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IMPLEMENTATION OF THE SIAK RIVER BASIN MANAGEMENT PROGRAMME IN THE CITY OF PEKANBARU

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Abstract
This study is motivated by the pollution of the Siak River in Pekanbaru City, caused by the large amount of waste in the Siak River Basin (DAS) and frequent flooding due to high rainfall and inadequate water retention capacity. Additionally, the low public awareness of maintaining river cleanliness poses a challenge for the government. To address this issue, the government launched the Siak River Basin management program. This study aims to describe and analyze the implementation of the program and identify the inhibiting factors. The method used is qualitative research with the MSN approach (Mentality, System, and Networking). Data were collected through observation, interviews, and documentation. The results indicate that the program's implementation has not been optimal due to several obstacles, including limited budget, inadequate land availability, low public awareness, ineffective socialization, and poor coordination among institutions. This study provides recommendations to improve the effectiveness of the Siak River Basin management program.
Keywords: Program Implementation, Siak River, Management.

Abstrak
Penelitian ini dilatarbelakangi oleh pencemaran Sungai Siak di Kota Pekanbaru yang disebabkan oleh banyaknya sampah di Daerah Aliran Sungai (DAS) serta seringnya banjir akibat curah hujan tinggi dan kapasitas tampung air yang kurang memadai. Selain itu, rendahnya kesadaran masyarakat dalam menjaga kebersihan sungai menjadi tantangan bagi pemerintah. Untuk mengatasi hal tersebut, pemerintah meluncurkan program pengelolaan DAS Siak. Penelitian ini bertujuan mendeskripsikan dan menganalisis implementasi program tersebut serta mengidentifikasi faktor penghambatnya. Metode yang digunakan adalah penelitian kualitatif dengan pendekatan MSN (Mentality, System, dan Networking). Data dikumpulkan melalui observasi, wawancara, dan dokumentasi. Hasil penelitian menunjukkan bahwa implementasi program belum optimal karena beberapa kendala, antara lain keterbatasan anggaran, lahan yang tidak memadai, kurangnya kesadaran masyarakat, sosialisasi yang kurang tepat sasaran, serta koordinasi antar lembaga yang kurang efektif. Penelitian ini memberikan rekomendasi untuk meningkatkan efektivitas program pengelolaan DAS Siak.
***Kata kunci**: Implementasi Program, Sungai Siak, Pengelolaan*

INTRODUCTION

The environment is a complete unit that includes all physical elements, powers, conditions, and living things, including humans and their actions, that affect nature itself, which ensures the continuity of life and the welfare of humans and other living beings, as stated in Law Number 32 of 2009 Article 1 paragraph 1 concerning Environmental Protection and Management (Ine Ventyrina, 2020). If the environment is damaged, then the ability of humans to meet their living needs will be disrupted. A damaged environment can no longer support life effectively. From a human point of view, there is a reciprocal relationship between humans as part of the environment and the environment itself. Almost every human action has an impact on the environment, and almost every event that affects an individual can be traced back to the influence of the surrounding environment.

One of the natural environments that needs to be preserved by humans is watersheds (watersheds). A watershed is an area formed by an integrated system of its rivers and tributaries, which function to accommodate, store, and channel rainwater naturally into lakes or seas. As a resident who lives in Riau, you definitely know the Siak watershed. The river, which has a length of 370 km, passes through 5 areas in Riau Province, namely districts and one city administrative area, namely Rokan Hulu Regency, Bengkalis Regency, Siak Regency, Kampar Regency, and Pekanbaru City.

The Siak River has important benefits to meet the various needs of the people of Pekanbaru City, especially people living in the Siak watershed, which includes water transportation infrastructure, clean water sources, and trade activity centers that are the livelihood of some people, and for some others it is a place to carry out daily activities such as washing clothes, washing dishes, and bath. Therefore, the Riau Provincial Environment and Forestry Service has created a Watershed Management Program (DAS). This program is located in the Riau Governor's Regulation document Number 30 of 2022 concerning the Strategic Plan (RENSTRA) of the Regional Apparatus within the Riau Provincial Government for 2019-2024. The Watershed Management Program is to achieve effective management and use of natural resources and land while maintaining the sustainability and balance of ecosystems in Watersheds (DAS), so all stakeholders involved in Watershed Management must carry out their activities responsibly and in coordination with other related parties.

