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Evaluation of the Policy Making Process of Flood Defense Policy in Indonesia *The case of the Eastern Flood Canal, Jakarta, Indonesia*

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ABSTRACT

The adequate flood control infrastructure in Jakarta is important due to its position in low delta areas. However, even though flood control infrastructure programs in Jakarta have been on the agenda since 1970, most of them have never been implemented due to the political and public resistance. One of the flood control infrastructure programs which its implementation had been delayed for more than 30 years was Eastern Flood Canal. This circumstance implies the flood problem is still a nightmare for Jakarta. Given the aforementioned explanation, this research intends to (i) identify the causes of delay and opposition regarding to the Eastern Flood Canal policy making process and (ii) recommend potential strategy to alleviate the causes of the delay and opposition. We use Round model to structure the policy making process and policy implementation of Eastern Flood Canal, Jakarta. Using this model we found that, the decisive causes of the delay and opposition regarding to the policy making process of Eastern Flood Canal are . (a) Absence of critical actors in the policy process , (b) Institutional misalignment between local and national level, (c) The limited stakeholders involving lead to the opposition during the implementation phase. Considering the aforementioned findings, we recommend that the decision should be made after critical authorities commit and agree to bring their resources forward and the agreement should stipulated legally and declare to public to assure its accountability. Secondly, the stakeholder involvement outside the boundary of government in the flood control policy making process should be started to practice in Jakarta to reduce the high opposition during the implementation.

Keywords: Policy making process, Policy implementation, Round Model, Eastern Flood Canal, Jakarta

1 Introduction

Jakarta is a city which is located in low delta areas and it suffers to flood attacks annually. Of the 65 000 ha area of Jakarta, about half is situated at flood plain(s). According to the current data of the Jakarta Public Works Agency, there are about 78 areas of Jakarta that are prone to flooding (www.pu.go.id).

Until today, flood problem is still a nightmare to Jakarta. In fact, the magnitudes of floods are amplifying on the last decade (e.g. flood events on 1996, 2002 and 2007) and the impacts have been affecting widespread areas and inducing huge economic and social damages to the city (NEDECO 2002, Bappenas 2007). Given this situation, the flood control management is required to protect Jakarta from flooding in the future.

According to prior studies, one factor contributing to the worsening of the floods in Jakarta is inadequate flood control infrastructures (Steinberg, 2007). Flood control infrastructure programs have been on the government agenda since 1970. However, most of

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them have never been implemented due to the political and public resistance.

One of the flood control infrastructure programs which its implementation had been delayed for more than 30 years was the Eastern Flood Canal. The Eastern Flood Canal project plan was first presented in the Master Plan of Drainage System and Flood Control for Jakarta in 1973. The Master Plan 1973 was constructed by Ministry of Public Works collaborated with the Dutch Government. Even though the Eastern Flood Canal design was finished on 1973 and its construction planned to be completed before 1980s (NEDECO, 1973), in fact the implementation of the project was just realized on 2003.

On the other hand. some of research documents charged that the Jakarta's government has a significant role to the delay of the canal implementation (Caljouw, et.al 2004, Steinberg, 2007). According to Caljouw, et. al (2004) the budget allocation which was not used to its purpose was the factor contributing to the not implementing the Eastern Flood Canal in the past. Steinberg (2007) claimed that the delay of the Eastern Flood Canal implementation was due to the difficulty in attracting investors leading to the inadequate budget for its implementation.

Our research revealed that the delay of the Eastern Flood Canal is beyond the budget limitation. In fact, many infrastructure projects in Indonesia which required high budget were implemented on the past. Therefore, according to us, it is important to find the decisive causes of why the Eastern Flood Canal policy making process was confronted with lengthy time. Give the aforementioned explanation, the research intends to give an answer to the following research question: What are the decisive causes of the delays and opposition faced by the Jakarta's city government regarding the Eastern Flood Canal implementation?

