

Evaluation of Gender Variables in Disaster Management Systems in Indonesia

Muh. Yunus^{1,*}, Andi Tenri², Aziz Thaba³

¹Universitas Patempo Makassar, South Sulawesi, 90233, Indonesia

²Universitas Dayanu Ikhsanuddin, Sulawesi Tenggara, 93711, Indonesia

³Lembaga Swadaya Penelitian dan Pengembangan Pendidikan (LSP3) Matutu, South Sulawesi, Indonesia

Received May 14, 2022; Revised August 22, 2022; Accepted September 19, 2022

Cite This Paper in the Following Citation Styles

(a): [1] Muh. Yunus, Andi Tenri, Aziz Thaba, "Evaluation of Gender Variables in Disaster Management Systems in Indonesia," *Environment and Ecology Research*, Vol. 10, No. 5, pp. 572 - 579, 2022. DOI: 10.13189/eer.2022.100505.

(b): Muh. Yunus, Andi Tenri, Aziz Thaba (2022). *Evaluation of Gender Variables in Disaster Management Systems in Indonesia*. *Environment and Ecology Research*, 10(5), 572 - 579. DOI: 10.13189/eer.2022.100505.

Copyright©2022 by authors, all rights reserved. Authors agree that this article remains permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

Abstract This study aims to analyze gender variables in the disaster management system in Indonesia, by taking cases from the Provincial Disaster Management Agency South Sulawesi. The aspect of the analysis is the dimension of the female variable in the identification, design, implementation and evaluation of the disaster management system. The research method used is descriptive qualitative research. Data collection techniques used interviews and documentation. The data analysis technique used interactive data analysis techniques and Harvard gender analysis Step 4. The results showed that the implementation of the Provincial Disaster Management Agency South Sulawesi was not gendering responsive, because there was still a gender imbalance in its implementation, both pre-disaster, during disaster and post-disaster. The implementation of the disaster management system by the Provincial Disaster Management Agency South Sulawesi does not utilize gender-disaggregated data to carry out gender analysis and formulate gender-responsive budget plans. The dimension of women in system identification, design, implementation and evaluation of disaster management systems by taking into account women's needs has not been taken into account. Access, participation, control and acceptance of women's benefits in the system have not been fulfilled. Thus, the implementation of the disaster management system at the Provincial Disaster Management Agency South Sulawesi tends not to be gender-responsive.

Keywords Gender; System, Management, Disaster Management

1. Preliminary

As a country located in a prone area, Indonesia has various disaster risks to deal with, from landslides, earthquakes, and tornadoes, to tsunamis [1]. This condition is because geographically Indonesia is an archipelago which is located at the junction of four tectonic plates, namely the Asian Continent plate, the Australian Continent, the Indian Ocean plate and the Pacific Ocean plate. In the southern and eastern parts of Indonesia there is a volcanic belt (volcanic arc) that extends from the Island of Sumatra-Java-Nusa Tenggara-Sulawesi, whose sides are old volcanic mountains and lowlands which are partly dominated by swamps BNPB [2].

The report of the *United Nations International Strategy for Disaster Reduction* (UNISDR) states that in exposure to the population or number of people in the area who may lose their lives due to disasters, the risk of disasters faced by Indonesia is very high. In the last five years from 2015 to 2019 alone, there were at least 10,728 natural disasters have occurred in Indonesia [3]. The following are the types and numbers of disasters that have occurred in Indonesia in the past five years:

