Integrating gender mainstreaming in disaster risk reduction through providing geospatial information to create community resilience in Muntuk Village, Bantul Regency

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Abstract. Muntuk Village, Bantul Regency has a high multi-risk disaster potential, in the form of earthquakes and landslides. This is due to the location of Muntuk Village which is in the Bukit Batur Agung formation and is directly connected to the Opak Fault. The implications of these threats result in high disaster vulnerability. The focus of this research is to examine aspects of social vulnerability with the main subject being women, especially since the number of victims of the 2006 Bantul earthquake was dominated by women. This research seeks to integrate the development of Prima Village to increase the resilience of women's communities. The method used is a concurrent mixed method using questionnaires, interviews, and observations, as well as mapping data processing. The results of the analysis produced several outputs, including Sex Ratio Map, Economic Resilience Index Map, Prima Village Feasibility Standard Map, Landslide Prone Area Map, Logistics Warehouse Coverage Effectiveness Map, Logistics Warehouse Development Plan Map, and policy recommendations. It is hoped that this output can be used as input in designing regional disaster planning policies, both pre-disaster, during a disaster, and post-disaster, especially for women to improve community empowerment programs to achieve the goals of Prima Village.

Keyword: disaster risk reduction, gender mainstreaming, geospatial information, resilience community, Prima Village

1 Introduction

Gender equity, gender equality, and gender inclusivity are efforts to equalize gender where women and men have the right to obtain the same opportunities or rights as human beings to be able to play a role and participate in various activities such as political, legal, economic, social, cultural, educational, and equality in enjoying the results of development. Therefore, it is important to develop gender mainstreaming as a strategy in order to integrate gender into an integral dimension of planning, preparation, implementation, monitoring and evaluation of policies, as well as programs and development activities in the region [1,2]. One effort to achieve this access is by empowering women's economics through the Prima (Perempuan Maju dan Mandiri/Advanced and Independent Women) Village program, which is a national program to improve the quality and participation of women through increasing economic productivity by utilizing all potential, both natural and human resources.

The formation of Prima Village was initiated by the Department of Women's Empowerment, Child Protection, and Population Control targeting women from poor families. The stages of Prima Village include (1) planning through exploring the potential of natural resources and human resources; (2) implementation through socialization and formation of the name and management of Prima Village; and (3) control through periodic reporting, monitoring, and evaluation [3]. Prima Village provides space for women to carry out activities as a source of income to be able to support their own living needs and to quit from the poverty cycle through empowerment in business groups by increasing productivity based on regional development potential.

Poverty alleviation and gender equality are global goals of SGDs (Sustainable Development Goals). The first goal in the SDGs is poverty, this is due to the importance of sufficient income to guarantee human livelihoods and eradicate unemployment as well as poverty.

According to the World Bank Institute, vulnerability is an opportunity or risk to become poorer in the future [4]. Vulnerability means a high current opportunity to experience deprivation in the future, while poverty means deprivation in the present [5]. In order to minimize vulnerability in society, it is necessary to increase community capacity and risk management so that the risks that may occur will not shock the community. Community vulnerability can be caused by various factors, one of which is the threat of disaster. Disaster is one of the factors that can threaten human life. Vulnerability in disaster assessment can be
interpreted as the level of possibility of a disaster object consisting of communities, structures, and services experiencing damage or disruption due to the impact of a disaster or the tendency for an object or creature to be damaged as a result of a disaster [6].

The capacity of a region is an important indicator in reducing the level of threats and losses due to disasters. At the community level, community resilience is a capacity for managing disaster stress through resistance or adaptation, managing certain basic functions and structures during disaster events, and recovering or bouncing back after a disaster [7]. Community resilience can be influenced and influenced by four dimensions, namely health and welfare, economic and social community, leadership and strategy, environmental and infrastructure [8]. As objects who feel the impact of disasters, the role of the community is very necessary to create community resilience in order to reduce disaster risks. Muntuk Village, one of the villages in Dlingo District, Bantul Regency, Special Region of Yogyakarta has the threat of both geological and climatological disasters such as earthquakes, landslides, heavy rain, and strong winds [9]. If this threat of disaster is not prevented, it will threaten lives and cause property loss which can lead to poverty. Moreover, in 2006, a tectonic earthquake measuring 6.4 SR occurred in this village, where the victims were dominated by women.

