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To cite this article: A Fajarwati *et al* 2020 *IOP Conf. Ser.: Earth Environ. Sci.* **451** 012048

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Journey of researches on gender and disaster in Indonesia

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Abstract. A disaster that has a different impact on each individual / community that experiences it. This is caused by different conditions of vulnerability. The vulnerability of a person / group of people is caused by various factors, one of which is gender. This paper aims to explore the journey of gender and disaster in Indonesia with the literature review method. The results of the study show: 1) the journey of gender and disaster studies in Indonesia began with the publication of research in 2011 and then develop fluctuatively; 2) research with this theme is mostly carried out in Java Island; 3) most research used qualitative methods; 4) most studies with the theme Gender and Disaster still interpret 'Gender' as 'Female'; 5) most of researchers were women or men and women in one team; 6) the focus of the discussion from those studies mostly about 'Women participation in disaster management'.

1. Introduction

A disaster has different impacts on each individual / community that experiences it. This is caused by different conditions of vulnerability. Some people in marginalized groups are usually more vulnerable than others. Vulnerable people are those who decrease their autonomy due to physiological / psychological factors or inequality status [1]. Vulnerability can be caused by several factors, one of them is gender. As an example of gender as a cause of vulnerability, women's vulnerability is determined by the overlap between gender and class, ethnicity, sexuality as well as their interactions with age / life. From various studies it was concluded that the main root causes of women's vulnerability are based on a lack of access to resources and opportunities that enable one to overcome natural hazards, such access may also have gender [2].

Identifying the importance of gender analysis in disaster discourse cannot be separated from the history of vulnerability analysis. Previously, most disaster research explored geophysical events that caused natural hazards, but in the 1990s IDNDR began a shift in focus from hazard analysis to vulnerability analysis [3]. Gender analysis in disaster is important since the position of women in society and the relationship between them affect their lives before, during and after a disaster. Facts show that disasters give different impacts on women and men. Gender analysis enables to investigate further needs, capacities, vulnerabilities, impacts of disasters, roles and responsibilities of each gender before, during and after a disaster. This information is important to provide appropriate interventions for disaster victims in both sexes.

In 1995 it was declared the year the UN IDNDR focused on women and children as a "key to prevention" which then motivated practitioners around the world to document and share their work specifically with regard to gender and disaster [4]. The International Journal of Emergencies and



Disasters of the International Sociological Association published in 1998 is the first special edition dedicated to women and disasters [3].

Today, several studies on Gender and Disaster have been conducted throughout the world. However, the development of researches with this theme in Indonesia has never been discussed. Therefore, this paper aims to explore Gender and Disaster researches and its development in Indonesia.

2. Materials and Methods

This paper aim is to explore the journey of research on gender and disaster in Indonesia with an online literature (journals or proceedings, books are excluded) review method. Google scholar search engine is used as an entrance to search the intended literatures with the consideration that there are limited number of literatures found when searching directly at databases. For example, no literatures found in Scopus database and only 2 literatures found in Science direct database that match the conditions below.

The keywords used to search for online literatures are:

- English literatures:
 - gender disaster Indonesia
 - woman disaster Indonesia
- Bahasa literatures
 - gender bencana Indonesia
 - perempuan bencana Indonesia

Authors also gave some restrictions on the literatures that are reviewed in this paper as follows:

- The terms of gender to men and women only. Studies on Gender and Disaster with research objects other than binary gender are not discussed in this paper.
- Type of disasters proposed in this paper is disasters caused by natural hazards.
- Literatures written by Indonesian researchers or mix authors but the first author is Indonesian. This is intended to recognise the awareness of Indonesian researchers about this theme.
- Literatures published in years 2011 to 2019. As a consideration, the publication of research with this theme in Indonesia (by Indonesian authors or mix authors but the first author is Indonesian) has started in 2011.

The limitation on this paper is authors only limit searches on the first 20 pages of each set of keywords. The search results show there are 21 literatures (Table 1) reviewed in this paper.

Table 1. Research on Gender and Disaster in Indonesia

No.	Code	Title of Research	Year
1.	P1	<i>Perempuan di Tengah Bencana Gempa Bumi Yogyakarta: Studi tentang Partisipasi Kelompok Perempuan Sakinah dalam Pembangunan Desa di Segoroyoso, Kecamatan Pleret, Bantul, Yogyakarta</i> Women in Yogyakarta Earthquake Disaster: Study of the 'Sakinah' Woman Community in Rural Development in Segoroyoso Village, Pleret District, Bantul Regency, Yogyakarta	2011
2.	P2	<i>Model Strategi Mitigasi Berbasis Kepentingan Perempuan pada Komunitas Survivor di Wilayah Banjir</i> Mitigation Strategic Model Based of Woman Needs of Survivor Community at Flood Areas	2012