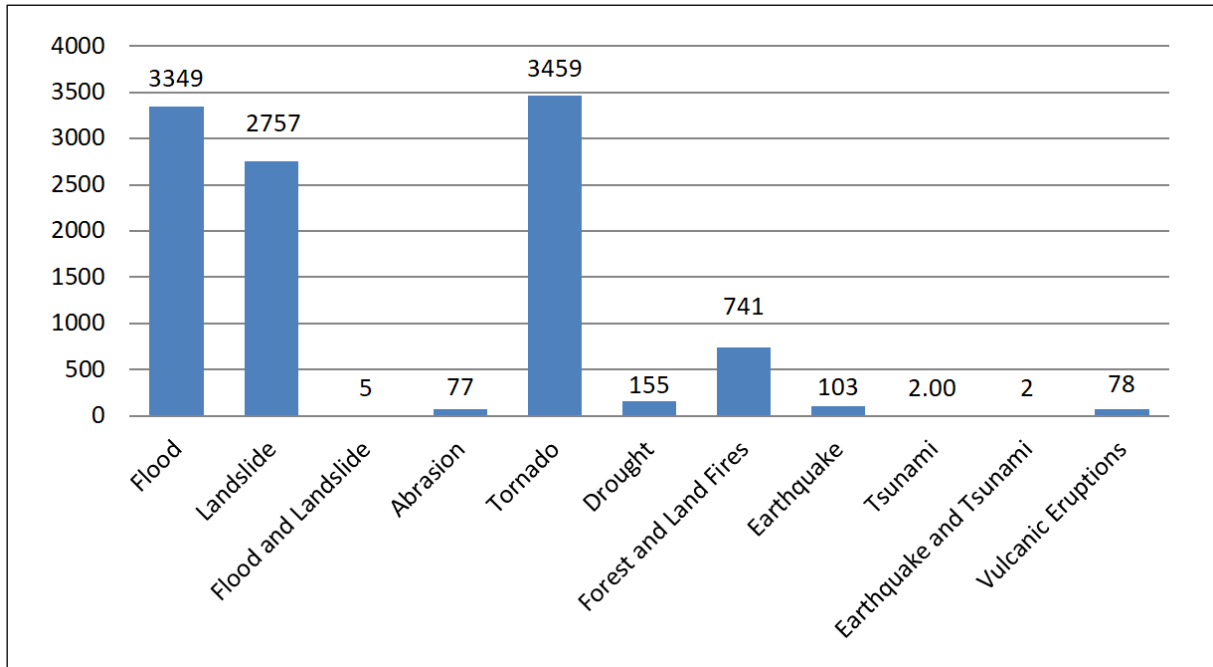


Figure 1. Types of Disasters and Number of Cases in Indonesia 2015-2019

The data in figure 1 show that the disasters that occurred in Indonesia during the last five years were 10,728 cases. Typhoon natural disasters, floods, and landslides dominate several types of natural disasters that occur. These three natural disasters are familiar disasters in cases of disasters throughout Indonesia and have caused quite a lot of both material and physical losses [3]. The conclusion from these data is that Indonesia is a region that is very prone to various natural disasters when compared to other countries in the world [4].

Makassar City is one of the cities included in the province of South Sulawesi which is not immune from natural disasters. Based on data from the National Disaster Management Agency (BNPB), it is stated that over the past five years there have been more than 20 cases of natural disasters that have occurred in South Sulawesi consisting natural disasters such as floods, landslides, strong winds, and land or forest fires with 13 of them being flood. The Regional Disaster Management Agency (BPBD) of South Sulawesi has mapped that 41 out of 59 urban villages in Makassar City are categorized as flood-prone areas. This is because the kelurahan is a watershed (DAS) that flows in South Sulawesi. Coupled with when the rainfall is high enough, it will encourage the potential for flooding. In addition, landslides may also potentially occur due to landslides of talut or embankments.

The various disasters that have occurred have caused considerable losses and even claimed lives and many of them were women and children [5]. Data from the National Disaster Management Agency (BNBP) state that women and children have a 14 times higher risk of becoming victims of disasters than adult men. This is due to the instinct of women who want to protect their families and

children, which often makes them neglect their own safety. In addition, other factors such as the lack of knowledge of women and children in dealing with disasters, culture that restricts women and children from learning to defend themselves and even biological or physical differences between women and men during a disaster are the factors driving vulnerability. In some cases of tsunamis or floods, women who face sudden disasters but are not dressed refuse to get on rubber boats because they do not want to be rescued by men in these conditions. In the case of the 2004 Aceh tsunami, women were more vulnerable to the impact of disasters because generally they were at home and caring for children when the disaster occurred [6]. Meanwhile, the men or their husbands are mostly working to fish in the sea so they stay afloat. Women do not understand how to swim and their long skirts prevent them from running for safety. On the other hand, men are generally more able to escape quickly when faced with disasters such as climbing trees, swimming, and so on [1].

Gender problems that occur do not only stop during the disaster emergency response, but also the occurrence of cases of gender-based violence physically or sexually experienced by both men and women after the disaster [7], [8]. In the 2018 Annual Notes (CATAHU) of the National Commission on Violence Against Women (CATAHU), it is stated that based on the incoming reports received there had been at least 2,166,155 cases of violence against women (including girls) during 2007-2017 and an increase of 14% in 2018 compared to the previous year.

