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Evaluation of Policies to Reduce Flooding Issues in the City of Palembang

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Flood management; Policy evaluation; Urban planning; Community participation.

Abstract: This article aims to evaluate the effectiveness of government policies in reducing flood risk in the city of Palembang, which is often affected by severe flooding due to low-lying geographic features and inadequate urban planning. This research uses a qualitative descriptive approach to assess the impact of current flood management strategies, focusing on structural and non-structural measures, community participation, and policy implementation. Data was collected through document analysis, interviews with key stakeholders, and direct observation in flood-prone areas. Findings show that although some structural improvements, such as improved drainage systems, have been implemented, they have not been sufficient to address recurrent flooding. Policy gaps, lack of community engagement, and poor maintenance of flood control infrastructure contribute to the city's ongoing vulnerability. This study concludes that more integrated flood management strategies, including better policy enforcement and community involvement, are needed to reduce flood risk in Palembang.

INTRODUCTION

Flooding has become a major environmental problem in many urban areas around the world, exacerbated by rapid urbanization and inadequate environmental management. Recurrent flooding disrupts economic activity and hurts health and infrastructure. Urbanization, especially in lowland areas, is a catalyst for increased vulnerability to natural disasters such as floods. As mentioned (Soegianto, 2009). the environment includes all elements and conditions that influence human life, and damage to any of these components can have widespread effects throughout the ecosystem.

According to the World Bank, urban areas in developing countries are particularly vulnerable due to rapid urbanization, inadequate drainage systems, and poor urban planning (World Bank, n.d.). Flood risk management in these areas requires a comprehensive strategy involving community participation, structural and non-structural measures, and effective policy implementation. In Jakarta, for example, people have adopted innovative adaptation strategies such as increasing house heights, building multi-story houses, and building embankments to prevent flood water from entering houses. This highlights the importance of a community-based approach in disaster management planning, where local participation is key in response and recovery efforts (Dwirahmadi et al., 2019).

Palembang's geographical conditions, such as its low altitude and proximity to the Musi River, further exacerbate the risk of flooding. With 35% of its territory consisting of constantly flooded swamps, the city's drainage system struggles to manage high water volumes during heavy rains (Al Amin et al., 2020). Poor urban planning and inadequate natural resource management lead to recurrent floods that disrupt economic and social activities, making environmental sustainability an urgent problem (Adi, 2013). Similar economic vulnerability is also seen in Klaten, Central Java, where high flood risks have a detrimental impact on local incomes and employment, emphasizing the need for a more comprehensive approach to increasing economic resilience (Isa & Mardalis, 2022).

Table 1. Drainage District in the City of Palembang

Daerah Drainase	Luas Area(km²)	Daerah Drainase	Luas Area(km²)	Daerah Drainase	Luas Area(km²)
Bendung	19.5	Kedukan	4.0	Keramasan	25.9
Buah	12.1	Boang	8.3	Gandus	14.5
Sekanak	11.9	Lawang Kidul	1.7	Gasing I, II	32.6
Lambidaro	64.5	Juaro	6.1	Nyiur	13.1
Borang	58.2	Batang	4.3	Sei Lincah	5.1
Sriguna	3.0	Jakabaring	12.4	Plaju	6.0
Aur	5.3	Kertapati	5.5	Rengas-Lacak	6.1

Source: Researcher Data Processing

Flood management in Palembang is inherently linked to urban planning and land use policies. The main concept of this research centers on evaluating government policies in reducing flood risk, analyzing their effectiveness, and identifying areas that require improvement. Flooding in urban areas such as Palembang is a complex problem influenced by environmental degradation, human activity, and policy misalignment. According to (Alia et al., 2018), the city's topography and inadequate drainage system contribute significantly to frequent flooding events. The need for land, driven by population growth, is leading to the reclamation of wetlands and green spaces that naturally serve as water absorption areas, reducing cities' ability to reduce flood risk.

Urban settlement patterns in Palembang are the focus of research in efforts to reduce flood risk. Yusuf et al (2023) proposed using swamp land in Kertapati for sustainable water management, emphasizing the importance of collaboration between the government, community, and the private sector. This approach, together with structural measures such as improving the drainage system, highlights the importance of integrated solutions (Yusuf et al., 2023). Additionally, inappropriate land use for commercial and residential development reduces the natural ability of cities like Palembang to manage flood risk, highlighting the importance of policy enforcement and public education (Alia et al., 2018). Community participation has proven effective in reducing risk, as seen in Jakarta, where local efforts play an important role in urban flood adaptation (Dwirahmadi et al., 2019).