2. Theoretical Framework

The round model (Teisman, 2000) is applied because we assume that during the policy process of the Eastern Flood Canal, interaction between different actors should took place; given that the implementation of the Eastern Flood Canal depends on the cooperation of multiple actors. Since we want to be more focus on the influence of actors' interaction in the series policy making process, we found that the round model is the compatible method. The Round Model assumes that problem and solutions are not linked to single actors (policy maker) to multiple actors. Those actors will introduce combination of problems and solutions, and create progress through interaction (Teisman 2000). By structuring the policy making process of Eastern Flood Canal in round, we can observe whether or not in each round the multiple actors are involved, and how the behaviors and actions of actors involved influence the result of each round.

The starting point could be initiated by one or several actors who intend to adopt a certain combination of a problem definition and solution. The round could be finalized by several conditions such as when the key or powerful actors decided not to join the coalitions, when the negotiating parties reach an agreement, or due to the focus of the negotiations to another point

intentionally (Frantzeskaki. N, 2005).

To analyze the position of actors who involved and have powers in the policy making process we apply the Actor Analysis. We employ actor analysis (Enserink. B, 2009) to identify the actors who affected by the Eastern Flood Canal solutions and to identify the critical actors who held the resources in which the success of the Eastern Flood Canal implementation highly depend on.

According to Enserink, et. al (2009) the dependency of the problem owner on the actors is determined by three aspects: (a) the importance of resources of other actors to the problem owner, (b) the extent to which those resources are replaceable, and (c) the degree to which the interest and objectives of other actors are similar. In addition to that, it is important to investigate how important and urgent the problem is to other actors; since it will determine whether or not actors are likely to (be willing to) play an active role in the debate and resolution of the problem at hand.

3. **Research Method**

In order to find the causes of delay and blockade of the Eastern canal policy implementation process interview were conducted with authority officials and other stakeholders include NGOs and citizens who are living surrounding canal. The interviews were held during a one month long visit in Jakarta, Indonesia. The in depth interviews to citizens were conducted to get more insight and to understand the causes (and motivation) of their opposition.

The semi-structured interviews to authority officials and other stakeholders were conducted with a focus on understanding the formal institutional structure and interactions at district, local and national levels that affect the implementation process of the Eastern Flood Canal and the performance of the Eastern Flood Canal, matters that were closely within the knowledge of the interviewees.

The interviewees include:

- Representatives of Public Work Department, Directorate of General Water Resources Management
- BBWSCC (Balai Besar Wilayah Sungai Ciliwung Cisadane)
- Public Work Agency (Provincial Level)
- Representative from East Jakarta Municipality
- Representative from North Jakarta Municipality
- 5 citizens
- 2 NGO
- Representative Land Committee
- Representative from Public Relation committee of Eastern Flood Canal Public
- Representative from Land Affairs (East Jakarta Municipality)
- Representative from land Affairs (North Jakarta Municipality)
- 2 representative from Villages officials

A desk research about the history of the Eastern Flood Canal and the institutional development in Indonesia regarding water management prepared a background paper on the Eastern Flood Canal prior to the visit (field research) in Jakarta, Indonesia. The materials reviewed during the desk research were journal and scientific papers and some legal documents of the Jakarta's government (e.g. Master Plans) that provided information about the process of the policy design and implementation.

Some legal documents of the government (unpublished) concerning flood control management in Jakarta that are used as key references in this master thesis are:

- NEDECO, 1973, 'Master Plan for Drainage and Flood Control'
- JICA, 1991 'The Study on Urban Drainage and Wastewater Disposal Project in the City of Jakarta – Master Plan Study'.
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- WJEMP 2002, Drainage Management for Jakarta, Strategic Action Program Development (DKI 3-9)
- JFM 2007, 'Dutch assistance with non-structural measures Jakarta Flood Management"
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4. Results

4.1. The macro context of the Eastern Flood Canal Policy Making Process

The policy processes of the Eastern Flood Canal can not be separated from the Master Plans development of Flood Control and Drainage system in Jakarta (see table 1). The idea of the Eastern Flood Canal construction came from the Dutch engineering Van der Beer on 1918. His idea was to control the water volume discharged on Jakarta through 13 rivers. The run off will be diverted through the left (Eastern Flood Canal) and the right side (Western Flood Canal) of the city into the sea.