3.	P3	<i>Perempuan dan Bencana: Memberdayakan Potensi Sosial dan Ekonomi Perempuan Korban Banjir Lahar Dingin Merapi</i>	2012
		Women and Disasters: Empowering Women's Social and Economic Potential of Merapi Lahar Flood Victims	
4.	P4	<i>Resilience Perempuan dalam Bencana Alam Merapi: Studi di Kinahrejo Umbulharjo Cangkringan Sleman Yogyakarta</i>	2012
		Women's Resilience in The Merapi Volcanic Disaster. Study in Kinahrejo Umbulharjo Cangkringan Sleman Yogyakarta	
5.	P5	<i>Peta Tematik Risiko Bencana untuk Penguatan Peran Gender dalam Penanggulangan Bencana</i>	2012
		Disaster Risk Map for Gender Empowerment in Disaster Management	
6.	P6	<i>Pentingnya Pengarusutamaan Gender Dalam Program Pengurangan Bencana</i>	2013
		The Importance of Gender Mainstreaming in Disaster Reduction Programs	
7.	P7	<i>Analisis Kesiapsiagaan dan Kerentanan Perempuan di Wilayah Pesisir dalam Menghadapi Bencana Gempa dan Tsunami di Banda Aceh</i>	2013
		Preparedness and Vulnerability Analysis of Women in Coastal Areas in Facing Earthquake and Tsunami Disaster in Syiah Kuala Sub-district of Banda Aceh	
8.	P8	<i>Peran Perempuan sebagai Komunikator Risiko untuk Meningkatkan Ketahanan Bencana di Bandung, Indonesia</i>	2013
		Role of Women as Risk Communicators to Enhance Disaster Resilience in Bandung, Indonesia	
9.	P9	<i>Strategi Bertahan Hidup Perempuan dalam Menghadapi Dampak Perubahan Iklim</i>	2013
		The Survival Strategies of Woman in Facing The Impact of Climate Change	
10.	P10	<i>Menilai Kerentanan Gender dalam Rekonstruksi Pasca Gempa Bumi: Studi Kasus dari Indonesia</i>	2014
		Assessing Gender Vulnerability Within Post-Earthquake Reconstruction: Case Study From Indonesia	
11.	P11	<i>Perlawanan Perempuan di Pengungsian: Studi Keberadaan Perempuan di Pengungsian Gunung Sinabung, Kabupaten Karo, Sumatera Utara</i>	2014
		Women's Resistance in Evacuation Center: Study of the Existence of Women in Mount Sinabung Evacuation Center, Karo Regency, North Sumatera	
12.	P12	<i>Studi Gender dalam Strategi Adaptasi Letusan Gunung Berapi Kelud 2014</i>	2015
		Study of Gender in Adaptation Strategies Post Kelud Volcano Eruption 2014	

13.	P13	<i>Jaringan Kelompok Perempuan Dalam Manajemen Bencana Di Desa Kemiri, Panti, Jember</i>	2015
		Women's Group Network in Disaster Management in Kemiri Village, Panti, Jember	
14.	P14	<i>Peran Perempuan Terhadap Daya Pulih Masyarakat Pasca Bencana Banjir di Dusun Pelangwot, Desa Pelangwot, Kecamatan Laren, Kabupaten Lamongan</i>	2015
		The Role of Women in Community's Recovery Strength after Flood Disasters in Pelangwot Village, Laren District, Lamongan Regency	
15.	P15	<i>Pengarusutamaan Gender Dalam Sistem Penanggulangan Bencana di Indonesia: Studi Kasus Analisis Implementasi Renstra Badan Penanggulangan Bencana Daerah Kabupaten Sleman di Desa Kepuharjo, Kecamatan Cangkringan</i>	2016
		Gender Mainstreaming in Disaster Management System in Indonesia: Analysis of the Implementation of Sleman Regency's Regional Disaster Management Agency Strategic Plan in Kepuharjo Village, Cangkringan District	
16.	P16	<i>Mediasi Mengatasi Hubungan antara Gender dan Pertumbuhan Pascatrauma</i>	2016
		Mediation in Order to Overcome The Relationship Between Gender and Posttraumatic Growth	
17.	P17	<i>Ketahanan Pasca Bencana Siswa SMA di Sumatera Barat Indonesia berdasarkan Gender</i>	2016
		The Resilience of The High School Student's Post-Disaster in West Sumatera Indonesia Based on Gender	
18.	P18	<i>Perlindungan Perempuan Lanjut Usia Korban Bencana Gempa Bumi Melalui Tradisi Sumbayang 40 di Sumatera Barat</i>	2016
		Protection of Elderly Women from Earthquake Disaster Victims Through Sumbayang 40 Tradition in West Sumatera	
19.	P19	<i>Pengarusutamaan Gender dalam Kebijakan Perubahan Iklim di Indonesia</i>	2016
		Gender Mainstreaming in Climate Change Policy in Indonesia	
20.	P20	<i>Peran Gender Pada Siklus Manajemen Bencana Di Sektor Sosial Ekonomi Rumah Tangga Tani (Bencana Alam Gempabumi dan Letusan Gunungapi)</i>	2017
		The Gender Role of Disaster Management Cycle in Socio Economic Sector of Farmer's Household (Earthquake and Volcanic Eruption)	
21.	P21	<i>Pemberdayaan Pranata Sosial Melalui Komunikasi Lingkungan: Menakar Pelibatan Peran Perempuan Dalam Mitigasi Banjir Citarum</i>	2017
		Social Institution Empowerment Through Environmental Communication: Measuring the Engagement of Women's Roles in Mitigating Citarum Floods	

