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The evaluation of Disaster Resilient Village Program to support National Security matters

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Abstract. Disaster Resilient Village is a village with capability to independently adapt and deal with disaster threat, and quickly recover from the adverse effect of disaster. This research employed Context, Input, Process, and Product (CIPP) evaluation model to evaluate the Disaster Resilient Village program in Tanjung Benoa Village. As the result, the Context aspect of the Disaster Resilient Village program in Tanjung Benoa Village is appropriate in accordance with the Regulation of the Head of the National Disaster Management Agency of the Republic of Indonesia Number 1 of 2012. On the Input aspect, Tanjung Benoa village has established a Disaster Risk Reduction Forum that consists of the local community representatives. On the Process aspect, the village has developed Disaster-Safe School and Communities that routinely conduct simulations on monthly basis and collaborate with the hospitality sector to develop evacuation sites in the event of a tsunami disaster. On Product aspect, namely community capacity building and community participation, the program resulted in the increasing trust among domestic and foreign tourists and the improvement of Tanjung Benoa people's welfare. In conclusion, Disaster Resilient Village program in Tanjung Benoa Village has been going well.

Keywords. Disaster Resilient Village, Tanjung Benoa Village, Coastal Area, CIPP Evaluation Model

Introduction

Disaster Resilient Village is a village that is capable to independently adapt and deal with disaster threat, and quickly recover from the adverse effect of disaster [1]. The ability to independently adapt and deal with disaster means a series of efforts on empowering and mobilizing the resources owned by the community to understand the threat and risk of the disaster they are facing, including evaluating and monitoring their capacities. Until the end of 2017, there were 524 Disaster Resilient Villages in Indonesia, one of which was Disaster Resilient Village in Badung District, Bali Province. Based on the mapping, Badung District is prone to disaster. The Local Government of Badung District, through the Regional Disaster Management Agency, have formed disaster risk reduction forums in 21 out of 62 villages/urban communities in Badung District [2]. Disaster Resilient Village Program in Badung District has been running as an annual activity, but the disaster coaching program is still ongoing while the implementation has never been carried out.

Context, Input, Process, and Product (CIPP) program evaluation model is one of the most widely known and applied program evaluation models [3]. This model views the Disaster Resilient Village Program as a system [4]. The CIPP evaluation model can be used for a summative evaluation (carried out at the end of the program), which aims to obtain information about the quality, values, and benefits, or meaningfulness, of a program. The information obtained from the evaluation results is useful as a material consideration for decision makers in making decisions or further policies [5]. Against the background, this paper analyzed the evaluation of Disaster Resilient Village Program in Tanjung Bena Village to support national security matters.

Research Method

This study employed a qualitative descriptive method to offer a complete description and analysis of the research subject. The problem was analyzed using the concept of evaluation, the concept of Disaster Resilient Village, and evaluation models [6]. This study was conducted in Tanjung Bena Village, Badung District, Bali Province based on the proneness of this region to disasters. This region is vulnerable to three natural disasters, namely landslides, strong winds, and floods/tsunamis. Currently, there is still no research on program evaluation that comprehensively analyze the level of success in achieving the Disaster Resilient Village Program.

This study employed the CIPP evaluation model to evaluate the Disaster Resilient Program in Tanjung Bena Village, Badung District, Bali Province. The obtained results were assessed and studied in order to improve the implementation of future programs or activities. The purpose of the evaluation in this study was to gain a deep understanding of the background, inputs, implementation, and results of the Disaster Resilient Village Program in Tanjung Bena Village, Badung District, Bali Province. The research data were obtained from interviews, field observations and documentation study results [7].

1. Theoretical Framework

The concept of program evaluation is based on several concepts, which are parts of the theoretical studies, namely the concept of evaluation, the concept of program evaluation, and evaluation models. These concepts are employed in this study to analyze the problem.

