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Gender mainstreaming in a Disaster-Resilient Village Programme in Aceh Province, Indonesia: Towards disaster preparedness enhancement via an equal opportunity policy

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ABSTRACT

Gender mainstreaming during pre-disaster, emergency response and post-disaster are urgently needed to reduce the casualties of the disaster. This study aims at assessing the gender mainstreaming performance in the Disaster-Resilient Village Programme (DESTANA) implementation. To examine the gender mainstreaming process, four indicators were used: i) access; ii) participation; iii) control over resources and decision-making; and iv) benefits of policies and programmes. Further, this study assessed the present level of preparedness in the disaster-resilient village and was conducted in Aceh Province, Indonesia. Samples were taken using a probability sampling method with proportionate stratified random sampling of as many as 179 respondents. The result indicates that the implementation of the DESTANA programme does not necessarily enhance the preparedness, especially regarding woman, in response to future disaster. Although the strategy of achieving gender equality (procedurally) has been implemented in the DESTANA programme, more efforts should be carried out to ensure that substantial gender equality is actively promoted. The DESTANA programme will most likely not be gender-responsive until the patriarchal culture is dismantled. Therefore, affirmative action in DESTANA programme is needed to have a better sense of equality that would boost women's negotiating power and enable them to have their voices heard.

1. Introduction

Disasters impact men and women differently. The horizons of conventional gender roles are distorted during times of emergency, resulting in a long-term disadvantage with respect to women [1]. Particular determinants of vulnerabilities that lead to women experiencing disproportionately adverse effects in the face of disasters include the following: i) lack of decision-making power, ii) dependence on the natural environment, iii) physical and sexual violence, iv) unequal death toll, v) childcare and household duties, and vi) lack of education [1,2].

One of the efforts of the Indonesian government to protect the

community from disaster is the implementation of the Disaster-Resilient Village Programme (Desa Tangguh Bencana/DESTANA). The programme refers to the global framework that was developed under the Hyogo Framework for Action 2005–2015 (HFA) and is in line with the Sendai Framework for Disaster Risk Reduction 2015–2030 (SFDRR). Both frameworks specifically highlight the need for the involvement of women, and gender mainstreaming in Disaster Risk Reduction (DRR) [3–5]. The existence of a DRR forum consisting of village governance representatives, the community including women, and other vulnerable groups, also became one of the essential indicators in the formation of the disaster-resilient village [3].

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The involvement of women and gender mainstreaming in DRR during pre-disaster, emergency response, and post-disaster is urgently needed to reduce the potential number of disaster casualties [3,6]. Women need a properly organised emergency response plan, which would present an extra burden in addition to taking care of households. It is also assumed that caregivers or persons who are responsible for the care of children and the elderly will be women [6]. The National Disaster Management Agency (Badan Nasional Penanggulangan Bencana/BNPB) emphasises the importance of policy planning, programmes, and DRR activities in gender-responsive simulations, in order to address the issue of gender inequalities in DRR [6].

The present study was aimed at assessing the overall performance of gender mainstreaming in the implementation of the DESTANA programme. To examine the gender mainstreaming process, we used the following four indicators: i) access; ii) participation; iii) control over resources and decision-making; and iv) benefits of policies and programmes [6]. This study also assessed the present level of preparedness of both men and women in the disaster-resilient village.

2. Gender perspective in disasters

Both men and women have the right not to be discriminated against in a disaster situation. In reality, their social role places women in positions that are more vulnerable to disasters [8–10]. This condition is due to limitations that are imposed on women regarding access to resources such as information, skills, social networks, transportation, natural resources, economics, and decision making [11].

The division of labour, both inside and outside the home, causes the differences between men and women with respect to access to information. Men, who generally work outside of the home, will undoubtedly find it easier to gain information on early detection and early warning of disasters than women, who spend more time in the home. Women's mobility in specific regions is influenced by cultural factors, where the decision to leave the house lies with the husband, so that the wife tends to wait for the husband to decide whether or not to evacuate during a disaster [9,12].

There are assumptions that women should have the role of primary caregiver regarding children and the elderly. These caregiver responsibilities have caused many women to bring with them their children and the elderly while evacuating during an emergency situation, which will impede their mobility in an evacuation. In addition, clothing and fashion norms also affect women's ability to survive disasters [11–13].

In terms of survival ability, many women are not able to swim and climb, making their position more difficult to save themselves. Women's expectations for becoming feminine result in occurrences that are considered to be appropriate and inappropriate for women and for men. Gaps that occur due to differences in gender roles between men and women may cause women to suffer higher mortality rates than men during a disaster [12].