Given the vulnerability of flooding in Jakarta, flood prevention was given priority in the initial stage of the flood Control Master Plan development. In 1970s, the idea of Van der Beer was adopted by NEDECO that collaborated with Indonesia's government and presented in the new Master Plan of flood control and drainage system for Jakarta. In the Master Plan I, the Eastern Flood Canal was recommended to protect the flooded area in the Eastern part of Jakarta. However, even though the Eastern Flood Canal's design was finished in 1973, this recommended solution was not directly adopted by the Indonesia's government.

Those studies were conducted by the central government in collaboration with several donor communities (the Netherlands and Japan). The studies produced several perfections of previous master plan and new master plans (Master Plan II (1991), III (1997) and IV (2002)). In every master plan, the Eastern Flood Canal is always adopted as one alternative solution to control flooding in East Jakarta. During the development of the Master Plans, the design of the Eastern Flood Canal was only gone through several revisions and perfections with very limited implementation.

As presented in Table 1, we can see that the policy process of the Eastern Flood Canal has been carried out for more than 30 years before it was implemented. Two distinct phases can be distinguished in the macro context of the Eastern Flood Canal policy processes. First, the Eastern Flood Canal Master Plans were constructed during Soeharto's regimes when the government practice in Indonesia was highly centralized and autocratic and the public infrastructure development funds were relied on external loans. Second, at some stage in the process of the Eastern Flood Canal design, the transition from centralization to decentralization of administration system in Indonesia took place in 1999. We simplify the policy process of the Eastern Flood Canal in Figure 1. In the Figure 1, we can see what the government produced regarding the Eastern Flood Canal before and after decentralization. The Figure 1 shows that the agreement to implement the Eastern Flood Canal was reached after the institutional shift.

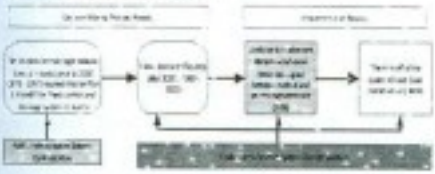

Figure 1. Macro context of the Eastern Flood Canal policy process

4.2 Water management Institutions and Roles in Jakarta during the period of the Eastern Flood Canal Policy Making Process

During the development of Master Plan I, II and III when the government system in Indonesia was centralized, water resources and other governmental functions were consolidated to central government (see table 1). The administrative arrangements related to water sector were characterized by command-and-control type of regulatory rules that leave administrative actors with limited discretion and flexibility.

The water control and management was regulated based on Law No 11/1974. According to this law, the power resides with the Central government and more specifically, with the Ministries for planning and policy making within strategic flood control management. In section 3 of this law is stated that the Ministry of Public Works has the authority and responsibility to coordinate the macro planning, technical planning, supervision, and implementation related to water resource management. Related to the flood control infrastructure development, the Ministry of Public Works has supervisory control of implementing institutions that are appointed by the Ministry of Public Works. All flood control management and activities were controlled and had to be approved by the Ministry of Public Works.

For implementing legislation of Law no. 11/1974, Government Regulation No. 22/1982 was issued. According to this regulation, the development plan on Water Resources is provided by the Ministry of Public Works. Moreover, the Ministry of Public Works had the authority to appoint and establish institutions and organizations in national or regional level to perform certain tasks related to water management including flood control infrastructure development and management. The Regional level authorities (provincial government and

lower level) were responsible to perform specific administrative task delegating by the central government.