In disaster situations, women sometimes have difficulty accessing support because they are not considered as the main breadwinner or head of the family. This situation is very unfavorable, especially for women who have to be heads of families either before or after a disaster occurs. This process makes women’s lives more challenging because all matters relating to access to assistance or resources, such as training to increase knowledge and skills or business capital loans, must have the permission and knowledge of men such as their husband, father or other family members. Therefore, apart from focusing on improving women’s economic development, Prima Village is also expected to be able to become a bridge for women to increase their capacity and capability in facing the threat of disasters which can cause a decline in economic levels.

The Prima Village Program is a mandate of Presidential Instruction No. 9 of 2000 on Gender Mainstreaming in National Development, Presidential Decree No. 54 of 2005 on the Poverty Reduction Coordination Team, Regulation of the Minister of Home Affairs No. 15 of 2008 on General Guidelines for Implementing Gender Mainstreaming in Regions, and Regulation of the PPPA Ministerial No. 2 of 2016 on General Guidelines for Home Industry Development to Improve Family Welfare through Women's Empowerment. In the Special Region of Yogyakarta, the Prima Village program is regulated in Regional Regulation No. 7 of 2018 on Building Family Resilience, Governor Regulation No. 103 of 2014 on Guidelines for Distribution of Financial Assistance in Efforts to Alleviate Poverty, and others.

The Prima Village program in Muntuk Village is the Disaster Resilient Village Program. These two programs need to be carried out simultaneously and in harmony to create advanced and independent women. Furthermore, one of the integration strategies of gender mainstreaming in disaster risk reduction is through Geographic Information System (GIS), a system for capturing, storing, processing, analyzing, and displaying geospatial data [10,11].

This research aims to (1) Identify the potential and problems of gender mainstreaming in disaster risk reduction; (2) Implementing the actualization and role of the geographic information system as an instrument in forming a framework for empowering disaster resilient women; and (3) Formulate a gender mainstreaming adaptation strategy to create a resilient community in reducing disaster risk. It is hoped that this research can support the formation of women’s capacity, as well as increase capacity building in efforts to handle, overcome, and mitigate disasters for women in Muntuk Village.

2 Method

The approach taken in this research is a mixed method approach, a research method that integrates qualitative and quantitative research methods to obtain more comprehensive, valid, reliable, and objective data [12]. The strategy used in this research was carried out using a concurrent mixed method by combining qualitative and quantitative data at one time [13]. More specifically, the concurrent mixed method strategy is implemented using the embedded concurrent principle, namely the existence of a primary method that guides the ongoing research activities and a secondary method that supports each research procedure. The use of concurrent mixed methods was adapted simultaneously to both the first and second objectives by combining spatial data, literature, and statistics.
2.1 Research setting

2.1.1 Research location

Muntuk Village is located in Kapanewon Dlingo (District), Bantul Regency, Special Region of Yogyakarta. Muntuk Village has an area of 1284.6265 ha. Administratively, Muntuk Village has a government which is divided into 11 sub-villages and 73 neighborhood units. Judging from geographical conditions, the physical conditions in Muntuk Village are quite diverse, which has a slope of 15-30% to >45%. Muntuk Village is located in the Batur Agung Hill formation, which is a faulted mountain range and is still in a mature stage with triangular facets and relatively steep slopes, making it prone to landslides in deposit/sediment accumulation areas. The rainfall ranges from 2000-2500 and >2500. The dominant rainfall is >2500 mm/year, which is considered high-class rainfall intensity. Apart from that, Muntuk Village is also close to the Opak Fault, an active fault that often causes large magnitude seismic activity which makes this area also have an earthquake threat. Furthermore, Muntuk Village has a type of land use that is dominated by plantations, and other land uses are settlements, fields/moors, and thickets with latosol soil types [14].

Based on those conditions, there are some relationships between social and physical areas in Muntuk, especially with the gender phenomenon called “gender mainstreaming”. The research seeks to see the relationship between the actualization of gender mainstreaming and the existence of disaster risk reduction through geographic information systems. The actualization of gender mainstreaming is represented through standardization of the Department of Women's Empowerment, Child Protection, and Population Control Department of Women’s Empowerment, Child Protection, and Population Control that visualized through a map. Furthermore, sustainable strategic priorities were also formulated through a stakeholder approach with a foundation of gender mainstreaming through GIS.

2.2 Data collection

Data collection technique used in this research is an integration of primary and secondary data. In this case, the complete and comprehensive data is needed to be processed and analyzed.

