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Natural Disaster Insurance Policy in Indonesia: Proposing an Institutional Design

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ABSTRACT

Natural disasters are a significant phenomenon that often take place in Indonesia. Indonesia's geographic position gives it a high risk of natural disasters. In 2018, the government of Indonesia created a natural disaster insurance policy as an effort to finance disaster mitigation without depending on the state budget. Natural disaster insurance is intended to divert risk, which was initially entirely borne by the government, to insurance companies or other stakeholders. The issue of governance or institutional management of insurance funds is essential, as is considering accountability and transparency. In the institutional context, the interests of the stakeholders, namely the government, the community, and insurance companies, need to be considered. The purpose of this study is to initiate an institutional design of natural disaster insurance fund management in Indonesia. This research uses a qualitative approach with in-depth interviews and a review of the existing literature. The results showed that both the private sector and the government can manage natural disaster insurance funds. By considering accountability and transparency, as well as the significant risk of natural disasters, it was determined that the government can work with private insurance companies, both in the form of consortia and associations, to manage natural disaster insurance funds.

***Keywords**: Natural Disaster Insurance Policy, Institutional Design, Indonesia*

1. INTRODUCTION

Indonesia is flanked by two oceans and crossed by three active tectonic plates (known as the "ring of fire"), making it prone to disaster. The meeting point of the three active plates leads to a high frequency of earthquakes and forms an active volcanic line along the islands of Sumatra, Java, Bali and Nusa Tenggara. Thus, natural disaster risks in Indonesia require serious consideration from the government.

Table 1. Data on Natural Disasters in Indonesia, 2018-2019

Type of Disaster	Number of Occurrences	Deaths and Injuries (People)	Houses Damaged	Type of Disaster
Flood	1,234	1,718	397,490	118
Landslide	982	460	3,958	17
Flood and Landslide	5	3	89	0
Abrasion	58	14	26,915	1
Tornado	1,707	375	27,883	27
Drought	130	0	0	0
Wildfires	588	9	2	0
Earthquake	47	2,744	233,035	151
Tsunami	2	14,512	2,752	0
Earthquake and Tsunami	1	7.763	100.028	217
Volcano Eruption	62	56	0	0
Total	**4,816**	**27,654**	**792,152**	**531**

The data in Table 1 displays the substantial impact of natural disasters in Indonesia. In addition to the toll in human life, natural disasters have destructive effects both materially and structurally. Disasters frequently result in a significant decline in Gross Domestic Revenue due to financial losses caused by those disasters, leading to economic disruption. According to the International Monetary Fund (IMF) Annual Meeting in Indonesia (2018), this occurs partially because the damage from natural disasters is borne entirely by the central government and local governments using the State Budget (APBN) and the Regional Budget (APBD) respectively. This frequently leads to a financing gap in dealing with natural disaster risks. Such a gap emerges due to the inadequate capacity of the government to finance risk transfer from the APBN and/or APBD (The Fiscal Policy Agency, 2018).

In order to mitigate the damage of natural disasters in Indonesia, the government has established a new policy creating Natural Disaster Insurance. This policy is an effort to ensure that the burden of natural disaster mitigation is jointly borne by all elements of society. In crafting this policy, various elements must be considered. Among these are the governance and institutional design of natural disaster insurance and the involvement of various stakeholders in managing natural disaster insurance revenue and spending. In this regard, natural disaster insurance can be managed by the government as a policyholder or in collaboration with private insurance companies.

The concept of a natural disaster insurance scheme has been considered in Indonesia since the IMF Annual Meeting with the World Bank in Bali in 2018 (Detik Finance, 2018). The natural disaster insurance policy is currently at the stage of policy formulation and is directed to insure state assets. According to the plan, the government aims to insure government buildings in the 2019 fiscal year. This policy is in line with the Ministry of Finance Regulation No. 247 in 2016 (PMK No. 247/2016), which states that the government has the authority to insure state properties. However, it does not exclude the possibility that the government will provide an insurance program for the wider community as a response to the request for disaster insurance submitted to the government by BNPB through the Ministry of Finance in 2013 (VOA, 2013).