After the fall of Soeharto's regime, the structure relation between central government and provincial government or lower level is changed from centralized and co-administration form to more decentralized the government system in Indonesia through the establishment of Law No. 22/1999. In the water sector, the Regional governments have the authority to enact their own regulations, formulate their own plans, programmes and fiscal policies, raise and retain revenue and exploit natural resources including in water sector (Bhat and Molinga, 2009).

The changes imply that the provincial authorities are now ultimately responsible for flood control management and addressing flood damage in Jakarta where before the responsibility was handled by the central government. In addition to that, river basins that lie inside a province and are not nationally strategic should be managed by the Province (Bhaat et.al, 2005). Related to the flood control development, the public work agency (provincial level) has authority to give approval for the development plan of public infrastructure services include flood control infrastructure (Capacity Building of Drainage Management of Jakarta, WJEMP, 2002).

The Provincial authorities also have responsibility for O&M of flood protection infrastructure and for the Flood Forecasting and Warning System (FFWS). Moreover, the provincial government has the responsibility to conduct activities of all relevant agencies providing information concerning water-related and flood issues. In summary, decentralization implies that the Regional government has more power to direct a policy related to the flood control management and Regional governments become take higher responsibility to respond about flood issues.

Based on previous analysis, we can show the critical actors who hold the important resources for the realization of the Eastern Flood Canal project during centralization and decentralization (see table 2.) As we stated, we applied the round model to structure the policy making process of our case. The focal point of the round model is the actors and therefore it is important to analyse who actors might involve and have interest and power in the policy making process. In this chapter, those actors are analyzed using actor analysis (Enserink. B, 2009).

Table 2. Actor position during centralization period

Classification of Actors	Centralization Period	Decentralization Period
Critical Actor	Ministry of Public Works Ministry of Finance Donor Community	Province Government Ministry of Public Works Ministry of Finance Municipality Government Land Owner Media Citizen Parliament
Non Critical Actors	Province Government Municipality Government Land Owner Citizens NGOs Media	NGOs

Those actors will be checked whether or not they are involved in the decision making process using Round Model. The complex policy making process using Round model is simplified and depicted in figure 2. There are 19

rounds consisted of policy making round and implementation round. In each round, we observed who actors involved and whether the critical actors involved and supported the policy implementation during the process. Then, we combine the actor analysis and the round model and elaborate the findings is elaborated on the next chapter

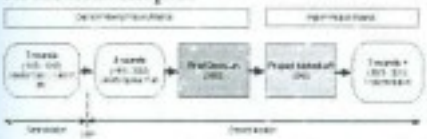

Figure 1. The simplification of the policy making process rounds

a. Findings concerning the implementation delay of the Eastern Flood Canal

In the next section we will discuss the three critical causes for the implementation delay: *(i) Institutional misalignment between local and national level, (ii) absence of critical actors in the policy process, (iii) Implementation was feasible only when political and institutional developments coupled*

a. Institutional misalignment between local and national level and limited stakeholder involvement

In our analysis, the centralization structure on the past and the institutional transition from centralization to decentralization is one cause for the implementation delay. In the next paragraph, we discuss first the critical factors for implementation delay during the centralization period.

Given the characteristic of public administration during the centralization, we argue that due to the centralized administrative system during the first phase of the policy process of the Eastern Flood Canal (1973 – 1999), the central government would take control on policy making process because the power and responsibilities resides on him for planning and policy making relating to flood control infrastructure (Bhat, et. al, 2005). The central government who responsible to provide the critical resources (e.g. budget, legitimacy support, human resources, etc) for the realization of the canal implementation did not give high commitment or priority to provide the resources and support for solving the flood problem in Jakarta. In addition, the master plans were not followed with the legitimacy support (e.g. clear procedure, budget schemes, regulations, laws) to realize the programs in the Master Plans. Moreover, the budget that was allocated by the central government for the project was very limited and the legitimacy support was also absence (interviewee). For instance when the cost of all works set up in the 1973 master plan amounted to Rp 592 million, the annual budget for the project in the mid 1970s was only approximately Rp1.5 million (Soenarno and Sasongko, 2000). From the interview we found several root causes of the unavailability of the adequate budget for the project which leading to the implementation delay as follows:

