** **Draft #29**	**Subcategory #10** 1. Provide socialization and education to the community 2. Cleaning and dredging the Batang Arau watershed 3. Batang Arau watershed normalization program 4. Land Rehabilitation in Upstream Watershed

Source: Processed by researchers (2022)

Furthermore, the results of the 10 (ten) subcategories from the Axial Coding analysis will be continued to the Selective Coding analysis to obtain general findings from the research, and the existing categories are 8 (eight) principles of GEG as well as the constraints and efforts of Batang Arau watershed management, the following data are presented in Table 4.

c. Selective Coding

Table 4. Analysis of Selective Coding

Subcategory #1	**Category #1 Participation** Low public awareness
Subcategory #2	**Category #2 Legal Certainty** Environmental protection law is not optimal yet
Subcategory #3	**Category #3 Transparency** Access to information on industrial and MSME waste is not open yet
Subcategory #4	**Category #4 Response** Pretty good but some aspirations haven't been heard
Subcategory #5	**Category #5 Consensus** There is no inter-sectoral understanding in the management of Batang Arau
Subcategory #6	**Category #6 Inclusivity** Sectoral egotism is still happening, and management synergy is not there yet
Subcategory #7	**Category #7 Effectiveness and Efficiency** Long bureaucratic path
Subcategory #8	**Category #8 Accountability** The reward for environmental services is not maximized
Subcategory #9	**Category #9 Obstacles** 1. There is no intersectoral cohesiveness 2. Less budget and fleet 3. Supervision is still low 4. City scale domestic WWTP not yet available 5. Illegal logging still occurs in the upstream watershed 6. Intersectoral coordination in Batang Arau watershed management
Subcategory #10	**Category #10 Effort** 1. Provide socialization and education to the community 2. Cleaning and dredging the Batang Arau watershed 3. Batang Arau watershed normalization program 4. Land Rehabilitation in Upstream Watershed

Source: Processed by researchers (2022)

The result of this selective coding is the final data analysis result from the interview transcription concept compaction. This selective coding produces a new understanding of the research findings (Bungin, 2021). Furthermore, completing the analysis of the Manual Data Analysis Procedure (MDAP) technique, the researchers visualized the data using memos to describe the research data points that had been analyzed by coding. Memos are created using Kumu.io online. Here is the data displayed in Figure 2.

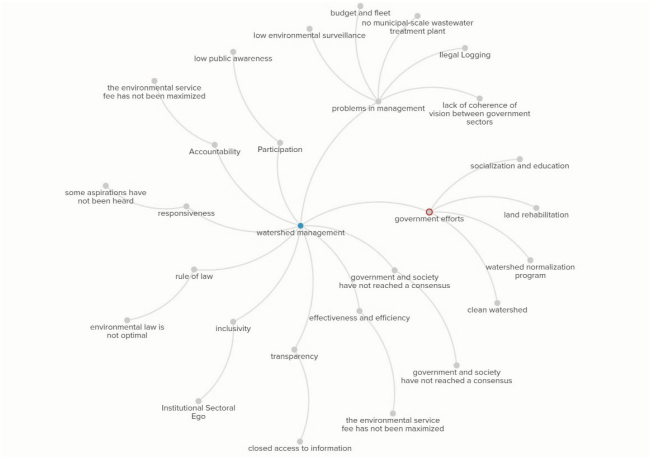

Figure 2. Visualization of the Batang Arau Watershed Management in Padang City Based on Good Environmental Governance

Source: Data processed by researchers (2022)

The results of the memos are an overview of the research data points that have been analyzed using coding techniques. Furthermore, the theme of Good Environmental Governance will be discussed in the discussion section.

3.2. Discussion

3.2.1.Watershed Management Based on Good Environmental Governance

Batang Arau watershed management is analyzed using the Good Environmental Governance Theory, which is described as follows:

a. Theme 1 Participation

The research findings show that the Government has provided a platform for all state elements to participate in managing the Batang Arau watershed. However, from the results of Category #1 Participation, it was found that public awareness was still lacking in paying attention to the cleanliness of the Batang Arau watershed environment. This can be seen with the garbage still scattered and floating in the Batang Arau watershed due to the habit of people who still throw garbage carelessly and dispose of domestic waste, which is channeled just like drainage or river bodies which will later flow into Batang Arau. When the counseling was carried out in various urban villages in Batang Arau, not many people attended because of the community's assumption that the counseling on waste management was a waste of their time and did not generate economic value. Participation is a form of community expression and free association (UN Institute for Training and Research, 2017). Community interactions in environmental management must be juxtaposed with a framework that prioritizes participation (Purniawati et al., 2020). While Ogunkan (2022) describes the word Governance in Good Environmental Governance as broader in scope than the word Government, the power of the community plays a very important role in whether or not environmental governance is good. For this reason, it is important for the Batang Arau watershed management to be on a participatory basis by involving the community in the formulation and planning of the watershed to create a complete framework between the Government and the community so that Good Environmental Governance is realized.

