

"Telolet Om", the Concept of Flood Control Policy Based on Community Participation

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Abstract

The concept of Flood Control in RW 05 Purwatoro, Blimbing sub-district neighborhood in Malang City are using flood control model called "Telolet Om". This action was based on community participation, which meant mobilizing the community to actively participate in the rain runoff control effort. The "Telolet Om" is a prototype made for implementing public policy which is not only focused on overcoming flood problems but also provides advantages and benefits to the surrounding community in the form of job opportunities, and provides additional economic values. The implementation of this flood management policy Regulation No. 5 of 2016 involves all layers of society and in terms of importance, this concept is not only able to maintain the sustainability of drainage maintenance but also it is expected that with this concept flooding isn't likely to occur again, it would increase green open space for community social space and increase the economic income of the community from eggplant, chilies, catfish and tomato. The methods used are observation and interviews. In-depth interviews were conducted to determine the community's willingness to live in the floodplain, losses due to flooding that occurred during the last 10 years, and community values utilized in their flood mitigation systems.

Keywords— policy implementation, flood control policy, community participation, telolet om, malang

I. INTRODUCTION

During the rainy season, several cities in Indonesia experience inundation and even flooding [1]. Throughout 2020, there were 2,939 disasters recorded and 1,070 floods [2]. Floods are disasters caused by natural phenomena during the rainy season which include regional potential, especially rivers that are relatively sloping. Floods can cause great damage to the socio-economic life of the community [3]. Malang is listed as an area that frequently occurs flood disasters with a moderate risk class in Indonesia every year [2]. The city of Malang is a city located in the highlands with varying land surface slopes, in every rainy season there are areas that

experience the danger of flooding caused by overflowing rivers and poor drainage systems [4]. The proportion of open land is getting narrower causing the existing drainage system is not to adequate [5].

To deal with the constant flooding that occurs yearly in Malang city, Malang city government, through the Department of Public Works and Housing (DPUPRPKP) created a development policy based on Local Regulation No. 5 of 2016 [6]. One of several DPUPRPKP office efforts to deal with the danger of flooding in Purwatoro Urban Village, Malang City is the construction of drainage with an artificial pond system and infiltration wells [7]. Infiltration wells are water absorption methods aimed at overcoming

flooding by increasing the water absorption capacity of the soil [8]. Following Malang City Regulation No. 5 of 2016 concerning Spatial Planning and Zoning Regulations for the Urban Area of Northeast Malang for 2016 – 2036 [6] has been attempting and implementing various flood control policies since 2017, including making and repairing drains and drainage systems, increasing the area of green open space (RTH) meant for water absorption, as well as non-physical / non-technical efforts, among others, environmental awareness campaigns through banners, billboards, and mass media.

This research aims to determine the flood control policy implementation in Purwantoro Urban Village Malang City through the construction of drainage systems and artificial pond infiltration wells, supporting factors and inhibiting factors in the implementation of said policy. Implementation of community participation-based flood control policies are based on Local Regulation no. 5 of 2016 [6] in the form of a clear division of main duties and functions between implementers, and clear commitment for timely completion. Implementation is carried out by implementers who have the capacity and active participation of all stakeholders. It is expected that this policy will be capable of creating a flood-free environment that would be impactful upon the physical, social and economic aspects of the community. Public policy implementation is a series of activities after a policy is formulated and determined [9]. Implementation is the spearhead of public policy [10].

The “Telolet Om” flood control policy model is a prototype made for implementing public policy based on community participation which is not only focused on overcoming flood problems but also provides advantages and benefits to the surrounding community in the form of job opportunities, and provides additional economic values in the form of eggplant, chili, catfish and tomatoes. The flood control policy model “Telolet Om” is a community participation-based flood control policy with a new approach in the form of a

synergy of 4 (four) stakeholders; namely government, academia, business and local communities. This concept needs to be tested in its implementation in the field.

Concerning community participation in supervising the development, Reference [11] states that "without supervision and control, what is planned and implemented can go in a direction contrary to the goals outlined". This shows that community supervision in development is necessary so that in addition to what is done following the established plan, it is also to ensure that the results of development, both physical and non-physical, can meet community needs.