1. During the policy making process of the Eastern Flood Canal, the province was involved. Since the province is knowledgeable about the flooding problem of Jakarta, it is expected that its attendance in decision meetings could imply exercise of pressure to the decision maker to take regarding flood issues in East Jakarta by revealing the real fact of the flood condition at Jakarta. On the contrary,

we found that the regional level authorities had very limited influence in the decision making process. For example, even the province government initiated to establish the governor's decree to implement the Eastern Flood Canal but this action could not be followed up due to the Ministry of Public Work's direction (interviewee)

2. We also observe that the province has low commitment to push (and promote) the implementation of the Eastern Flood Canal. The province government when attending meetings to discuss and find more alternatives to the problem were only for formalities and the real facts about the flood problems was not convey to the central government. The aforementioned statement is supported with the fact that content of the majority of the master plans studies are similar and only consider technical design revision (Master Plans 1973 ,..)). Even several studies were conducted but the new studies or master plans were not provided alternative solution such as how to solve the problem related to land issues. This lack of commitment from government may bear from the institutional structure during this period. The province government did not have much power to push the central government due to their position is high degree of replaceability.. This situation made the province less interested in providing better public services to their community.
3. The government did not perceive the implementation of the Eastern Flood Canal as urgent because most of the decision taken was done to serve the government's interest and not public's interest. Therefore, it is difficult to gain political support during this time, if the project only proposed to serve the public interest. Given the fact that the Eastern Flood Canal only provides flood protection to 20 % of the areas of Jakarta (MPW, 2002) where low incomes household are settled (NGO's interviewee), the government saw that the construction of the Eastern Flood Canal did not give any benefit to the government.
4. The priority for implementing the Eastern Flood Canal at the level of the national government was low because the national government was not convinced right away that the Eastern Flood Canal was a promising alternative to control flooding in Jakarta.Morcover, only 5 rivers are included inside the Eastern Flood Canal system when flooding in Jakarta was caused by many rivers. Additionally, the implementation of the canal implied that many people and houses have to be removed from the canal areas and this works - according to central government- was not easy and was of high cost (Province interviewee).
5. The limitation of press freedom resulted in limited broadcasting of flood events in the media. There were few critics about the failure of government in providing solutions against flooding. The impact of floods to society was not much opened to debate either. All disasters related to floods were hidden by the government and the news that broadcasted in media was regulated and directed by authority.. Even though the citizens

have experienced devastating floods for many years, they do not much power to speak about their voice since the government system of Indonesia during this time is characterized with closeness, military power and elimination of resisting elements in society

As we shown in previous figure 1, we see that after the decentralization, the Eastern Flood Canal construction was finally kicked off by the central government in 2003 after several rounds of decision making process took place. The transition from centralization to decentralization brought some changes in the public administration style including in water sector (e.g., the additional powers and responsibilities of the regional level, the freedom of press, the public powers) influencing the decision process of the Eastern Flood Canal. However the changes of the public administration structure is not fully practice in the policy making process of the Eastern Flood Canal which lead to high opposition during the implementation phase

Based on our findings we found that the decision to construct the canal carried out with limited public participation. The working groups were dominated by the actors from the government with limited participation from the stakeholders such as citizens, NGOs, local parliament. Moreover, the result of the master plan was only accessible to the central government and the provincial government without declaring them to the public (interviewee). This is shown the lack of transparency and the openness of the decision making process regarding the flood management in Jakarta which lead to the lack of accountability of the policy process result bringing the high resistance from the public during the implementation. The transparency and accountability are the practices of the decentralization styles which were not applied by the government when they decided to construct the canal. Consequently, high opposition from citizens rose when the decision to implement the Eastern Flood Canal was published since after the decentralization people have more power to speak about their voice and their rights while the decision carried out without consulted to public opinion. The people surrounding canals tried to block the government decision by holding their lands causing the construction of the canals were impeded again.