To implement a natural disaster insurance policy, the government needs to consider several aspects including regulatory, administrative, and institutional aspects in the management of natural disaster insurance funds. Per PMK No. 247/2016, insurance is an agreement between two parties, namely the insurance company and the policyholder, which allows the insurance company to obtain premium in exchange for providing compensation to the policyholder for losses that may be suffered due to an uncertain event. In insuring state properties, the government is acting as a consumer seeking a policy from private insurance companies. If the government plans to establish a natural disaster insurance scheme for public assets, further review is necessary to discover whether a similar plan can be implemented.

In the process of policy formulation, the government also plans to involve the private sector in providing support for the public disaster insurance policy (Fiscal Policy Agency, 2019). In this regard, the community is also expected to pay a premium for disaster insurance. The premium shall later be collected by the authorized party to be utilized in the event of natural disasters. It is furthermore necessary to consider the management of these funds prior to utilization. One point of consideration is which institution will be given the authority to manage the insurance funds. In this regard, the government needs to consider the involvement of other stakeholders, particularly the private sector. The ideal form of governance involves a collaborative effort that includes a process of negotiation between several related parties, both governmental and non-governmental. (Colebatch, 2009). In the context of network governance, decision-making and the distribution of roles must be such as to manage collective interests without threatening other aspects such as independence, individual initiative, and the relationships between stakeholders (Assens and Lemeur, 2016). Stakeholder analysis is applied to map the parties involved, and collect and analyze qualitative information to determine whose interests need to be prioritized in developing a policy or project.

The policy discussed above is expected to not only benefit the government by adding to disaster mitigation funds, but also the community by providing insurance coverage in the event of a disaster. On the other hand, the private sector, particularly the insurance industry, can use this momentum to stimulate its broader development in Indonesia by playing a role in improving public welfare, easing the financial burden of the government, and advancing the national economy. Therefore, collaboration between stakeholders within the governance framework is crucial to study. This study thus aims to analyze natural disaster insurance policy in Indonesia from an institutional perspective.

2. THEORETICAL FRAMEWORK

Prior to examining the institutional system in Indonesia, it is helpful to review a scheme in another country with a similar policy aimed at dealing with natural disaster risks. Each country may establish its own policy regarding the institution that acts as the manager of natural disaster insurance fund.

According to Simanjuntak (2016), Japan has long implemented a natural disaster insurance policy. Since

1966, Japan has implemented a special earthquake disaster insurance policy to protect the housing of its population. Japan's seriousness in dealing with natural disaster risks is evident from Act No. 73, May 18, 1966 concerning earthquake insurance. Japan implemented an institutional scheme establishing a reinsurance company called Japan Earthquake Reinsurance Co., Ltd. (JER). JER consists of approximately 20 domestic general insurance companies acting as an entity organizing and managing earthquake insurance funds. The agency operates with an initial capital deposit of 1,000,000,000 yen from its shareholders, excluding the Japanese government. The role of the government is to bear risk as the reinsurance party. When the accumulated losses (claims) caused by natural disasters become too large to be borne by the JER, the government steps in to provide assistance. The division of responsibility for the payment of claims is regulated in the form of an agreement known as non-proportional or excess of loss reinsurance. The organizing or managing entity of the earthquake insurance funds then regulates the provision of reinsurance support for the Japanese population. The government of Japan does not participate in the institution, but acts as a bearer of earthquake risk should the number of claims become too large. This risk-sharing scheme is divided into three layers.

Table 2. Risk-Sharing Scheme of Japanese Insurance Institutions

Layer	Claim (maximum)	Risk Bearer
1	¥10,000,000,000	JER
2	¥40,000,000,000	• 50% is reinsured by JER to general insurance companies (amounting to ¥20,000,000,000) • 50% is reinsured by JER to the government of Japan (amounting to ¥20,000,000,000)
3	¥250,000,000,000	The Government of Japan

In order to encourage community participation, the government of Japan has created innovative policy by providing tax allowances on income tax since 2007. However, due to mergers and acquisitions, the number of companies participating in JER declined to 11 in 2014.