Reference [12] states that the participation of community members is the involvement of community members in development. Also, Reference [13] concluded that there are three important elements of participation, namely 1) mental participation means and emotional involvement, 2) motivates persons to contribute to the situation, and 3) encourages people to accept responsibility in the activity. The variables that influence the efforts made to provide optimal results as policy implementation are the content of the policy and the implementation environment [14]. implementation of policy implementation and support from stakeholders, it is hoped that the public's response to DPUPR services will be more positive and public trust tends to increase.

II. “TELOLET OM” CONCEPT AND IT’S IMPLEMENTATIONS

A. “Telolet Om” Concept to Tackle Flooding Issues

Flood is a condition in which water cannot be accommodated in the drainage channel (riverbed) or water flow in the drainage channel is obstructed, so that it ends up overflowing the surrounding area (flood plain) [15]. Flooding can occur due to rising water levels caused by above-normal rainfall, changes in temperature, collapsed embankments / dams, rapid snowmelt, or obstruction of water flow elsewhere [16]. Flood divided in two occasions; flooding/ inundation that occurs in areas where

there is usually none and second, flooding that occur due to flooding river runoffs caused by the flood discharge turning out greater than the existing river drainage capacity [17]. Most of it is caused by extraordinary rainfall so that the channel system is no longer able to accommodate the volume of water [18].

Integrated flood management is a solid process of flood management through land and water resource management approach, coastal areas, and disaster area management surrounding watershed with the aim of maximizing the benefits of floodplain areas and minimizing loss of life and property damage from flooding [Green]. Integrated flood management is an integral measure that directs all stakeholders from sub-sector flood management to cross-sectors [19].

Integrated flood management requires a conceptual framework, because [19]:

- All parties recognized the flooding problems are relatively complex. The flood prone area could be considered part of the development of both urban and rural areas, and can also be part of the regional administrative (central, provincial, district / city).
- There is a relationship between the Regional Spatial Plan (RTRW) and the Water Resources Management Pattern (PSDA), the PSDA Plan and flood management.
- There are technical boundaries (hydrology), watersheds (DAS) and groundwater basins (CAT) areas and non-groundwater basins areas (Non-CAT) which in certain conditions might be similar or different from the watershed.
- Technical (hydrological) limits can be the same or different from administrative limits.
- 'Water' is referring to all bodies of water that is found above or below the ground surface, included in this definition: surface water, ground water, rainwater, and sea water located on land.

The flood control policy model "Telolet Om (Terong, Lombok, Lele dan Tomat)" is presented as an innovative flood control model while maintaining the conservation of drainage/irrigation canals in order to provide social benefits to the surrounding community. Thus the results of this model doesn't merely provide considerable outcomes but also opens up job opportunities for the surrounding community, while also generating additional economic value in form of bountiful eggplant, chili, catfish and tomato harvests that can be felt by the surrounding community. With these benefits, the involvement and active participation of the community in the "Telolet Om" flood control policy will hopefully be maintained in a sustainable manner. Community needs to be involved in problem identification and program planning processes [20]. Community empowerment is a series of systematic actions involving various components of formal and non-formal organizations. The government only acts as a facilitator and regulator [21].

Government as central (agent of chance) of a society and implementation of good governance not only rely on the government, but organized society [22]. development will only ongoing and successful in solving problems faced by society when get full support from the community concerned because society is the central focus and ultimate goal of development [23].

The flood control policy model "Telolet Om" is a community participation-based flood control program with a new approach in the form of a synergy of 4 (four) stakeholders, namely government, academics, businessmen and local communities. The program is implemented through 6 sets of activities, namely socialization, planning, development, training and technology handover, program implementation and integrated quality assurance (monitoring, evaluation, and continuous improvement). This program provides tangible benefits to communities around riverbanks and canals in the form of inundation height reductions and an increase in

overall environmental quality, as well as additional bountiful benefits that consists of catfish, eggplant, chilies and tomato harvests. The operator / technician in charge would be arranged and appointed by the local neighborhood association known to the urban village personnel.