3. Result

Since the declaration at the UN IDNDR in 1995 that motivated practitioners around the world to document and share the results of their work, several studies with this theme were conducted and published throughout the world. In Indonesia, from the search results of the literature through google scholar search engine, research on Gender and Disaster, particularly with the restrictions mentioned in methodology, was published for the first time in 2011. There is 1 study published that year. It was a qualitative research. This study aimed to understand the participation of Sakinah women's groups in identifying development needs and goals; to identify the factors that encourage Sakinah women's groups to participate in village development after the Yogyakarta earthquake; to investigate the process of shifting the paradigm from the patriarchal social system to a social system model that is sensitive and has a gender perspective in the midst of a strong Javanese cultural tradition [5]. The results showed that men and women had the same access and control in designing village development till maintaining and utilizing village public facilities. Secondly, since women had the same access and control as men, it encouraged "Sakinah" women's group to participate in village development after the Yogyakarta earthquake. Thirdly, in this area, women had desire to be equal to men; and men also provided opportunities for women to participate in village development in the form of husband's and or family's encouragement. On the other hand, their participation was also encouraged by the existence of an NGO engaged in women's empowerment in this village.

Then, there was a significant progress in the number of researches in this theme in a following year. There were 4 researches published in 2012. First research examined how the focus of disaster management involved women communities who in this case also became victims to be able to be empowered with adequate knowledge and skills, so that women are able to cope with the impact of disasters in efforts to disaster risk reduction in flood-prone areas in Lamongan and Bojonegoro [6]. The research data was obtained from in-depth interviews and observations with community leaders. According to Haryono et al, although disasters did not choose victims based on gender, age, socio-economic, ethnicity and religion, but the problems that occur were always related to gender issues. The results showed that damage and losses were large, and the number of victims also increased so that the segregation of the number of victims according to sex was needed to develop the right policies. He concluded that disaster management programs in Bojonegoro and Lamongan regencies were still refer to gender bias stereotypes, for example disaster management policies often place men in their gender roles as family leaders, decision-makers, and breadwinners. It became an obstacle for women, because they had never been involved in disaster management training, so they did not have access to information directly but through husbands or other people. They were marginalized in gaining access to information from policies related to disaster management programs. The disaster management policy makers and executants often understood that disaster management was gender neutral. The practitioners of disaster management generally saw the disaster-affected community as a homogeneous group, whereas women and men are different, not only biologically but also different in their needs, roles and gender status.

The second research in that year was conducted in Magelang Regency, Central Java Province. The research aimed to explore the role of women in disasters and to investigate domains where most women were affected by disasters [7]. This research was conducted at the temporary shelter of the Merapi eruption victims in Gempol Jumoyo Village using qualitative methods. The results of the study explained that disasters were not only affected the lives of victims economically, but also socially and culturally. Lived in a temporary shelter required victims to live together while waited for help that made women felt uncomfortable due to changed in their daily routine activities. This caused them to be unproductive and did not consider their long-term needs (decreasing productivity). It became a new threat for the country, especially if it occurred for a long time. Researchers provided input to the government so that the government could present a more holistic approach to disaster victims, especially women. One of the approaches was through education. Riswan et al. hoped that education would foster autonomy in the family and socially, and trigger new economic independence, through three elements, namely community, occupations and family.

Third research shows that study aimed to determine the condition and level of resilience of women in 2010 Merapi Volcano disaster, case in Kinahrejo Hamlet. This research that used qualitative methods explained that resilience of women in Kinahrejo Hamlet had been formed and they accepted but not surrender to the vulnerable conditions caused by the disaster [8]. In fact, they were aware of the threatening situation that could occur at any time, it made them enthusiastic to rise up, to unite and to adapt quickly to the new environment. It could not be separate from communal assistance as a support system in the process of forming an 'accepting' culture. This research defined gender as women and men, but focused on women as the main objects. Ghafur et al. concluded that those women were not only as victims but they were also proven to have influences on environmental resilience to disasters. Those women were powerful figures to rose up and they showed a culture of acceptance after affected by disaster. Those women were the agents of change that drove spirits of togetherness and independence.