2.2.1 Primary data

Primary data obtained directly from a first source. The character of primary data will develop over time so it’s always up to date. In this research, primary data collection was obtained from key informants and members of the Prima Village. Methods of primary data acquisition in this research include questionnaire, interview, and observation.

2.2.1.1 Questionnaire

Questionnaires are distributed to the target of the Prima Village program, which is women in Muntuk Village with predetermined criteria, with a total of 13 respondents from 11 sub-village. The purpose of distributing this questionnaire is to find out the community's perspective regarding the realization and development of Prima Village, disaster conditions in Muntuk Village, as well as disaster management and management programs that have been implemented by the government. Apart from that, this questionnaire was distributed to determine public knowledge regarding geospatial information. This questionnaire uses a mix of open, closed, and mixed questions. Muntuk Village women who were respondents were selected based on purposive sampling with the following criteria:

a. Residents of Muntuk Village;

b. Aged 18-60 years;

c. Feel the direct or indirect impact of the village empowerment program;

d. Feel the direct or indirect impact of the disaster that occurred in Muntuk Village;

e. Priority is given to women who come from poor/threatened poverty families or who have businesses on an embryo-micro scale.

2.2.1.2 Interview

Interviews in this research were conducted using in-depth interviews to explore topics in depth with the informant [15]. Interview data was conducted collectively to determine the characteristics of the local community regarding sensitivity, awareness, and concern for women's safety from disaster risks and women's welfare in the economy.

In-depth interviews were conducted with key informants who understand and have extensive knowledge about the relevant study objects, namely the Head of Seropan 2 Sub-village, the Head of Tangkil Sub-village, the Head of the FPRB of Muntuk Village, the Empowerment Program Activist and Farmers’ Market Initiator of Muntuk Sub-village, Chair of the PKK Banjarharjo 2 Sub-village, Chair of the Gejog Lesung Group of Gunung Cilik Sub-village, and
member of the Sumber Rejeki Farming Women’s Group of Muntuk Sub-village.

2.2.1.3 Observation

Observation is a data collection technique carried out to observe accompanied by systematic recording of the object or phenomenon being studied. The type of observation carried out in this research is non-participant observation, a type of observation that doesn’t involve the author directly in the activities being observed. Apart from that, the observations carried out are also a type of structured observation which refers to guidelines that have been prepared in advance by the researcher. This observation provides additional information related to factual data that occurred in Muntuk Village with data descriptions that support other data. The observations that have been carried out in Muntuk Village include:

a. Women’s activities in Muntuk Village;

b. Geographical conditions of Muntuk Village;

c. Landslide conditions, especially in Banjarharjo 2 and Seropan 2 Sub-village;

d. Conditions of landslide potentially location, especially in Seropan 3 Sub-village;

e. The impact of the 2006 earthquake in several areas of Muntuk Village;

f. Disaster evacuation route in Muntuk Village;

g. Muntuk Village’s gathering point and logistics warehouse.

Table 1. Data analysis.

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Data Analysis Technique</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sex Ratio</td>
<td>Sex ratio calculation analysis</td>
<td>Sex Ratio Map</td>
</tr>
<tr>
<td>2</td>
<td>Economic Resilience Index</td>
<td>Scoring analysis of the economic resilience index based on the village development index using the parameters of community production diversity, access to trade centers and markets, as well as access to banking and credit</td>
<td>Economic Resilience Index Map</td>
</tr>
<tr>
<td>3</td>
<td>Feasibility Standards of Prima Village</td>
<td>Scoring analysis of Prima Village feasibility standards based on the Prima Village guidebook. The parameters used are number of PKK members, existence of revolving funds, and business unit level</td>
<td>Prima Village Feasibility Standards Table and Prima Village Feasibility Map</td>
</tr>
<tr>
<td>4</td>
<td>Determination of Landslide Areas</td>
<td>Slope analysis in DEMNAS data uses a natural breaks approach with 5 classification systems (&lt; 8%, 8-15%, 15-25%, 25-45%, &gt; 45%)</td>
<td>Tentative Map of Landslide Prone Areas</td>
</tr>
<tr>
<td>5</td>
<td>Range of Logistics Granaries and Main Gathering Points</td>
<td>Analysis of coverage effectiveness using buffer tools in ArcMap 10.8</td>
<td>Effectiveness of Logistics Warehouse Coverage Map</td>
</tr>
<tr>
<td>6</td>
<td>Distribution of Plans for Construction of Logistics Warehouses and Gathering Points</td>
<td>Analysis of centripetal force and elevation in each ridge.</td>
<td>Plan Map for Logistics Warehouse Development Points and Gathering Points</td>
</tr>
<tr>
<td>7</td>
<td>Prima Village Policy Recommendations and Strategies</td>
<td>Comprehensive analysis and coherence of research output results by description</td>
<td>Policy Recommendations</td>
</tr>
</tbody>
</table>