Research on evaluating flood policies in Palembang is very important considering the city's vulnerability to frequent and detrimental floods. Persistent flooding not only disrupts daily life but also poses significant health and safety risks to residents. Data shows that flooding affected many sub-districts, including Alang-Alang Lebar and Ilir Timur I, with water levels reaching 70 cm during flood events, severely disrupting mobility and access to essential services (BPS, 2023). In coastal cities such as Surabaya, tidal flooding adds further risk, with research on Kenjeran Beach highlighting the need for comprehensive mitigation strategies using Geographic Information Systems (GIS) to improve flood vulnerability mapping and planning (Agustina & Prasita, 2023).

Political factors further complicate flood management, with studies such as (Shatkin, 2019) showing how urban water management interacts with politics, influencing property rights and urban development. These interactions highlight the need for policies that consider not only environmental factors but also social dynamics, to ensure effective flood management in urban

environments. Weaknesses in flood management in Palembang reveal a gap between policy formulation and implementation, as seen in other cities such as Pontianak, where geospatial analysis shows the importance of infrastructure in managing flood impacts (Farhan & Adi, 2023).

Additionally, climate change is increasingly threatening, with predictions of more intense rainfall and rising sea levels. This could worsen an already critical situation in cities like Palembang. Understanding the interactions between urban development, environmental management, and flood risk is critical to developing sustainable policies that can reduce the impact of these natural disasters. Research shows that traditional protection measures are often inadequate and can even create new flood risks, so a more proactive and adaptive approach is needed, especially in the face of climate change (Molenveld & van Buuren, 2019).

Flooding in Palembang is driven by a combination of natural and human factors, with inadequate urban planning and ineffective environmental management playing a significant role. Municipal drainage systems, designed to manage lower water volumes, are often overwhelmed by inadequate maintenance, and blocked by trash, and sediment buildup. The situation is exacerbated by the rapid conversion of swamplands into built-up areas, which reduces the city's natural capacity to absorb rainwater. According to data from the Palembang Public Works Department of Highways and Water Resources Management, there are 66 priority flood zones with water levels ranging from 20 to 70 cm in 2020.

Additionally, community behavior, such as throwing rubbish into rivers and drainage canals, exacerbates the problem, causing blockages that reduce drainage efficiency. Hoirisky et al., (2018) highlight this behavior as a contributing factor to increasing flood frequency. The combination of poor infrastructure, environmental mismanagement, and ineffective policy implementation reveals a large gap between the theoretical concept of flood management and its application in practice. This is further strengthened by the need for a holistic strategy that integrates technical measures with policy reforms to ensure that flood risk reduction efforts are effective and sustainable (Hoirisky et al., 2018).

Figure 1. Community behavior in throwing rubbish and materials into rivers
Source: Field Documentation

Several studies have explored the factors that contribute to urban flooding, especially in Southeast Asian cities. Research by (Alia et al., 2018) focuses on the relationship between topography and flood risk, emphasizing the importance of investing in cities like Palembang in sustainable drainage systems. However, despite various efforts, Palembang continues to face major challenges in flood management. Highlights the potential of retention ponds in reducing flooding, but this intervention has proven insufficient in dealing with extreme weather and high volumes of water runoff (Al Amin, 2016). Public awareness and involvement, as shown in research in Jakarta, also play an important role in ensuring the effectiveness of flood risk management strategies (Nawir & Mansur, 2022).

Inadequate waste collection facilities and irregular collection schedules have led to improper waste disposal in open areas, drainage systems, roads, and surrounding water bodies, posing

significant environmental hazards. Developing countries face particular challenges in waste management, often relying on non-scientific and conventional methods due to limited access to more efficient alternatives (Salsabila et al., 2023). Furthermore, the increase in residential development, not accompanied by the provision of adequate public facilities, has resulted in excessive population concentration in certain areas, leading to issues with wastewater, waste, flooding, and a decline in environmental quality. Without clear regulations, developers may prioritize economic gains without considering environmental impacts (Riyanti et al., 2023).

In addition, the role of government policy in addressing flood risk has not been adequately discussed in the existing literature. Most research focuses on technical aspects, such as drainage capacity and water retention, but there is a gap in understanding how policy enforcement and community engagement influence the effectiveness of flood reduction strategies. This gap suggests that a more holistic approach that includes infrastructure improvements and policy reforms needs to be explored to effectively reduce flood risk in urban areas such as Palembang.

The main objective of this research is to evaluate the effectiveness of government policies in reducing flood risk in Palembang. By analyzing current flood management strategies and identifying key factors that influence the success or failure of these policies, this research aims to provide a comprehensive analysis of how urban governance can better address environmental challenges. The novelty of this research lies in its focus on integrating analysis in policy evaluation with technical assessment of flood control measures based on regulatory foundations, an approach that has not been sufficiently explored in previous studies.