Flood control is carried out in stages, from flooding prevention, handling during floods (response / intervention), and recovery after flood (recovery). This stage is in a continuous cycle of flood control policies. Flood prevention activities follow a life cycle, starting from the flood, then reviewing it as an input to anticipate next flooding occurrence. Prevention is carried out comprehensively, in the form of physical activities such as the construction of flood control in river areas (in-stream) to floodplain areas (off-stream), and non-physical activities such as land use management to flood disaster early warning systems.

B. Methodology

This research is classified as qualitative research, also referred to as a naturalistic approach due to the situation in the research field is untampered or natural, not at all influenced nor made up, and as it is. For this reason, reference [24] explain that qualitative research involves a naturalistic interpretive approach to the world, trying to interpret phenomena from the point of view of the meanings given by society. Meanwhile, reference [25] emphasizes the research process that flows from philosophical assumptions, to the interpretation of an interpretive lens, then to the procedures involved in studying social or human issues. Data analysis has started since formulating and explaining the problem, before going into the field, and continues until the writing of research results [26].

In the data collection process, the methods commonly used are observation and interviews [27]. Interviews are one of the methods of collecting data in research, especially qualitative research [28]. A good interviewer must have good communication skills. These skills include listening skills, paraphrasing,

probing, and summarizing interview results [29]. Observation is a technique that is carried out by observing ongoing activities [30]. Other sources say that observation is a method used by researchers to obtain information related to what will be studied [31]. The interview is a form of a list of questions that will be asked by the researcher to the informant in order to obtain information [31].

In-depth interviews were conducted to determine the community's willingness to live in the floodplain, losses due to flooding that occurred during the last 10 years, and community values utilized in their flood mitigation systems. Field observations were carried out to understand the existing community flood mitigation system, interactions between local communities with local government and related agencies, as well as the creativity, innovation and potential of local communities in developing cost effectiveness. Through observations and interviews, researchers collected narrative data in form of various accounts provided by informants and conditions in the field. In the data collection process, the researcher will interpret the accounts obtained during data collection. This approach is used to obtain in depth objective results in regard to the focus of the research. The sheer focus of the researched problem in this case were only the handling flood hazards in Purwantoro Village, Blimbing Sub-district, Malang City. In this case the researchers made more contact and interactions with the Telolet community groups (terong, lombok, lele, tomat), volunteers, neighborhoods, and community leaders. Flood control policies are divided into short, medium and long term [32].

The research is focused on the implementation of flood management policies based and supporting factors and inhibiting factors to measure the successful implementation of flood control policies based. Communication is a liaison between the community and policy makers so that existing problems will be able to produce a good implementation [33]. The implementation of flood management policies

based on community participation in RW 05 Purwanto Urban Village, Blimbing Sub-district, Malang City based on Malang City Regulation No. 5 of 2016 which includes (a) The interests and strategies of the those involved, (b) Characteristics of colleges and authorities, (c) Compliance and responsiveness. Supporting factors and inhibiting factors to measure the successful implementation of flood control policies based on community participation in existing flood management, namely: Supporting factors (Content: Content of policies; Context: Distribution of main duties and functions; Commitment: DPUPRPKP and implementers; Capacity: Implemented implementers who had the capacity).

III. DISCUSSION

A. *Glantung Gg. I RW 05 Purwanto Urban Village as Research Location*

The research focus was carried out in the neighborhood of Jl. S. Parman (Glantung) Gg. I RW 05 Purwanto Urban Village, Malang city. The decision to pick this particular location for this research was based on various considerations of researchers related to the specific characteristics of the Glantung area (Jl. S. Parman) Gg. IV RW 23, which succeeded in fixing its previously flood-prone areas to become relatively flood resistant, and is now known as "Kampung Glantung". Now this village is better known as "Biopori Tourism Village" which is the location of one of the tourist destinations, especially for tourists who are relatively passionate about environmental conservation. But on the other hand, the success of the Glantung area (Jl. S. Parman) Gg. IV RW 23 in overcoming flood problems impacted the Glantung area (Jl. S. Parman) Gg. I RW 05, that ended up flooding in its stead.

