

Adoption Of Local Wisdom In Disaster Management In Indonesia

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Abstract—The purpose of this study include: (1). Explore the values of local knowledge possessed by the Indonesian people as that norms that can contribute to disaster management in Indonesia, (2). Identifying the potential and relevance of local wisdom in the form of regions in Indonesia for the institutional management of disaster management in Indonesia, (3). Developing local knowledge integration model for disaster management institutions that have been in the design. This study is a research R & D conducted in the focus of a study site in a certain time period and then build a new design. The informants include regional government leaders, the local parliament, leaders and communities / indigenous considered mastered this research theme. The results revealed that the shape of local knowledge in Indonesia is quite dominant tangible application of technology or system, and then followed by the local wisdom that tangible ritual prayer, and the rest of the form of education and post-disaster recovery and reconstruction. The factors reinforce the existence and continuity of the forms of local wisdom in society. Largely driven by the empirical experience they have been through the implementation of local wisdom, the experience in the form of a form of practice and prohibitions which both form the implementation of the local wisdom that is known to give better effect to the community is located.

Index Terms— Local Wisdom, Disaster Management, Local Values, Local Government, Local Knowledge, Disaster Policy, Disaster Model.

1 INTRODUCTION

Disaster is an event, natural or manmade, or progessive suddenly, causing a terrible impact so that people affected or unaffected should respond with exceptional measures (Fiedrich & Burghardt, 2017), According to Law No. 24 Year 2007 on Disaster Management Chapter I Article 1, paragraph 1, Disaster is an event or series of events that threaten and disrupt the lives and livelihood caused by both natural factors and / or factors of non-natural or human factors resulting in the emergence of human lives, damage environment, loss of property, and the psychological impact. In paragraph 2,3 and 4 of disaster distinguished on three categories based on the cause of natural disasters, non-natural disasters, and social disaster. Referring to the definition of disaster in the book Disaster Management - A Disaster Manager's Handbook and Law 24 Year 2007 on Disaster Management Chapter I Article 1, paragraph 1, and some dictionaries calamity or disaster then disaster is an event or series of events in the form of disorder or chaos caused by both natural factors and/or factors of non-natural and human factors in the normal patterns of life which threaten and disrupt the lives and livelihood of the people, resulting in the emergence of human lives, environmental damage, loss of property, and the psychological impact. Disaster management is "an applied science roomates seeks, by the systematic observation and analysis of disaster, to improve measures Relating to prevention, nitigation, preparedness, emergency response and recovery"(Agranoff & McGuire, 2014), Natural disaster (disaster management) need to be held through the following phases: preparation, deterrence / handling, repair damage, functioning back social infrastructure and facilities were damaged, and taming natural motion, catastrophic (Sudibyakto, 2018), These stages are not absolute, because it could be that one precedes the other. Disaster management is

an applied science that seeks to increase the measures relating to the prevention, mitigation, preparedness, response and recovery with systematic observation and analysis on disaster(Inan & Beydon, 2017), Management of integrated disaster is defined as a process that promotes the coordinated development and management of disasters as well as the management of other aspects related directly or indirectly in order to optimize the resultant economic interests and social welfare, especially in the comfort and safety of the disaster in a manner suitable / appropriate without disrupting the stability of important ecosystems(Cho et al., 2016), Integrated disaster management are grouped into three key elements, namely: the enabling environment, the roles of institutions (institutional role), and management tools (Kusumasari & Nature, 2015), Disaster management is part of the public service because of a relationship between the government and society as providers as users of goods and services which are non-profit or public goods. Therefore, people biased measure the quality of services provided(Arif & Rosni, 2015), However, public service programs do not necessarily have a charge of disaster response, although there are already attempting to integrate, for example in Malang who try to adopt a risk management approach to disaster planning(Ahdi, 2015), There are adopting local wisdom(Lestari, True Paripurno, and Bahagiarti Kusumayuda, 2015) and community-based disaster early warning (Yi et al., 2018), At regular levels even Bantaeng create a team of emergency service(Tamimi, 2015), A more structured effort found in Magelang which makes the model of disaster management with the sister models village that is a disaster prone villages will be directed to evacuate at one or several villages into their buffer. In this model village Ngargomulyo establish sister village to village Tamanagung(Kristifolus, Setiyono, & Purwoko, 2017), Studies conducted by Yulianto and Hutagalung (2013) in the framework of this study revealed that the adoption of local knowledge to support bureaucratic reform has been implemented in some local governments in Indonesia, including Denpasar government that has managed to make regulations Denpasar Mayor Number 39 Year 2013 On Road Acceleration folder Denpasar Government reforms Year 2013 - 2017 Based Local Wisdom and Culture seed. Studies conducted by Irawati (2013) to the village government in

