The Preparedness Level of Housewives in Dealing with the Earthquake Disaster in Tempel, Sidomulyo, Bambanglipuro, Bantul

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Abstract. One of geological disasters which cannot be predicted when it will occur is an earthquake. On May 27, 2006, an earthquake struck Bantul which cause many fatalities. The highest fatalities in Tempel were housewives. This study aims to know: (1) the preparedness levels of housewives in dealing with the dangers of earthquakes, and (2) the improvement efforts of housewives in dealing with the dangers of earthquakes in Tempel, Sidomulyo, Bambanglipuro, Bantul. The method that used in this research is a qualitative method with a quantitative approach. The geographical approach used in this study is the environmental approach. This is a population study. The population of the study is all of the housewives in Tempel as many as 111 housewives. The data were obtained by using observations, interview, and documentations. The data analysis techniques used were a frequency table and descriptive analysis. The result of the study show that: (1) the preparedness levels of the housewives in dealing with earthquake dangers is on category of “full ready” (43.24%). Knowledge and attitude variables the housewives is on category of full ready (34.23%). Emergency plan variables the housewives is on category of ready (45.94%). Early warning system variables the housewives is on category of ready (37.82%). Resource mobilization capabilities variables the housewives is on category of ready (43.24%). (2) the improvement efforts to dealing with earthquake dangers are by conducting earthquake trainings and simulations as well as evacuation route installations.

1. Introduction
Indonesia is located at the meeting of three tectonic plates, the Indo-Australian plate in the south, the Eurasian plate in the north, and the Pacific Plate in the east. It is moved and collide with each other and caused an earthquake line and active volcanoes along Sumatra until South Maluku. This geological location also affect many disaster like earthquake, landslide, tsunami, and volcanic eruption. From all of the geological disasters, earthquakes are the most dangerous disaster cause it cannot predicted when it will occur. Unpreparedness in dealing this disaster will cause even greater potential losses including from physical, psychology, socio-economic, and cultural aspects. Seeing the impact of an earthquake disaster need to improve preparedness. Indonesia is the site of 12-15% of earthquakes on a world scale. Every year there are 6-12 earthquakes in Indonesia.

Special Region of Yogyakarta is one of the provinces in Indonesia which is prone to volcanic and tectonic earthquakes. Volcanic earthquakes are caused by the presence of an active volcano Mount Merapi and tectonic earthquakes caused by the geological position of the Special Region of Yogyakarta which is located on a plate subduction route. According to historical records there have been several large earthquakes that have occurred in this area. One of the earthquake disasters that caused DIY to
experience a quite severe impact was an earthquake that occurred on May 27, 2006, at 05:54 WIB with the Ritcher scale 5.9, centered at 8° South Latitude and 110° East Longitude to be precise in the Opak Oyo River Fault around 25 km to the southwest of Yogyakarta City was destructive and caused the fatalities of more than 6000 people, tens of thousand were injured from bruises to fractures, and hundreds of thousand buildings were severely damaged to totally destroyed [1]. The cause of the earthquake, which has a depth of 17 km below the ground surface, is the shift in the Opak Fault which stretches from the Bantul Coast to Prambanan along 40 km in a direction of 30˚ NE (North East). The death toll from this earthquake reached 5,738 people. The number of casualties in Yogyakarta was 4,143 people and 37,972 people was injured in this event. This earthquake destroyed 156,662 houses and destroyed historical sites both in Bantul and Yogyakarta. Bantul Regency is the district are the most seriously affected by this incident.

Of the seventeen districts in Bantul Region, there are five sub-districts that were most seriously affected by the 2006 earthquake, including Jetis District, Bambanglipuro District, Pleret District, Sewon District, and Pundong District. According to data from BPBD Bantul, the number of casualties caused by the 2006 earthquake in Bambanglipuro District was 607 people. Of the many casualties in Bambanglipuro District, the victims in Sidomulyo Village were 78 people. The number of casualties and damaged buildings is because Sidomulyo Village is one of three villages in Bambanglipuro District which is directly adjacent to Pundong District, which is the area where the 2006 earthquake was located. The number of hamlets in Sidomulyo Village is 15 hamlets. Each hamlet has a different number of victims. One of the differences in the number of victims in each hamlet is influenced by the level of community preparedness.

Tempel is an area that has quite a lot of victims, totally 10 people. Of the ten victims, six of them were housewives, the rest were three toddlers and an elder. There are several reasons why housewives were the most victims of the 2006 earthquake. This is because housewives focus on taking care of domestic matters in the morning and preparing breakfast for their families. In addition, there were also those who ran into the house to save their child, but in the middle of the process a building fell down.
and resulted in the mother and child to dead. According to the research data, the number of housewives in Tempel Hamlet is 111 people spread over five RT (Rukun Tetangga) and most of the housewives are at home to take care of their domestic affairs. There are only a few housewives who have other jobs such as teachers, doctors, farmers, traders and factory workers.