Community-Based Flood Management Policy "Telolet Om" in RW 05 Purwanto Village, Blimbing District, Malang City is adopted from the concept of integrated flood management which has been developing globally, especially in Europe and Australia since the last decade. The involvement and active participation of all involved is a major factor in the success of the

program. The Public Works and Spatial Planning Office of Malang City take their role as the coordinator of socialization and development. Academics as coordinator of planning, training, and quality assurance. Entrepreneurs contribute to the development and implementation activities. The community as program implementers is equipped with adequate knowledge and skills so that they can implement technology according to the SOP (standard of procedure).

To deal with these flooding issues in Malang City, the Government of Malang passed Malang City Regulation No. 5 of 2016, which is diagrammatically depicted in Figure 3. "Telolet Om" is an elaboration of the Local Regulation, and its implementation will be tested in this study. Furthermore, in the implementation, the emergence of the innovative Flood Control Model "Telolet Om (Terong, Lombok, Lele, and Tomat; Eggplant, Chili, Catfish, and Tomatoes)" is not only focused on overcoming the problem of flooding/inundation but can also provide many benefits to the social community in RW 05 Purwanto Village, Blimbing District, Malang city.

The application of creative innovation for the flood control model "Telolet Om", apart from providing benefits to the surrounding residents, the sustainability of the irrigation canals, both the quality of water for irrigation and the quality of the ecosystem in it (moss and fish, in particular, are thriving), thus producing innovative mineral water content that will get better, which in turn will have an impact on the productivity of agricultural products. Meanwhile, the types of vegetables such as eggplant, chilies, and tomatoes were applied to the "Telolet Om" flood control model. Creative innovations were designed according to types of vegetables in which variety has high economic value, such as Sulawesi Eggplant, gendot/ curly chilies, and cherry tomatoes. To encourage the government and the community to continue to participate in flood control programs, it is necessary to provide an understanding that these programs can provide economic benefits through systematic prediction and assessment

of costs, benefits and social values, especially to the community [34].