Gender violence that occurs mainly is sexual violence or rape of displaced victims of disasters [9], [10]. Meanwhile, women tend to be more prone to sexual violence than men after they lose their homes and have to rely on evacuation

tents. Cases of sexual harassment and violence are almost inevitable because the situation is not conducive and there is no space for privacy [11]. In the 2004 Aceh Tsunami disaster, 40% of female refugees experienced sexual violence [12]. In the Palu earthquake disaster in 2019, the Office of Women's Empowerment and Child Protection (DP3A) in Palu City received at least 12 reports of violence and attempted rape in several refugee shelters. Of the 12 reports, many of the victims consisted of women and children [13]. Some of the cases that occurred, such as peeping at people taking baths, attempted rape, sexual harassment, domestic violence, and violence against children were caused by the government's lack of attention regarding highly sensitive matters in refugee tents [14].

National Commission for Woman in its evacuation monitoring report found that the condition of women and children was very vulnerable when a disaster occurred. The problem that often arises is access to clean water, which in Indonesia women are considered to be responsible for household work. So that even if women are still being displaced, they are responsible for finding water. Another problem is that Bath-Wash-Toilet (BWT) facilities are not closed, and the unavailability of services for women's reproductive needs often results in pregnancy problems that are beyond their wishes (CATAHU Womens, 2019). According to the National Women's Commission, this condition is because women are not part of decision-making. Women's participation is almost neglected in planning, discussing and deciding every policy concerning the common interest. Even though it is not certain that men can voice the interests and needs of women which are of course different from men's interests and needs. In addition, the participation of women in disaster management agencies for disaster response evacuation is also very little involved.

Gender issues in disaster management are an interesting issue to study. A large number of cases of gender injustice, the lack of involvement of female volunteers or officers in the post, and the insufficient strategic and practical gender needs such as hygiene kits for women, so that gender-based violence often occurs both during disaster response and post-disaster are issues that need to be discussed more fully. The implementation of gender-responsive disaster management is essential to ensure that the fulfillment of the rights and needs of men and women in an equitable and humane manner can be fulfilled both in the planning, disaster response and post-disaster processes. In this case, the role of government, especially the National Disaster Management Agency (BNPB) in its efforts to address gender-related issues in disaster management is urgently needed. The National Disaster Management Agency in an effort to realize gender-responsive disaster management has carried out several innovations such as the provision of earthquake simulations for school children, training on installing tents involving men and women, psychosocial clinics for men and women, MSME assistance for women,

romance booths, disaggregated data collection, and distribution of women's involvement in the management of the posko. In addition, as a basis for laws and regulations specifically for regulating gender mainstreaming in the field of disaster management, National Board for Disaster Management issued a policy about National Board for Disaster Management Number 13 of 2014 concerning Gender Mainstreaming in the Disaster Management Sector. The policy was designed as a good guideline for the government, the government daerah, and non-governmental parties in implementing gender mainstreaming in the field of disaster management. The issuance of this policy means that gender mainstreaming policy in the field of disaster management is also one of the important points that disaster management agencies at the regional level must pay attention to. The South Sulawesi Provincial Disaster Management Agency as the spearhead of disaster management within the regional scope has the obligation to take part in providing services in gender-responsive disaster management in accordance with the policy of the National Board for Disaster Management Regulation Number 13 of 2014 concerning Gender Mainstreaming in the Field Disaster management. Gender issues related to disaster management are a task that the South Sulawesi Provincial Disaster Management Agency has to overcome in order to be able to realize the implementation of gender-responsive disaster management in South Sulawesi. In addition, South Sulawesi Provincial Disaster Management Agency is one whose performance is quite good so it is proof of its existence as a public organization in providing quality services to the community.

2. Research Methods

2.1. Types of Research

This research uses a qualitative research with a descriptive approach. Researchers focused on the analysis of this research context is the implementation of gender mainstreaming (PUG) in the system management countermeasures disaster trough; 1) system implementation analysis ; and 2) the dimensions of women in the identification, design, implementation and evaluation of disaster management systems at the South Sulawesi Provincial Disaster Management Agency. This qualitative descriptive research approach was chosen because researchers can gain a deep understanding of new information related to the object under study. In addition, there are several advantages to conducting research using this approach because this approach can better describe the realities and phenomena that occur in the field obtained by the author. Qualitative data were obtained through interviews and used to provide information about the implementation of disaster management systems and the

dimensions of women in the identification, design, implementation and evaluation of disaster management systems at the South Sulawesi Provincial Disaster Management Agency. In addition, this research is inseparable from a review of the literature, especially in the preparation of the theories used and the framework of thinking.