b. Theme 2 Legal Certainty

Legal rules are needed in a good environmental management framework (UN Institute for Training and Research, 2017). The rule of law must have certainty so that public confidence in the quality of law enforcement can be achieved (Abreu et al., 2022). The findings show that investigations from community members of NGOs still encounter obstacles in carrying out control functions, such as information that is difficult to obtain regarding waste pollution in the Batang Arau stream. Lemos and Agrawal (2006), as an example, Good Environmental Governance is a government activity to form political relations, agreements, and regulations with environmental NGOs in achieving the results of environmental protection actions. The government needs to devise a win-win solution that forms a legal policy or a Button Up policy by involving all relevant elements in Batang Arau. The government, as the most influential power holder in the country, needs to implement legal products that reach all state actors and create policy products that can protect the watershed environment as an effort to interpret the principles of Good Environmental Governance in Watershed Management.

c. Theme 3 Transparency

Ludwig (2001) and Armitage et al. (2012) explained that Environmental Governance emphasizes environmental management, which must have openness, rights, and social norms for the community to find joint solutions to environmental problems. The data findings explain that the openness has not been fully implemented by the beneficiaries of water resources in the Batang Arau watershed. Access to information from the openness of waste is not yet fully open; therefore,

there is a need for a formula to bring together discussions from all elements of the country, consisting of the Government, NGOs, the community, and the private sector, to discuss the openness of water utilization activities in the Batang Arau watershed. Community and government control is required to create waste information disclosure. Waste monitoring can also be carried out by involving multi-agents by adding technology as a standardization tool in data collection, and data storage is more efficient in environmental monitoring (Cristani et al., 2020). Monitoring of the Batang Arau watershed can be carried out using technology assistance to monitor the quality of the watershed regularly. Technology will create integrated supervision if the city government displays the monitoring to the public so that all elements of the country have the same vision to open transparency from the waste disposal that occurs in Batang Arau.

d. Theme 4 Responsiveness

The study results show that the Government's response or responsiveness in managing the Batang Arau watershed is quite good in receiving input from the community members of NGOs and communities. Although from the transcription data, it was also found that there were several aspirations that the relevant institutions had not heard regarding the aspirations of the community in the downstream social economy and tourism management in Batang Arau.

The study results show that the Government's responsiveness in managing the Batang Arau watershed is divided into several perceptions, namely good and bad, of the community's aspirations and NGOs. The Batang Arau River Care Community (KPS), as a community representative, appreciates the City Government for being willing to listen to the aspirations of the community and being quick to respond to public complaints about Batang Arau's condition, but for development aspirations and those related to the welfare of the community, the Government does not provide a quick and good response in addressing these social aspects. Furthermore, as told by informant P9 as the head of the community, the community along the Batang Arau watershed is apathetic about the Government's performance because of the many political agendas in the attention of figures or candidates, for example, against Batang Arau. "Every year, many political figures come to see the condition of the watershed and promise to improve the Batang Arau watershed area, but after they took office, it was simply forgotten," said the P9 informant.

In the GEG Principles explain that the Government responds to the aspirations of all stakeholders in a reasonable time (UN Institute for Training and Research, 2017). Huq et al. (2020, as cited in Sarker et al., 2021) said Good Environmental Governance also emphasizes creating participation rights, access to information, and justice. To create the right to participation, access to information, and justice, the Government, the public, and the private sector need to have a space or forum that prioritizes communication between sectors to discuss environmental management in Batang Arau.

e. Theme 5 Consensus Oriented

The research findings found no consensus between the government and the community regarding managing the Batang Arau River Basin. The government and the community still debate the placement of garbage containers. UN Institute for Training and Research (2017) requires that good environmental governance must accommodate differences of interest that are resolved by consensus. Whereas Jeffery (2005) said that Environmental Governance is a relationship of interactions, structures, procedures, and conventions between government and non-government, resulting in responsibility in environmental decisions. The consensus that has not occurred between the community and the government in managing clean waste in the Batang Arau watershed should be resolved by establishing a convention between the government, the private sector, and the community discussing environmental management and maintaining river cleanliness to form interactions, structures, and

procedures in existing conventions in the community so that a common consensus is formed among stakeholders.