The lack of communication and coordination between the central and regional government were also indicated as one factor for the implementation delay. The lack of coordination leads to the unclear plan about the construction and the land acquisition. The land availability is one critical factor to accelerate the completion of the canal. The provincial government then should responsible to provide the land before 2003. However, the land availability appeals unprepared and unmanaged well by the provincial government because until today there are still remains lands that have not been freeing yet. Due to this condition, the land acquisition process and physical construction of BKT is done parallel.

This problem rises because the decision to implement the Eastern Flood Canal did not involve the district government. Ideally, based on decentralization practice if the

government plans to construct the canal, they should involve the district government in decision because the municipality has fully acquainted to the current condition of the Eastern canal areas.

On the other hand, the land acquisition process was done with a top down approach. The governor established a decree about the procurement of land for the canal construction in 2003 (in the same year when the construction of the canal was kicked off by central government) which must be followed by the municipality. There are two Arise problems here: First a lack of coordination between central and provincial government to the status of land supply for BKT and Decision of the governor is also weak because it does not fit with the concept of autonomy. Based on the concept of decentralization, land sector, left entirely to local autonomy, which means the governor has no authority to override the land management plan of the Municipality.

The land acquired to the BKT spans across 11 villages in East Jakarta municipality and 2 villages in North Jakarta municipality and thus the cooperation East Jakarta and North Jakarta municipality were very important. During the interview, it was found that this condition raise a problem. The lands have been utilized to settlement areas (70 %) and business, agriculture and public and social facilities. The land acquisition becoming a very complex problem due to the lack of spatial planning of DKI Jakarta. Actually in the master plan 1997 where the eastern canal was planned to be constructed, it was also mentioned and emphasized that the land regulation need to be conducted and enforced so that the land acquisition will not be hinder the implementation of the eastern canal in the future However, this master plan it appealed not followed by the provincial government. The problem emerges because after 1999 the land affairs is decentralized and the decision in using the land is given to the district government. Therefore, when the eastern canal are constructing, the land which should be allocated to the canal has been changes to settlements areas. It was also found that even the construction has been socialized some of the lands are under development to be residential real estate. East Jakarta has been also planning as the industrial areas since 1973. This is why the eastern canal become very critical important. The problem is the eastern canal remained not implemented until 2003 while the industrial has been controlling without well control.

b.The absence of the critical actors

Our analysis also indicated that several key actors (critical actors) are not involved in the decision making rounds. Based on our findings, we can list several key actors that should have been involved but unfortunately were absent in every round. They include: the Spatial Planning Agency, the Ministry of Finance, Local government levels (municipality). These actors have resources and their support is very important to assure the success of the Eastern Flood Canal Implementation.

According to De Bruijn and ten Heuvelhof (2008) key actors who are not involved during the decision making process will try to use their making process will try to use their resources or power to block the decision. They might

try to redefine the decision, postpone implementation or implement the decision in a different way from the one intended.

More specifically, the absence of some key actors such as land owner caused high opposition during the implementation phase. The land owner tried to block the government's decision by holding their land (see appendix B). Since the land owners know that the Eastern Flood Canal could not be implemented without the availability of land, they used this condition to realize their interest by requesting very high compensation from the government.

How the absence of key players delayed the implementation of the Eastern Flood Canal can be derived from spatial planning aspect. The plan to implement the Eastern Flood Canal has been decided since 1973. However, this plan was not integrated to the spatial planning of Jakarta. Consequently, areas or lands that should have been designated to the construction of the Eastern Flood Canal changed and became settlement and industrial areas.