1.1. The Concept of Evaluation

Evaluation is a systematic process of providing information that can be used as a consideration to determine the value and benefits of the achieved goals, as well as the design,

implementation, and impact, to assist in making decisions, promoting accountability, and improving understanding of the phenomenon. In other words, the essence of evaluation is the provision of information that can be taken into consideration for decision-making.

1.2. The Concept of Disaster Resilient Village Program

Disaster risk reduction efforts focus on the communities who live in disaster prone areas as the main actors as well as the participating subjects instead of just being the object. By placing the communities as the main actors and participating subjects, disaster risk reduction efforts will be more sustainable and efficient. Communities that have already reached a certain level of disaster resilience will be able to maintain their structure and function to a certain degree when a disaster is occurred.

1.3. Evaluation Models

Essentially, evaluation has to be carried out in stages and thoroughly to obtain the required data to assess a program's quality. As an evaluator, it is necessary to use a program evaluation model that can assist in assessing the quality of the program. The CIPP evaluation model is one of the most widely applied models which views a program being evaluated as a system. This study employed the CIPP evaluation model because this model is considered suitable to analyze the success of the Disaster Resilient Village Program's achievement, where the evaluation results are expected to be used as a consideration for stakeholders in making decisions.

The Disaster Resilient Village Program in Tanjung Benoa Village, Badung District, Bali Province, Indonesia

Regional Disaster Management Agency in Bali Province has noted that some areas in Bali Province are vulnerable to disasters. The southern and northern coast of Bali is prone to tsunamis, especially Jembrana District, Badung District, Denpasar City, and Tanjung Benoa Village. Tanjung Benoa District itself has the following capacities to minimize the disaster risk in terms of facilities and infrastructures:

- a. Some schools in Tanjung Benoa Village have already become Disaster Safe Schools, including Tanjung Benoa 1 Public Elementary School, Tanjung Benoa 2 Public Elementary School, and Kuta Selatan 3 Public Elementary School.
- b. Evacuation routes related to tsunami and earthquake warnings are widely spread on the roads along the Tanjung Benoa Village, as well as in the coastal areas and the hotels.
- c. There are currently five Early Warning System units installed throughout Badung District, such as in Tanjung Benoa Beach, Kedonganan Beach, Kuta Beach, and Seminyak Double Six Beach.
- d. Some hotels already have an agreement with the Government of Tanjung Benoa Village to be used as tsunami shelters, including Grand Mirage Resort, Ion Bali Hotel, The Bali Khama, Sakala Hotel, Peninsula Bay Resort, Novotel Hotel, and the Segara Hotel.
- e. Health facilities such as Integrated Healthcare Center and Public Health Center.
- f. In the social aspect, there are several communities that have participated in disaster mitigation efforts, such as the Mangrove Caring Society, the Garbage Caring Community, and other communities.
- g. A long established forum for disaster risk reduction.

In addition, local wisdom in Bali Province is also integrated with the efforts to improve the community's economy and disaster mitigation. *Sad Kerthi* is the six noble things that must be practiced to develop nature and humans. The main values of *Sad Kerthi* are *Atma Kerthi*, *Samudera Kerthi*, *Wana Kerthi*, *Danu Kerthi*, *Jagat Kerthi*, and *Jana Kerthi*. The principle of

Sad Kerthi in Balinese culture also contributes to the creation of Balinese attitudes to protect the surrounding natural environment. Thus, it is considered to be one of the mitigation factors of Balinese from natural disasters.

The analysis results of the Disaster Resilient Village program evaluation in Tanjung Benoa Village using the CIPP model comprise several aspects, including:

1.4. Context Aspect

Context aspect includes the problem on the condition of the Tanjung Benoa Village location, namely its characteristics as a tourist village and its proximity to the sea, which is prone to tsunamis. The basis of the Disaster Resilient Village Program establishment in Tanjung Benoa Village refers to the Regulation of the Head of the National Disaster Management Agency of the Republic of Indonesia Number 1 of 2012. The Regional Disaster Management Agency chose Tanjung Benoa Village because this area is vulnerable to disaster, especially to tsunami in the coastal areas. Nowadays, Tanjung Benoa Village has developed coastal tourism facilities. The development of an area must be followed by disaster management undertakings to mitigate and prepare against the disaster risks. Thus, the Disaster Resilient Village Program was established in Tanjung Benoa Village in 2010.