2.2. Data and Data Sources

The data in this study are; 1) a description of disaster management system implementation; 2) and the variable dimensions of women in the identification, design, implementation and evaluation of the disaster management system at the South Sulawesi Provincial Disaster Management Agency. To see about the dimensions of women in the system, in this study the author uses the theory from Overholt, Cloud, Anderson, & Austin (1985) about the Harvard *Step* four analytical framework which consists of a collection of questions related to the main cycle of the system with the use of questions that have been adjusted by the author to explain about the dimensions of women in the identification, design, implementation and evaluation of disaster management systems.

The data in this study come from relevant documents and informants that have been determined by the researcher with the consideration that these informants are people who are considered to know and understand the problem to be analyzed and are willing to provide the necessary data or information.

2.3. Data Collection Technique

Data collection techniques used in this study are divided into two, namely interviews and documentation. The type of interview used is the *in-depth interview*. This technique is done in depth by preparing a variety of questions from various aspects submitted to the informant to obtain the necessary information on issues related to the implementation of the system of management prevention of disasters and the dimensions of women in the identification, design, implementation and evaluation of the system. In addition, researchers used interview guidelines so that the questioning process took place more directed and structured. This interview was conducted with the Chief Executive of the South Sulawesi Provincial Disaster Management Agency along with the Head of sections and staff, the City of Makassar, Members of the Disaster Resilient Village Forum, Palang Merah Indonesia (PMI) staff in the CFR (Community Flood Resilience) system and members of the KNC-Emergency South Sulawesi who were related to adjusting the required data related to the theme implementation of the system of management of prevention of disasters and the dimensions of women in the identification, design, implementation and evaluation of the system are the South Sulawesi Provincial Disaster Management Agency. This study uses data

collection by recording and processing data sourced from documents that are relevant or relevant to the research theme.

2.4. Data Analysis Technique

The data analysis used is descriptive qualitative data analysis with the aim of obtaining a comprehensive picture of what is covered by the problem under study when collecting data in the field. The data analysis technique used in this study used two kinds of analysis techniques, namely the interactive data analysis technique [17] and the gender analysis technique using the Harvard *Step* Four analysis technique [16].

3. Results and Discussion

3.1. Implementation of Disaster Management Management System at BPBD South Sulawesi

The findings of the implementation of a disaster management system in the South Sulawesi Provincial Disaster Management Agency are as follows;

Provision of Disaster Logistics

The provision of disaster logistical stocks consists of instant food, medicines, clothes suitable for use, and others. Provision of logistical needs is prepared through unexpected funds from related institutions or agencies from the central government and the South Sulawesi Regional Budget. In addition, logistical assistance and other needs were also received from several other *stakeholders* who helped from several community organizations and the business world.

Establishment of Disaster-Resilient Urban Villages

Disaster Resilient Village is villages established on the basis of having the independent ability to adapt and face potential disaster threats, as well as being able to recover quickly from the impacts of disasters that are detrimental to the community in each *kelurahan* that has experienced a disaster. Until 2020 the number of disaster-resilient villages in South Sulawesi under the guidance of the Regional Disaster Management Agency is 31 out of 59 villages. The target of creating disaster-resilient *kelurahan* is comprehensive for all urban villages and is in process. The establishment of this Disaster Resilient *Kelurahan* is intended to be more open to community participation and to train the community to be independent in facing disasters.

Disaster Socialization and Disaster Mitigation

The socialization activities carried out consisted of introducing and *sharing* knowledge about disasters, especially the potential for disasters in South Sulawesi, the

efforts and roles that can be taken for disaster risk reduction and how to respond appropriately in dealing with these disasters. South Sulawesi Provincial Disaster Management Agency carries out disaster socialization and disaster mitigation every two times a year. Through socialization, apart from providing an introduction to disasters and disaster risk reduction, especially for vulnerable groups, this activity is also intended to open an active role for the community to participate in the implementation of a disaster management system. In addition, disaster socialization and disaster mitigation training was also carried out in several schools, both with special schools for girls and public schools. In this case, South Sulawesi Provincial Disaster Management Agency collaborated with the school by asking for simulation training for the students. The simulation training provided to these schools is expected to provide education about disasters from an early age, considering that disasters can occur at any time and the risk of vulnerable victims is women and children.