In disaster management, gender issues are grouped into three categories, namely, gender responsiveness, gender bias, and gender-neutral. Gender responsiveness is a situation that pays attention, consistently and systematically, to disparities between women and men in a society that manifests attitudes and actions to overcome injustices which occur because of these differences. Some examples of gender-responsive activities in the pre-disaster phase include: gender aspects in disaster risk assessment, gender focal points in the institutional structure of disaster management, and guidelines for handling gender-based violence. In a disaster situation, gender-responsive activity may include the involvement of women in the management of an internally displaced persons (IDPs) camp, preparing a hygiene kit, which includes underwear and sanitary napkins for women, more toilets available for women, providing lactation corners in camps, etc [14–17].

Gender bias is the absence of activities or conditions to support the implementation of gender roles. Circumstances of gender bias that often

occur following a disaster include open toilets without covers, toilets that are not separate for men and women, the assumption that the head of the family is always male, lack of reproductive health services during emergencies, women who are not involved in disaster management activities because their husband, father, or brother has been the family representative, etc [14–17].

Gender-neutrality is an activity or situation that does not contain the gender roles of men and women. In the pre-disaster phase, some of the gender-neutral activities include: developing hazard maps, preparing evacuation routes, early warning system socialisation through the head of the village, and others. In response to disasters, rapid assessments have often been conducted under gender-neutral conditions [14–17].

3. Gender mainstreaming in disaster management

Since the World Conference on Women of 1995 in Beijing, "gender mainstreaming" has been used as the main strategy to ensure that gender issues are included in all fields and sectors of development to promote gender equality [18,19].

Gender mainstreaming in disaster preparedness and response includes efforts to review and analyse the situation from a gender perspective. In this case, strategies and initiatives that are related to disaster management are prepared in order to meet the needs of men and women and to involve both in the process of development, implementation, monitoring, and evaluation. Several studies have been carried out to develop a framework for gender mainstreaming in disaster management. Based on the particular developed framework, some strategies need to be examined, namely: gender mainstreaming in institutions and policies; highlighting the importance of gender-sensitive data and information management; raising awareness about the relationship between gender and disaster; and developing women's capacity to manage disaster situations [20–26].

The issuance of the Regulation of the Head of the National Disaster Management Agency/Perka BNPB No. 13 Year 2014, concerning Gender Mainstreaming in the Disaster Management Sector, is an important milestone for integrating gender approaches in the DM field in Indonesia. Gender-responsive DM implementation needs to be carried out to ensure the fulfilment of the rights and needs of men and women in a just and humane manner [6].

We have developed a Framework for Gender Mainstreaming in Disaster Management, as shown in Fig. 1, based on the concepts that are described in Perka BNPB No. 13 Year 2014.

According to the Regulation of the Head of the National Disaster Management Agency/Perka BNPB No. 1 Year 2012, gender mainstreaming in the field of DM is carried out in the pre-disaster stage, during a disaster, and after a disaster. In the pre-disaster stage, gender mainstreaming is carried out through risk assessment, early warning, disaster mitigation, and disaster preparedness. During the disaster emergency response phase, gender mainstreaming is carried out through meeting basic needs, permanent shelter and temporary shelter, provision of clean water and sanitation, health services, education services, psychosocial services, and security. The gender-responsive emergency response is carried out by actively involving both women and men in preparing emergency response plans. In addition, it is necessary to ensure a gender-balanced representation in the rapid assessment team and to prioritise vulnerable groups in order to avoid gender-based violence [6].

During an emergency response, it is important to prioritise security for affected people by systematically preventing violence and physical or verbal abuse of women, children, and other vulnerable groups. The effort needs to be carried out by involving both women and men. In the post-disaster phase, gender mainstreaming is carried out through rehabilitation and reconstruction. Women and men should actively participate in planning, implementing rehabilitation, monitoring rehabilitation, and reconstruction. Special needs of women and men should also be considered in the planning and resources allocation for

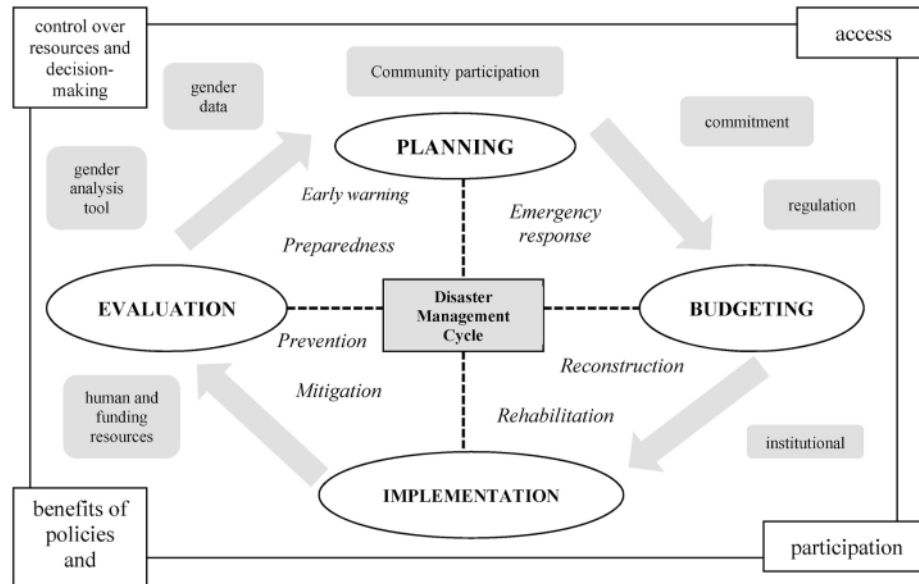


Fig. 1. Framework for gender mainstreaming in disaster management.