The Siak Watershed Management Program is under the authority of the Indragiri Rokan Watershed and Protected Forest Management Center (BPDASHL). BPDASHL Indragiri Rokan is a technical implementation unit under the Directorate General of Watershed Management and Forest Rehabilitation, Ministry of Environment and Forestry of the Republic of Indonesia, which is tasked with managing and rehabilitating watersheds and protected forests in the working area that includes the Siak watershed and several other watersheds in Riau Province. The duties of BPDASHL Indragiri Rokan include the preparation and evaluation of watershed management, the implementation of forest and land rehabilitation, soil and water conservation, and institutional strengthening of watershed management.

Then, the urgency of the Watershed Management (DAS) program, namely where strategic efforts have been planned by the Riau Province as stated in the Regional Medium-Term Development Plan (RPJMD 2018-2025) which includes: (1) Ensuring the consistency of the implementation of sustainable spatial planning with an environmental perspective based on Watersheds (DAS), (2) Implementation of pollutant load allocation for the recovery of Pollutant Load Capacity (DTPB), (3) Carrying out Land Rehabilitation and Soil Conservation through Revegetation, and (4) sustainably improving the community's economy.

In the implementation of the Siak Watershed Management program, there are several parties involved in the implementation of the management. Here are some of the parties involved and their respective responsibilities.

1. The Indragiri Rokan Watershed and Protected Forest Management Agency is responsible as an institution that has authority in the Siak watershed, which plays a role in the conservation and rehabilitation of critical land in the Siak watershed and the reforestation and reforestation of the Siak watershed.
2. The City Environment and Hygiene Agency plays a role in reforestation and watershed reforestation, granting and revoking permits, reforestation and reforestation of watersheds, monitoring the quality of water pollution, and supervising solid waste and liquid waste.
3. The Sumatra River Region III Center is responsible for the development of infrastructure in the water sector.

However, in the process of implementing the management of the Siak Watershed, there are several problems, especially in the city of Pekanbaru. This is because the city of Pekanbaru is currently the center of people's lives and is a watershed area with the largest number of people that continues to grow every year. It should be noted that excessive use of forest land can cause major floods if the Siak River overflows when rain continues to pour over the Pekanbaru city area, because there is no longer a water capacity from rain and rivers. As a result, most of the areas in this watershed can no longer function as a refuge. The real impacts of this exploitation include flooding, the magnitude of soil sedimentation in water bodies, large erosion rates, and river siltation. If pollution occurs, it will result in as many as 511,653 residents being affected by the pollution.

In addition, solid waste such as plastic, broken glass, paper, and other waste is also often found in rivers. Then, if these piles of garbage are not immediately overcome through the Siak watershed management program, it will endanger the ecosystem around the Siak watershed. Then, apart from solid waste, there is still liquid waste that flows into the Siak River in Pekanbaru City, which occurs due to weak supervision and monitoring of waste flow from the industrial and household sectors. Public awareness is also the main problem in the implementation of the management of the Siak watershed in the city of Pekanbaru. There are still many people who do not care about environmental cleanliness, for example, throwing garbage carelessly, washing vehicles in rivers, and doing activities that can damage the environment. People who live in the Siak watershed still use the Siak river water for survival, such as bathing, washing, and a lot of people fishing and fishing

for their daily needs. Therefore, based on the phenomenon that has been described, based on the research, the researcher has the goal of describing and analyzing the implementation of the Siak watershed management program in the city of Pekanbaru, and to describe what are the inhibiting factors that affect the implementation of the Siak watershed management program in the city of Pekanbaru.