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Sumatera Barat Kapau concluded that the involvement of the bureaucracy is very likely to help combat corruption, especially by integrating the cultural values of potential in the organization of the bureaucracy (Irawati, 2013). In the context of West Sumatra, papers from Malau and Lanin (2016) draws scrutiny. Their research identified that village government as in Law No. 6 of 2014 still showed a synergy between traditional values and the optimal local autonomy (Malau & Lanin, 2016). Study conducted Armawi (2008) on the cultural influences Dalihan Na Tolu on bureaucracy in North Sumatra found if Culture Dalihan na tolu regulate and control the lives of Toba Batak people not only in the context of traditional ties, but also in the economic, religious, political, even bureaucratic. In the context of the modern public bureaucracy and rational Toba Batak people will often face difficulties and moral and ethical dilemma between the demands of discipline and bureaucratic rules governing the moral demands of indigenous and genealogical (Armawi, 2008). The topic of this study is interesting considering not only inventory the form of local wisdom that can contribute to the organization of disaster management at the local government, but potentially utilized adaptively. The formulation of the problem; (1). What are the local knowledge is categorization of the disaster response on local governments in Indonesia ?, and any potential factors that could encourage local wisdom such as the value of living in the community in the face of disaster ?, and (2). How is a model of integration of local wisdom in government programs that are synergistic with disaster response and disaster management institutions in Indonesia ?. The objective of this study: (a). categorizing forms of local wisdom is disaster response on local governments in Indonesia and to develop potential factors that could encourage local wisdom in the face of disaster, (b). Identifying the integration model of local government that are synergistic with disaster response and disaster management institutions in Indonesia.

2 RESEARCH METHODS

This research was conducted with a qualitative approach that seeks to analyze it in focus and then build a new idea of design. As the focus of the analysis, will have 21 regions in Indonesia were purposively have a background introduction of local knowledge for the benefit of the bureaucracy, either already are regulative and that only a technical program. Here are the areas being sampled:

Table 1. Selected Regions In This Research

| No. | Sumatra | No. | Java | No. | Kalimantan and Maluku | No. | Sulawesi and Papua |
|-----|---------------|-----|--------------|-----|-----------------------|-----|--------------------|
| 1 | Aceh | 7 | Banten | 13 | Kutai | 19 | South Sulawesi |
| 2 | North Sumatra | 8 | West Java | 14 | East Kalimantan | 20 | North Sulawesi |
| 3 | West Sumatra | 9 | Central Java | 15 | South Kalimantan | 21 | Papuan |
| 4 | Jambi | 10 | East Java | 16 | North Kalimantan | | |
| 5 | South Sumatra | 11 | Madura | 17 | Central Kalimantan | | |
| 6 | Lampung | 12 | Yogyakarta | 18 | Moluccas | | |

Furthermore, in these areas has been identified form of local knowledge related to disaster management and has been realized in the past or the present. The data collection will be done through library which includes reference materials

indigenous to the area of research, but it also made the collection of secondary data and information releivan for use in this study, including the identification of the model adoption of local wisdom in accordance with existing condition, as well as through the analysis of several models of best practices that have been formulated, developed or applied to other regions in Indonesia. The analysis used in this study is to model the interactive analysis Miles and Huberman (1992) with the working procedure data reduction, data presentation.