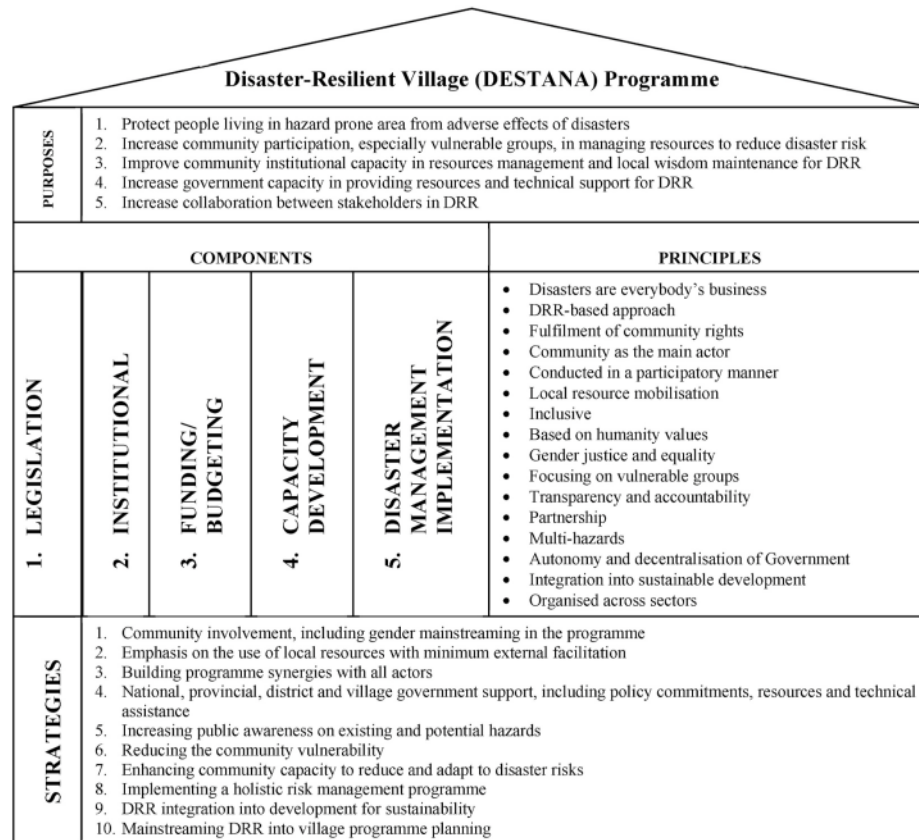


Fig. 2. The pillars of the destana programme.

rehabilitation and reconstruction processes. The implementation of gender mainstreaming in the DM field needs cooperation with many parties, such as with government institutions, non-governmental institutions, universities, the private sector, international institutions, and others. The implementation of gender-responsive DM needs to be carried out to ensure the fulfilment of the rights and needs of men and women in a just and humane manner [6].

4. Disaster resilient village programme

According to Law No. 32 Year 2004 concerning Regional Government, a village is defined as a legal community unit which has territorial boundaries, and is authorised to regulate and manage the interests of the local community, based on the origin of the people and local customs that are recognised and respected in the Indonesia national government system [7]. As stated in Perka BNPB No. 1 Year 2012 regarding the Disaster-Resilient Village Programme, DESTANA denotes a village that has the independent ability to adapt and respond to the potential threat of disasters, and to rapidly recover from the adverse impact of disasters [3].

The development of DESTANA has adopted the community-based

disaster risk reduction approach to reducing hazards and vulnerability, as well as increasing the human resources capacity, which is planned and implemented by the community which represents the main actor(s) in disaster risk reduction. The community is actively involved in reviewing, analysing, implementing, monitoring, and evaluating the disaster risk reduction efforts by utilising local resources to ensure their sustainability [3]. Fig. 2 describes the purposes, components, principles, and strategies of the DESTANA Programme.

DESTANA is divided into three main criteria, namely *Utama* (Advanced) with scores in the range 51–60, *Madya* (Intermediate) with scores in the range 36–50, and *Pratama* (Basic) with scores in the range 20–35. Each criterion is determined based on the level of achievement of several indicators. Questions are arranged with 'Yes' or 'No' answers, and each answer of 'Yes' will be given a score of 1, while the answer of 'No' will be given a score of 0 [6]. The indicators of the successful DESTANA programme are shown in Table 1.

5. Data and methods

This study was conducted in Aceh Besar District, Aceh Province, Indonesia. Having a total area of 2974 kms² and a population of 351,418

Table 1
Indicators of the successful DESTANA Programme and their Criteria.