Fourth research shows that this study aimed to present the thematic map of the gender-based vulnerability in Bantul Regency [9]. Weighting and scoring methods were implemented to determine gender vulnerability (quantitative and qualitative). Then, that data was processed with the capacity and threat of existing disasters to produce disaster risk thematic maps for strengthening gender roles in disaster management. This study focused on women. The disasters listed in the gender risk map for disasters consist of earthquakes, tsunamis, droughts and floods. The mapping results showed that spatially, high gender vulnerability was in the southern or coastal region (areas that were relatively far from the provincial capital) due to the limited access and topographic conditions.

In the following year the number of publications was the same, namely 4 publications. Firstly, it was macro level research with study area was in Indonesia. This study underlined that disasters had different effects on women and men because of their different gender roles [10]. Gender relations clearly had a very significant impact on the daily lives of men and women, in situations before, during and after disaster. Men, because of the construction of their role in the public domain, they had opportunities and greater access to various resources. Conversely, women because of the social construction placed them in the domestic area, made them had less access to resources, individual mobility, guaranteed shelter and employment. In the next stage, as victims of a disaster, women still experienced discrimination and distinction of roles, access, participation as well as control of resources. This could be seen from the existence of negative labeling, marginalization, economic marginalization, double burden and violence against women. She concluded that existing disaster management was not gender neutral. Murtakhamah suggested a gender mainstreaming in all relevant policies, institutions and programs from local to national level to address the root causes of gender-based vulnerability; to ensure gender analysis and to use disaggregated data by sex to provide fair and equitable benefits. She underlined that gender integration in disaster risk reduction programs would reduce vulnerability and increase the capacity of men and women as subjects of disaster management in development.

Second publication in that year discussed women as agents of change so they must be involved in every stage of disaster risk reduction. However, their preparedness and vulnerability must be considered first as an effort to prepare women empowerment program. Related to gender roles in the earthquake and tsunami disaster in Banda Aceh, Deviani et al. analyzed the preparedness and vulnerability of women who lived in coastal areas to deal with the earthquake and tsunami disasters. The results revealed that the level of preparedness of women were in the category of less prepared while their level of vulnerability were in the category of high vulnerability. Education, employment and income factors influenced preparedness but did not affect women's vulnerability to deal with disasters. Factors of age and marital status influenced vulnerability but did not affect disaster preparedness. From an analysis of the role of gender in disaster risk reduction in Banda Aceh, the researchers developed a strategy to improve preparedness by paying attention to disaster warning systems and to resource mobilization. Whereas to minimize women's vulnerability could be done by taking into account the physical obstacles of women and their barriers to access services and

assistance. Deviani et al. suggested the government must also contribute to increase gender roles by pursuing women's capacity building programs and more involving women in each program.

Third research shows this study addressed the need for women risk communication and highlighted the potential role of Women Welfare Associations (WWAs) in Bandung as risk communicators [11]. A questionnaire survey method using the risk communication SIERA approach was implemented in this research. A set of indicators in social, institutional, and economic resilience activities (SIERAs), with a scope of 45 activities covering three different climate-related disasters (floods) periods, were used to characterize the delivery process of risk information by women in WWAs through their activities at sub-district and ward levels. Correlation analysis was applied to determine the relationship between the variables. The result showed that WWAs' activities in Bandung implement a certain degree of risk communication that was embedded in their activities. It was confirmed that women through their social networks could become active agents of change. Thus they played a role beyond their domestic roles and responsibilities to contribute to the overall improvement of community resilience.

The fourth publication shows this research focused on women from poor farmer and fisherman households who struggle in experiencing the effects of climate change [12]. This study aimed to identify the impact experienced by women on environmental change. It was a qualitative study based on the results of the study of the Population Research Center of the Indonesian Institute of Sciences in Lamongan as well as North and East Lombok in 2012-2013. The results of the study showed that women experienced the negative impact of climate change, i.e. decreased income. On the other hand, the burden of women became heavier due to the lack of access to resources and decision making, as well as limitations in migrating. This research showed that women were able to fight against environmental (climate) changes to maintain their households. Latifa et al. suggested the importance of considering gender issues in formulating policies related to the issue of climate change.

Then, there are two publications in 2014. The first research publication took place in Special Province of Yogyakarta, especially focused on 2006 earthquake disaster using mix method (qualitative and quantitative) [13]. It focused on both gender (male and female) but the result discussed more on female. This research had aims to understand types of gender vulnerability and its determinants within disaster management context in order to achieve better process of disaster management and to enhance sustainability of reconstruction and to build community resilience. This study found that the physical dimension (women with disabilities, pregnant women, and elderly women), four types of social dimension (homeless women, violence against women, widow with many dependents, and women heading household), and two types of economic dimension (women with debt burden and women with lack of productive assets) were the most prominent dimension.

