Application of Natural resource conflict management in resolving the Jakarta Bay reclamation

Elok Faiqotul Mutia, Herdis Herdiansyah\textsuperscript{1,*}

\textsuperscript{1}School of Environmental Science, Universitas Indonesia, Jakarta 10430, Indonesia

\textsuperscript{*}herdis@ui.ac.id

Abstract. The reclamation of Jakarta Bay is a hot issue which lately still becomes a public debate. This debate is heated by environmental issues, marginalization of certain groups, authority regulation as well as corruption in this reclamation project. Some central and provincial government institutions take different stances on the issue. The objective of this research is to describe stakeholder perception in Jakarta Bay Reclamation. This research uses a mix-method approach which is quantitative and qualitative. Data is obtained from in-depth interviews with stakeholders who are 3 experts from central government and 3 experts from the provincial government. Furthermore, the data analysis is conducted with AHP to find out the perception of stakeholders about the causes of the complexity of the Jakarta Bay reclamation conflict. The results of the analysis show that environmental damage issues are not the first concern for the stakeholder. Central government considers a conflict of Jakarta Reclamation is mainly caused by the existing laws and regulations (27.6%). In contrast, the provincial government considers the main cause of the Jakarta Bay reclamation conflict rests on the management authority of the Jakarta Bay reclamation (28.7%).

1. Introduction

The reclamation of the Jakarta Bay is a hot issue which lately still becomes a public debate. The reclamation activity is based on the issuance of Presidential Decree no. 52 of 1995, on the Jakarta North Coast Reclamation. Although the presidential decree came out more than 20 years ago, the reclamation has not made any considerable progress. Rapid progress has only been seen since 2015 or the governance era of Basuki Tjahaja Purnama. The reclamation activities based on planning documents include the construction of 17 islands stretching from the eastern end of Jakarta bay in the Babelan region to the western end of Jakarta bay in the Kamal region. At the same time, the structuring of the coastal area of Jakarta as an integrated plan to create a flood-and-slum-areas-free Jakarta also takes place.

One of the issues in public debate about Jakarta Bay Reclamation is the impact it has. Research has been done, from academics and the government. Many studies that assess Jakarta Bay Reclamation will be bad. Jakarta Bay as a coastal area has a very diverse and interdependent ecosystem. One of the ecosystems that are threatened is the mangrove ecosystem. Mangrove forests in the Jakarta Bay play an important role in maintaining ecological balance\cite{1}. Jakarta Bay reclamation adds pressure to water quality indicated by decreasing the water transparency, salinity and the value of diversity index of...
phytoplankton and macrozoobenthic. It will eliminate the fishing area of a set net (fixed fishing gear), stationary lift net and green mussel trap nets, resulting in fish production loss[2]. When there is damage to the ecosystem, not only damage the environment but also resulted in decreased incomes of surrounding communities. A total value of estimated losses arising from the activities of Jakarta Bay reclamation perceived by fishermen and cultivators is Rp. 207.153.292.610, - / year, which is divided into the estimated value of loss for fishermen of Rp. 94.714.228.734, - / year, green shellfish cultivators Rp. 98.867.000.591, - / year and for pond farmers Rp. 13.572.063, - / year[3]. However, there are some studies assess that Jakarta Bay Reclamation does not significantly even not affect the current state. However, an increase in tidal current exists of about 300% to 600% in the future canals between those new islands. The tida ls may result in erosive sea currents, which can be mitigated by lining the embankment of the future canals and present coastline. The construction of rubble mound revetment may avoid the occurrence of erosion. The reclamation and the existence of the gate do not pose a significant risk of bed profile change, and they cause sedimentation only of the order of cm in a year [4]. Besides, the coastal reclamation plan does not change the current pattern at Marina Ancol Beach, since primarily the current is generated by other factors (beyond all forms of artificial coastal processes such as coastal reclamation) such as wind, tidal, and density differences. The result of the model approach before coastal reclamation shows when the current tide moves from Northeast - West at a speed of 0.123 m / s and when the current tide moves from the West - Northeast at a rate of 0.005 m / s. As for the result of the model approach after coastal reclamation, when the current tide moves from the Northeast - West at a speed of 0.130 m / s and when the current tide moves from the West - Northeast with a speed of 0.004 m /s[5]. This different research becomes the basis for the argument for stakeholders in stating the attitude in the debate of Jakarta Bay Reclamation. In this study, it is essential to know the position of environmental damage issues in policy making of each stakeholder in the Jakarta Bay Reclamation