1.5. Input Aspect

Currently, Bali Province has only implemented 9 out of the 20 existing indicators of Disaster Resilient Village. Bali Province has not been able to completely implement this program due to several requirements for establishing Disaster Resilient Villages, namely the existence of 1,500 community volunteers and a minimum annual program funding of 500 million Rupiah. After being addressed by the Regional Government of Bali Province, not all villages have the capability to implement the regulation, so only 9 indicators were agreed upon. From the 9 indicators, a disaster risk reduction forum was formed by village officials. The community includes village youths, which was further developed and categorized as Disaster Resilient Village. After the formation of the disaster risk reduction forum, the next step is to prepare a disaster management plan that adjusts to the types of mapped risks in the village [8] [9]. The results of the planning process contained economic, social, and other program plans which are agreed and enacted by the village. After a disaster management plan is agreed upon, a contingency plan will be prepared. Disaster risk reduction policy measures in Tanjung Benoa Village have been planned by the Tanjung Benoa Village/Urban Communities Government, which was prepared together alongside the people and the officials of the Tanjung Benoa Villages, such as the Indonesian Armed Forces, schools, local governments, and hotels. Tanjung Benoa Village has formed a Disaster Risk Reduction Forum, which consists of the representative of the local community.

Furthermore, Tanjung Benoa Village has also formed a team of volunteers, such as the Mangrove Caring Society, and the Garbage Caring Society. The village disaster-standby youth team formed by the Head of Tanjung Benoa Village have not had adequate personnel and equipment. The funding source for the Disaster Resilient Village Program in Tanjung Benoa Village is the National Disaster Management Agency's budget and other funds from non-government organizations. Tanjung Benoa Village has not yet allocated a special fund to be used as an emergency response effort.

1.6. Process Aspect

Process aspect includes the analysis related to the implementation or sustainability of a program. Aspects of the program that will be evaluated in the Disaster Resilient Village Program including disaster management capacity building. Tanjung Bena Village community capacity building is routinely carried out on monthly basis. In addition there are also efforts to disseminate information through evacuation routes, leaflets, and warning signs of danger around the Tanjung Bena area. The implementation of the Disaster Resilient Village in Tanjung Bena Village has been conducted in the form of a threats mapping and analysis by the Regional Disaster Management Agency of Badung District. The disaster management in Tanjung Bena Village has already been carried out by making a map and evacuation route that is integrated with hotels that have cooperated with Tanjung Bena Village. Hotels that are used as evacuation sites are equipped with medicine and emergency lighting.

1.7. Product Aspect

Product aspect includes analysis related to all program achievements. Analysis of the product aspect shows what is produced by a program. In the Disaster Resilient Village in Tanjung Bena Village, the product aspect to be evaluated is the result of achievements and by-products of Disaster Resilient Village in Tanjung Bena Village. The results of the program's achievement were the formation of the Tanjung Bena Village community with readiness to deal with disaster risks and the private sector participation in efforts to reduce disaster risk through the provision of shelters. In addition to the results of the program achievements, there are also side results from the Disaster Resilient Village in Tanjung Bena Village, namely an increase in the regional economy through the tourism sector that is ready to face disasters. This goes hand in hand so that it can improve the welfare of the community.