Second publication shows this study used a qualitative method and aimed to analyze problems among female refugees due to the eruption of Mount Sinabung in North Sumatra [14]. The results of this study found resistance by female refugees during the evacuation. Women encountered feminine problems such as the special needs of women, resistance to release frustration and economic problems. Those problems arose due to disaster management for women which often forgotten.

In 2015 there are 3 publications. First publication explains women had a big impact in accelerating the recovery efforts after the disaster. This study used a qualitative approach with its aim was to identify the impact of eruptions in social communities, especially on women's communities and their family livelihood strategies. The results showed that women, as the second leader of their household, made adaptation efforts by diversifying job. When their agricultural land could not be cultivated, those women supported their family income by worked in the non-agricultural sector (sand mining, construction and industrial sector). On social adaptation, those women empowered all family members to work, including their children, to increase the family income. Furthermore, they were active in some regular social activities such *tahlil* (praying) group and Family Welfare Education organization. It showed that women were able to participate in family's survival strategies.

Second publication in this year highlighted social closeness between female households in an area to develop disaster reduction strategies. This research used qualitative methods with a

phenomenological approach [15]. She tried to identify the type of social capital formed by the women's community in coping with disasters. The result showed groups of women played an important role in disaster risk reduction in the case of flood disasters in Panti Regency, Jember. Women group such as the weekly Muslimat (women's group under the Nahdlatul Ulama organization), the 'arisan' (economic based social gathering) group, and Family Welfare Education organization which were social capital bonding had formed a community network to conduct disaster mitigation activities. Those activities included funds distribution for disaster victims, Ramadhan competitions for traumatic healing, socialization and training on disaster. This mechanism was called social capital bridging.

Third Publication was using phenomenological approach, tried to identify the role of women in recovery strength of the community post flood disaster in area of study [16]. The result showed that women in the village had productive, reproductive and social roles. The type of housewife's activities post-flood disaster were reproductive roles (cooking, caring for children and maintaining household). In addition, after disaster, some women were identified as heads of families when their husbands migrated and they played dual roles in the household. Most of women in Pelangwot Village were still traditional, which only had a reproductive role and depended on their husbands.

In 2016, there are five publications. First publication discussed the event of 2010 Merapi volcanic disaster as one of the important lessons for the Indonesian government, especially the Yogyakarta Provincial Government and the Regional Government of Sleman Regency to consider a gender perspective in every step in disaster risk reduction. Sleman Regency Government through the establishment of BPBD (Regional Disaster Management Agency) made efforts to integrate gender in the disaster system with the 2011 Strategic Plan Document for 2011 – 2025 period. It was responded to review the implementation of gender mainstreaming in the BPBD Disaster Management policy in Sleman Regency in that publication [17]. Kepuharjo village was chosen as the research area because it was one of the worst affected villages by the Merapi eruption in 2010. This study used qualitative data analysis. The results showed that BPBD of Sleman Regency was still gender blind because did not use disaggregated data by sex. Further, policy makers on disasters were still gender neutral in implementing Disaster Management policies. Those produced less gender-specific policy. Nastiti et al. suggested the addition of the word "female" in Disaster Management policy should refer to women's participation as active subjects as agents of change.

Second publication took the disasters occurred in Yogyakarta Special Province i.e. earthquake in Bantul and volcano eruption in Cangkringan, Sleman, the research focused on both gender (male and female). This research aimed to associate gender and posttraumatic growth, particularly to examine a relationship between gender and posttraumatic growth mediated by coping behavior of disaster survivors using qualitative method. The result showed that coping was significantly associated with posttraumatic growth. The relation between gender and posttraumatic growth mediated by coping behavior.

Third publication focused on both gender (male and female) students. Used a quantitative method, this research aimed to identify the level of resilience of high school student's post disaster in West Sumatera and to analyze descriptively of the resilience level in percentage. The result showed that in general male and female students were at high category of resilience. The authors mentioned that there were significant differences of the student's resilience based on gender but there were no further explanations about them.

Elderly women are one of the most affected and severe affected victims. The fourth publication took the subject of elderly women. This study was conducted after the 2009 Padang earthquake. Hanani tried to identify the contribution of cultural traditions namely 'Sumbayang Tradition 40' for the protection of life for elderly women in West Sumatera on the basis of phenomenological factors using a qualitative descriptive approach [18]. That tradition included providing worship as well as social, economic, shelter and psychological protection. In conclusion, Sumbayang Tradition 40 is a tradition that becomes a local asset in post-disaster mitigation efforts.

Fifth publication shows that climate change is a serious problem faced by global society today [19]. According to Rusmandi, the problem related was not only about environmental sustainability but also social, such as gender inequality. The reason was because climate change had different impacts between men and women. Women and children were the most vulnerable groups when exposed to the effects of climate change. At the same time, women did not have sufficient adaptive capacity to address conflict, due to the lack of access, control and participation in climate change policies. In his research, he presented the importance of gender mainstreaming in climate change policies through Presidential Instruction (Inpres) No. 9 of 2000 concerning Gender Mainstreaming. Through gender mainstreaming, women's vulnerability due to climate change would be reduced. At the same time, the quality of climate change policies, both at the national level and at the local level would be improved. The higher gender awareness possessed, the higher the quality of climate change policies produced.