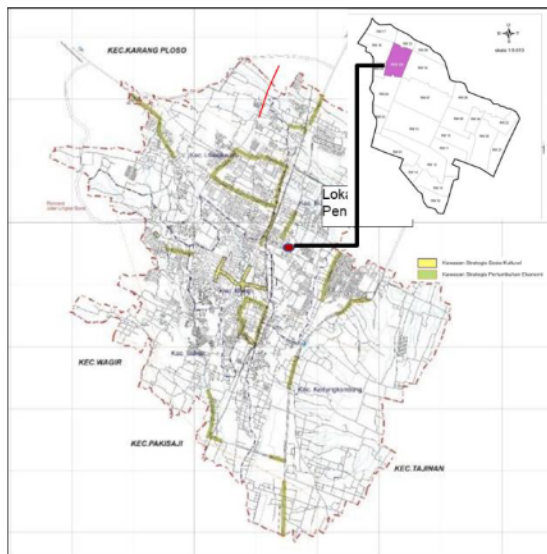


Figure 1: Glitung Gg I



Figure 2: Inundation conditions in residents' houses RW 05 Purwantoro Village

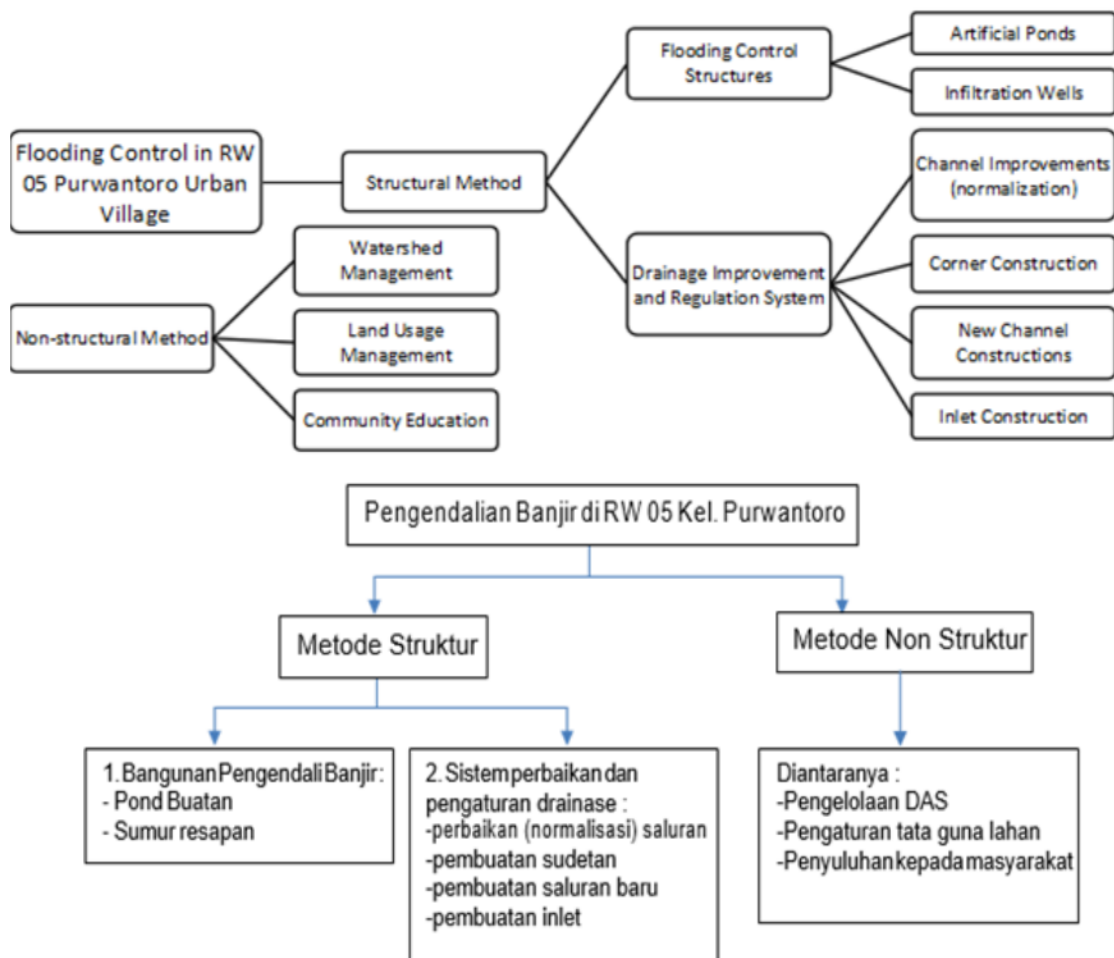


Figure 3. Structural & non-structural method of flood control

Source: Malang City Regulation No. 5 of 2016

B. Analysis

In its implementation, the stages of the Existing Flood Control Strategy that have been carried out can be seen in Figure 4. The findings of this study are:

(1) The implementation of flood management policies based on community participation in RW 05 Purwantoro Village, Blimbing Sub-district, Malang City based on Malang City Regulation No. 5 of 2016 involves all layers of society and in terms of importance, this concept is not only able to maintain the sustainability of drainage maintenance; it is expected that with this concept flooding isn't likely to occur again; it would increase green open space for community social space and increase the economic income of the community from eggplant, chilies, catfish and tomato.

(2) Institutions and authorities consisting of DPUPRKP, Unmer, local communities and local government collaborate to create a filtered drainage system and construct a pond. The community's compliance and responsiveness is remarkably good; it is proven that the community is able to work together to build and that Unmer Institution is involved in financing its development, as well as being funded by the government. Supporting factors and inhibiting factors to measure the successful implementation of flood control policies based on community participation in existing flood mitigation is listed as such:

a) Supporting factors in terms obtained content are policy support in the form of Local Regulations for flood prevention at the research location, DPUPRKP's commitment to tackling floods in form of financing which is included in the APBD budget. From contextual aspect: Well-distributed main duties and functions, and each stakeholder tries to keep to each their commitments for the unhindered realization of "Telolet Om" concept. Commitments obtained from DPUPRKP and colleges, the community and

local government to actualize the "Telolet Om" concept. Assessment from capacity aspect, the implementation of activities is carried out by the implementer who has the capacity, where in its development it's technically assisted by the DPUPRKP.