No	Component	Indicator	DESTANA Criteria		
			<i>Pratama</i> (Basic)	<i>Madya</i> (Intermediate)	<i>Utama</i> (Advance)
1	Legislation	1. Village regulation on disaster management/DRR	There are initial efforts to draft DRR policies at the village level.	The existence of DRR policies that are being developed in the village.	The existence of DRR policies that have been legalised in the form of village regulations/legal instruments.
2	Planning	2. Village DM plan, contingency plan, community DRR action plan	There are initial efforts to compile DM planning documents.	The existence of DM planning documents that have been compiled but not yet integrated into the village planning instrument.	The existence of DM plan documents that have been integrated into the village plan (RPJMDes and RKPDes).
3	Institutional	3. DRR forum 4. DM volunteer 5. Collaboration between sectors and stakeholders	Initial efforts were made to form a DRR forum consisting of representatives from the community.	There is a DRR forum consisting of representatives from the community, including women's groups and vulnerable groups, but it is not yet fully functioning and active.	The existence of a DRR forum consisting of representatives from the community (including women's groups and vulnerable groups) and village government, which functions actively.
4	Funding	6. Emergency response fund 7. DRR fund	0–40%	40–80%	More than 80%
5	Capacity Development	8. Training for village government 9. Training for volunteers 10. Training for the community 11. Community's involvement/participation 12. Women's involvement in voluntary roles	There are initial efforts conducted by DM volunteers in disaster capacity building, knowledge, and education activities for their members and for the community.	There is a team of DM volunteers who are involved in disaster capacity building, knowledge, and education activities for their members and the community at large, but they are not yet a part of the routine and they are not yet very active.	DM volunteer actively involved in disaster capacity building, knowledge, and education activities for their members and for the community.
6	DM Implementation	13. Risk map and analysis 14. Evacuation map/routes and shelter 15. Community-based early warning 16. Physical/structural mitigation effort 17. Livelihood resilience to reduce vulnerability 18. Health protection for the vulnerable groups 19. Resource management for DRR 20. Protection of the community's productive assets	There are initial efforts to conduct risk assessment, risk management, and to reduce vulnerabilities and improve disaster preparedness and response capacity.	There are efforts to conduct risk assessment, risk management, and vulnerability reduction, including alternative productive economic activities to reduce vulnerability, but they have not been tested. There are also efforts to improve the capacity of disaster preparedness and response that have not been tested and are systematic.	There are systematic efforts to conduct risk assessments and risk management to reduce vulnerability and to increase capacity.

(as of 2016), the district has the highest number of tsunami mortalities (the model estimated 61,650 or 21% of total mortalities) [27]. Samples were taken, using a probability sampling method with stratified random sampling proportionate, with 179 respondents (95 women and 84 men) covering Kajhu village and Payatieng village.

Data generation was carried out in several activities: i) literature review covering topics related to gender mainstreaming in DRR in order to provide a foundation for this study, ii) observations of activities and physical aspects of the situation and engagement in activities, iii) interviews with the range of stakeholders that are involved in the DESTANA programme, and iv) questionnaire survey that was adapted from the Indonesian Institute of Science (*Lembaga Ilmu Pengetahuan Indonesia/LIPI*) to assess the level of disaster preparedness [28].

This study used both primary and secondary data. The primary data were obtained by researchers through questionnaires and direct interviews with respondents. The secondary data were obtained from notes, reports, documents, and other supporting items that were necessary for the present study. The data were collected from the Village Head Office and Regional Disaster Management Agency in Aceh Besar District.

The results of the questionnaire were analysed using an index to measure the level of preparedness of individuals/households regarding emergency planning (EP) for events such as earthquakes and tsunamis. For the question in this parameter, if the answer is "Yes" then the value is "1" and if the answer is "No" then the value is "0". The calculation of the index values uses the following formula [28]:

$$\text{Index} = \frac{\text{Total Real Parameter Score}}{\text{Maximum Parameter Score}} \times 100 \quad (1)$$

The total maximum parameter score is obtained from the number of questions in the indexed parameters (i.e., supposing that each question is answered correctly). If there is one question about sub-questions (a, b, c, etc.), then each sub-question is given a score of 1/number of sub-questions. The total real parameter score is obtained by adding up the actual score of all the questions in the desired parameter.

The index value is in the range of 0–100, and the higher the index value, the higher the level of preparedness. Index values are divided into categories, namely: high (index value 80–100), medium (index value 60–79), and low (index value < 60) [27].

6. Results

6.1. Demographic characteristics

The majority of respondents were aged 40–49 years (33.52%) and 30–39 years (29.61%). The educational background of most respondents was senior high school (40.78%) and diploma/bachelor's degree (28.49%). As many as 81.05% of female respondents were housewives, while the majority of male respondents were farmers/fishermen (20.24%) and civil servants (19.05%). The demographic characteristics of the respondents in both villages can be seen in Table 2.