As a country also located in the ring of fire, New Zealand has prepared a reserve fund scheme to mitigate natural disaster risks. In 1944, the government of New Zealand established the Earthquake and War Damage Fund (EWDF) to compensate residents for property damage caused by earthquakes and war. The EWDF is managed by a government institution called the EWDF Commission. EWDF funds are collected from a commission levy imposed on the residents, in addition to fire insurance premiums, paid to guarantee the property of residents. Through the 1993 Earthquake Commission Act, the government of New Zealand established the New Zealand Earthquake Commission (EQC). The EQC is a legal entity entirely owned by the government that organizes the country's earthquake insurance scheme. Similar to Japan, should there a claim for a huge loss caused by natural disaster that cannot be borne entirely by the EQC, the government of New Zealand will provide funds to make up the shortfall. In the EQC system, the government plays the role of guarantor instead of the reinsurance party, while general insurance companies play the role of policy marketers and publishers, since the risk and premium funds are deposited to the EQC.

In Indonesia, the management of national health insurance by the Social Security Organizing Agency (BPJS) can provide a lesson, especially in the case of the Health Care and Social Security Agency (BPJS *Kesehatan*). BPJS *Kesehatan* is an insurance scheme that was established by the government of Indonesia in 2013 (BJPS, 2017). This institution is a legal entity formed based on Law No. 40 of 2004 on the National Social Security System and Law No. 24 of 2011 on the Social Security Organizing Agency. The BPJS is owned by the government, and as the director of the social security program, it is directly responsible to the President. BPJS is a non-structural institution, which is an institution formed through legislation to support the implementation of the functions of the state and which involves elements of the government, private sector, and civil society, and is financed by the state budget. The BPJS establishes a cooperative, coordinative, consultative, and synergistic relationship with and jointly works with other public legal entities. The BPJS relies on APBN funds and contributions from the community.

North (1991) explains that an institution consists of formal rules and informal constraints. In this regard, formal rules are constitutions, laws, and human rights, while informal constraints are sanctions, taboos, unwritten rules, traditions, and codes of ethics. Campbell (2006) defines an institution as a collection of formal and non-formal rules regarding supervision and sanction mechanisms and assumes that actors in the institution are motivated by institutional logic even though their roles are institutionally limited. The existence of informal and formal rules enables the institution to provide space for negotiation, triggering bargaining power between actors. In terms of institutions, the state needs to have strong bargaining power in negotiations to achieve each of its interests more easily. Bargaining power that focuses on each position results in a win-win solution because it can prioritize mutual interests.

To analyze the stakeholders involved in insurance policy, this study applies stakeholder analysis. According to Schmeer (1999), stakeholder analysis is a systematic process that collects and analyzes qualitative information to determine whose interests need to be prioritized in formulating or developing a policy or project. Schmeer specifies several characteristics to consider determining the interests of stakeholders, namely knowledge, interests, positions for or against, potential alliances with other stakeholders, the ability to affect decisions, and positions of power and/or leadership. Stakeholder analysis is carried out in five stages, including identifying common problems; identifying all parties who have both positive and negative interests related to the problems; assessing the influence of each stakeholder on the problem; identifying cooperation and conflicts that might arise among different stakeholders; and utilizing the proper tools to analyze this information.

3. METHODOLOGY

This study applied a qualitative approach that relied on two types of data sources, namely primary and secondary data. The technique used to collect primary data was in-depth interviews with informants who have knowledge related to the issues discussed in this paper (Neuman, 2007). The informants were the General Insurance Association of Indonesia, the Fiscal Policy Agency, the Coordinating Ministry for Economic Affairs of the Republic of Indonesia, and experts on public policy as well as tax policy. Furthermore, secondary data were obtained through a study of the literature and references related to research problems.

The data were analyzed using coding. Coding is a way to obtain words or phrases that determine the existence of distinguishing psychological facts, capture the essence of facts, or mark psychological attributes that strongly appear from collections of language or visual data (Saldana, 2009). Data can be in the form of interview transcripts, field notes from observations, journals, documents, literature, websites, email correspondence, and so on. Coding is thus a transition process between a wider collection of data and data analysis.