In 2017, there are 2 publications. First publication examined the role of gender in the cycle of disaster management in the household socio-economic sector against earthquake disasters in Bantul in 2006 and Merapi Volcanic eruptions in Sleman in 2010 [20]. This study attempted to analyze gender roles based on differences in the characteristics of the disaster of the Merapi eruption in Sleman and the earthquake in Bantul. In addition, it also aimed to find the most influential variables on the role of women in those disasters using quantitative and qualitative methods to farmer's community. Although the types of natural hazards in those two study areas were different but the results of the study did not show a striking difference, both of them shared the same percentage of work assets for women, i.e. 83.3% of women had dual roles as housewives and working women and 16.67 % had a single role (as housewives). Likewise, the percentage of male roles in the two regions, namely 96.67 % of men had a single role (working) and the rest had dual roles, namely working and participating in domestic work. From that value, the lesson learnt was women's activities in disaster-prone areas were not only focused on domestic works, but also contribute to the family economy. The Farmer Women's Organization was one of the women's organizations formed to support the dual role of women. Ruslanjari, et al. also concluded that the division of roles between men and women was not influenced by age, education and income but was influenced by perceptions of the local community or culture, namely women who worked had increased their role but were not followed by an increase in the role of men in the household.

Second publication tried to analyze the social capital bridging initiated by women living in settlements along the upper Citarum watershed. The analysis used a descriptive qualitative method with the aim of identifying the social institutions of women and the role of communication of environmental activists in an effort to restore the condition of the upstream Citarum watershed. The result showed that preventive efforts to minimize the threat of flooding in this area were based on four types of institutions i.e. institutions related to religious activities; economic activities such as 'arisan' (economic based social gathering) groups; social activities such as the Family Welfare Education organization, and agricultural activities such as women farmer groups [21]. The results of the study also identified the role of environmental activists (men and women) as communicators and facilitators in spreading information and training on waste utilization for members of institutions in settlements in the upper Citarum watershed. Lastly, there is no paper with this theme with the restrictions mentioned in the method published in 2018 and 2019 when this paper was developed (Figure 1).

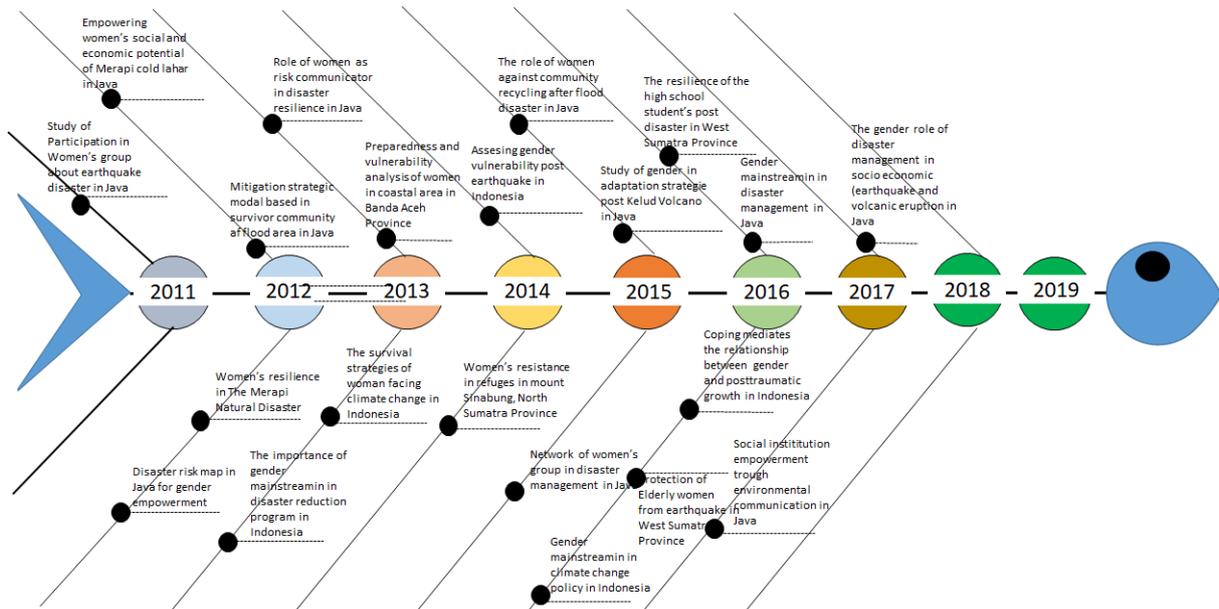


Figure 1. A Visual Illustration of Studies Published in the 2011-2019 period.