This research aims to answer the question of how effective current government policies are in reducing the risk of flooding in Palembang, and what factors influence the success or failure of these policies in reducing the impact of flooding.

RESEARCH METHODS

This research adopts a qualitative descriptive approach, which focuses on evaluating policy measures implemented to reduce flooding problems in Palembang City. This qualitative method is suitable for understanding the effectiveness and challenges in implementing policies from the perspective of various stakeholders, including government officials, community members, and experts in urban planning and environmental management (Sugiyono, 2016).

Data for this research will be collected through several methods, namely document analysis by reviewing existing documents such as government regulations, policy summaries, city planning documents, and flood management reports to collect information about policies related to flood control in Palembang. Conduct semi-structured interviews with key stakeholders, including government officials from relevant departments, urban planners, environmental experts, and community leaders. This interview aims to explore their experiences, perceptions, and views regarding the effectiveness of current flood control policies. Direct observations in flood-prone areas in Palembang to assess the current condition of infrastructure, drainage systems, and community response to flood events.

Data Reduction, data obtained in the field is written or typed in the form of a detailed description or report. Then the report is reduced, summarized and the important things selected. Data reduction takes place continuously throughout the research process. Data presentation is a series of information arguments that enable research conclusions to be made. In qualitative research, data presentation can be done in the form of short descriptions, charts, relationships between categories, and the like. What is most often used to present data in qualitative research is narrative text (Miles et al., 1992).

To ensure the validity and reliability of research findings, namely through triangulation from various data sources, including documents, interviews, and observations, which will be triangulated to strengthen the findings and increase the credibility of the research results. Peer Review, the research process and findings will be reviewed by peers who are experts in urban planning and environmental policy to ensure the accuracy and relevance of the conclusions.

RESULTS AND DISCUSSION

RESULTS

This discussion will outline the main findings from research related to the Evaluation of Policies to Reduce Flood Problems in Palembang City. Based on the data collected, the discussion will aim to evaluate the extent to which the policies that have been implemented can meet the stated goals and targets. the effectiveness of flood control infrastructure, as well as comparing research results with other studies in urban areas that are also vulnerable to flooding. This analysis will also highlight the scientific and practical implications of the findings, with a focus on solutions that can be implemented to increase Palembang's resilience to flooding.

The findings show that the vulnerability of Palembang City to flooding is strongly influenced by its geographical and hydrological characteristics. The city's location along the Musi River, coupled with the dominance of lowland and alluvial land, creates a landscape that is vulnerable to flooding, especially during the rainy season. Data collected from various sub-districts shows that there is inequality in land use, with areas such as Ilir Barat I and Sukarami having dense populations and high levels of built-up land use, thereby exacerbating the risk of flooding (Al Amin et al., 2020). Ineffective drainage systems, coupled with a lack of maintenance of retention ponds, contribute to frequent urban flooding, especially during the peak rainy season. The following is a land use table

Table 2. Land Use Conditions of Each Administrative Region

Kecamatan	Hutan	Rawa	RTH	Kolam	Permukiman	Perdagangan dan Jasa	Perkantoran	Pemerintahan
Ilir Timur I	-	-	0.6	-	170.8	174.9	-	**10.0**
Ilir Timur II	12.7	3.3	8.9	-	1,129.4	26.5	-	-
Ilir Barat I	616.6	581.9	15.4	14.8	1,282.3	-	48.2	**20.0**
Ilir Barat II	-	11.2	0.7	-	348.4	-	-	**0.7**
Seberang Ulu I	2.2	2.9	0.3	-	582.4	-	29.3	-
Seberang Ulu II	1.7	28.3	-	-	595.0	5.3	-	**0.1**
Sukarami	216.6	356.6	-	-	2,302.9	12.4	-	**6.1**
Sako	202.5	132.3	-	-	912.3	5.8	-	**15.0**
Kemuning	-	1.1	0.7	-	578.8	-	45.7	**2.6**
Kalidoni	42.4	-	-	-	1,534.4	-	-	-
Bukit Kecil	-	-	-	-	205.2	-	-	**5.6**
Gandus	926.9	252.7	0.2	0.8	371.9	0.4	2.9	-
Kertapati	51.2	9.8	-	-	378.0	22.3	-	**12.0**
Plaju	0.7	16.3	-	-	517.6	0.8	-	**1.0**
Alang-Alang Lebar*)								
Sematang Borang*)								
Total	2,073.4	1,396.4	26.7	15.6	10,909.4	248.5	126.0	73.1

Source: Author's Data Processing

The problems faced by Palembang are consistent with findings in other urban areas that are prone to flooding. The poor performance of retention ponds and drainage systems in Palembang is in line with challenges identified in Jakarta and other Southeast Asian cities, where rapid urbanization has strained aging infrastructure (Alia et al., 2018). However, this is different from Jakarta, where community-based initiatives are starting to show results in reducing flood risk (Dwirahmadi et al., 2019), Palembang's efforts are still largely structural, relying on retention ponds and drainage systems with minimal community involvement. This gap highlights the importance of integrating structural and non-structural measures to improve flood resilience.