6.2. Implementation of the DESTANA programme in Kajhu Village and Payatieng village

The 2004 Indian Ocean tsunami (also known as the Christmas or Boxing Day tsunami) devastated the lives of millions of people and resulted in substantial damage to facilities and infrastructure, economic loss, and other problems. According to the Indonesian Central Bureau of Statistics (Badan Pusat Statistik/BPS), the highest number of deaths/disappearances compared to other districts in Aceh and Nias are in Aceh Besar District, with 107,342 deaths or around 25.68% of the total deaths. The death toll in Destana Kajhu was more than 2000 people and the death toll in Destana Payatieng was around 600 people [29,30].

Kajhu Village is located in the Silang Cadek settlement area, Baitussalam Sub-District, Aceh Besar District. The village has 1772

Table 2
Selected demographic characteristics of the respondents.

Characteristic	Women		Men		Total	
	n	%	n	%	n	%
Age in yrs.						
20–29	10	10.53	24	28.57	34	18.99
30–39	37	38.95	16	19.05	53	29.61
40–49	28	29.47	32	38.1	60	33.52
50–59	14	14.74	9	10.71	23	12.85
>60	6	6.32	3	3.57	9	5.03
Education						
Elementary	12	12.63	4	4.76	16	8.94
Junior High School	21	22.11	18	21.43	39	21.79
Senior High School	38	40	35	41.67	73	40.78
Diploma/Bachelor's degree	24	25.26	27	32.14	51	28.49
Occupation						
Civil servant	10	10.53	16	19.05	26	14.53
Farmer/Fisherman	0	0	17	20.24	17	9.50
Entrepreneur	0	0	42	50	42	23.46
Housewife	77	81.05	0	0	77	43.02
Other	8	8.42	9	10.71	17	9.50

households in 11 hamlets, namely Lambateung, Monsinget, Lamp-eurada, Kajhu Indah, Kampoeng Meurah, Laseunong Lama, Yasa Pattern, Keude Aron, Lamseunong Barona Jaya, Mutiara Cemerlang, and Meuriam Broken. Payatieng village is part of the Lambareh settlement area, Peukan Bada Sub-District, Aceh Besar District. Based on the latest data, the results of the census in Payatieng village recorded 250 households that are scattered in 4 hamlets, namely Beuringin, Meur-andeh, Peukan Bada, and Beurami [29,30].

Based on the evaluation using the indicators in Table 1 in the previous section, the programmes implementation in both Kajhu and Payatieng villages are categorised as *Utama* (Advanced), which is the highest level of DESTANA. Both villages have the existence of legalised DRR policies, DM planning detailed in the Village Government Work Plan (*Rencana Kerja Pemerintah Desa/RKPD*) and the Village Mid-Term Development Plan (*Rencana Pembangunan Jangka Menengah Desa/RPJMD*), the existence of DRR forums, DM volunteers, and there are systematic efforts to conduct risk assessment, risk management, reduction vulnerability, and to increase disaster preparedness and response capacity.

Both villages have several vulnerabilities which are a condition or characteristic of the community in several aspects including biological, geographical, legal, economic, political, cultural, or technological for a certain period which decreases the ability to prevent, reduce, achieve preparedness in responding to the impact of specific hazards. Topographically, both villages are located near to the sea. Although Payatieng is not a coastal area, the distance of the village from the sea is only about 1 km; i.e., a pedestrian walk of 15 min duration [29]. Another vulnerability is the lack of understanding of the community about the preparedness that is required to deal with earthquakes and tsunamis. The low level of community economy also adds vulnerability in both villages. In the event of a disaster, the poor and marginalised people who are living in vulnerable areas will be the most disadvantaged, because the most significant number of victims usually come from this group and the impoverishment caused by the disaster will mostly have an impact on them [31].

Capacity is the ability of regions and communities to take action in order to reduce hazards and potential losses due to disasters in a structured, planned, and integrated manner. Based on field observations that were conducted by the authors of this paper, both villages have different types of preparedness facilities. In Kajhu village there is a siren tower, as part of the tsunami early warning system, that was provided by the Meteorological, Climatological, and Geophysical Agency (*Badan Meteorologi Klimatologi dan Geofisika/BMKG*). In Payatieng village, a new vertical tsunami evacuation construction called Temporary Evacuation Shelter (TES) has been built as one of the important safe

evacuation places.

6.3. Gender mainstreaming in DESTANA Program implementation

In Payatieng village and Kajhu village, gender mainstreaming through planning and budgeting is enclosed in the RKPDes and RPJMDs. In its implementation, a working group on gender mainstreaming has been established in both villages. Reporting, monitoring, and evaluating the performance of the gender mainstreaming working group are carried out by BNPB once a year.