Public Kitchen Training and Disaster Evacuation

In an effort to take advantage of the active role of the community, South Sulawesi Provincial Disaster Management Agency provides facilities in the form of public kitchen training for the community, one of which is the group of mothers. The training was an attempt by the South Sulawesi Provincial Disaster Management Agency to increase direct public participation in the system of management prevention of disaster in the post-disaster phase. The implementation of training activities is carried out twice a year by coordinating with various parties such as urban villages that are often affected and disaster-resilient urban village forums. Apart from the groups of women from the affected *kelurahan*, public kitchen training was also carried out along with several evacuation training systems such as providing materials on providing logistics, firefighting, types of tents, disaster evacuation, etc. carried out with the KNC-Emergency organization South Sulawesi. The South Sulawesi Provincial Disaster Management Agency has conducted a flood disaster evacuation simulation training with the participation of the KNC-Emergency medical team and community health center teams in several villages. Through guidance from South Sulawesi Provincial Disaster Management Agency, volunteers in particular are given knowledge about how to evacuate victims when a disaster occurs as volunteers.

Disaster Emergency Response

Disaster emergency response is a series of activities consisting of steps directed at saving lives, protecting property, and dealing with disturbances, damage and other impacts caused by disasters. South Sulawesi Provincial Disaster Management Agency has made a standard flow for the disaster response of South Sulawesi. Apart from this channel, South Sulawesi Provincial Disaster Management

Agency has also opened disaster emergency response services via SMS, telephone calls, e-mails, and a website portal.

Post-Disaster Needs Assessment

A post-disaster needs assessment is one of the post-disaster stages in disaster management which consists of assessment and impact assessment, impact analysis, and estimated needs which will then form the basis for the preparation of action plans for post-disaster rehabilitation and reconstruction. Post-disaster needs assessments are carried out with the aim of reducing the increase in the burden on certain gender groups due to post-disaster infrastructure damage. The post-disaster needs assessment was carried out at South Sulawesi Provincial Disaster Management Agency on several cases that had occurred, such as houses collapsing due to wind, buildings or infrastructure that were damaged by falling trees or tornadoes, and fires. Post-disaster needs assessment training is carried out by BPBD South Sulawesi twice a year by inviting participants from the community and bringing in resource persons from the province. It is hoped that with this training the community will be able to understand how to identify and calculate the damage or loss experienced when a disaster occurs that harms them both physically and non-physically. That way, the community has provisions for preparing proposals for submitting funds for post-disaster losses.

Trauma Healing

Disasters that occur in South Sulawesi such as floods, tornadoes, and even fires not only cause material losses but also social impacts, namely the psychological trauma experienced by the victims after the disaster. Victims of natural disasters, especially natural disasters, face various situations or conditions that are very complex, both physically and psychologically, and socially. Even so, so far post-disaster management has only focused more on physical improvements. The psychological impact experienced by disaster victims cannot be ruled out. The condition of the evacuation with facilities that are not like when they were at home, the loss of family members and property, or the work routine not running are one of the factors of prolonged trauma or *stress* to disaster victims. Thus, it is necessary to have efforts to deal with the social and psychological impact of disaster victims so that they can avoid psychological disorders or psychological trauma and cause wider social problems. In matters related to the problem of social psychological impact experienced by disaster victims, South Sulawesi Provincial Disaster Management Agency provides efforts to provide services in the form of psychological trauma recovery or *trauma healing* by paying attention to adjustments to the needs of each gender. Post-disaster trauma experienced by children, women and men victims has different conditions and causes, so it requires different handling. *Trauma healing* is important to be able to relieve the grief experienced by

disaster victims, especially women and children as vulnerable groups so that it is hoped that it can provide encouragement in dealing with these conditions.

One of the activities undertaken is by providing entertainment and coaching or activities to women and men so that they do not feel bored or stressed while in refugee camps and can be more enthusiastic. Additional activities include involving mothers and young women to help in public kitchen activities, logistics and health. As for men consisting of fathers and youths, they are involved in helping volunteers to evacuate victims who may still be at the disaster site. It is hoped that this busyness can reduce sadness and strengthen the mentalities of the victims because it is useful for others. In addition, South Sulawesi Provincial Disaster Management Agency collaborates with Palang Merah Indonesia (Indonesian Red Cross) South Sulawesi and several medical personnel in the field of psychology to provide counseling services so as to reduce the burden or stress experienced by the victims. The counseling or therapy services provided are by expressing negative feelings which are then continued by providing learning or simple solutions on how to build more positive feelings that can be done to overcome existing problems.