These findings highlight the need for comprehensive flood management strategies that integrate better infrastructure with sustainable land use planning. Failure to maintain retention ponds and inadequate drainage system capacity pose serious threats to long-term flood resilience

in Palembang. Addressing this problem requires substantial policy reform and increased investment in flood control infrastructure, especially given the increasing frequency of extreme weather events due to climate change (Al Amin et al., 2020). Additionally, involving local communities in flood prevention strategies, as is done in other flood-prone cities, could provide a more sustainable solution.

Table 3. Location of Water Level Monitoring Stations

Klasifikasi	Garis Lintang	Gars Bujur	Keteran
TG. BUYUT	2°19′15.6″S	104°54′56.4″E	
KP. UPANG	2°43′50.9″S	104°57′37.0″E	
SELAT JARAN	2°50′09.2″S	104°54′16.8″E	
SEI LAIS	2°58′40.7″S	104°50′46.2″E	
BOOM BARU	**2°58′50.0″S**	**104°46′51.4″E**	

Source: Author's Data Processing

Analysis of Musi River water level data over the last decade shows a significant increase in peak water levels during the rainy season, which increasingly complicates flood management efforts in Palembang (Alia et al., 2018). Data from the New Boom observation station shows that maximum water levels have continued to rise over the years, with extreme events becoming more frequent. This causes water to overflow in the drainage system, especially in areas where infrastructure is inadequate, such as in the Sriguna and Aur drainage areas.

The challenges of managing water level fluctuations in the Palembang drainage system reflect broader hydrological trends observed in large cities along major rivers, such as Surabaya and Bangkok. Research shows that both river floods and urban floods tend to worsen when water management systems are not maintained or are outdated (Marlina et al., 2023). The situation in Palembang is particularly severe due to the interaction between tidal flow from the Karimata Strait and river discharge, a phenomenon also recorded in coastal cities such as Semarang (Andayani & Marlina, 2021). However, unlike Semarang, which has built sluice gates to reduce the effects of backwater, Palembang does not yet have this important infrastructure, thereby increasing its vulnerability.

The rise in water levels in the Musi River and the resulting pressure on the city's drainage system has serious implications for urban planning and flood control strategies in Palembang. Recurrent flooding not only damages property and infrastructure but also disrupts socio-economic activities, especially in densely populated areas (Al Amin et al., 2020). If left untreated, this can cause long-term economic losses and a reduction in the quality of life of residents. These findings highlight the urgent need for an integrated water management system, including the construction of sluice gates and increasing the capacity of retention ponds to handle water runoff during the rainy season.

Retention ponds in Palembang, especially in the Bendung, Buah, and Sekanak areas, were found to be inadequate in managing peak flood events. Field investigations show that these ponds are often full of sediment and debris, which limits their water storage capacity. Additionally, many of these pools are of a type "On-Line" meaning they cannot effectively deal with flooding with high volumes of water. This problem is exacerbated by the many drainage channels that are blocked or narrowed due to poor maintenance and sedimentation.

SedudukPuith

LebakJaya

Figure 2.View of the Existing Retention Pool (Bendung)
Source: Researcher Documentation

The retention pond situation in Palembang is in line with findings in other urban areas where On-Line ponds have proven inadequate for modern flood management. In Jakarta, research by Dwirahmadi (2019) shows that retention ponds only provide short-term relief during moderate floods and fail to deal with extreme events, similar to findings in Palembang. In contrast, cities such as Singapore have successfully implemented "Off-Line" retention ponds, which are separated from the main drainage channels and function as special reservoirs for flood control, thus offering a more effective solution (Marlina et al., 2023).

The poor performance of retention ponds in Palembang demands a re-evaluation of the city's flood management infrastructure. Transition to construction of retention ponds Off-Line, as shown in other global cities, can be an important step to improve flood resilience. Additionally, regular maintenance and removal of sediment from existing retention ponds and drainage channels must be a priority so that they can function properly. This infrastructure improvement will be very important in reducing the frequency and severity of flooding, especially in high-risk areas such as Bendung and Sekanak (Al Amin et al., 2020).