At the time of the 2006 earthquake, the number of casualties indicated that the community, especially housewives, needed to know specific strategies to live in harmony with nature in earthquake-dangers areas. One of the efforts that can be done is to minimize losses due to the earthquake disaster with the provision of empirical experience of the 2006 earthquake with how to increase preparedness. Preparedness itself is a series of activities carried out to anticipate earthquake disasters through appropriate and efficient steps. This aims to monitor the preparedness of housewives to face earthquakes that can occur at any time as well as to find out efforts or efforts to increase the preparedness of housewives. The preparedness of a society or community can decrease over time according to changes and conditions, both social-economic, and cultural. Until now, there is still no research that examines the preparedness level of housewives in Tempel and the follow-up, namely efforts to improve the preparedness of these housewives. The level of vulnerability of women is higher than men. Women here are also one of the groups that vulnerable to earthquake disasters apart from the disabled, the elderly and children. Women also have a vital role so it is necessary to be directly involved in earthquake disaster preparedness because the mother is the de facto ruler of the household, has the nature of protecting her family, active in social groups, and a preparedness educator agent for herself, the family, and the environment. The existence of this dual role is the reason why it is important to measure the level of preparedness of housewives.

One of the impacts of knowing the level of preparedness of housewives in Tempel is to minimize the number of casualties if an earthquake occurs. Condition of preparedness housewives will greatly affect the level of preparedness of children and families. This because housewives become the first teaching agent for children as a vulnerable group. Based on this background, the authors feel he need to study and conduct relevant research with community preparedness, especially housewives.

2. Research Methods

The research design used in this research is descriptive analysis with quantitative approach. This study seeks to explain housewives preparedness in Tempel in dealing with earthquake disaster and the improvement efforts of housewives to dealing with a danger of earthquake in Tempel. This research conducted on Januari- Juni 2020. The research place is Tempel, Sidomulyo, Bambanglipuro, Bantul, D.I. Yogyakarta. Bantul Regency is a major area affected by the earthquake on May, 27th 2006. The variable in this research are (1) the preparedness level of housewife in dealing with the dangers of earthquakes, which can be seen from indicator: (a) knowledge and attitude, (b)emergency response plan, (c) disaster warning system, (d) resources mobilization, and (2) the improvement efforts of housewives to dealing with dangers of earthquake in Tempel, Sidomulyo, Bambanglipuro, Bantul.

| Variable | Indicator | Sub Indicator |
|----------|-----------|---------------|
| Knowledge and Attitude | Knowledge of Earthquake | Understanding of natural disaster |
| | | Events that cause disaster |
| | | The cause of earthquake |
| | | Effect of earthquake |
| | | Actions taken in the event of an earthquake |
| Emergency Response | Related to evacuation and rescue. | Evacuation Plan |
| | | Evacuation Transportation |
| | | Evacuation Equipment and supplies |
| | | Evacuation sites |
| | | Practice and simulation |
The research is population study. The population in this study were all housewives in Tempel with total of 111 housewives. All members of the population is a housewives that lives in Dusun Tempel minimal since on 2006 and have earthquake’s experience.

The data collected in this research are 2 (two) types, they are: (1) primary data, relating to the preparedness level of housewife in dealing with earthquake disaster and the improvement effort in dealing with earthquake disaster, and (2) secondary data, in the form of information about the physical, social, economic, and demographic conditions in the research location, which is expected to support the research findings.

Data collection techniques in this study are: (1) observation, carried out by observing the conditions around the research location to obtain an overview of the study area, (2) interviews, conducted to respondents using questionnaires to obtain information about housewives preparedness level that seen from indicator: knowledge and attitude, emergency response plans, disaster warning systems, and resource mobilization. Interviews with key informants using a questionnaire were used to obtain information about improvement effort in dealing with earthquake disaster, and (3) documentation, carried out by taking data, such as administrative maps, population data, and other data that can support research activities.