3.2. Dimensions of Women in the Identification, Design, Implementation and Evaluation of the PBDP Disaster Management System in South Sulawesi

Women have the right to play an active role in the system-the system of disaster management both in the identification, design, implementation and evaluation of the system. The dimensions of women in the identification, design, implementation and evaluation of disaster management systems provide an illustration of the extent to which the South Sulawesi Provincial Disaster Management Agency as a government organization has been gender-responsive in implementing its disaster management system. In assessing the dimensions of women, analysis was carried out through questions in the framework of the Harvard step four analysis which were adjusted with the following results:

The Female Dimension in System Identification

System identification is the stage where information about needs, possible constraints and negative and positive impacts of the system on the target group is collected and calculated. Analysis of the dimensions of women in system identification describes how women's needs or opportunities are identified in the system, and defines the system objectives in relation to women and the constraints related to women's involvement in the system [16] In a disaster management system, women have special needs and there are also many potentials or opportunities that can be the reasons for women to take part in the running of the system from beginning to end.

The needs of women identified in the disaster

management system consist of the practical needs and strategic gender needs of women. Gender practical needs are short-term needs or immediate gender conditions. The dimensions of women can be seen from the analysis of women's practical gender needs to be identified in the implementation of the disaster system management as found, toiletries, underwear, towels, paka ian Muslims, sanitary napkins, Pill, and toilet wash bath facilities. Based on the description of practical needs, it is known that the practical needs of women in a disaster have not been identified by South Sulawesi Provincial Disaster Management Agency in detail or in whole. The identification of women's practical needs that had been provided previously was only the need for towels and sanitary napkins.

Meanwhile, strategic gender needs are long-term gender needs such as the need for rights, participation, and others. The strategic needs of women in the process of a disaster can provide an opportunity for women to take part and play an active role in disaster management. Based on the analyzed data, it was found that the strategic needs of women in disaster management consisted of access and control needs. The need for control includes the right of women to have power and to take part in the system's decision-making process. Based on the analysis of the identification of practical and strategic needs of women in the implementation system of management disaster in South Sulawesi Provincial Disaster Management Agency, found that the amount of the provision of logistics and fulfillment of the number of women's participation in the system is not based with the use of gender-disaggregated data by region and age as a reference for fulfillment. The South Sulawesi Provincial Disaster Management Agency has not used gender-disaggregated data which includes data on population quantity developments that have been provided and updated annually by the Ministry of Education and Civil Registry in the disaster management system. This allows for gender injustice or inequality that occurs in the field both during and after a disaster.

Disaggregated data is data that is disaggregated based on various types of characteristics or characteristics. In relation to the implementation of disaster management, disaggregated data usually consists of location, sex, age and diversity of disabilities. If it is related to the objectives of gender analysis, the disaggregated data used is data disaggregated by sex. Data disaggregated by sex is an important point in carrying out gender analysis in the implementation of Gender Mainstreaming (PUG). Disaggregation based on sex in various stages of disaster management can provide information or guidance on the status, roles, conditions and needs of men and women as well as problems faced in disaster management in an effort to reduce gender disparities.

The provision of complete disaggregated data in the field of disaster management can make it easier to anticipate casualties and post-disaster recovery. Victims at

each disaster location will be more easily identified so that they can get help more quickly from the impact of the disaster. The existence of disaggregated data also makes it easier to provide logistics according to existing gender needs so that each gender group can get assistance fairly. In addition, in an effort to identify the number of gender needs more specifically, disaggregated data are used from each village in each sub-district. Information from these data is useful for policy-making in providing access and needs or facilities for each gender and vulnerable groups. The vulnerable groups referred to here include the categories of women, the elderly and children.