Analysis of the drainage system in Palembang shows significant capacity and functionality problems. Many of the city's main drainage systems, such as those in the Lambidaro and Borang areas, suffer from sedimentation and blockages, which reduces their ability to effectively manage stormwater runoff. In particular, the Lambidaro drainage system often experiences backflow during high river levels, causing flooding even during moderate rainfall.

Table 4. Condition of Retention Pool (Lambidaro)

No.	Kolam Retensi Air Hujan	Luas Area Kolam Retensi(㎡)	Kedalam Kolam Retensi(m)	Keterangan
1	Talang kelapa	23,000	2.0	Jl. R Dentik Arjaari
2	Perumahan Poligon	7,000	2.0	Jl. Raya Perum Bukit sejagtera

Source: *ResearcherDataProcessing*

Similar drainage challenges have been documented in cities such as Bangkok, where sedimentation and blockages in drainage canals reduce their capacity to handle major storms (Andayani & Marlina, 2021). However, Bangkok has implemented a comprehensive dredging program and invested in sluice gates to address this problem, a strategy that has not been fully adopted in Palembang. Additionally, cities such as Rotterdam have integrated green infrastructure solutions, such as bio-swales, to increase drainage capacity, which could be a model for Palembang to consider (Alia et al., 2018).

Persistent problems with the drainage system in Palembang emphasize the need for improved infrastructure and regular maintenance to reduce the risk of flooding. Controlling sedimentation and installing sluice gates can significantly increase the city's resilience to river floods and urban floods. Implementation of these improvements will be critical not only to reduce the frequency of flooding but also to minimize economic disruption and protect vulnerable communities. Additionally, the integration of green infrastructure can provide a long-term, sustainable solution to improve flood management across cities.

Effectiveness of community participation in flood mitigation

Community participation in flood mitigation is a key element in a sustainable mitigation strategy. The effectiveness of this participation depends on various factors, such as the level of public awareness, policy support, access to resources, and synergy with other stakeholders. The following is a comprehensive description of the effectiveness of community participation in flood management. The community participates in various stages of flood management, as follows: Community Care River Care Flood always carries out cooperation to clean waterways and rivers to reduce the risk of blockage of drainage. The community is also involved in making infiltration wells and biopores that can improve soil absorption of rainwater. Then in some rivers such as the Sekanak River, the community made community-based embankments to protect residential areas from local flooding. Finally, together with the government, they carry out environmental education and campaigns to increase collective awareness about the impact of waste and land conversion on floods. However, it should be understood that many factors can affect the effectiveness of community participation in flood management these factors include First the awareness and capacity of the community, the higher the public awareness of flood risk, the more proactive they are in mitigation. Technical capacity also affects the effectiveness of participation, for example, the ability to build a good drainage system or properly manage waste. With both government support and Inclusive Policies community participation will be more effective if supported by empowering policies, such as labor-intensive programs, incentives for communities to care for the environment, or the provision of community-based infrastructure. Third, the availability of resources the community needs to have access to resources, in the form of finance, technology, and equipment for flood mitigation. Assistance from the government and the private sector can strengthen community-based initiatives. Fourth coordination with stakeholders the effectiveness of community participation increases if there is synergy between the community, government, academia, and the private sector. This collaboration can create innovative and more sustainable solutions. The fifth culture and social values in areas with a strong culture of mutual aid, and community participation in flood mitigation tend to be higher and more sustainable. Top-down and bottom-up approaches have their advantages and limitations in flood management. The top-down approach is effective for large infrastructure projects and broad-scale regulation, while the bottom-up approach is more adaptive to local needs and empowers communities. However, the best approach is to combine the two, where the policies and infrastructure created by the government are supported by the active participation of the community. With this collaboration, flood mitigation strategies will be more effective, sustainable, and oriented to the real needs of the community.

Palembang City Government Policy in Addressing Climate Adaptation

Adaptation to climate change is a challenge for local governments, including the Palembang city government, in the face of increasingly tangible impacts such as increased flood frequency, drought, changes in rainfall patterns, and rising temperatures. Palembang city government has an important role in translating national policies into programs that suit local conditions. The city government formulates climate adaptation policies based on several national and international regulations, among others, the National Action Plan for Climate Change Adaptation (RAN-API) and Mayor's Decree No. 30/2024 on coordination and synchronization and evaluation of policies related to the environment and nature. In addition, the Palembang city government also coordinates with institutions such as the MoEF (Ministry of Environment and Forestry), BMKG (Meteorology, Climatology, and Geophysics Agency), and BNPB (National Disaster Management Agency) to integrate climate data and mitigation strategies in regional policies. However, although various policies have been designed, there are several challenges in their implementation, including budget constraints, and climate adaptation requires large investments in infrastructure and community empowerment programs. Then the Interagency Coordination of climate adaptation implementation often involves many parties, so coordination between Central, Local, private sector, and community governments is often an obstacle. Then there is the

lack of public awareness: many people are not yet aware of the effects of climate change and are still carrying out activities that worsen environmental conditions, such as illegal logging and littering. And lastly unpredictable climate change: although various strategies have been put in place, the effects of climate change are often difficult to predict and require a more flexible and adaptive approach.