The data analysis used in this research is quantitative and qualitative descriptive analysis. The description of preparedness level of housewives in dealing with earthquake disaster is obtained from the results of preparedness parameter scoring. Scoring is done to change the information that has been obtained into data in the form numbers. The answer "Totally Agree" on each research instrument will be given a value of 5, the answer "agree" is given a score of 4, the answer "uncertain" is given a score 3, the answer "not agree" is given a score 2, and the answer "totally not agree" is given a score 1. Determination of the number of scores for each class is based on the range of minimum values up to the maximum range and the number of classes desired namely "full ready", "ready", "ready enough", "less ready", "not ready", so that interval determination class is obtained by formula:

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\text{Length of class interval} = \frac{\text{maximum value} - \text{minimum value}}{\text{number of classes}} (=5)
\]

3. Results

3.1. Description area

Tempel Hamlet is located at 110°17'33"BT - 110°17'43"BT and 7°57'21"LS - 7°57'56"LS, which is one of the hamlet in Bambanglipuro District, Bantul Regency, Daerah Istimewa Yogyakarta Province. Tempel hamlet has an area of 283,047 m² which is divided into 5 RT administrative areas. The population is 542 people with a population density of 1779 / km². The area of Tempel hamlet is located at an altitude of 140 meters above sea level. Tempel Hamlet temperature is 26,18 °C. The highest level of education in Dusun Tempel is high school graduates at 30.44% and the lowest is not attending school, which is 3.87%.
3.2 Preparedness Level of Housewives in Dealing with Earthquake Dangers in Tempel, Sidomulyo, Bambanglipuro, Bantul.

The study of housewife preparedness level in Tempel hamlet in dealing the earthquake disaster using a framework developed by LIPI in collaboration with UNESCO/ISDR in 2006. The housewives preparedness level is based on 4 (four) indicators, they are: (1) knowledge and attitude of phenomena earthquakes, (2) emergency response plans, (3) disaster warning systems, and (4) resource mobilization. Based on the 111 respondents surveyed, the level of housewives preparedness in Tempel hamlet was in the "full ready" category, which was 43% of all respondents. The following are four parameters used in measuring the level of housewives preparedness in dealing with earthquakes disaster.

Table 2. Preparedness Level of Housewives in Tempel on dealing with Earthquake disaster

| No | Indicator                        | Category (%) |
|----|----------------------------------|--------------|
|    |                                  | Full Ready   | Ready Enough | Less Ready | Not Ready | Total |
| 1  | Knowledge and Attitude           | 34,23        | 30,63        | 27,02      | 08,10     | 00,00 | 100  |
| 2  | Emergency Response Plan          | 21,62        |              | 45,94      | 24,32     | 08,10 | 00,00 | 100  |
| 3  | Disaster Warning System          | 26,12        |              | 37,83      | 24,32     | 10,81 | 00,90 | 100  |
| 4  | Resource Mobilization            | 27,02        |              | 43,24      | 00,18     | 09,90 | 00,90 | 100  |
| 5  | All Indicator                    | 43,24        | 28,82        | 25,22      | 6,30      | 00,00 | 100  |

Source: Primary Data through Processing (2020)
Based on table 2, it can be seen that the preparedness level of housewives in Tempel Hamlet in knowledge and attitude are in category "full ready" (34.23%). Knowledge and attitude parameters is a major factor in preparedness. Knowledge will affect the attitude of a person. This knowledge and attitude is very important for people living in disaster-prone areas. So that the resulting impact can be minimized.

The emergency response plan are in category “ready” (45.94%). This plan is an important part of preparedness, especially in relation to evacuation, help and rescue, so that disaster victims can be minimized. This effort is very crucial, especially during a disaster and in the first days after a disaster before assistance from the government and from outside parties arrives. The evaluation of the emergency response plan variables has four indicators, namely earthquake evacuation plans, earthquake evacuation transportation tools, earthquake disaster evacuation equipment, and earthquake training or simulations. Here are the levels earthquake emergency response plan in Tempel hamlet. The level of preparedness of housewives, especially in the emergency response plan variable in table 2 shows that as many as 45.94% of respondents are in the ready category. Respondents who already know the gathering point for all family members at home, the main priority of which group should be rescued immediately, transportation tools and evacuation equipment that need to be prepared, and knowing the importance of participating in earthquake training or simulations.

The disaster warning system indicator are in category “ready” (37,83%). This system includes warning signs and distribution of information about disasters. With this disaster warning, the community can take appropriate action to reduce casualties, property and environmental damage. Therefore, training and simulation are needed, what to do if you hear a warning, how to take steps to save yourself according to the location where the community was at the time of the warning. The following is the level of the early warning system for housewives in Tempel Hamlet. Early warning system parameters are in the ready category. This is based on 37.83 respondents who received information about the source of information in the form of two indicators, namely a traditional disaster warning system and a modern disaster warning system. Traditional disaster warning systems include kentongan, siren, or bells. A modern disaster warning system can be done by following information from social media or television broadcasts. One example is following information from the BMKG's Instagram, Twitter, Facebook and another social media.