Gender mainstreaming in the pre-disaster phase has also been carried out, namely through the gender-responsive assessment of risk, vulnerability, and capacity; gender-responsive early warning; and gender-responsive mitigation and preparedness efforts. In both villages, there were already DRR forums and volunteer teams with an efficient system for gender mainstreaming, which involved more than 30% of women in the DRR forum. To increase capacity, disaster education/training and simulations have been conducted involving members of the DRR forum. The results of the respondent's perceptions on the opportunities in terms of accessing, participating in, benefitting from, and exercising control over policies, planning, institutions, funding, capacity building, and DM implementation in the DESTANA programme are shown in Table 3.

The analysis results show that, in general, the percentage of opportunities that men and women have in participating in the DESTANA programme is statistically not significantly different. However, the percentage of women, in general, is still lower than the percentage of men. The percentage of the majority of respondents' answers was below 50%, for both men and women. Only institutional components have a percentage of more than 50%, of which 58.33% men and 53.68% women have an opportunity to access, participate in, benefit from, and exercise control over the DRR forum/DM Volunteer programme. The funding component has the lowest percentage, where only 7.14% men and 2.11% women have an opportunity in accessing, participating in, benefitting from, and exercising control over the emergency response and DRR funds.

In its implementation, the disaster education/training only involved disaster volunteers. The majority of the community, especially women/housewives (68.42%) stated to have never attended disaster socialisation and simulation programmes in both villages.

Although some women have been involved in socialisation or training activities (31.58%), only 3.15% of women are confident/able to express ideas/opinions at the meeting. As many as 28.42% of women expressed shame or did not dare to express their ideas because there were family members (husband, parents-in-law, son-in-law, brother/brother-in-law, etc.) who were also attending the same discussion/activity. Some female respondents (3.58%) stated that prior to the meeting, there were directives for delivering certain messages by

interested parties. Only a few respondents reported that women's ideas were used as material for discussion/input in decision-making.

Some women also claimed that they could not fully participate in the meeting, due to childcare responsibilities, as well as other homework duties, that included house cleaning, cooking, washing, etc. The women also admitted that to date, no particular forum has been created for women.

6.4. Emergency plan preparedness towards earthquakes and tsunamis

The level of emergency plan preparedness in this study was measured using a questionnaire consisting of 20 questions. Data were evaluated by using frequency and percentage ratios, and a Chi-square test to investigate whether distributions of categorical variables differ between women and men. Testing was undertaken using one degree of freedom and a significance level of $p = 0.05$. The result of the respondents' emergency plan is shown in Table 4. From the result of the Chi-square test, all items prepared by women and men show a significant statistical difference.

Based on the results of the data analysis, only a small number of women have planned, for themselves and for their family, some form of earthquake and tsunami preparedness. Most of the female respondents are still in the low and medium levels of preparedness. As shown in Table 4, some items/actions of the emergency plan that are still lacking attention and are to be prepared by women include: map and evacuation route (1.05%); ready-to-eat food (1.05%); first aid box (6.32%); important telephone number (40%); and plans to take part in evacuation training or seminars (41.05%).

Actions that are mostly not prepared by respondents are family evacuation exercises/simulations and plans to move homes to the highland areas in the event of a disaster. Only 35.74% claimed to have

Table 4

Summary of Emergency Plan Items/Action Prepared by Respondent (table value of 3.841).

Item	Women (N = 95)		Men (N = 84)		Chi-square statistic value
	n	%	n	%	
Evacuation route	0	0	55	65.47	86.07
Ready-to-eat food	1	1.05	52	61.9	79.20
First Aid Box	6	6.32	56	66.66	71.72
Important contact list	38	40	58	69.04	15.12
Evacuation training and seminar	39	41.05	59	70.23	15.32
Evacuation drill within family	34	35.74	56	66.66	17.00
Moving to higher area	29	30.53	49	58.37	14.02
Escape to open space	33	34.74	69	82.14	40.87

Table 3

Distribution of respondents' answers regarding their opportunities to participate in the DESTANA programme.

Component	Statement	Men (N = 84)		Women (N = 95)	
		n	%	n	%
Policies	Have an opportunity in accessing, participating in, benefitting from, and exercising control over the DRR policies in village regulations/legal instruments.	24	28.57	16	16.84
Planning	Have an opportunity in accessing, participating in, benefitting from, and exercising control over the DM plan documents that have been integrated into the village plan (RPJMDs and RKPDes).	30	35.71	25	26.32
Institution	Have an opportunity in accessing, participating in, benefitting from, and exercising control over the DRR forum/DM Volunteer programme.	49	58.33	51	53.68
Funding	Have an opportunity in accessing, participating in, benefitting from, and exercising control over the emergency response and DRR fund.	6	7.14	2	2.11
Capacity Development	Have an opportunity in accessing, participating in, benefitting from, and exercising control over the disaster capacity building, knowledge, and education activities.	37	44.04	30	31.58
DM Implementation	Have an opportunity in accessing, participating in, benefitting from, and exercising control over the processes of risk assessments and risk management to reduce vulnerability and increase capacity.	25	29.76	18	18.94

carried out family evacuation exercises/simulations, and only 30.53% planned to move homes to the highlands in the event of an earthquake and/or tsunami. Based on the evacuation plan during an emergency response, only a small number of participants preferred evacuation to open spaces/fields (34.74%) and mosques/places of worship (16.84%). More than 80% of women preferred to save themselves by way of relatives, tents/shelters provided, and moving to the nearest safe building.