b) Implementation of drainage maintenance activities incidental to water resources DPUPR in RW 05, Village of Purwantoro was written in APBD budget 2017. Flood control policy by applying the method of "Telolet Om" and producing homemade Pond to accommodate water and storm water runoff before heading up river in the environment of RW 05 Purwantoro Village has a very good physical environmental impact. Drainage with innovative technology Filtration and pond provide open green space and a productive vegetable crops (Eggplant, chili, catfish and tomatoes) to increase revenue for the community. The community empowerment approach is one form of alternative development that requires the community to be able to be independent in meeting their needs [35].

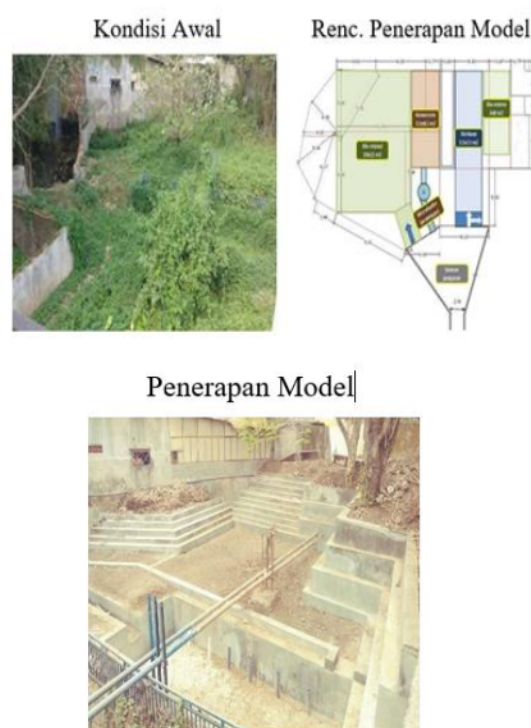


Figure 4 Original Conditions and Drainage Filter Model Implementation Plan

The community carries out and maintains the “Telolet Om” policy with full responsibility so that the program continues. Whenever there is a problem, it is immediately communicated to the Public Works Office to find a solution. Academics carry out monitoring, evaluation, and continuous improvement to ensure the quality of the program until ideal conditions are achieved. The businessmen provide physical repair assistance to buildings or infrastructure that have been damaged by flooding. The Public Works office facilitates all participants' needs so that the program continues to run properly.

IV. CONCLUSIONS

The research conclusions are as follows:

1. Community participation-based flood control policy based on Local Regulation no. 5 of 2016 applied in the flood control policy model "Telolet Om" is a model for implementing public policies based on community participation that is focused on overcoming the problem of flooding / inundation and providing socio-economical benefits for the surrounding community. Hopefully with these benefits this policy would be sustainable.
2. The “Telolet Om” flood control policy model based on community participation with the synergy of 4 (four) stakeholders, namely government, academia, businessmen and local communities. The program is implemented through 6 sets of activities, namely socialization, planning, development, training and technology handover, program implementation and integrated quality assurance (monitoring, evaluation, and continuous improvement). The person from the community assigned as the operator / technician has been arranged and appointed by the local hamlet apparatus known to the urban village personnels.
3. Innovation of the flood control policy model "Telolet Om (Terong, Lombok, Lele and Tomat)" is included in the concept of eco-drainage, namely the sustainable handling of urban drainage systems, paying attention to conditions and environmental

supportive capacity to retain as much ground water as possible and maintained ecosystem.

4. The variations of innovative technologies used in the “Telolet Om” flood control policy model are as follows:

- a) Filterization
- b) Artificial Pond
- c) Infiltration wells
- d) Injection Well

5. The implementation of the “Telolet Om” flood control model provides real benefits to the community around rivers and canals in the form of improving additional economic and or food benefits in the form of catfish, eggplant, chili, and tomato harvests so that people become enthusiastic in implementing the policy.

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