2.2.2 Secondary data

Secondary data comes from existing or non-first sources to strengthen the researcher’s argument and spatial processing in map form. Secondary data used in this research includes the Rencana Pembangunan Jangka Menengah Daerah (RPJMD) Kabupaten Bantul 2021-2026, Rencana Pembangunan Jangka Menengah Kalerahan (RPJMKal) Muntuk 2021-2026, Rencana Strategis Kabupaten Bantul 2021-2026, Indonesian Disaster Risk Index Book, Prima Village Handbook from Department of Women’s Empowerment, Child Protection, and Population Control, Special Region of Yogyakarta, related journals and books, as well as local news portals that discuss gender and disaster issues. Besides that, the satellite imagery as well as Indonesia Geospatial Portal and DEMNAS shapefiles are used to formulate an adaptation strategy to create a resilient community in reducing disaster risk.

2.3 Data analysis

The data analysis technique in this research was carried out comprehensively. Based on the methodology used, data analysis was carried out using a qualitative and quantitative approach with the main output in the form of maps, as well as other outputs such as tables, graphs, descriptions, etc. In more detail, the data analysis techniques used in this research are shown in Table 1.

3 Results and discussion

3.1 Potential and problems of gender mainstreaming in Muntuk Village

Poverty alleviation and gender equality, which are included in the SDGs are important aspects for realizing sustainable development [16]. Therefore, efforts are needed to minimize vulnerability which is a risk of increasing poverty. Community vulnerability can be
caused by various factors, one of which is the threat of disaster. Muntuk Village has a high threat of geological and climatological disasters, including earthquakes, landslides, heavy rain, and strong winds. In disaster situations, women sometimes have difficulty accessing assistance so this situation is not favorable.

Based on the results of interviews with key informants, the problems of women in Muntuk Village are community initiative and knowledge which is still relatively low, side jobs which can’t cover their daily needs, lack of accessibility, conditions in disaster-prone areas, low disaster risk management, lack of evacuation routes, as well as lack of training related to pre, during, and post disasters. Apart from that, based on the results of a questionnaire aimed at the target population of Prima Village, 53.8% of the people of Muntuk Village did not know about Prima Village. The Muntuk Village Government is currently preparing to establish a Prima Village. The program aims to encourage women's participation in reducing the percentage of poverty levels through efforts to increase productivity and empower individuals and groups of women. Therefore, apart from focusing on improving women's economic development, Prima Village is also expected to be able to increase women's capabilities in facing the threat of disasters which can cause a decline in economic levels in Muntuk Villages, Dlingo District, Bantul Regency, Special Region of Yogyakarta.

Besides that, the potential of Muntuk Village is the enthusiasm of organizations that support disaster preparedness efforts, namely KSB (Kelompok Siaga Bencana/Disaster Preparedness Village) and FPRB (Forum Pengurangan Risiko Bencana/Disaster Risk Reduction Forum) of Muntuk Village. Apart from that, in Muntuk Village there are also women's empowerment organizations such as the PKK (Pembinaan Keluarga Berencana/Emancipation and Family Welfare), Gejog Lesung Group of Gunung Cilik Sub-Village, and Sumber Rejeki Farming Women's Group of Muntuk Sub-village. These organizations can support the realization of resilient communities.

3.2 Solution to the gender mainstreaming problem in disaster risk reduction using GIS implementation

In general, the form of solution offered in this research is multidimensional. This solution can be applied for basic and practical purposes so that it can be used in the process of making policies and implementing activities or programs in the field. In this case, the use of geographic information systems is emphasized to facilitate the process of formulating strategies and solutions to reach Prima Village. In addition, through overlaying spatial data, researchers and map users can more quickly and accurately understand the spatial distribution of readiness of each sub-vilages to achieve the Prima Village category.

3.2.1 Sex ratio map

Fig. 2. Sex ratio map.