4. RESULTS AND DISCUSSION

Natural disaster insurance aims to mitigate disaster risk by transferring it to other parties. The formulation of such insurance is immediately required in Indonesia due to the rather high potential for natural disasters. To be able to cover the losses caused by natural disasters that still depend on the state budget, the Minister of Finance, Sri Mulyani, proposed a natural disaster insurance policy at the regular IMF-World Bank meeting at the end of 2018. The initial priority of this policy is to secure state assets and properties. Therefore, PMK No. 247/2016 provides the government with the authority to insure state properties. The PMK stipulates a general system to be implemented that positions the state as the insured and the insurance company as the policy insurer. However, should the government plan to establish a natural disaster insurance scheme for public property, further review is necessary to discover whether a similar scheme can be implemented.

According to the Fiscal Policy Agency, the government will involve the private sector to support the disaster insurance policy, although the exact role has not yet been determined. The insurance premium shall be imposed on the community and managed by the authorized party to be utilized in the event of natural disasters. This structure creates an issue related to the formation of the institution to manage insurance funds in order to create an optimal disaster insurance system.

Based on the Disaster Risk and Financing Strategy released by the Fiscal Policy Agency in 2018, the government has prepared another institutional option by establishing a pooling fund scheme for a management institution that acts as a complement to the APBN. This scheme could be implemented according to two institutional options, namely by forming a new institution such as the Public Service Agency, or by assigning an existing institution to the role of fund manager. Nevertheless, there is still no clarity from the government regarding the institutional scheme that will be implemented for this policy.

As the participants in this insurance program, the community's interests as a stakeholder need to be considered. Related to Schmeer's theory (1999), the community can be categorized as a stakeholder as it has several related characteristics, namely interests, positions that support or reject the policy (positions for or against), and the ability to influence (ability to influence affect, in power and / or leadership). Since this natural disaster insurance program will be aimed at the community, surely the services provided must be able to meet the community's expectations as "consumers" of natural disaster insurance. Conversely, the community will expect commensurate contribution to the premiums paid, such as the determination of appropriate loss coverage. The interests of the community can be accommodated by providing proper administration and procedures for the insurance program.

Other interests to consider are those of the central government. The central government is a key stakeholder, since it is the highest legal authority and decision-maker in regarding the policy. As a decision-maker, the government has the ability to influence policy, interests, knowledge, and alliances with other stakeholders. The ministries or government agencies currently in contact regarding this policy include the Ministry of Finance, the Directorate General of State Assets of State Assets Risk Management, the National Disaster Management Agency, the Directorate General of Taxes, and the Fiscal Policy Agency. Therefore, the interests of the government must also be accommodated in the natural disaster insurance scheme via the active participation of the community in contributing to insurance premiums. This funding shall assist the government, since the costs incurred in the event of natural disasters will be lower than before due to cost sharing with the community.

Another stakeholder with interests in this scheme is the private sector. The private sector is a supporting stakeholder who can provide opinions and advice to the government in formulating the natural disaster insurance policy. In addition, the insurance industry in Indonesia has the capability to manage insurance funds and the space to develop its products. Therefore, the presence of the insurance industry in assisting fund management is required to form an effective scheme and to spur innovation in the insurance business in Indonesia. The interests of the three parties can be accommodated by establishing a cooperative relationship with the division of roles or tasks, as well as the distribution of rights and obligations based on legislation, derivative regulations, cooperation contracts, and supervision by the Financial Services Authority.

4.1. The Role of the Government in Preparing Natural Disaster Insurance Policy

In implementing natural disaster insurance policy, the government needs to prepare several aspects related to policy formulation and the creation of an institution to manage natural disaster insurance. The role of the government intervening in community participation is as follows:

1. *Providing Subsidies for the Disaster Insurance Premium*

   The government needs to consider the effects of a subsidy policy for the disaster insurance premium. Should the ownership of the disaster insurance premium become mandatory, the government needs to determine an affordable insurance premium for the public. In other words, the insurance premium must be at an affordable minimum or be subsidized by the government.

2. *Conducting Research and Development*

   To optimize the disaster insurance policy, the government can conduct research and development, namely through training and channeling information to insurance companies and the insurance investment industry. The government promoting research and development in the insurance sector can be expected to improve the quality of the insurance industry.