METHOD

Research methodology, which comes from the word "method," which means a means or technique, and "logos," which means science, refers to the study of the method or approach used to conduct research. Research methods are a way of collecting data to find or estimate the truth, as well as a way to examine, analyze, and understand the environmental conditions of the research site. This research uses a qualitative research approach. The purpose of qualitative research is to provide a detailed and comprehensive description of the observable speech and behaviors of the specific individual, group, community, or organization being studied (Pangestu, 2020).

The location of the research was carried out in the city of Pekanbaru, as one of the areas that is drained by the Siak River. The reason the researcher chose Pekanbaru City as the research location is that Pekanbaru City is located in a strategic area, where Pekanbaru City is the capital of Riau province, with a large population and continues to increase every year. In this study, primary data was obtained through interviews with informants from agencies, namely the institutional development section of the watershed and protected forest management agency Indragiri Rokan, the young expert forest ecosystem controller of the Riau Provincial Environment and Forestry Service, the functional section of the young environmental impact control of the Pekanbaru City Environment and Hygiene Service, the staff of the Water Resources Management of the Sumatra River Region Center III, and people living in the Siak watershed, Pekanbaru City. Meanwhile, the technique in data collection is that the researcher uses interviews, observation, documentation, and data analysis techniques.

RESULTS AND DISCUSSION

Implementation of the Siak Watershed Management Program in Pekanbaru City

The Siak watershed management program (DAS) is a program sought by the government to manage and utilize natural resources and land to the maximum while maintaining the preservation and balance of the ecosystem in the watershed. Therefore, it is hoped that all agencies/institutions that have a role in the implementation of the watershed management program are obliged to carry out the program measurably and harmoniously, and that collaborate and coordinate with other institutions. This program is located in the Riau Governor's Regulation document Number 30 of 2022 concerning the Strategic Plan (RENSTRA) of the Regional Apparatus within the Riau Provincial Government for 2019-2024.

The Siak watershed is currently a priority watershed because it is experiencing critical conditions caused by river flows with a rapid rise in floodwater levels. Currently, the management of the Siak watershed has not been implemented comprehensively; therefore, there is a need for a study related to the management of the Siak watershed,

which has an impact on flood risk in the surrounding environment. It is hoped that the realization of this strategy will reduce and minimize the risk of using land use that is used irregularly, so that it causes environmental damage in the Siak watershed area, and must be managed sustainably.

Mentality Approach

Yulianto Kadji explained that in the context of policy implementation, the mentality approach examines how policy outcomes can affect and change the behavior of officials (both policy makers and implementers), business actors, and the community as policy targets. The key indicators assessed include attitudes, behaviors, and a sense of responsibility of the implementers of the Siak watershed management program in Pekanbaru City. The absence of a special allocation of funds provided by BPDASHL Indragiri Rokan for socialization shows that this important aspect has been neglected in program planning. The current approach, where socialization is only carried out by each stakeholder, indicates a lack of coordination and an integrated communication strategy. This has the potential to lead to information and understanding gaps among the various parties involved or affected by the program. The absence of specific socialization for the program also raises questions about the effectiveness and reach of the program. Without structured socialization efforts, there is a risk that important information about the program is not conveyed well to the target audience or the community that should benefit.

The management of the Siak Watershed (DAS) involves various socialization activities, discussions, and the collection of input from all stakeholders. This process aims to ensure that all parties involved have a common understanding and actively participate in watershed management. However, there are several obstacles faced in the evaluation and monitoring process. Although the evaluation report for 2022 has been thoroughly prepared, this process is hampered for 2024 due to budget constraints. This causes evaluation and monitoring to only be carried out separately by each agency based on their respective roles, without thorough coordination. These budget constraints show the need for further attention to support evaluation and monitoring activities in the long term. In addition, a thorough evaluation is important to ensure that all agencies involved can work together effectively and in coordination in managing the Siak watershed.

BWS Sumatra III needs to follow strict procedures and obtain appropriate permits before carrying out any physical activities. This is an important step to prevent potential negative impacts on the environment. Permits such as AMDAL (Environmental Impact Analysis), UKL (Environmental Management Efforts), UPL (Environmental Conservation Efforts), and SPPL (Environmental Violation Notification Letter) are legal requirements designed to ensure that such activities are carried out responsibly and do not damage natural resources. Without these permits, there is a great risk that these activities could cause damage to natural resources, which could harm the ecosystem and the well-being of local communities.