Conflict is a relationship between two or more parties (individuals or groups) who have or feel they have unaligned objectives [6]. Further, it is explained that conflicts arise because of an imbalance between relations between parties, including social inequalities, inequitable prosperity, differences in access to resources, discrimination and so on[7]. According to Mitchell et al., the roots of arising conflict include four aspects, namely: differences in knowledge and understanding, differences in values, differences in interests, as well as personal issues or historical background[8]. In this research, it focuses on resources conflict. Resource conflicts often occur due to differences in perception or interpretation of the resource is manifested in their attitude [9]. Conflict over natural resources can arise at various levels, from local, regional, to global. Conflicts can also occur between these levels. Conflicts occurring primarily in local contexts can extend the traditional, regional and worldwide levels due to their specific legal relevance[10]. On the global level, resource conflict caused by gaps in demand and supply[11], which makes resources value increased and attract many actors to be involved. Not only gaps demand and supply, inequality access to resources can also lead to conflict[12]. In this research, resource conflicts occur due to high-value resources and different perceptions and interests of stakeholders at Jakarta Bay Reclamation.

The concept of natural resources is a comprehensive concept, so it has many categories and definitions from various disciplines. Most categorize natural resources into two, renewable resources and non-renewable resources[13]. Both of them requires a compatible management approach to avoid conflict[14]. In third countries, natural resource management is usually carried out by the Government, but this often leads to disputes in the absence of community access rights [15]. Furthermore, the government-centered administration has the risk of abuse of authority and corruption[16]. Several things need to be considered in the management of natural resources in the third country. First, analyses the actors involved, feel ownership and interest in the natural resources[17]. Second, regulation and authority to manage natural resources. Many countries have to implement decentralization policy for natural resources management[18]. Third, participation and involvement of the community in natural resources management, especially community that has relation interdependent on these resources[19].
In this Research, will analyses 6 stakeholders that involved in Jakarta Reclamation Bay. It will show the primary regulation of their statement and authority.

2. Method

The objective of this research is to describe stakeholder perception in Jakarta Bay Reclamation. This research uses a mix-method approach which is quantitative and qualitative. Data is obtained from in-depth interviews with stakeholders who are 3 experts from central government and 3 experts from the provincial government. Further, data analysis is done with the Analytic Hierarchy Process (AHP) to find out the stakeholder perceptions about the causes of the complexity of the Jakarta Bay reclamation conflict. AHP (Analytic Hierarchy Process) is a general theory of measurement used to find the ratio scale, either from discrete or continuous pairwise comparisons. AHP describes complex multi-factor or multi-criteria problems into a hierarchy[20]. With a hierarchy, a complex problem can be broken down into groups that are then organized into a hierarchical form so that the problem will seem more structured and systematic. Criteria are derived from an in-depth interview with stakeholder and literature study results such as media analysis. There are 8 criteria to be assessed by stakeholders (Figure 1). This assessment will show the comparison of causes that have the greatest to least impact on the current conflict. In addition, the comparison will also be drawn between the perceptions of central government and local government.

![FIGURE 1. The hierarchy of Jakarta Bay reclamation conflict](image)

3. Results and discussion

The analysis result of the AHP 3 participant from the central government, as shown in Table 1, indicates that the Jakarta Reclamation conflict is mainly due to the existing laws and regulations (27.6%). While the least influence is the power abuse (3.1%). This result is based on a consistency ratio of 5.3%. The central government's concern about the environmental damage and social problems as a source of conflict ranks 3 and 4.