3. *Providing a Clear Legal Umbrella regarding Natural Disaster Insurance*

   The government needs to prepare a clear legal umbrella related to disaster insurance schemes, disaster insurance providers, and other supporting policies. The existence of a clear legal foundation shall ensure the measurable and directed implementation of the policy. In addition, a legal foundation provides clarity on the role of the government, insurance management institutions, and the community.

4. *Providing a reinsurance agency*

   As it is engaged in the risk management industry, the insurance company bears a significant responsibility. To avoid failed claims for insured risks, the government can propose a reinsurance agency policy. In other words, the risk of natural disasters borne by the insurance company can be insured by a reinsurance agency established by the government.

5. *Providing Subsidies for Administrative Costs Related to Disaster Insurance*

   To be able to increase community participation in insurance, the government can provide subsidies for the insurance premium. The subsidies can be provided through tax instruments, such as tax allowances on income tax. Thus, the community can utilize the insurance premium payments as an income tax deduction. This will increase the benefits obtained by the community, namely by paying lower taxes and having their property insured against disasters (Iturrioz, 2009). In addition, the government also needs to provide special subsidies for natural disaster insurance providers to improve their financial inclusion.

4.2. The Scheme for Institutional Organization and Managing a Natural Disaster Insurance Fund in Indonesia

Given the local conditions in Indonesia, it is necessary to consider the involvement of relevant stakeholders to ensure the proper implementation of this policy. Based on the findings of this study, there are two possible institutional schemes that could be applied in Indonesia to organize and manage natural disaster insurance funds in the future, namely collaborating with insurance companies from the private sector (Alternative 1) or establishing an independent government institution to manage disaster insurance funds (Alternative 2).

4.2.1. Alternative 1

In the first alternative, as stated by Campbell (1991) and North (2006), an institution consists of formal and informal regulations that provide a space for negotiation between actors. In establishing a new institution or agency for natural disaster insurance discourse that specifically involves the private sector, negotiations will take place between policymakers regarding the correct policy choices and the interests of different actors.

As a form of bargaining, negotiation requires relatively equal bargaining power. Should the government prefer to collaborate with private insurance institutions, there are a number of important considerations, including the readiness of insurance institutions to act as policyholders. Should the implemented scheme include cost sharing between the government and the insurance sector, further studies will be required to review the division of roles and levels of participation of the insurance institutions in the management of natural disaster insurance funds. It is essential to consider high and unpredictable natural disaster risks, forcing risk takers to be prepared financially and structurally. Referring to the opinion of Campbell and North, private insurance institutions should occupy a more equal position in the relationship between actors, since the private sector is not burdened with other interests, allowing it to consider all interests more thoroughly.

Even though the insurance industry is specialized in risk-taking, it does not exclude the possibility that private insurance institutions would reject insurance schemes related to natural disasters as they must avoid large potential losses due to large insurance claims. Should the private sector be willing to manage insurance funds, it needs to prepare to serve as an entity that is ready to handle large claims at any time in the event of a natural disaster.

In addition, as stated by the Fiscal Policy Agency, it should be considered whether the insurance institution is foreign or domestic. Cooperating with a foreign insurance institution creates foreign exchange outflows, risking a deficit in the balance of payments due to exchange rate pressure. The government needs to consider the necessity of foreign institutional intervention in ensuring the availability of reserve funds to mitigate natural disaster risks against the capacity of domestic firms to bear those risks.

4.2.2. Alternative 2

In the second alternative**,** the government can establish an insurance institution managed directly by the government in the form of a Public Service Agency. In this regard, the issue of administrative and organizational capacity, as well as professionalism in the management of insurance premiums, is highly important, considering that several forms of insurance managed by the government, such as BPJS funds, have suffered losses of up to IDR 16.5 trillion (Finance Detik, 2018). This has occurred due to the difference between the BPJS and the private health insurance system, where community participants are responsible for paying premiums after certain requirements are fulfilled. The financial deficit is also caused by a lack of transparency and poor management, rendering the BPJS dependent on the central government to cover its lack of funds.