System Approach

The system's approach to policy implementation views it as an integrated unit consisting of various interconnected components that work together to achieve goals. As a result, every policy implemented must be influenced, either directly or indirectly, by the system that surrounds it. This system consists of three main aspects of the regulatory system: the cultural value system, the organizational structure, and the function system. The researcher wants to see how the government's efforts are in implementing the Siak watershed management program. The main focus explained by BPDASHL Indragiri Rokan is on cooperation efforts between the central and regional governments in overcoming the problem of the Siak watershed. This program shows a shared commitment to maintain and improve environmental conditions in the Siak watershed area. The RPDAST has been ratified by the governor and then incorporated into the Regional Medium-Term Government Plan (RPJMD). This shows that there is continuity in the policy, where the programs that have been mutually agreed upon become part of the regional medium-term planning. It is important to ensure that environmental management efforts are not only limited to specific programs, but are also integrated into regional long-term policies and planning. This agreement reflects an understanding that environmental conservation is a shared responsibility that requires an integrated approach from various parties.

The city government tries to arrange the riverside while still respecting and preserving the Malay culture and Islamic nuances that are characteristic of this area. In addition, under the Siak River bridge, the city government has provided playgrounds and relaxation areas for the community. These parks not only function as a recreational space but also as a forum for people who want to sell, thereby improving the economy of the riverside area. It demonstrates the government's holistic approach to managing public spaces, combining aesthetic, social, and economic aspects. The implementation of the program carried out by BPDASHL Indragiri Rokan in the Siak Pekanbaru watershed will only be carried out in 2021 and 2024. In 2021, the activities carried out were the People's Nursery (KBR), which was carried out in Marpoyan Damai as a form of watershed rescue. Then, in 2024, the activity carried out is mass planting with the community in Labersa. After that, activities in the city of Pekanbaru are difficult to carry out because they require a large land, which is at least 25 hectares, which is not available in Pekanbaru. Therefore, activities such as vegetative, water, and soil conservation, and technical civil aspects are not carried out. This limited land is the main reason for not carrying out these activities in the Pekanbaru watershed area.

Furthermore, the implementation of the program carried out by the Pekanbaru City DLHK, namely the handling of river water pollution, is carried out through routine monitoring twice a year, where, for the last two years, the Siak River in Pekanbaru City has been classified as light to moderate. The quality of the river water that is classified as light to medium means that the river has a level of pollution that is not too severe, but it still needs attention and efforts to improve its quality. This monitoring is carried out by taking river water samples to be tested for quality. In addition, DLHK's efforts to

overcome river water pollution are only through Communal Wastewater Treatment Plants (WWTP) that have been built in several locations.

The government cleans up the river on an irregular schedule, so its effectiveness is doubtful. Then there was also the cleaning of clogged sewers, but with one existing Temporary Disposal Site (TPS), the waste problem remains a big challenge. Piles of garbage that accumulate at polling stations are often not transported by the government regularly, causing the garbage to be carried away by the wind or fall into the river, until it ends up piling up on the riverbank.

BWSS III's efforts in dealing with flooding problems in the Siak Pekanbaru watershed, with an emphasis on making flood pumps as a solution to reduce waterlogging. A flood pump is a device used to move water from an area that has been flooded due to flooding to a disposal site such as rivers, lakes, or other waterways. This system is essential to control and reduce the impact of waterlogging in flood-prone areas, both in residential, industrial, and public facilities. The periodic maintenance of the Sei Sail flood canal in 2022 shows the important steps taken to deal with the flood problem that often occurs due to river overflows. This maintenance includes the normalization of the river, which aims to improve water flow and reduce the risk of flooding in the surrounding area. However, although these activities have been implemented, it is important to note that no additional normalization has been carried out in the last three years. This indicates potential problems in the planning and implementation of sustainable programs.