DISCUSSION

Effectiveness

Effectiveness in public policy is always related to the achievement of the goals and objectives that have been set as well as the expected use of the policy. In the context of flood management in Palembang City, the effectiveness of policies can be seen from the extent to which the policies can achieve their objectives, namely reducing the risk of flooding in the area. Evaluation activities on the effectiveness of this policy require an in-depth assessment of the suitability between the results achieved and the objectives set from the start. This includes measuring the impact of policies on affected communities as well as the contributions of various related parties in supporting policy implementation. In the case of urban flooding in Palembang, evaluating effectiveness becomes increasingly crucial considering that this city has a high level of vulnerability to flooding, especially during the rainy season. The increasing frequency of floods due to climate change and rapid urbanization requires policies that are not only right on target, but also responsive to environmental dynamics. Thus, this dimension of effectiveness is an important indicator for evaluating whether existing policies have been able to reduce vulnerability to flooding in Palembang City (Mardiansjah et al., 2021). Here's the data visualization:

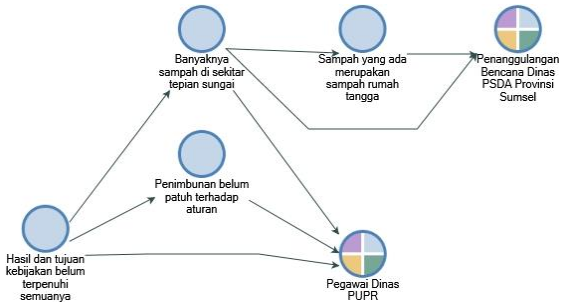

Figure 3. Data visualization of dimensions of effectiveness

Source: NVivo 12 Data Processing

Therefore, the policy of Reducing Flood Problems in the City of Palembang was created to prevent and reduce the impact of flooding that occurs. Every policy must have targets and objectives that will and will be achieved. As for the changes to be achieved from the policy of Reducing Flood Problems in the City of Palembang, the government and the community hope that they want a better change in the flood management policies implemented. Based on research that the author has carried out and obtained some information related to the suitability between objectives and the results achieved. Facts on the ground show that the implementation of the flood management policy in the city of Palembang has not been carried out optimally, which has failed to achieve the initial objectives that have been formulated, which can be seen from the still occurring floods that occur due to river overflows caused by high rainfall and there is still much rubbish.

Efficiency

Efficiency in public policy refers to the comparison between the efforts made and the results achieved. In the context of evaluating flood management policies in Palembang City, efficiency refers to how optimally resources are used to achieve the goal of reducing flood risk. William Dunn explained that efficiency is closely related to the effort required to achieve the expected results, with a focus on using minimal resources while still achieving maximum effectiveness. This is relevant in flood management programs, where efficiency can be measured from the use of budget, energy, and technology in the flood reduction process, such as improving urban drainage systems and applying GIS technology for spatial analysis (Atanga & Tankpa, 2022). In the context of

Palembang, efficient policies are policies that are not only able to deal with flooding effectively but are also carried out using economical and sustainable resources, without burdening regional budgets or sacrificing the quality of implementation (Daksiya et al., 2021). Here's the data visualization:

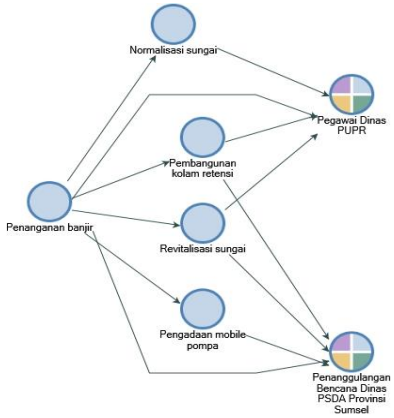

Figure 4. Efficiency Dimension Data Visualization
Source: NVivo 12 Data Processing

Based on the results of the researchers' findings, when linked to efficient criteria, it can be said that the implementation of the flood management policy mechanism in the city of Palembang that has been implemented is quite efficient. The efforts made by the implementers have been maximal, although there are still several targets that are still in the progress stage.