An interesting finding from this study is that none of the participants had planned and prepared a route or map for family evacuation, even though this is a crucial step, because when a disaster occurs then confusion is usually the first state of mind a person will experience. With the evacuation route/map, family members can plan safe roads along which to leave their home after the earthquake and to determine the point or place to meet (assembly point), especially if family members are dispersed during a disaster [33,34].

Preparing a first aid box is also important, remembering that in an emergency there may be family members who are injured. The basic first aid equipment will be beneficial in stopping bleeding, preventing infection, and helping with decontamination [35].

Knowledge and planning before a disaster can generally help family members react correctly in an emergency situation. Families who work as a team in preparing for an emergency will be able to cope better with the situation than those who do not anticipate the situation. A more mature preparation can help families overcome fear, so that they can react more calmly to unexpected circumstances and can thus reduce the loss of life and damage to property when a disaster occurs [36,37].

The bivariate analysis in this study uses the Mann-Whitney statistical test to determine whether there are significant differences in the level of emergency plan preparedness of women and men towards earthquakes and tsunamis. The results of the analysis of differences in the level of preparedness can be seen in Table 5.

The evaluation of the level of preparedness in an emergency plan showed a significant difference between women and men. In this case, men have demonstrated a preparedness index which is higher than that for women.

From the results of this study, it can be concluded that efforts are still needed to improve the preparedness of emergency plans so that women can have a better preparedness. DRR forums and DM volunteers are expected to be more active in inviting the community, especially women, to participate in DRR activities, for example by conducting village counselling or simulations, so that women can be widely involved. Disaster drill/simulation in a village can also be regularly scheduled to become an annual event, by engaging more actors from the community, the government, and other institutions or organisations. This simulation can then be used as evaluation material in various matters concerning disaster management, emergency response plans, disaster early warning systems, community preparedness, as well as the role of governments and other institutions and organisations in dealing with earthquake and tsunami disasters.

The survey results show that only 5.26% of women have a high level of preparedness towards disaster. Although women have an equal opportunity to participate in activities to increase their capacity in dealing with disasters, women have several obstacles to being able to actively and fully participate, as explained earlier. The gender mainstreaming in the implementation of the DESTANA programme does not necessarily enhance preparedness, especially regarding woman, in response to future disasters. Further research is needed by considering many factors

that influence the level of preparedness in dealing with disasters, such as disaster experience, gender, knowledge, attitudes, and economic status.

7. Discussion

The results of the evaluation of gender mainstreaming show that, in general, both women and men have equal opportunities in terms of accessing, participating in, benefiting from, and exercising control over policies, planning, institutions, funding, capacity building, and DM implementation. In the present case, the opportunities are procedurally equal, which means opening equal space and opportunities for men and women in planning, involvement in institutions, accessing funds, capacity building, and being directly involved in the DESTANA programme.

However, according to the principles of The Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), the term 'equal' should be substantive and non-discriminatory. CEDAW is an international legal instrument that aims to protect women's human rights, combatting all forms of discrimination against women that remain during women's lives [38]. Although Indonesia has ratified CEDAW through Law No.7 Year 1984 and various other legal and policy instruments, the implementation of the main principles of CEDAW in Indonesia is still not optimal. One of the causes is a culture that is still very patriarchal, which creates problems and discrimination against women to this day [39].

In the implementation of DESTANA, the term 'procedurally equal' is implemented by inviting men and women to be involved in planning or capacity building. Capacity building through training, education, information dissemination, simulation, and other activities is needed to improve disaster preparedness. Knowledge, attitude, and practices in DRR are crucial to creating disaster-resilient communities that are able to anticipate and minimise disaster threats through adaptation, and who are able to manage and maintain specific basic structures and functions when disasters occur, as well as being able to rapidly rebuild a normal life after a disaster [32].

Unfortunately, the difficulties or challenges due to culture faced by women in building their capacity have not been considered, to the best of our knowledge. For example, women do not have planning skills and they do not have the courage to openly express their opinions because they are rarely invited to formal meetings in the village and are rarely involved in discussions or previous village planning events. Another limitation for women with respect to being actively involved in planning, is when their family members (parents-in-law, sons-in-law, brothers and sisters-in-law, etc.) also attend the meeting. Furthermore, in attending the training, there are the cultural challenges that do not permit women to become accustomed to speaking in public, hence they are discouraged from submitting written questions or asking verbal questions if they not understood certain aspects of the information. This can be demonstrated via the low percentage of women who actively participate (express opinions/ideas) during the training session.