Networking Approach

The collaborative networking approach is designed to serve the public interest by emphasizing synergies among stakeholders involved in public policy. From a public policy perspective, this synergy and collaboration are based on cooperation between key parties to advance the common good. Such a collaborative network can only succeed if all parties respect each other and support each other's roles and contributions. BPDASHL Indragiri Rokan emphasized that the communication that has occurred so far tends to be formal and limited to certain moments, such as the ratification of activities. This shows that there is a lack of deeper collaboration between the agencies involved. BPDASHL Indragiri Rokan also explained that each agency tends to return to carrying out its roles and responsibilities separately without any effort to support each other.

DHLK Pekanbaru City also explained that cooperation between agencies only occurs in the context of certain projects, such as the construction of Wastewater Treatment Plants (WWTP) by PUPR or BWSS III. In this situation, each party has a clear and separate role, namely, infrastructure development and waste treatment. However, outside of these projects, interagency interaction appears to be minimal, with each party focusing more on individual tasks without any effort to support each other or collaborate further. BWSS III explained that each party has an important and complementary role, considering the complexity of the problems faced in watershed management. For example, the Pekanbaru City Environment and Hygiene Agency (DLHK) has the responsibility to maintain water quality and prevent river pollution, while the other party is responsible for the physical infrastructure that serves to regulate water flow and convert rainwater. BWSS III also

emphasized that if only one party, such as DLHK, tries to maintain water quality without any support from other parties in dealing with the problem of excess rainwater, then problems such as flooding will still occur. Overall, the synergy in watershed management is quite good, as this program requires close collaboration between all stakeholders to face complex challenges. Synergy between parties is very important because each role that exists is complementary and cannot stand alone.

Thus, it can be concluded that the provisional results of the implementation of the Siak Watershed Management Program in Pekanbaru City show that its implementation has not gone well. This is evident from the lack of approach taken by the implementers to the community, which results in the inability to convey information and education related to the management of watersheds effectively. In addition, there are also indications that the ability of implementers to carry out tasks and functions in accordance with the plan that has been set is still very limited. As a result of this shortage, the current condition of the Siak river can still be categorized as polluted, which is reflected in the accumulation of garbage along the river banks and also often floods in Pekanbaru, especially in the Siak watershed area, which has a detrimental impact on the community. This phenomenon not only reflects failures in environmental management but also shows a direct impact on the lives of the people who live around it. Furthermore, the lack of coordination between agencies in the Siak watershed management process adds to the complexity of this problem. The absence of regular evaluation or monitoring indicates that there is no systematic effort to assess the effectiveness of ongoing programs. In addition, the lack of meetings between various stakeholders, which is limited to ceremonial events, creates a communication and collaboration gap that is very much needed for the success of watershed management.

BPDASHL Indragiri Rokan, as the authorized institution in the Siak watershed, needs to take more proactive and innovative steps, including strengthening cross-sector coordination and increasing transparency and accountability in program implementation. Without effective and synergistic action, various problems such as repeated floods, pollution, and damage to the Siak watershed ecosystem in Pekanbaru will be difficult to overcome completely. Therefore, BPDASHL Indragiri Rokan must position itself as the main driver who can integrate technical, institutional, and social aspects in watershed management in a sustainable manner to realize the optimal function of the watershed and the welfare of the community in the region.

Factors Inhibiting the Siak Watershed Management Program in Pekanbaru City

Socialization to increase public awareness is not on target

In the implementation of the Siak Watershed Management Program in Pekanbaru City, it will ideally achieve effectiveness if the policy is successfully delivered to the right target group because of the regulations issued based on the public interest, it is important for this target group not only to receive information, but also to play an active role in realizing the underlying goals of the policy expenditure of the Siak watershed management program in Pekanbaru City. Socialization of environmental management programs, especially related to river pollution, is very minimal. Although there are several initiatives

undertaken by community organizations, the information does not reach ordinary citizens effectively. This reflects a gap in communication between the parties responsible for the program and the communities that should be the beneficiaries. Nevertheless, related parties still try to socialize by holding meetings with community organizations, such as river care communities. This effort reflects an awareness of the importance of community involvement in environmental management issues, although the limited reach of socialization may reduce the effectiveness of such initiatives. Therefore, relevant parties need to formulate more effective socialization strategies so that all levels of society can be educated and participate in protecting their environment.