The Sex Ratio Map represents the ratio of the number of male population to the number of female population per 100 female population. If the sex ratio is greater than 100, it means the male population is greater than the female population, and conversely. Based on this map, sub-villages that have more female residents than male are Bandarharjo 1, Seropan 1, Seropan 2, and Seropan 3. Meanwhile, sub-villages that have more male residents are Gunung Cilik, Muntuk, Sanggrahan 1, Sanggrahan 2, Bandarharjo 2, Tangkil, and Karangasem. The priority of Prima Village policy development in Muntuk Village should be implemented in sub-villages that have more female than male residents.

3.2.2 Economic resilience index map

Fig. 3. Economic resilience index map.
The economic resilience index is an indicator that is assessed from the economic dimension, including the diversity of village community production, availability of trade service centers, access to distribution/logistics, access to financial and credit institutions, and regional openness. Economic resilience is one of the main pillars in the Developing Village Index, apart from social and environmental ones. Based on this map, the economic resilience index for Muntuk Village varies from low, medium, to high. The sub-villages with the high economic resilience index are Bandarharjo 1 and Bandarharjo 2, the sub-villages with the medium economic resilience index are Gunung Cilik, Muntuk, Tangkil, Karangasem, and Seropan 2, while the sub-villages with the lowest economic resilience index are Sanggrahan 1, Sanggrahan 2, Seropan 1, and Seropan 3.

### 3.2.3 Prima Village feasibility

Based on the results of data processing, the Prima Village feasibility standards for each sub-village of Muntuk Village are represented in Table 2.

<table>
<thead>
<tr>
<th>Sub-Village</th>
<th>Member</th>
<th>Revolving Fund</th>
<th>Business Unit</th>
<th>Total</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gunung Cilik</td>
<td>6</td>
<td>A</td>
<td>D</td>
<td>6</td>
<td>Very Sufficient</td>
</tr>
<tr>
<td>Muntuk</td>
<td>4</td>
<td>B</td>
<td>C</td>
<td>4</td>
<td>Sufficient</td>
</tr>
<tr>
<td>Sanggrahan 1</td>
<td>3</td>
<td>C</td>
<td>F</td>
<td>3</td>
<td>Insufficient</td>
</tr>
<tr>
<td>Sanggrahan 2</td>
<td>3</td>
<td>B</td>
<td>E</td>
<td>3</td>
<td>Insufficient</td>
</tr>
<tr>
<td>Banjarharjo 1</td>
<td>4</td>
<td>A</td>
<td>D</td>
<td>4</td>
<td>Sufficient</td>
</tr>
<tr>
<td>Banjarharjo 2</td>
<td>5</td>
<td>A</td>
<td>C</td>
<td>5</td>
<td>Very Sufficient</td>
</tr>
<tr>
<td>Tangkil</td>
<td>6</td>
<td>A</td>
<td>B</td>
<td>6</td>
<td>Very Sufficient</td>
</tr>
<tr>
<td>Karangasem</td>
<td>3</td>
<td>B</td>
<td>C</td>
<td>3</td>
<td>Insufficient</td>
</tr>
<tr>
<td>Seropan 1</td>
<td>4</td>
<td>A</td>
<td>D</td>
<td>4</td>
<td>Sufficient</td>
</tr>
<tr>
<td>Seropan 2</td>
<td>4</td>
<td>A</td>
<td>C</td>
<td>4</td>
<td>Sufficient</td>
</tr>
<tr>
<td>Seropan 3</td>
<td>3</td>
<td>B</td>
<td>A</td>
<td>3</td>
<td>Insufficient</td>
</tr>
</tbody>
</table>

Source: Researcher Processed Data

**Information:**

- A: < 25 member
- B: < 25 member, still increase
- C: < 25 member, advance level
- D: Not any yet
- E: Still increase
- F: Advance level
- G: Embryonic
- H: Embryonic-Micro
- I: Micro

This data was taken from the results of questionnaires and interviews with key informants in each sub-village. The data is then processed using scoring and weighting techniques, and classified using the standard deviation technique [17]. The feasibility standards for Prima Village in Muntuk Village can be classified as very sufficient, sufficient, and insufficient. Sub-villages which are very sufficient are Gunung Cilik, Banjarharjo 2, and Tangkil. These sub-villages could become pioneers of Prima Village in Muntuk Village. Then the sub-villages which are sufficient are Muntuk, Banjarharjo 2, Seropan 1, and Seropan 2. These sub-villages can support the development of Prima Village in Muntuk Village in stages further developments. Lastly, the sub-villages which are insufficient are Sanggrahan 1, Sanggrahan 2, Karangasem, and Seropan 3. These sub-villages are still in need of both personal and group or organizational for realizing a sustainable Prima Village in Muntuk Village. The Prima Village feasibility standards for each sub-villages in Muntuk Village can be represented in Figure 4.