The research findings found no consensus between the government and the community regarding the management of the Batang Arau Watershed. There is no consensus between the government and the community regarding waste containers, which has not found a bright spot. The government and the community still debate the placement of garbage containers. UN Institute for Training and Research (2017) requires that good environmental governance must accommodate differences in interests resolved by consensus. The lack of consensus between the government and the community is caused by the community refusing to place garbage containers in their environment. It causes unpleasant odors and rodents that can enter people's homes, even though the absence of garbage containers will result in waste being dumped in river bodies and carried away by the river, which is the work of the people themselves who practically throw garbage in river bodies even though the people there argue that it is not them who throw garbage but people outside the environment but still the consensus between the community and the government on environmental management has not reached an agreement, as seen from the results. The researcher observed that after interviewing the informants, the researcher found the same thing that the government conveyed. Piles of garbage are not processed and are left alone in river bodies. Until now, the government has not found a solution to achieving environmental consensus in the Batang Arau watershed.

Figure 3. Pile of Garbage in the Batang Arau Watershed

Source: Research document retrieved on March 10, 2022

Furthermore Jeffery (2005) says that Environmental Governance is a relationship of interactions, structures, procedures, and conventions between Government and non-government which results in responsibility in environmental decisions. The consensus that has not occurred between the community and the Government in the management of clean waste in the Batang Arau watershed should be resolved by forming a separate convention between the Government, the private sector, and the community discussing environmental management and maintaining river cleanliness to form interactions, structures and procedures in the conventions that exist in the community so that a common consensus is formed among stakeholders.

f. Theme 6 Inclusivity

Good governance institutions must carry out the work system evenly, and there is no particular interest behind it (UN Institute for Training and Research, 2017). The research findings explain that the Sector Ego between the sectors of the Padang City Government, which has the authority to manage the Batang Arau watershed, is still happening. In the interview, a source from the government also said that sectoral ego is still an obstacle for the government to plan for the management of the Batang Arau watershed. Ulum and Ngindana (2017) stated that Environmental Governance refers

to making environmental management decisions based on inclusiveness that forms the basis of Good Governance. If the Sectoral Ego still occurs in the management of the Batang Arau watershed, it can be said that the management of Batang Arau has not yet realized Good Governance, which Good Governance is the genus of Good Environmental Governance. A Watershed is a complete ecosystem consisting of upstream and downstream (Halim, 2014); good governance involves all elements of the state without exception (Maksudi, 2017). Therefore, a complete institution is needed to manage the Batang Arau watershed.

All informants from the government in the interviews that were conducted agreed that there was indeed a sectoral ego between government institutions; for example, in the management of Batang Arau from upstream to downstream, it was not addressed or managed by only one institution, but there were several institutions that managed it. It was divided from the Central level, Province, and City. Because of this, the sectoral ego of each institution appears, which feels that it is the authority of the center or the authority of the Region, so parties outside the authority feel that it has nothing to do with their work, even though watershed governance refers to the cooperation of actors (individuals or institutions) as a whole (Hanlon, 2017).

A Watershed is a complete ecosystem consisting of upstream and downstream. Therefore, a complete institution is needed to manage the Batang Arau watershed. As well as strengthening the Padang City Watershed Forum, it must be strengthened again by creating a joint framework for managing the Batang Arau watershed so that there is no overlap of interests and ego of authority over the Batang Arau watershed area.

g. Theme 7 Effectiveness and Efficiency

Good environmental governance has the function of maintaining a balance in using natural resources as well as possible. UN Institute for Training and Research (2017) requires that natural resource management actors need to pay attention to environmental sustainability. In the field findings, the long bureaucracy resulted in the slow management of the Batang Arau watershed in maintaining the river's cleanliness. The village head and the community must send a letter to the relevant parties and wait a few days for a reply or river cleaning action. The importance of effectiveness and efficiency in environmental management is also explained by Ulum and Ngindana (2017) who said that the management of the environment and natural resources should pay attention to the principles of work effectiveness and efficiency. River cleaning in the Batang Arau watershed is not efficient. Since the main tasks and functions held by the Environment Agency cover all waste cleaning in Padang City, the main focus of the Environmental Service is to clean up garbage in containers and urban roads. Inadequate facilities and fleets have resulted in suboptimal monitoring of the cleanliness of the upstream and downstream rivers of the Batang Arau watershed. Therefore, it is necessary to decentralize authority to urban villages or districts in Padang City so that they have special officers for waste management and environmental monitoring.