In their paper, Eerdewijk et al. [40] also draw on their gender mainstreaming experience and suggest that procedural approaches need to be complemented by more substantive approaches. Previous studies have also indicated that equality between women and men should be considered in both procedural and substantive ways, often referred to as equality of opportunity and outcomes [41].

Accordingly, it is important to have 'temporary special measures' for women to ensure that a substantial degree of equality is achieved. In particular, this study reveals that women are constrained in their involvement in the DESTANA programme and as a result they do not receive optimal benefits. Temporary special measures are intended to address the negative impact of historical and current overt direct and indirect discrimination. Such measures would accelerate the development of equality substantially and play an important role in achieving the results of gender mainstreaming [42].

Some of the temporary special efforts that can be offered to women

Table 5
Level of preparedness.

	Level of Preparedness			p
	Low	Medium	High	
Man	23.80%	10.71%	65.47%	.00001 *
Woman	36.84%	57.89%	5.26%	

*Mann-Whitney Test: $p < 0.05$ significance.

are: carrying out training separately from men to become more comfortable about asking questions, exploring their experiences, or criticising the material that is provided. Training methods and timing should also take into account women's daily life experiences in these two villages. Another thing is to consider an appropriate training schedule for women because women mostly do activities/domestic work and caring for children. Organizing training or meetings in the afternoon will make it difficult for women to attend, because culturally (in Indonesia in general), women are responsible for preparing dinner for the family. Likewise, if the meeting is held at night, it will be difficult for women to attend because they have to accompany children to study or sleep. In addition, to increase women's self-confidence and ability to communicate in public, additional training for women is needed, such as leadership training and persuasive public speaking. Without 'temporary special efforts', women in both villages will find it difficult to attain substantial equality. This means that the DESTANA programme will not be gender-responsive until the patriarchal culture is dismantled.

It is not enough just to ensure that women are in the village DRR management structure, participating in socialisation programmes concerning disasters, and only physically present in planning meetings. Therefore, to ensure that women receive equal benefits would require special treatment such as affirmative action, which is a distinction (technically) in women's representation relative to men, just to establish equity, equality, and fairness for men and women.

Affirmative action is, in some ways, a discriminatory policy. However, affirmative action is seen as positive discrimination because it is only of a temporary duration in order to open up opportunities for certain groups of people so that they can seize the same opportunities that have been enjoyed by other groups in society. According to affirmative action seeks to have better equality that would boost women's negotiating power and enable them to have their voices heard [43,44].

8. Conclusion

The results of this study show that efforts to mainstream gender in the DESTANA programme have been carried out in several activities. Gender mainstreaming has been incorporated into the planning and budgeting processes through the Village Government Work Plan (*Rencana Kerja Pemerintah Desa/RKPD*) and the Village Mid-Term Development Plan (*Rencana Pembangunan Jangka Menengah Desa/RPJMD*). The gender mainstreaming working group has been established to address gender issues and to apply a gender mainstreaming perspective in the programme. Reporting, monitoring, and evaluating the performance of this working group was conducted annually by the National Disaster Management Agency (*Badan Penanggulangan Bencana Nasional/BNPB*). The programme has established the DRR forum and volunteer teams at the village level, which has involved women (>30%). To improve the capacity of the community to deal with the disaster, some training, information dissemination, and simulation have been conducted, but these activities only involved the DRR forum members and volunteer team participants.

Both women and men have (procedurally) equal opportunities in terms of accessing, participating in, benefitting from, and exercising control over policies, planning, institutions, funding, capacity building, and DM implementation in the DESTANA programme. Nevertheless, in general, the proportion of women's participation is still smaller than that of men.

The assessment of the level of preparedness in an emergency plan revealed that women and men are significantly different. Men have shown an index of preparedness which is higher than that for women. While women do engage in socialisation or learning programmes, few women are comfortable in sharing their personal opinions. The women in this study were also offended by, or discouraged regarding, putting forward their ideas because there were members of the family (parents-in-law, sons-in-law, brothers and sisters-in-law, etc.) with more authority. Women also reported that there were orders to send specific

messages by stakeholders before the meeting. Women's thoughts or suggestions were also rarely implemented as a topic in the meeting.

Although the strategy of achieving gender equality (procedurally) has been implemented in the DESTANA programme, more efforts should be carried out to ensure that substantial gender equality is actively promoted. The DESTANA programme will most likely not be gender-responsive until the patriarchal culture is dismantled. Affirmative action in DESTANA programme is needed to have a better sense of equality that would boost women's negotiating power and enable them to have their voices heard. It should also involve adjustments to the attitudes, rethinking social values and development goals. Gender mainstreaming in the DESTANA programme must, therefore, be implemented as a multi-dimensional and long-term process to achieve the optimal goals of a resilient community towards disaster. Further studies are required to unravel these issues.

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Declaration of competing interest

The authors declare that they have no potential conflict of interests.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijdrr.2020.101974>.

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