4. Discussion

Research on Gender and Disaster in Indonesia was first published by Indonesian researchers in 2011. In that year there was 1 research publication with that theme. That number increased sharply in the two following years, which were 4 publications in 2012 and also 4 publications in 2013. The trend then declined to 2 publications in 2014 and then rose again until 2016, i.e. 3 publications in 2015 and 5 publications in 2016. Then trend then declined in the next two years with only 2 publications in 2017 and none in 2018 and in 2019 (Figure 2).

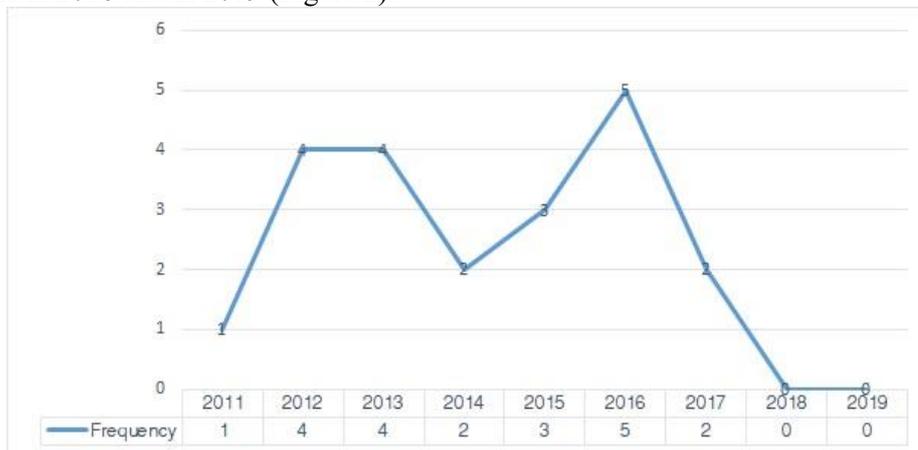


Figure 2. The Development of Gender and Disaster Researches.

In detail table 2 provides information on research maps with this theme. Firstly, regarding the number and time of publications, the highest number of publications with this theme is in 2016 that is 5 publications.

Secondly, Special Province of Yogyakarta is the most locus of research with this theme, namely as many as 8 studies. This is not surprising because it was recorded that more than 3 disasters in this province were declared to be national disasters. Bantul earthquakes in 2016 and Merapi Volcanic eruptions in 2010 became a real example of disasters that had paralyzed people's lives in this province

and in national scale. East Java Province ranks second with 5 publications. Whether analyzed from the island of the study location, from a total of 21 studies, there are 15 studies were conducted in Java Island and the remaining 4 in Sumatra Island while 1 study took two research locations, in addition to Lamongan (East Java) also in North Lombok [12]. The other two were macro studies by analyzing this theme in Indonesia.

Table 2. Mapping of research on Gender and Disaster.

No	Location	Disaster	Object	Method	Gender of researcher	Year	Database
P1	Special Province of Yogyakarta	Earthquake	Female	Qualitative	Female and male (mix)	2011	Google Scholar
P2	East Java Province	Flood	Female	Qualitative	Female and male (mix)	2012	Google Scholar
P3	Special Province of Yogyakarta	Volcano eruption	Female	Qualitative	Female	2012	Google Scholar
P4	Special Province of Yogyakarta	Volcano eruption	Female	Qualitative	Female and male (mix)	2012	Google Scholar
P5	Special Province of Yogyakarta	Earthquake, Tsunami, Flood, Drough	Female	Qualitative and quantitative	Female and male (mix)	2012	Google Scholar
P6	Indonesia	Natural hazard	Female and male	Qualitative	Female	2013	Google Scholar
P7	Nangroe Aceh Darussalam Province	Earthquake and tsunami	Female	Qualitative and quantitative	Female and male (mix)	2013	Google Scholar
P8	West Java Province	Natural hazard	Female	Qualitative	Female and male (mix)	2013	Springer
P9	East Java Province (Lamongan Regency) and North Lombok Regency (West Nusa Tenggara Province)	Climate Change	Female	Qualitative	Female	2013	Google Scholar
P10	Special Province of Yogyakarta	Natural hazard	Female (dominate) and male	Qualitative and quantitative	Female and male (mix)	2014	Science Direct
P11	North Sumatera Province	Volcano eruption	Female	Qualitative	Female and male (mix)	2014	Google Scholar