3 RESULT AND DISCUSSION

Categorization of Local Wisdom of the Disaster Response On Local Government in Indonesia

Based on the data obtained, it is known that the shape of local knowledge in 21 areas in Indonesia is quite dominant tangible application of technology or system, and then followed by the local wisdom that tangible ritual prayer, and the rest of the form of education and post-disaster recovery and reconstruction. Subject can be seen from the following table:

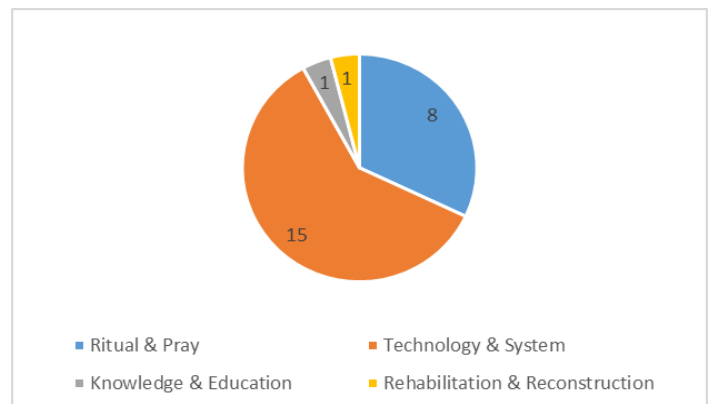


Figure 1. Local Wisdom Types Related to Disasters in Indonesia Regions

From the figure it appears that the type of the most dominant local wisdom is the application of technology or systems tangible and intangible knowledge of prayer and followed by other beings. The identification seems to have relevance to the views of some experts, including Rustanto (2010), which suggests some type of local knowledge, namely: (a) Local wisdom in relation to food: specifically related to the local environment, climate and bahanmakanan matched with local staple. (b). Local wisdom in relationships in medicine: to protection and treatment. (c) local wisdom in connection with the production system: of course related to the traditional local production system, aspart addressing the needs and workforce management. (d). Local wisdom in relation to housing: adjustable with climate and raw materials available in the region. (e) Local Wisdom in association with clothing: customized with climate and raw materials available in the region. (f). Local wisdom in human relations: local knowledge system as a result of continuous interaction that is built by self needs above. Application of the technology developed in the society in general is the result of the knowledge and experience of an event that is faced by them. Local knowledge that developed in the community are defined as follows: 1) the knowledge associated with the place, and a set of experiences, and developed by local communities; 2) the

knowledge gained through mimicry, imitation, and trial; 3) daily practical knowledge gained from trial and error; 4) The empirical knowledge is not theoretical;(Kalland, 2005),nFurther stated by Sartini (2018)that local knowledge is a form of expression in which the conduct and their behaviors adapted to the ideas, and therefore their actions produce certain works such as the manufacture of artefacts according to the underlying mindset. Local knowledge is a public system for communal rather than individual. This is in line withSpace (2009) in defining local wisdom. Antarctica claimed that local knowledge has become a physical-cultural traditions, and from generation to generation is the basis for building and environmental engineering, which is embodied in the cultural heritage as a framework in the physical building and the environment. Local wisdom embodied within the scope of the disaster management aspect of development encouraged local wisdom are two main elements; the man, along with the pattern of his mind; and the nature and climate. Human thought patterns produce discretion in formulating knowledge is considered good for their lives, such as customary law, governance, and procedures for their daily activities. Based on these elements, Soedigyo (2014) explain that local wisdom distinguish the two forms, the first tangible, local wisdom embodied in the form of writing and building. Second intangible intangible local knowledge can be found in advices that delivered orally and passed on through, ballad contains traditional teachings. Local knowledge that is built up is then very likely to be synergized with modern knowledge that became the main knowledge (main knowledge) in agricultural development today. To synergize both this knowledge necessary precondition of mutual respect among the "owners" of the stock of knowledge(Amrawati, 2012), So the adoption of this form of local wisdom will prove possible but with the precondition the existence of mutual respect, in particular in the development of social and economic aspects. Socio-economic aspect is an important factor in the assessment of disaster management, as well as the physical aspect. Humans play an important role for the creation of livelihood back to normal condition before the disaster (disaster resilience). Humans as a principal object in the study of disaster and post-disaster economic recovery by humans (Rijanta, Hizbaron, & Baiquni, 2018),