Women are said to be among the vulnerable groups in disasters, of which is because they have four conditions such as menstruation, pregnancy, childbirth and breastfeeding. This is even more so if women experience these conditions when natural disasters occur. This will make women very vulnerable to injustice and inequality in disasters when these conditions are not considered and their rights are not fulfilled. So that the facilities and infrastructure and the provision of logistical needs in a disaster must pay attention to special needs that support the fulfillment of the rights to the four burdens of the condition of women as above. The fulfillment of these gender needs can be done through the provision of private and separate MCK (bathing, washing, toilet) facilities for men and women, providing adequate lighting and estimating the distance between the refugee tents and toilets or bathrooms, separating men's tents and women, provision of medicines for health and reproductive needs of women and men such as birth control pills, condoms, etc., as well as provision of hygiene kits in the form of underwear, towels, toothpaste, soap, shampoo, sanitary napkins, and others. In addition to identifying the fulfillment of women's needs, the analysis of women's dimensions in system identification also looks at how the system objectives match with women's needs.

The Female Dimension in System Design

The stages in system design are the steps in creating a system to increase the positive impact and reduce or eliminate the negative impact of a disaster on the target group. Analysis of the dimensions of women in systems design describes how the system impacts women's activities, access and control of resources and benefits that need to be increased [16]. System design is one of the determinants of whether the design of a system can provide an increase in positive impacts and reduce or eliminate negative impacts or not. The results of the analysis of the design disaster management system in South Sulawesi Provincial Disaster Management Agency found that the components of the system design, namely the locus and mode of activity of the system implementation in the disaster management system, have the potential to increase positive impacts on both women's access and control of resources and benefits, as well as reducing negative impacts. women with this system, such as the possibility of

not fulfilling the provision of logistical assistance for women in disaster areas, the lack of knowledge of women about disasters with different levels of circles and types of work, and so on. This can be done by taking advantage of several opportunities for women's access, such as the participation of female members in the resilient disaster village forum, special training for women on disasters and how to save themselves, and the formation of special volunteer teams for meeting and evacuation training for teams of female volunteers to reduce the risk of violence against women. in the disaster management process.

The Female Dimension in System Implementation

Implementation is one of the important stages in making a system/policy. A predetermined system must be implemented in order to make an impact and achieve the desired goal. Without implementation, a system will not achieve its goals and is useless. Dimensional analysis of women in the implementation of the system explains about women related to the area of systems such as personnel system, organizational structure, operations, logistics, and others [16]. The results of the analysis of the implementation of the disaster management system found that the South Sulawesi Provincial Disaster Management Agency implementing the disaster management system had not fulfilled several indicators of the dimensions of women in system implementation. Personnel awareness of the special needs of women, skills and training techniques developed, operations & logistics as well as finance or funding for the operation of the system do not fully understand women's needs and maximize the use of women's involvement. In terms of finance or main funding, planning has not been carried out through the Gender Responsive Budget Plan (RARG) by the South Sulawesi BPBD with an aim to be able to pay attention to budget needs for gender justice in system implementation.

The Female Dimension in System Evaluation

The system evaluation stage is one of the final stages of a system that is carried out to determine the level of success of the system that has been implemented and what impacts or constraints must be overcome in the future. Analysis of the dimensions of women in system evaluation is carried out to evaluate the impact of the system on women that must be overcome [16]. The results of the system evaluation data analysis show that the implementation of the monitoring or evaluation system carried out by the South Sulawesi Provincial Disaster Management Agency has not yet measured the effect of the system on women and has not carried out analysis and updating of women's activities, access and control in the system. Analysis of the effects of the system and the effect of a program on the activities of, access to, and control of women in the system of management of prevention of disaster then also not be used as an evaluation for the establishment of the design of a new system or system hereinafter. In addition, the

involvement of women in the evaluation data collection and the data interpretation process is also not taken into account so women do not have the right to power and play an active role in the evaluation of the disaster management system that has been implemented.

4. Conclusions

Provincial Disaster Management Agency in South Sulawesi related to the implementation of system management countermeasures of disaster not take into account the dimensions of women in the identification system, the design of the system, implementation system and evaluation system as a whole. Some potentials or opportunities for action related to openness to the dimensions of women in the program to achieve gender-responsive disaster management have not been analyzed and maximized by South Sulawesi Provincial Disaster Management Agency. System management countermeasures disaster in Provincial Disaster Management Agency South Sulawesi in fulfilling the needs of the practical and strategic needs is unmet. This is partly because the fulfillment of these practical and strategic needs, especially in terms of providing logistics and providing access and participation, has not made use of gender-disaggregated data as reference data for gender analysis so as to enable gender inequality or inequality in the field. The absence of the use of gender-disaggregated data is used as a reference in the analysis of gender through GAP (Gender Analysis Pathway) for the preparation of the Gender Responsive Budgeting plan on the implementation of the system management Provincial Disaster Management Agency disaster in the city of South Sulawesi. Based on some of the statements above it can be concluded that the system of management of prevention of disaster BPBDs in South Sulawesi is not gender-responsive.