### 3.2.4 Tentative map of landslide prone areas

A landslide hazard map represents locations/points prone to landslides. The landslide hazard map was created using DEMNAS data and adjusted to parameters used as references such as slope, rainfall, soil type, and land use [18]. The landslide hazard map was chosen.
because landslides have a higher frequency and probability of occurrence, especially in hilly areas. The landslide hazard map is classified based on the slope level and steepness of the slope. Muntuk Village itself has a varied physical shape because of its location in the Batur Agung hill area. The slope classification is flat, gentle, slightly steep, steep, and very steep. Muntuk Village is dominated by land forms with flat, slightly steep, and steep slopes. To support users’ understanding, the author adds tentative images as a tool to increase geospatial sense, especially for the public. It can be seen that the sub-villages that have the highest level of landslide vulnerability are Banjarharjo 2, Banjarharjo 1, Karangasem, and Seropan 3.

3.2.5 Effectiveness of logistics warehouse coverage map

3.2.6 Plan map for logistics warehouse development points and gathering points

Fig. 6. Effectiveness of logistics warehouse coverage map.

The existence of a logistics warehouse is an instrument of prevention and contributes to increasing the capacity of the Muntuk Village community in facing disasters. Based on the results of an interview with the chairman of FPRB, up to now there is only one location that functions as a logistics warehouse post in Muntuk Village, at the government head office. This is of course less effective if seen from the distance from the logistics warehouse [19].

Therefore, based on this map, it can be seen that the coverage distance per zone is 1 km from the logistics warehouse center. Each zone certainly has different influences, where the further away from the logistics warehouse, the longer the logistics distribution duration will be, thus triggering uneven distribution of logistics during an earthquake. The priority for developing logistics warehouses should be in every sub-villages location, especially in sub-villages that are in the outer ring zone (ring 4 and ring 5).

Fig. 7. Plan map for logistics warehouse development points and gathering point.

The construction of logistics warehouses and gathering points in Muntuk Village is planned to be added to each sub-villages in order to make it more effective so it can reach all administrative areas in Muntuk Village. Plans for building a logistics warehouse can be carried out at the sub-villages house or security pos in each sub-villages. Apart from that, the construction of a logistics warehouse was chosen in locations with an elevation level of <8% to minimize the risk of landslides. It is hoped that a new logistics warehouse will be available to anticipate equal distribution of aid and logistics in each sub-village if a disaster or undesirable thing occurs [20].

3.3 Policy recommendation

Based on the results of data processing and analysis, policy recommendations that need to be implemented in Muntuk Village are:
a. Preparation of work plans, budget plans, and timeline plans for the realization of an ideal, adaptive, disaster-resilient, intelligent, and sustainable Prima Muntuk Village by involving community representatives and relevant stakeholders directly in the planning stages;
b. Disaster mitigation training for the people of Muntuk Village on a regular training, especially in the context of involving the active participation of the female population;
c. Women's involvement in the disaster sector, such as in public kitchen training, using disaster preparedness tools, and saving themselves from disasters such as earthquakes, landslides, and fires.
d. Organizing, installing, and testing the Early Warning System (EWS) at certain points;
e. Improvement of evacuation routes and locations;
f. Establishment of gathering points in each sub-village;
g. Integration between Prima Village, KSB, and FPRB to create a resilient community.

### 3.4 Stakeholder mapping

The mapping of stakeholders for the disaster-resistant Prima Muntuk Village program are as follows in Figure 8.

![Fig. 8. Stakeholder Mapping of Muntuk Village.](image)

### 3.5 Gender mainstreaming adaptation strategy to create a resilient community in reducing disaster risk

The strategic steps in realizing Prima Village with the integration of disaster resilient women are as follows in Table 3.