5. **Discussion and Conclusion**

As we present in previous section, the existence and support from actors who hold resources are important to the successful implementation of the certain policy. By combining our findings about the position of actors before and after decentralization to our observation result from the policy rounds, we conclude that the delay of the Eastern Flood Canal derived from several factors as following:

(I) The lack of support from the Ministry of Public Works as one of the critical actors which lead to the project illegitimacy,

(ii) The absences of several critical actors who lead to unavailability of resources on the Eastern Flood Canal implementation is highly depended.

(iii)The last, stakeholders involvement who were affected by the Eastern Flood Canal implementation was very limited in the policy making process what lead to the high opposition during the implementation phase.

We then define several ***strategies to alleviate the causes of the delay and opposition as follows:***

1. Lack of support from decision maker which lead to the project illegitimacy
   Recommendation: Carry out actual and detailed impact assessment of the flood control infrastructure project (e.g. social impact, economic impact, environmental impact, benefit of the project implementation, etc) at design stage to increase the support from decision maker. The result of such studies should not be compromised. The Jakarta's government can involve the independent expert, consultants, academics or professionalism in conducting the assessment to bring more alternative solutions and benefits of the realization of flood control infrastructure.
   In dealing with maintenance issues, we propose the Provincial government to conduct evaluation by involving independent assessor to provide honest assessment and good learning about the root causes of inadequate maintenance on the past.
2. Absence of critical authorities in decision making process
   Recommendation: Identify the critical authorities who have means of power or resources to realized the

implementation of the flood control infrastructure and involve them in decision making process with strong commitment. Provide multi value of the project implementation (e.g. economic benefit) to increase the willingness of the critical authorities to involve in decision making process. The realization of the flood control infrastructure such as canal highly depends on vital resources (e.g. budget, lands). The inexistence of vital resources will lead to the delay or even the failure of the project implementation. The decisions should be made after all critical authorities commit and agree to bring their resources forward. The agreement should stipulated legally and declare to public to assure the accountability of the agreement.

1. The limited stakeholders involving (e.g. Land owners, NGO's, community forum) in policy making process

   Recommendation: Implementation of flood control infrastructure must include the involvement of wider circle of stakeholders in the policy process outside the boundary of government and bureaucracy (e.g. Land owner, NGO's, community forum). Given the transition to decentralization form and increasing power of society, the limited stakeholder involvement in policy making process of flood control infrastructure is not compatible anymore. Therefore, to give space to the stakeholders to realize their interest and listen to their voice during negotiations is very important. All affected stakeholders should gain and realize the benefit from the implementation of a certain decision unless high opposition and blocking during implementation could impede the successfully of the implementation. Stakeholder involvement could also increase the rationality of implementing a certain project.
4. Lack of commitment from Provincial Government

   Recommendation: The transition from centralization to decentralization form increased the commitment of the Regional government to provide answer for the flood problems in Jakarta due to the condition that the citizens now contribute to evaluating the performance of government in dealing with the flood problem. Therefore, the Government needs to show that they have high commitment to do something about the flood problem unless they will not be elected in the future. For this reason, we recommended to keep the decentralization practice in Indonesia so the government will give more concern to the public issues such as flood problem in Indonesia.

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Biographies

Imelda Rinawaty Simanjuntak was born in Tarutung, on December 8, 1978. She graduated from Institute of Telecommunication Technology Bandung, Informatics Engineering. She then worked as lecturer in Del polytechnic of Informatics from 2002 – now. On 2007, she was honored the STUNED Scholarship from the Dutch government to continued her master study at Delft University of Technology, the Netherlands. In 2010, she graduated as Master of Science in Engineering and Policy Analysis. Today, she continues her work as lecturer in Del Polytechnic Informatics. She also assigns as the Head of Management Informatics Program Study in Del Polytechnic of Informatics.