Adequacy

Adequacy in policy evaluation refers to the level of achievement of expected results and the extent to which the policy meets existing needs. Adequacy criteria assess the performance of the various parties involved in implementing the policy with a focus on the intensity and continuity of the actions taken. In the context of flood management in Palembang, adequate policies must be able to answer flood problems holistically, starting from risk mitigation, and prevention, to handling post-flood impacts. The implementation of this policy must be carried out continuously and intensively to realize its main goal, namely reducing the incidence and impact of flooding in Palembang City. Adequacy is also related to the expectations of positive changes, both by the government and the affected communities. The extent to which this policy succeeds in providing satisfactory changes for all parties involved is an important benchmark in assessing the adequacy of the flood management policy (Suroso et al., 2020).

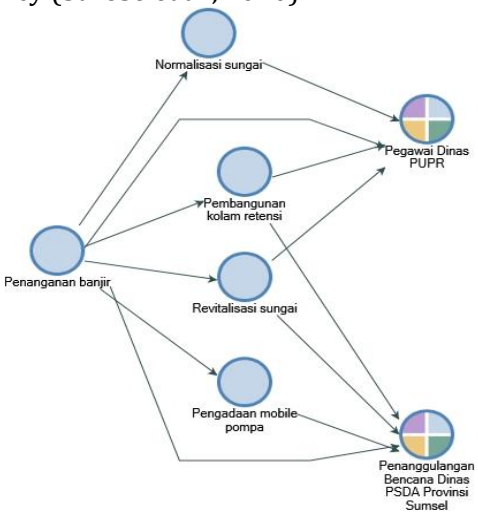

Figure 5. Data visualization of the sufficiency dimension
Source: NVivo 12 Data Processing

The results of observations and interviews in the field show that the criteria for adequacy in implementing this handling policy have not been achieved according to initial expectations, in this case, it has not been carried out optimally and has not been intensive, which has the impact of not being able to completely resolve the problem of handling floods in the city of Palembang.

Equalization

Equity in public policy concerns the fair distribution of benefits and burdens among all parties involved. In the context of flood management in Palembang, equity refers to how the government can ensure that flood reduction policies have an equitable impact on all communities, especially those who live in areas most vulnerable to flooding. Equity does not only mean that all affected areas must receive equal attention but also that the most vulnerable communities, such as residents in coastal areas prone to tidal floods, receive greater attention in flood risk reduction policies (Hanif et al., 2021). Thus, equity is an important aspect in ensuring that no community group is left behind or does not benefit from the policy.

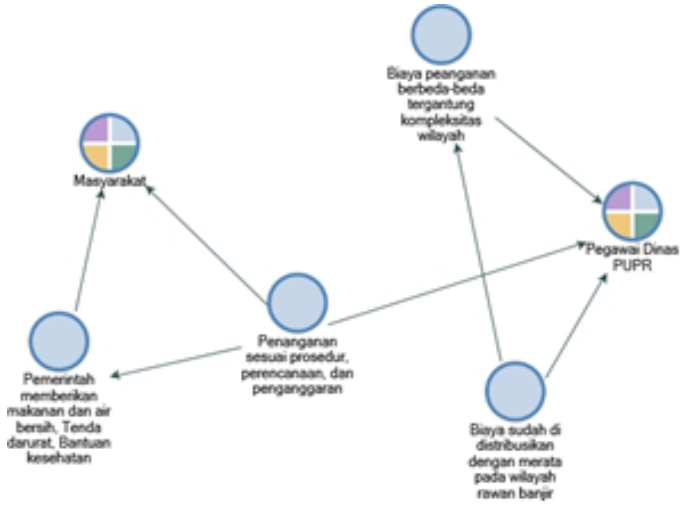

Figure 6. Visualization of Equity Dimension Data
Source: NVivo 12 Data Processing

From the results of the researcher's interviews, it can be concluded that in implementing the Policy for Reducing Flood Problems in Palembang City, the benefits of the program can still be said to be given evenly to the target group. Government policies attempt to show or explain that in a policy there are several types of benefits as a positive impact resulting from implementing that policy. Therefore, every policy made is expected to bring benefits to all parties.

Responsiveness

Policy responsiveness measures the extent to which policies can answer the problems faced and meet community needs. In terms of flood management in Palembang City, responsiveness refers to the ability of policies to respond quickly and appropriately to the main causes of flooding, as well as provide adequate solutions to prevent repeated flooding events. Responsiveness also includes how the policy can respond to the needs and preferences of affected communities. A responsive policy must be able to adapt to changing situations, such as increasing rainfall intensity due to climate change, and speed up the flood risk mitigation process. In addition, responsiveness includes how policies can provide quick responses to community emergency needs, for example through early warning systems and rapid responses when floods occur. In this context, responsive policies will actively involve the community in the decision-making and implementation process, so that the resulting solutions are more appropriate to field conditions (Maheng et al., 2024).