P12	East Province	Java	Volcano eruption	Female	Qualitative	Male	2015	ScienceDirect
P13	East Province	Java	Natural Hazard	Female	Qualitative and quantitative	Female	2015	Google Scholar
P14	East Province	Java	Natural Disaster	Female and Male	Qualitative and quantitative	Female	2015	Google Scholar
P15	Special Province of Yogyakarta		Volcano eruption	Female and male	Qualitative	Female	2016	Google Scholar
P16	Special Province of Yogyakarta		Volcano eruption and Earthquake	Female and male	Qualitative and quantitative	Female	2016	Science Direct
P17	West Sumatera Province		Natural hazard	Female and male	Quantitative	Male	2016	Scoulid
P18	West Sumatera Province		Natural Disaster	Female	Qualitative and quantitative	Female and male (mix)	2016	Google Scholar
P19	Indonesia		Natural Disaster	Female	Qualitative	Male	2016	Google Scholar
P20	Special Province of Yogyakarta		Volcano eruption and Earthquake	Female and male	Qualitative and quantitative	Female	2017	Google Scholar
P21	West Province	Java	Natural Hazard	Female	Qualitative	Female and male (mix)	2017	Google Scholar

Furthermore, in terms of the types of disasters underlying gender studies and disasters vary greatly, ranging from earthquakes, tsunamis, volcanic eruptions, floods, droughts and climate change. While in macro-scale (Indonesian) studies there are 2 studies which analyzed all catastrophic events that occurred in Indonesia and focused on disasters related to climate change [10 & 19]

Based on gender objects in those researches, most of the research took women as research objects. Of the 21 studies, there are 7 studies discussed both genders, namely women and men while 14 studies highlighted women in their studies. This can be understood because in the development of gender and disaster studies, most of researcher are still focused on the role of women in disasters. That is based on the fact that women have a higher vulnerability to natural hazards [21]. As the result, gender researchers in disasters tend to interpret 'gender' as 'women'.

Then, most research with this theme use qualitative method that is 12 of 21 studies. One study used quantitative method while the remaining 8 use the mix (qualitative and quantitative) method. However, almost all researches used primary data which is 12 of 21, while 5 studies used a combination of primary and secondary data and 4 studies used secondary data. The use of primary data is more in research with this theme because it supports the depth of information. Besides, the lack of researches use secondary data because of the availability of disaggregated data on disaster victims is limited or even not available. For example, the DIBI and INARISK data released by the National Disaster Management Agency (BNPB) have not yet displayed disaggregated data.

Furthermore, in terms of the gender of the researchers who conducted the research with this theme most of them were mix gender in the author team, i.e. 11 out of 21 studies while 8 publications were

written by female authors and only 2 publications by male authors. This is quite encouraging, because it indicates that both genders have an awareness of the importance of gender analysis in disasters.

Lastly, the focus of the discussion from those studies are quite diverse, most of which is about 'Women participation in disaster management' [5, 6, 9, 15, 16, 22]; followed by 'Women resilience' [8, 12, 14, 18]; 'Gender resilience' [13, 19] 'Gender mainstreaming in disaster management' [10, 17]; and lastly 'Gender roles in disaster' [7, 11].

In closing, from the results of literature searches, the authors found that all of these studies were empirical studies. The author has not found a study that discusses the development of the concept of 'Gender and Disaster' (theoretical studies). However, there may be theoretical studies from other sources outside of those limited in this study.

5. Conclusion

Research journey with the theme 'Gender and Disaster' in Indonesia by Indonesian writers or mixed writers but the first Indonesian writers began in 2011. Since then there have been several studies with this theme. The trend is very volatile, 2016 was recorded as the year with the most publication with this theme, namely 5 publications. The most research was carried out on Java Island, which amounted to 15 out of 21 publications. Qualitative or mix methods are more widely used in research with this theme because they will provide more in-depth information. Although most of the research focused on women but what was exciting was that most of the research teams consisted of both genders not only dominated by female researchers. The result of the entire studies found and highlighted the importance of gender mainstreaming in disaster management in order to accommodate the needs of all disaster victims fairly as stated in the principle of Law Number 24 of 2007 concerning Disaster Management. This means that disaster management must reflect justice proportionally to every citizen without exception and must not contain matters that distinguish background, among others, religion, ethnicity, race, class, social status and gender.

Acknowledgements

We would like to thank all the authors of the publications that we discussed in this paper. Their efforts and hard work starting from conducting research to organizing the paper motivating us to analyze the development of research with the theme of 'Gender and Disaster' in Indonesia.

Authors' Contributions

AGW, MPS carried the literature review, compiled tables and graphs, and edited the manuscript. AF analyzed the literature review prepared by AGW and MPS, then compiled the results and discussions. All authors read and approved the final version of the manuscript.

Competing Interest

The obstacles in in this study is related to the limited number of publications found when using keywords 'Gender Disaster Indonesia' and in bahasa 'Gender Bencana Indonesia'. To address that problem, we use other keywords, such as 'Women Disaster Indonesia' in Bahasa 'Perempuan Bencana Indonesia'. However, this actually raises other problems, specifically the tendency to interpret gender studies as studies of women that we want to avoid.

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