Potential Factors that Encourage Local Wisdom Such As The Living Values in Society In the Face of Disaster

Based on the data analysis, it is known that during this time a number of factors reinforce the existence and continuity of the forms of local wisdom in society. Largely driven by the empirical experience they have been through the implementation of local wisdom, the experience in the form of a form of practice and prohibitions which both form the implementation of the local wisdom that is known to give better effect to the community is located. It also forms the local wisdom is reinforced by the attachment of religious power in it so then attached as a ritual that is always executed. The distribution of these factors can be observed in the following table:

Table 2. Identify Factors Had Strengthening Local Wisdom

| No. | Identification Factors Strengthening Local Wisdom |
|-----|---|
| 1 | Local Wisdom local communities will be things that occur around dwellings diproleh of rich empirical experience as a result of interaction with the ecosystem. |
| 2 | Power of Religion which has a compliance |
| 3 | government programs in villages adopted the tradition |
| 4 | Local wisdom in the form of farming activity, the economy, development, and also in the event of marriage and death have been made hereditary. |
| 5 | Local wisdom in the form of a ban to take SDA sector in region within a certain period, it has been proven to prevent the disaster. |
| 6 | Local wisdom in the form of bamboo houses earthquake-resistant buildings, spatial and zoning in micro scale is the result of the best experience in terms of comfort and safety |
| 7 | Local wisdom in the form of public knowledge in managing disaster risks resulting from experience passed down to survive. |

Source: Data Analysis, 2019

From the table it can be seen that the shape of the local wisdom that intangible knowledge visible in activities tied to the lives of families and communities. Knowledge of the shape of the house for example is relevant to the sustainability of domestic life in a group, while the knowledge in the form of land zoning is closely related to the distribution of the source of life such as agriculture, farm or plantation. However, in some areas the intangible knowledge of local wisdom has been accompanied by the existence of a ritual and spiritual event. It can be understood as the bond of trust on the shape of local wisdom itself. Identification of the factors driving the local knowledge associated with cultural developments that woke up in three points of view: first, culture is seen as a way of life, this includes also the wealth, norms, rules, customs, and so on. Second, culture reviewed as a system of rules which symbolically passed from generation to generation through enculturation (socialization), and acculturation with immigrants hampered by language, behavior and artificial environment. Third, culture is seen as a tool for ecological adaptation for humans, the use of resources and the basic characteristics that allow people to build a life by exploiting the various ecosystems (Rapoport, 1983), These three viewpoints are then creating stimulation in the formation and development of the form of local wisdom in society. The development of local wisdom in Indonesian society by Altman (1984) formed within the scope of the five factors that retains the link between culture and the environment, namely 1) the natural environment includes temperature, rainfall, geography, flora and fauna; 2) environmental orientation and outlook on life, including cosmology, religion, values and norms; 3) environmental cognition include perceptions, beliefs, and judgments; 4) environmental behavior, including privacy, personal space, territory, and density; 5) environment as an end product in the form of an artificial environment, homes, farms, and cities. These five factors are interrelated to each other, suggesting a link between culture and the built environment. This factor is essentially linked with the culture of living together with the development of society. Culture formed occurs in three coating in reverse, namely; (1). The first layer; A collection of objects produced by a group of people living together in one community: houses, fields, mosques, nonwovens, etc. (2). The second layer; system values, symbols, patterns of behavior, traditions, social institutions that govern the way of life of a community. (3). The third layer; Etyco-mythicalnucleus complex of values most fundamental being the central point of reference and source of inspiration

for creativity supporters (can be identified with the atomic nucleus that governs all other parts circulation section)(Tumanggor, 2017),

Integration Model of Local Wisdom in Local Government Program for Disaster Response and Synergistic With Disaster Management Institutions in Indonesia

Local knowledge integration model is basically the conclusion of the identification of the form of the adoption of local wisdom in the face of disaster in the territory of Indonesia. Four form of adoption as complementary where there is a spiritual aspect and strengthening mental, and adoption of the technology practice of simple and systems of the response, tangible strengthening of the knowledge and skills of the occupation in preparing for a disaster and form of local wisdom in the recovery and reconstruction after the disaster. The fourth aspect of this which can then be combined into a circuit model of integration of local knowledge in mitigation programs and disaster response in the region or at the national level. The model is described as follows:

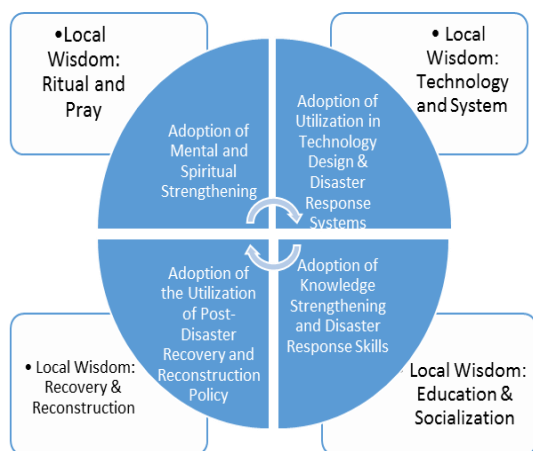


Figure 2. Model of Local Wisdom Integration in Local Government Program for Disaster Response

The models can be derived from a program that has the characteristics of the model includes four aspects, namely: (a). Programs that strengthen the mental and spiritual aspects of disaster-prone group, (b). Program that develops and practices to take advantage of simple technology and disaster response systems, (c) strengthening the knowledge and skills. Program residents to prepare for a disaster, and (d). Programs that strengthen institutional and community capacity in post-disaster recovery and reconstruction. Attempts to encapsulate the form of local wisdom in the programs of the local government is expected to reduce the cultural barriers and increase the chances of increasing the capacity of communities to cope with disasters. The model can be built in line with the increase in the capacity of communities to understand the characteristics of the disaster on its own territory, in order to avoid, or at least reduce the risk, so that people become disaster resilient(Sudibyakto, 2018), In addition, this model can also maximize the thrust of the process of economic recovery, social capital in the community is one of the important resources to maximize effectiveness. Local knowledge as a form of social capital for communities in disaster-prone areas in line with the adoption of the model can be synergies adaptation strategies for survival of bencan risk

that will always be faced. Local resources and local knowledge is the basis and forms of social capital(Rijanta et al., 2018), Teradopsi local wisdom in the model is the implementation of positive behavior of man connected with nature and the surrounding environment. Local knowledge can be understood as the local wise idea, full of wisdom, good value, ingrained and observed by the public(Space, 2009), Local wisdom adoption model is thus aligned with the human thought process to adjust its presence in the natural environment that can be manifested in his works significantly as the built environment and intangible. Local knowledge is always growing, because it follows the cultured and culture can not be separated from the human mindset. The most important thing is to selectively accept outside influence that local knowledge can be maintained in accordance with the place. Such changes do occur, but the desired changes do not eliminate the core characteristics of a culture. Thus, there are parts that changed and some still maintained(Rapoport, 1983), Therefore, the development of the model is also expected to be synergistic with the development of local wisdom in society.

4 CONCLUSION

Based on the foregoing discussion, it can produce some conclusions as follows: (1). Forms of local knowledge in Indonesia is quite dominant tangible application of technology or system, and then followed by the local wisdom that tangible ritual prayer, and the rest of the form of education and post-disaster recovery and reconstruction, (2). The factor that has been playing for the existence and continuity of the forms of local wisdom in society. Largely driven by the empirical experience they have been through the implementation of local wisdom, the experience in the form of a form of practice and prohibitions which both form the implementation of the local wisdom that is known to give better effect to the community is located. It also forms the local wisdom is reinforced by the attachment of religious power in it so then attached as a ritual that is always executed, and (3). Local knowledge integration model is basically the conclusion of the identification of the form of the adoption of local wisdom in the face of disaster in the territory of Indonesia. Four form of adoption as complementary where there is a spiritual aspect and strengthening mental, and adoption of the technology practice of simple and systems of the response, tangible strengthening of the knowledge and skills of the occupation in preparing for a disaster and form of local wisdom in the recovery and reconstruction after the disaster. The fourth aspect of this which can then be combined into a circuit model of integration of local knowledge in mitigation programs and disaster response in the region or at the national level.

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