<table>
<thead>
<tr>
<th>Step</th>
<th>Activity</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Field survey with a socio-ecological approach to the Muntuk Village residents to obtain actual and accurate information.</td>
<td>Weeks 1-2</td>
</tr>
<tr>
<td></td>
<td>Analysis of the characteristics, situation, problems, and potential of Muntuk Village, as well as exploration of natural and human resources, especially the female population.</td>
<td>Weeks 3-4</td>
</tr>
<tr>
<td></td>
<td>Index calculation and geospatial mapping as a basic database for Prima Village planning.</td>
<td>Weeks 5-6</td>
</tr>
<tr>
<td>Implementation</td>
<td>Preparation of work plans, budget plans, and timeline plans for the realization of an ideal, adaptive, disaster-resilient, intelligent, and sustainable Prima Muntuk Village by directly involving resident, community, and relevant stakeholders in this planning stage.</td>
<td>Weeks 7-8</td>
</tr>
<tr>
<td></td>
<td>Providing outreach to the entire community of Muntuk Village and related stakeholders to provide information about Prima Village with an emphasis on active participation that is open to criticism and suggestions from the community.</td>
<td>Weeks 9-10</td>
</tr>
<tr>
<td></td>
<td>Formation of the name and management of Prima Village of Muntuk Village, consisting of Patron, Governing Board, Chair, Secretary, Treasurer, Head of Division, and Special Committee.</td>
<td>Weeks 11-13</td>
</tr>
<tr>
<td></td>
<td>Fixation of work plans, budget plans, administrative governance, and financial governance.</td>
<td>Weeks 14-16</td>
</tr>
<tr>
<td></td>
<td>The implementation of Prima Village programs is in accordance with the planning agreed upon by the entire community of Muntuk Village and related stakeholders.</td>
<td>Weeks 17-forward</td>
</tr>
<tr>
<td></td>
<td>Implementation of the Prima Village development program through individual/member development (business management training, member capacity building training, and business mentoring) as well as organizational development (development of organizational and group business skills).</td>
<td>Tentative</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Reporting on the development of Prima Village and managing institutional strengthening assistance periodically.</td>
<td>1x a month</td>
</tr>
<tr>
<td></td>
<td>Regularly monitor the development of activities and management of Prima Village assistance.</td>
<td>1x a month</td>
</tr>
<tr>
<td></td>
<td>Evaluation of program implementation to assess the level of success in implementing Prima Muntuk Village as well as handling if problems occur.</td>
<td>1x a month and tentative</td>
</tr>
</tbody>
</table>

Source: Researcher Analysis and Construction

### 4 Conclusion

In general, the Prima Village program in Muntuk Village aims to encourage women’s participation in reducing the
percentage of poverty levels through efforts to increase productivity and empower individuals and groups of women. Apart from focusing on improving women's economic development, Prima Village is also expected to be able to increase women's capabilities in facing the threat of disasters which could cause a decline in the economic level in Muntuk Village. The problems with gender mainstreaming in reducing disaster risk through the implementation of Prima Village in Muntuk Village include the lack of adequate evacuation routes, low community knowledge and initiative, inadequate disaster and safety training for women, no financial assistance from the government to run the Prima Village Program, and most people don't know about Prima Village. Meanwhile, the potential that Muntuk Village has is the existence of organizations that support disaster preparedness efforts, namely KSB and FPRB of Muntuk Village, as well as women's empowerment organizations such as the PKK, Gejog Lesung Group of Gunung Cilik Sub-Village, and Sumber Rejeki Farming Women's Group of Muntuk Sub-village.

The results of this research can be used as consideration by the local government in making appropriate policies to determine the Prima Village development plan in Muntuk Village. The use of a geographic information system in the form of maps can be used as an instrument in preparing the Prima Muntuk Village. Apart from that, the village government can also more easily see the spatial distribution of preparedness for each sub-village which is integrated with disaster hazard information. Furthermore, in this case, synergy is needed between the government, local communities, and other stakeholders such as related organizations and institutions to support the appropriate Prima Village program in order to maintain economic stability in Muntuk Village while creating a resilient society. Apart from that, the Prima Village program cannot stand alone and needs to be aligned with other programs such as the disaster program in Muntuk Village. Outreach regarding Prima Village is needed thus people will better understand the essence of Prima Village. If this can be realized, the level of disaster risk for vulnerable women groups can be minimized.

References
1. Regulation of the Minister of Home Affairs No. 15 of 2008 on General Guidelines for Implementing Gender Mainstreaming in Regions (2008)