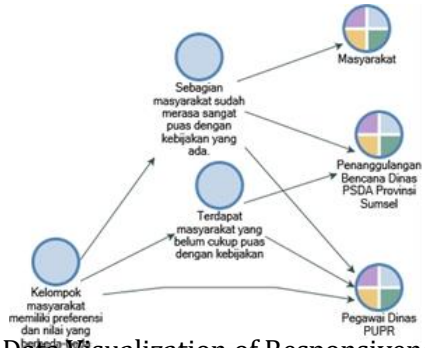

Figure 7. Data Visualization of Responsiveness Dimensions

Source: NVivo 12 Data Processing

The research results show that public satisfaction with the Policy for Reducing Flood Problems in Palembang City can depend on several factors, such as the speed and accuracy of responses to disasters, and access to appropriate information about disasters. So far the government has been responsive enough in handling community complaints, even though it cannot It is undeniable that there are still some people who are not satisfied with this policy.

Accuracy

Policy appropriateness refers to how relevant and appropriate the policy is to the problem it is intended to address and how strong the assumptions underlying the policy's objectives are. According to Dunn (2013), the accuracy of a policy can be measured by how well the policy achieves its goals and provides benefits to society. In the case of flood management in Palembang City, the accuracy of the policy can be seen from the extent to which the policy can reduce the risk of flooding and its impact on the community. An appropriate policy must not only be relevant to the existing flood problem but also be based on accurate data and analysis, such as changes in rainfall patterns and urbanization that influence the risk of flooding in the city. In addition, appropriate policies must also be flexible in facing new challenges that arise, such as the impact of climate change, and be able to adapt strategies to ensure their success in the long term (Yang et al., 2020). Accuracy in this context means that existing policies are truly useful and provide real benefits for the community, especially those directly affected by flooding.

Moreover, accuracy can also be seen from the financial performance of the local government, which represents the region's potential to utilize resources that can support local revenue (PAD) in carrying out governance, providing public services, and regional development without relying entirely on the central government (Novriansyah et al., 2021). In this context, it is no exception in addressing the flood issues in the City of Palembang.

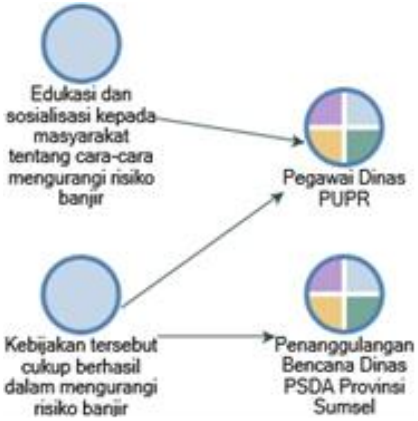

Figure 8. Visualization of Accuracy Dimension

Source: NVivo 12 Data Processing

Based on the explanation above regarding the evaluation criteria for the success of flood management policies in Palembang City, the six dimensions in the theory that researchers use are a) effectiveness, b) efficiency, c) adequacy, d) leveling, e) responsiveness, f) accuracy, in the research results there are still several dimensions that still need to be improved and addressed, namely from the dimension of effectiveness, the results of policy implementation cannot be said to have been achieved optimally because they still have not achieved the objectives of the policy, the dimension of adequacy, the policy has not been fulfilled optimally and effectively, So the researcher can conclude that the success of the flood management policy in the city is not good enough considering that there are several dimensions that have not been fulfilled in the theory that the researcher uses which is a benchmark for assessing the success of a policy.

CONCLUSSION

Based on the evaluation of the Policy for Reducing Flood Problems in Palembang City, it can be said that currently this policy has not been successful and has not been optimal enough in achieving its results and benefits. This can be seen from, the aspect of policy effectiveness, the results of the implementation of the policy cannot be said to have been achieved optimally because it has not yet achieved the objectives of the policy. This is due to the large amount of rubbish that is still around the river banks and in community settlements, as well as the accumulation that is still not complying with regional regulations. In the efficiency aspect, the policy is considered to be quite efficient because the efforts made have been optimal. Some of the efforts that have been made by the government in handling floods are revitalizing rivers and lakes, normalizing rivers, making bio pore holes, and making drainage and retention ponds. In terms of the adequacy aspect of this policy, it has not been fulfilled optimally and effectively, because the implementation of this policy has not been able to answer the flood problem in the city of Palembang completely and optimally. In the aspect of equal distribution of policies, benefits can be distributed quite well to target groups. In the aspect of responsiveness of flood management policies in the city of Palembang in this study, in this research, it is considered to be sufficient to satisfy the policy targets, in the aspect of policy accuracy. In terms of accuracy criteria, the policies taken, including their implementation, are considered sufficient. appropriate.

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