h. Theme 8 Accountability

Everything that is done certainly has a responsibility in the decision-making process for the actions taken. Like taking existing natural resources, of course, as an activity actor, they should take responsibility for reducing the value of the source taken. Government agencies and relevant stakeholders must have responsibilities to those who are the recipients of their decisions and actions (UN Institute for Training and Research, 2017). The findings in the field show that the payment of environmental services, which is the responsibility of the actors in the utilization of water resources in the Batang Arau watershed and its environment, has not been carried out optimally. Belbase (2010) revealed that accountability must ensure the provision of social responsibility must be made in a provision and regulation in a constitution. Indonesia already has constitutional rules that regulate the basis for environmental responsibility contained in Law No. 32 of 2009 concerning Environmental Protection

and Management, which contains rules regarding payment of environmental services, but the implementation of the rules in the field has not been maximally carried out. Nature is often the victim of economic development in meeting human needs. Environmental impact assessment procedures are often bypassed to prevent companies from spending money on environmental preservation. However, it is the responsibility of foreign companies or investors to protect and maintain the environment in which they enjoy the results of natural resources because human and natural rights are also included in the environmental system they exploit (Tamayo-Álvarez, 2020).

3.2.2.Constraints and Stakeholder Efforts in the Management of the Batang Arau Watershed, Padang City

Constraints and efforts in the Batang Arau watershed are as follows; The first is to carry out outreach activities and appeals to communities.

First, the obstacle is that people's low awareness is still a point that cannot be resolved until now. Therefore, appeals and prohibitions are ignored by the community. Another obstacle is that supervision is still not maximized in environmental monitoring of the pollution of the Batang Arau watershed. To overcome this, the government carried out outreach activities and appeals to residents living along the Batang Arau watershed. Based on the findings in the field, the form of counseling and appeals was carried out by visiting villages along Batang Arau.

The next obstacle occurs in the budget and a lack of fleet. Another obstacle is that there are no facilities for installing integrated wastewater treatment and integrated sanitation in the city, which causes domestic waste from the community and MSME actors to flow directly into the river. So far, efforts have been made by the government to maximize the existing fleet and routinely clean and dredge the Batang Arau watershed manually. This effort is carried out so that the river flow remains clean and overcomes the buildup of sediment and domestic and industrial waste downstream of the river.

Watershed management that is not integrated is an obstacle in the Batang Arau watershed because there is no unified vision between government sectors regarding the management of the Batang Arau watershed. Another obstacle is inter-sectoral coordination in the management of the Batang Arau watershed. Integrated coordination and management are common obstacles in watershed management based on research from Thapa et al. (2022), who also explained that the management of watersheds in Nepal also has problems with the coordination system between stakeholders and institutions that are not integrated into their work systems. The current efforts made by the government are making the Batang Arau watershed normalization program to improve Batang Arau management. Programs such as the Waste Management of Batang Arau River program and the one river, one plan, and one management program are Government programs to improve Batang Arau from the managerial system.

Gold mining activities, mining for cement-making materials, and land clearing are examples of illegal logging activities in environmental management in the upstream Batang Arau watershed. Social and economic aspects play a major role in the government's constraints in managing the Batang Arau watershed. So far, the efforts made by the government, represented by BPSDHAL Agam Kuantan and the Forestry Department, are to rehabilitate critical lands.

So, the constraints that occur in Batang Arau, the government needs to conduct a special study on how to create Batang Arau watershed management which refers to a framework between all elements, namely Government, Private, and Community, offered by certain researchers. City Government needs to include elements of Good Environmental Governance in Watershed Management to create sustainable management.

4. Conclusion

As one of the ecotourism icons of Padang City, the Batang Arau Watershed has water pollution problems that still occur today. The results showed that the management of the Batang Arau watershed in Padang City has not been based on Good Environmental Governance. Low public awareness, environmental law protection regulations that have not been implemented, sectoral egos between stakeholders, long bureaucracy, and low environmental responsibility from beneficiaries of the Batang Arau watershed flow are illustrations of Batang Arau watershed management. Technical and structural constraints are also obstacles to managing the Batang Arau watershed. In addition, the Government continues to make efforts to normalize the river, such as making special programs, repairing critical land in the upstream part, and continuing to socialize and appeal to the community to protect the environment from overcoming the obstacles that occur in Batang Arau.

A Watershed is a system consisting of upstream, tributary, and downstream parts directly adjacent to the open sea. Therefore, all activities related to managing the watershed environment must pay attention to the whole part of the ecosystem that includes it. To create a balance between human rights and the watershed environment, the Government must reform environmental governance by taking into account the aspects of Good Environmental Governance. Good Environmental Governance can be implemented if all elements of the country, consisting of the Government, the Community, and the Private Sector, can work together to manage the Batang Arau Watershed.

Acknowledgment

We would like to express our gratitude to the mentors in this research, namely Mr. Aldri Frinaldi, S.H., M.Hum., PhD., and all parties involved in this research process.

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