Another consideration is the expected ability of the government to manage funds based on social trust from the community in general. The government has the highest authority to enforce policies related to natural disaster insurance. Thus, the main authority for managing the funds should also be held by the government. Moreover, natural disaster insurance will likely be compulsory, allowing the central government to collect and manage the funds. Encouraging active community participation in joining the insurance program will be difficult, since the general insurance literacy index of the Indonesian public was 15.76% in 2017, while the rate of insurance utilization reached 11.81% in 2013, with only an insignificant increase to 12.08% in 2017 (Berita Satu, 2018).

Regarding public financing, the central government needs to ensure in advance that the policy will be financially efficient if carried out entirely by the state. This needs to be done in order to avoid a situation akin to the poor management of the previous health insurance funds through the BJPS program, which caused a large deficit that had to be covered by APBN funds. The management system will be efficient should the output of the policy has a certain level of quality relative to the financial input.

From this estimate of efficiency, the government should be able to make an ideal decision regarding the formation of an institution to manage natural disaster insurance funds in the future. If the government’s management system is predicted to be quite inefficient and would require professional assistance, the government can consider a partnership scheme with an outside party, namely private insurance institutions. The government could sign a cooperation agreement with the insurance industry to give the latter authority to act as a fund management agency under the auspices and direct supervision of the government. A partnership scheme is an alternative option, given the possibility of private insurance institutions sharing knowledge, expertise, and other resources to assist in improving the quality of insurance program (McQuaid, 2010). Insurance products can be produced more effectively in the hands of experts and offered to the public with excellent services in accordance with the value of professionalism underlying the insurance companies. This advantage is one of the factors that should be considered by the government should it undertake a partnership scheme. In addition to this, partnerships can lead to innovation because they bring together stakeholders from different backgrounds and can produce new approaches to implementing supporting policies in an effort to improve the quality of the natural disaster insurance product. McQuaid (2010) also stated that partnerships can improve policy efficiency due to the establishment of democracy between stakeholders. Through communication from stakeholders with different interests, reasoning will be more structured before the next decision-making process. Certainly, due to this diversity of perspectives and interest, it will also cause internal conflicts. Therefore, the government needs to consider the division of roles in a natural disaster insurance policy.

Ideally, the state should be entitled to manage insurance funds. Therefore, the central government has the authority to establish other supporting policies to optimize the management of natural disaster insurance funds, such as using tax instruments that engineer control, where taxes are create social mechanisms to mobilize the community. However, the current condition of Indonesia does not suggest that management should be conducted by state institutions. Active participation from the policy holding community and the government in managing insurance funds are required, considering that the Hajj funds and BPJS *Kesehatan* have not shown optimal results. Furthermore, the community's literacy regarding general insurance remains rather low. Encouraging the general public in Indonesia to participate in insurance will be quite difficult.

Therefore, it is necessary to conduct check and balances prior to implementing this policy. As a policy-maker, the central government needs to ensure that related entities are able to perform their duties and assist in mobilizing the community. The main role of the government is to improve the level of community participation in order to collect sufficient funds to be managed for natural disasters. To avoid poor fund management, such as has occurred with other schemes, the government may delegate management to the insurance sector, considering its more professional capabilities. However, the government should remain as the supervisor of the system to optimize fund management.

The important point in determining this policy is ensuring that insurance institutions prioritize competency, accountability, and transparency. In addition, the interests of the community as stakeholders need to be considered, considering that natural disaster insurance is to be utilized to cover property losses caused by natural disasters.

5. CONCLUSION

Based on the findings of the study, the optimal institutional scheme for managing natural disaster insurance involves collaboration between the government and private insurance institutions. Private actors should have equal positions in the distribution of power between stakeholders. In addition, the capacity of the insurance industry to manage insurance funds will be sufficiently guaranteed given that "risk" is the primary domain of the industry. The government must assist in bearing natural disaster risks due to the considerable risk involved. Ideally, the management of natural disaster insurance should be conducted by the government, since policy is established by the government. This is strengthened by the state's level of authority and public trust. Due to the significant government role in this policy, it is expected that the government will optimize other roles in collaboration with the insurance industry by to subsidizing natural disaster insurance premiums and utilizing tax instruments to encourage community participation in natural disaster insurance.

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