Lack of Adequate Land

One of the destructive impacts of the unmanaged Siak watershed in Pekanbaru City is the vulnerability of the surrounding area to flooding, especially when rainfall is very high. Theoretically, it can be anticipated by reforestation or forest conservation so that rainwater that falls continuously will be stored in trees that have been planted, so that the river does not overflow due to the absence of water storage before descending into the river. However, the problem is that currently, the city of Pekanbaru does not have adequate land. Given that flood disasters have become a priority issue in Pekanbaru, the existence of adequate land is crucial to carry out these activities effectively. Without enough land, rehabilitation and conservation efforts will not be able to be carried out properly, which can ultimately worsen environmental conditions and increase disaster risk.

One of the main problems faced in the city of Pekanbaru is the lack of land, which is increasingly limited due to the dominance of residential areas. This limitation is a serious obstacle to rehabilitation and conservation efforts, because at least 5 hectares of land are needed to implement these programs effectively. Therefore, this situation presents a complex challenge in land management in Pekanbaru, where the need for space for rehabilitation and conservation activities collides with the increasing needs of settlements. Without innovative and collaborative solutions to address these land limitations, efforts to improve environmental conditions and reduce disaster risk will be hampered.

Lack of Public Awareness in Protecting the Watershed Environment of Siak

In the implementation of the Siak Watershed Management Program in Pekanbaru City, ideally, the community is aware of the role and responsibility in protecting the Siak watershed environment so that the environment is not polluted by community activities such as throwing garbage into the river, disposing of household waste and factory waste directly into the river, and so on. The Pekanbaru City DLHK emphasized that their role alone is not enough to deal with this problem; active participation from the community is needed to maintain the cleanliness and health of the river. Without support and awareness from the community, the efforts made by the Pekanbaru City DLHK will be in vain and will not have a significant impact. This situation reflects a larger challenge in environmental management, where the success of a program depends not only on the actions of a particular government or institution but also on the involvement and

commitment of the community. Therefore, there is a need for further action or efforts from the government to approach the community to provide education related to maintaining the cleanliness of the river.

Lack of coordination between agencies

In the implementation of the Siak Watershed Management Program in Pekanbaru City, ideally, coordinating institutions, including BPDASHL Indragiri Rokan, BWSS III Pekanbaru City, DLHK Pekanbaru City, and the community must coordinate and collaborate effectively with each other, because the success of program implementation often depends on effective collaboration between various institutions. This inadequacy can be seen from the lack of meetings to discuss the activities to be carried out, as well as the lack of systematic evaluation and monitoring. Without adequate forums or mechanisms to share information and conduct joint evaluations, the potential to achieve optimal outcomes will be hampered. Therefore, it is important for all relevant parties to strengthen cooperation and create better communication channels, so that the management of the Siak watershed can be carried out in a more integrated and sustainable manner.

CONCLUSION

The process of implementing the Siak Watershed (DAS) management program in Pekanbaru City has not been carried out properly, this can be seen from the MSN-Approach theory which contains the Mentality Approach which has not been optimally implemented due to the lack of responsibility in maintaining the watershed environment and the attitude of stakeholders in carrying out management in accordance with Government Regulation Number 37 of 2012 concerning watershed management, then the lack of approach taken by stakeholders to the community. The System Approach is not good because in reality in the field problems related to river pollution, especially flood problems, are still the main problems experienced by the community, and the system implemented is also less than optimal in empowering the community and the Networking approach is not optimal due to the lack of an inter-institutional approach such as the absence of further evaluation or monitoring and the lack of meetings held related to the problems that are currently occurring. There are 5 obstacles to the implementation of the Siak watershed management program in Pekanbaru City. The first is related to the lack of socialization to increase public awareness that is not on target, the second is the limited amount of adequate land, the third is the low awareness of the community in protecting the Siak Watershed Environment, and the fifth is the lack of coordination between institutions.

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