REFERENCES

- [1] J.-C. Gaillard *et al.*, 'Ethnic groups' response to the 26 December 2004 earthquake and tsunami in Aceh, Indonesia', *Nat. Hazards*, vol. 47, no. 1, pp. 17–38, 2008.
- [2] N. Kurniasari, 'Strategi penanganan krisis kepariwisataan dalam kebijakan Badan Nasional Penanggulangan Bencana (BNPB)', *Mediat. J. Komun.*, vol. 10, no. 2, pp. 177–189, 2017.
- [3] BNPB, 'Tanggap Tangkas Tangguh Menghadapi Bencana', 2019.
- [4] A. Sukmono, F. A. Putra, N. Bashit, and A. L. Nugraha, 'Utilization of terrestrial laser scanning data in building information modelling (BIM) for fire disaster evacuation simulation', *Civ. Eng. Archit.*, vol. 9, no. 7, pp. 2129–2139, 2021, DOI: 10.13189/cea.2021.090702.
- [5] T. Shibayama *et al.*, 'Classification of tsunami and evacuation areas', *Nat. Hazards*, vol. 67, no. 2, pp. 365–386, 2013.
- [6] A. Manik, H. Kusmanto, and M. S. Lubis, 'Analisis Reliabilitas dan Responsivitas dalam Pelayanan Penanggulangan Bencana Alam Kebakaran pada Badan Penanggulangan Bencana Daerah di Kabupaten Aceh Singkil', *Strukt. J. Ilm. Magister Adm. Publik*, vol. 1, no. 1, pp. 65–74, 2019.
- [7] E. Enarson, A. Fothergill, and L. Peek, 'Gender and disaster: Foundations and directions', in *Handbook of disaster research*, Springer, 2007, pp. 130–146.
- [8] Ú. Oswald Spring, *Gender and disasters: human, gender and environmental security*. UNU-EHS, 2008.
- [9] W. E. Thornton and L. Voigt, 'Disaster rape: Vulnerability of women to sexual assaults during Hurricane Katrina', *J. Public Manag. Soc. Policy*, vol. 13, no. 2, pp. 23–49, 2007.
- [10] S. Fisher, 'Violence against women and natural disasters: Findings from post-tsunami Sri Lanka', *Violence Against Women*, vol. 16, no. 8, pp. 902–918, 2010.
- [11] F. Ali, S. A. S. Ali, S. B. Rahayu, N. D. Kamarudin, and A. S. A. Rahman, 'Investigation of Interaction between Age and Gender Effects of Car Users by using Log-Linear Model: A Bayesian Inference Approach', *Environment and Ecology Research*, Vol. 9, No. 4, pp. 145 - 151, 2021. DOI: 10.13189/eer.2021.090401.
- [12] M. A. Wicaksono, 'Implementasi Kebijakan Perlindungan Hukum Anak dan Perempuan dari Tindak Pidana Kekerasan di Kota Semarang (Perspektif Perda Nomor 5 Tahun 2016)'. Universitas Negeri Semarang, 2018.
- [13] P. Ariefana, 'Duh... Pengungsi Perempuan Korban Gempa Palu Terancam Diperkosa di Tenda', *Diakses dari <https://www.suara.com/news/2019/03/29/124850/duh-pengungsi-perempuan-korban-gempa-palu-terancamdiperkosa-di-tenda>*, 2019.
- [14] A. Humul, 'Banyak Upaya Pelecehan Seksual di Lokasi Pengungsian Korban Bencana Kota Palu'. Diakses dari [https://www.tribunnews.com/regional/2019/04/04/banyak-upaya ...](https://www.tribunnews.com/regional/2019/04/04/banyak-upaya-...), 2019.
- [15] K. Perempuan, 'Komisi Nasional Anti Kekerasan Terhadap Perempuan'. National Commission on the Elimination of Violence against Women, 2019.
- [16] A. Overholt, K. Cloud, M. Anderson, and J. Austin, 'Women in development: a framework for project analysis.', *Gen. roles Dev. Proj.*, pp. 3–15, 1985.
- [17] M. B. Miles and M. Huberman, 'Qualitative Data Analysts translated Tjetcep Rohendi Rohidi, Print 1'. Jakarta: UI Press, 1992.