The resource mobilization indicator are in category “ready” (43.24%). Available resources, both human resources (HR), as well as funding and essential infrastructure for emergencies are potentials that can support or otherwise become obstacles in natural disaster preparedness. Therefore, resource mobilization is a crucial factor. The parameter of resource mobilization ability shows that, 70% of respondents is in the ready category. This is based on 60 respondents who already know what the potential supports and constraints, such as human resources, technical guidance such as training and provision of materials on preparedness, funding which can be in the form of savings, insurance or separate fund allocations, facilities and facilities. infrastructure, etc. The following is the level of ability to mobilize housewives' resources in Tempel Hamlet. The human resource that is meant is the presence of one of the family members who has received material, socialization or training at school or in the community regarding earthquakes. Support from the government in disaster preparedness, demonstrated by the provision of shelters and the installation of evacuation routes, greatly supports the readiness of the community in mobilizing resources.

Overall the preparedness level of housewives in dealing with the earthquake disasters are categorized as “full ready” (43.24%).

3.3. Improvement Effort to increase the Preparedness Level of Housewives in Dealing with Earthquake Dangers in Tempel, Sidomulyo, Bambanglipuro, Bantul.

Government and community efforts to increase preparedness in the face of earthquakes are something that must be done in disaster-prone areas. There is no specific policy regulating earthquake disasters. Government policy discusses disasters in general in Bantul Regency. There are nine disaster threats in Bantul Regency, one of which is an earthquake. This form of earthquake disaster response is carried out by socialization and training conducted at schools, villages, or village health centers where the BPBD will be the resource person. Every village in Bantul Regency has priority disasters that threaten the area.
So that disaster-prone villages emerged. The village was named Desa Tangguh Bencana (DESTANA) and was fostered by the BPBD. In addition, efforts to improve disaster preparedness were carried out by holding comprehensive meetings between the village government, the community and the BPBD, which were held at the request of the village government.

The form of training held by the government at the village level is in the form of socialization, training and disaster simulation. Parties involved in training and simulations such as cadres of Puskesmas, representatives of housewives per hamlet and youth organizations.

The disaster organization that drives every disaster management activity at the Village level is the FPRB (Regional Disaster Management Forum). The FPRB is voluntary and is a partner of the BPBD. Until now, the FPRB of Sidomulyo Village is active. The activities of FPRB Sidomulyo include socialization and earthquake simulations in commemoration of Disaster Preparedness day with the target community representatives of each hamlet, as well as schools. The disaster simulation training involved 30 representatives of youth organizations, PKK, village officials and the Indonesian National Armed Forces (TNI). The group is divided into 6 small groups that are prone to disasters. Each group discussed the mitigation that will be carried out with the disaster. The results of the discussion were presented and evaluated. Then from the six disaster threats, priority was obtained for disasters that threaten the area. The disaster was simulated jointly by dividing the tasks. This simulation will involve and be evaluated by representatives of groups that are prone to earthquakes such as the diffable, the elderly, children, and women. From this small simulation, the follow-up was a field rehearsal which was attended by around 200 people. The duties of the PKK's representative following training is communicating to other housewives who did not attend the training in the hamlet. This educational process lasted quite a long time. This educational process is conveyed repeatedly and continuously in order to form a habit to be alert to the danger of earthquakes in the Tempel Hamlet environment.

Facilities and infrastructure used in supporting activities to improve community preparedness, including disaster-prone maps and evacuation route signposts, however, not all villages exist. The facilities and infrastructure used in the efforts to disseminate information included leaflets and billboards. The level of preparedness of housewives in facing earthquake hazards is measured using four variables, namely knowledge and attitudes, emergency response plans, disaster warning systems, and resource mobilization capabilities. The level of preparedness of housewives in Tempel Hamlet in the face of an earthquake is in the very ready category of 43.24%. The variable of knowledge and attitude of housewives was in the very ready category of 34.23%. This is supported by educational factors and economic factors. The emergency response plan variable is in the ready category of 45.94%. The early warning system variable was in the ready category at 37.83%. The variable of resource mobilization ability is in the ready category of 43.24%. Of the four variables, the variables that occupy the most prepared positions are knowledge and attitudes.

Efforts that have been made by the government in collaboration with related agencies include holding training or earthquake simulations. In addition, the provision of several facilities such as evacuation route boards, earthquake hazard maps at the village level.

4. Conclusion
From this research, we knew that earthquakes can occur anytime. Housewives need to follow information from either BMKG or local government and saving telephone numbers of relevant agencies such as, ambulances, BMKG, fire brigade, hospital, police office, etc. The government needs to add facilities and infrastructure such as evacuation route boards and assemble point, conduct even training and simulations for PKK members. The community must synergize with government to increase the preparedness level of the community.

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