![TABLE 1. Central Government Result](image)

| No. | Criteria                  | Weights | Ranking |
|-----|---------------------------|---------|---------|
| 1   | Environmental Damage      | 14.0%   | 3       |
| 2   | Authority of Management   | 27.0%   | 2       |
| 3   | Law and Regulation        | 27.6%   | 1       |
| 4   | Power Lobbying            | 7.9%    | 5       |
| 5   | Corruption                | 4.1%    | 7       |
| 6   | Marginalization of Fisherman | 8.9%   | 4       |
| 7   | Economical Lobbying       | 7.5%    | 6       |
The analysis result of AHP 3 participant from the provincial government, as shown in Table 2, indicates that the Jakarta Bay Reclamation conflict rests heavily on the management authority of Jakarta Bay reclamation (28.7%). While the weakest reason is corruption. This result is based on a consistency ratio of 2.2%. The provincial government's concern about the environmental damage and social problems as a source of conflict ranks 5 and 6.

| No. | Criteria         | Weights | Ranking |
|-----|------------------|---------|---------|
| 1   | Environmental Damage | 7.5%    | 5       |
| 2   | Authority of Management | 28.7%  | 1       |
| 3   | Law and Regulation      | 17.9%  | 2       |
| 4   | Power Lobbying          | 15.9%  | 3       |
| 5   | Corruption              | 4.9%   | 8       |
| 6   | Marginalization of Fisherman | 6.5%  | 6       |
| 7   | Economical Lobbying     | 13.2%  | 4       |
| 8   | Power Abuse             | 5.4%   | 7       |

Based on the above analysis, it is clear that the central and local governments have different perceptions about the causes of Jakarta Bay reclamation conflict. The central government considers the law and regulation (27.6%) to be the leading cause due to different legal basis used by the central and regional governments in viewing the Jakarta Bay reclamation project such as the Presidential Decree, the Ministerial Decree, the Regional Regulation and the overlapping Governor Regulation. Provincial governments are also aware that laws and regulations trigger the conflict, but they prioritize issues of management authority (28.7%) in the Jakarta Bay reclamation. For them, the legal and regulatory basis they use is so strong that this conflict is caused by the seizure of the Jakarta Bay reclamation authority. The central government places environmental (14%) and social issues (8.9%) in the third and the fourth cause respectively. This then reinforces the Ministry of Environment and Forestry's reason for conducting a moratorium on several Jakarta Bay reclamation islands and requests for full strategic environmental assessment. The Ministry of Marine Affairs and Fisheries firmly declared its rejection of the Jakarta Bay reclamation. In addition to their study of the adverse impacts that will occur on the coastal areas, the fate of fishermen in affected areas is also the primary concern of the Ministry of Marine Affairs and Fisheries. But for the provincial government, the environmental and social issues only rank 5 (7.5%) and 6 (6.5%). The results of in-depth interviews indicate that this is based on their beliefs that have accommodated the welfare of fishermen and conducted various studies to minimize environmental problems such as AMDAL and KLHS.

From the analysis results can show that the conflicts that occur in the Jakarta Bay Reclamation are a conflict of resource management. The Jakarta Bay Reclamation is a project involving many stakeholders and high economic value. This certainly makes these resources into many interests involved. The management authority of Jakarta Bay Reclamation became one of the most potent causes of conflict. The central and provincial governments use regulations that strengthen the authority over the Jakarta Bay Reclamation and ignore other weakening regulations. On this basis then each government has
different attitudes and policies on issues that exist within the Jakarta Bay reclamation, such as environmental damage and fishermen's welfare. This conflict continues and focuses on the authority and regulation then ignore the environmental problems and the well-being of fishermen.