Discussion

The vision and mission of the Government of Bali Province namely "*Nangun Sat Kerthi Loka Bali*" is related to the beliefs on protecting the natural ecosystem as an effort to mitigate disasters. *Sad Kerthi* was formulated in the Purana Balinese ejection, which consists of *Atma Kerthi*, *Samudra Kerthi*, *Wana Kerthi*, *Danu Kerthi*, *Jagat Kerthi*, and *Jana Kerthi*. *Atma Kerthi* and *Samudra Kerthi* are related to the beliefs of the use of the sea as a place to cleanse the mind and heart. This allows the Balinese to always maintain the cleanliness of the sea. *Wana Kerthi* is an effort to preserve the forest. *Danu Kerthi* is an effort to preserve fresh water sources in the lake. This principle is related to the beliefs of Hinduism to preserve lake water. Another principle is *Jagat Kerthi*, which is an effort to preserve the harmony of social relations in society. This effort was carried out by building a Pekraman Village characterized by *Tri Kahyangan*. The last *Kerthi* is *Jana Kerthi*, an effort to develop humans to have sensitivity and awareness in caring for the environment. The concept of *Sad Kerthi* is considered to be the pioneer of implementing the Disaster Resilient Village in Bali Province. Context evaluation assists in planning decisions, determining the needs to be achieved by the program, and formulating the program's mission and objectives. Nowadays, Disaster Resilient Village in Tanjung Bena Village has become a tourism village in Badung District.

Conclusion

Based on the research results, the following conclusions can be drawn on the evaluation of the Disaster Resilient Village in Tanjung Bena Village using the CIPP method:

- a. On the context aspect, the legal basis of the Disaster Resilient Village in Tanjung Benoa Village is in accordance with the objectives of the Regulation of the Head of the National Disaster Management Agency of the Republic of Indonesia Number 1 of 2012, namely Tanjung Benoa Village as a tourist village that is prone to tsunamis requires high capacity from the community. The objectives that have been set are in line with the program objectives, namely to increase community capacity and as an effort to develop community-based disaster risk reduction.
- b. Input aspect includes planning, institutional, and funding elements. The program has involved many stakeholders, including the Indonesian Armed Forces, schools, private sectors (e.g. hotels), and the community itself. Tanjung Benoa village has also formed a Disaster Risk Reduction Forum that consists of the representative of the local community.
- c. Process aspect includes capacity building and disaster management. Capacity building in Tanjung Benoa Village has been followed by the community of Tanjung Benoa Village as seen from the existence of a disaster communities, such as the Mangrove Caring Community, the Garbage Caring Community, the formation of 3 Disaster Safe Schools, and several hotels that have collaborated with the Tanjung Benoa Village as evacuation shelters. The implementation of disaster management has been routinely carried out by the Regional Disaster Management Agency of Badung District in the form of a monthly disaster response simulation. However, it is still necessary to increase regional capacity in Tanjung Benoa Village, which is routinely carried out.
- d. Product Aspect includes the results of program achievements and by-products. The overall achievements of the Disaster Resilient Village Program in Tanjung Benoa Village are that the program has been implemented optimally, although they still only managed to implement 9 indicators in the Regulation of the Head of the National Disaster Management Agency of the Republic of Indonesia Number 1 of 2012. The results of the Disaster Resilient Village Program implementation in Tanjung Benoa Village are community capacity building and community participation that is followed by community groups. In addition to the program's achievements, the implementation of the Disaster Resilient Village Program in Tanjung Benoa Village also had a positive impact on other aspects. This also supports the tourism sector, where domestic and foreign tourists have a sense of security to visit Tanjung Benoa Village, and in a way this increases the welfare of Tanjung Benoa people.

Based on the results and conclusions, the recommendations are elaborated as follow:

- a. A joint commitment between the local governments of Tanjung Benoa Village is required to be able to conduct simulations and joint training for the local community.
- b. Good documentation of the Disaster Resilient Village Program in Tanjung Benoa Village is required to minimize the occurrence of obstacles in the program.
- c. There is a need for coordination between the Government of Tanjung Benoa Village, the community, and Disaster Risk Reduction Forums.
- d. There is a need for ongoing coordination with relevant stakeholders for the implementation of the Disaster Resilient Village Program in Tanjung Benoa Village.
- e. There is a need for regular evaluations from the Regional Disaster Management Agency in Badung District and Bali Province.

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