This conflict of "owning resources" also takes place in Manila, where the solar city reclamation project will be built in Manila Bay. This creates conflict because of the many stakeholders and interests involved. This project also became a public debate because of the threatened national heritage issue. Such conflicts are common in countries that still use the most important sources of economic resources such as third world countries. Projects that affect resources will involve multiple stakeholders and interests. However, not infrequently these interests focus on profit and ignore the sustainability of the supply itself. Conflicts involving many stakeholders and interest can be minimized by disclosure of information. This can reduce suspicion and equate perception among stakeholders. Information sharing can improve transparency, build trust, solve the fact problems, and distinguish them from being issues. Previous studies conducted by the authors (Asteria and Herdiansyah) show that community engagement is essential in solving difficult environmental problems [21]. The process of conducting research and information sharing can also serve as a valuable tool for identifying and engaging multiple stakeholders. Information sharing and stakeholder identification represent the beginning of the conflict resolution process. Building trust and understanding together can begin with less controversial peripheral issues.

4. Conclusion
This research concludes that the complexity of conflicts between central and provincial governments in the Jakarta Bay reclamation is the difference of interest seen in the agreement of natural resource management authority. This conflict continues and focuses on the authority and regulation then ignores the environmental problems and the welfare of fishermen. Disputes involving many stakeholders and interest like Jakarta Bay Reclamation can be minimized by disclosure of information.

Acknowledgment
This research is funded by the Grant of Indexed International Publication for Final Project of Students/Publikasi Terindeks Internasional Untuk Tugas Akhir Mahasiswa (PITTA) Universitas Indonesia 2018 with contract number 2579/UN.R3.1/HKP.05.00/2018.

References
1. Alikodra, H. S. Media Konservasi, 5(1) (1996).
2. Puspasari, R., Hartati, S. T., & Anggawangsa, R. F. Jurnal Kebijakan Perikanan Indonesia, 9(2), 85-94. (2018)
3. Ramadhan, A., Firdaus, M., Wijaya, R. A., & Muliawan, I. Jurnal Sosial Ekonomi Kelautan dan Perikanan, 11(1), 1-11. (2016).
4. Ajiwibowo, H., & Pratama, M. B. International Journal of Engineering and Technology, 9, 3763-3774. (2017).
5. Yuliasari, D., Zainuri, M., & Sugianto, D. Buletin Oseanografi Marina, 1(5), 1-9. (2012)
6. Fisher, S., Zed books. (2000).
7. Stewart, F. (Ed.). Springer. (2016).
8. Mitchell, B., Rahmi, D. H., & Setiawan, B. Gadjah Mada University Press. (2003)
9. Cheng, A. S., Kruger, L. E., & Daniels, S. E. Society & Natural Resources, 16(2), 87-104. (2003).
10. Talaue-McManus, L., Yambao, A. C., Salmo III, S. G., & Alino, P. M. International Development Research Centre, 151-161. (1999).
11. Giordano, M. F., Giordano, M. A., & Wolf, A. T. Journal of Peace Research, 42(1), 47-65. (2005)
12. Homer-Dixon, T. F. 19(1), 5-40. (1994).
13. Grimble, R., & Wellard, K... Agricultural systems, 55(2), 173-193. (1997)
14. Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J.& Stringer, L. C.. Journal of environmental management, 90(5), 1933-1949. (2009)
15. Heltberg, R.. Journal of Economic Surveys, 16(2), 189-214.(2002)
16. Le Billon, P.. Political geography, 20(5), 561-584. (2001).
17. Marfo, E. Powerful relations: the role of actor-empowerment in the management of natural resource conflicts: a case of forest conflicts in Ghana. (2006).
18. Ribot, J. C. Public administration and development, 23(1), 53-65. (2003)
19. Shackleton, S., Campbell, B., Wollenberg, E., & Edmunds, D. Natural resource perspectives, 76(1), 1-6. (2002).
20. Mu, E., & Pereyra-Rojas, M.. Springer, Cham. (2018)
21. Donna Asteria et al IOP Conf. Ser.: Earth Environ. Sci. 126, 012146 (2018)