

LITERATURE REVIEWS: THE ROLE AND PARTICIPATION OF LOCAL COMMUNITIES IN VARIOUS COUNTRIES TO INCREASING DISASTER AWARENESS

*Sabila Yasaroh^{1,2}, Insih Wilujeng^{1,2}, Hestiana^{1,2}

¹ Master of Science Education – Yogyakarta State University, Indonesia

² Faculty of Math and Science- Yogyakarta State University, Indonesia

Email: sabilayasaroh.2020@student.uny.ac.id

*Corresponding Author, Received: Sept 12, 2021. Revised: Oct 24, 2021. Accepted: Nop 27, 2021

ABSTRACT: Disaster awareness as part of the Sustainable Development Goals needs to be increased in the last few decades. Various methods are used in disaster risk reduction and management, one of which is by involving the participation of local communities because it turns out that disaster education in schools is not enough without real application in the community. The purpose of this literature review is to describe an intervention involving local communities in various countries as the main tool in raising disaster awareness. Search for various reference databases, such as research journals, journal reviews, and data published in 2015-2020. The keywords used in the search for articles were role, participation, local community, state, disaster awareness, disaster risk reduction, disaster risk management, disaster education, preparedness, mitigation, earthquakes, volcanic eruptions, floods, forest fires by obtaining 10 articles appropriate through the analysis of objectives, suitability of topics, research methods used, sample size, the results of each article, and the limitations that occur. There have been effective results in increasing disaster awareness by involving local communities consisting of various elements such as civil society communities, school communities, children, and university students.

Keywords: Role, Participation, Local Community, Disaster Awareness



This work is licensed under the Creative Commons Attribution-ShareAlike 4.0 International License

1. INTRODUCTION

Climate change, rapid urbanization and infrastructure development trends encourage global community towards higher exposure against natural disasters. Sustainable Report The Development Goals (SDGs) 2019 show it [1]. Apart from snatching lives and damage infrastructure, natural disasters also have an impact on food supply, especially food supply of people below the poverty line in developing and underdeveloped countries. However, there are several strategic frameworks that can be utilized at the national level and international organizations that can help move regions and countries towards the 2030 SDGs with appropriate indicators (United Nations, 2018). [2].

Disaster risk reduction consists of several disciplines, such as disaster management, mitigation and preparedness, which is all in line with principles of sustainable development [3]. UNISDR Strategic Framework 2016 – 2021 set seven global targets involving reduction: fatalities, number of people affected, economic losses and critical infrastructure damage, while improve: strategy to target indicators, international cooperation and access to early warning and risk assessment [4]. Recent guides published from UNDRR with a focus on local disaster risk reduction and resilience which explains

the localization of DRR through principles of sustainable development [3].

Although institutional disaster risk reduction is on track which is true, the negative consequences are also not decreasing, but increasing every year. Response and recovery at the institutional level improving but there are gaps at the individual level and communities that thwart DRR goals [5]. Without public participation, local and national governments do notable to carry out the necessary interventions, effectively in disaster risk reduction and management, because local communities are key player to create disaster resilience increased [6].

Raise public awareness and encourage community participation in Disaster Risk Management can facilitate disaster response and recovery. Disaster awareness in the community can start from the implementation of the Reduction program Disaster Risk through formal education for formal knowledge, attitudes, and skills children who will later act as agents of changes in society. Results from literature review can be a reference for various stakeholders, both from the school and the government to mobilize local communities in enhancing synergies for achieve optimal disaster resilience in a country.

2. LITERATURE REVIEWS

Methods used in literature review It uses a

comprehensive strategy, such as searching for articles in journal databases, research, internet search, review, repeat the article. Various database search references, such as research journals, journal reviews, and data published in 2015-2020. Keywords used in search articles, namely the role, participation, local community, country, disaster awareness, risk reduction, disaster, disaster risk management,

education, disaster, preparedness, mitigation, earthquake, volcanic eruptions, floods, forest fires.

There are 10 articles analyzed through objective analysis, the suitability of the topic, the research methods used, sample size, as well as the results of each article.

Tabel 1. List of Journal Literature Reviews

Researcher	Title	Sample	Method	Output
Avianto, Amri et al (2017)	Disaster risk reduction education in Indonesia: challenges and recommendations for scaling up. <i>Nat. Hazards Earth Syst. Sci.</i> , 17, 595–612, 2017 doi:10.5194/nhess-17-595-2017	140 student, teacher, non-government organization	Mix quantitative qualitative	One of the recommendations that is considered as an aspect of improving and sustaining Disaster Risk Reduction (DRR) education in Indonesia is to create a local DRR forum. Joint activities to improve preparedness should be fostered mainly between schools and local councils and disaster management agencies. Schools should also be part of local DRR forums [17].
Ashfaq, Ahmad Shah et al. (2020)	Disaster Risk Management Insight on School Emergency Preparedness: A Case Study of Khyber Pakhtunkhwa, Pakistan. <i>International Journal of Disaster Risk Reduction</i> vol. 51 (2020) 101805	100 teacher from 20 school	Pragmatic, thematic qualitative	A fast and well-coordinated response is needed to minimize side effects (injuries, mortality, and other losses) so as to help schools, families, and local communities return to normal after a disaster occurs [16]
Kambod Amini et al (2020)	From “Earthquake & safety” school drills to “safe school-resilient communities”: A continuous attempt for promoting community-based disaster risk management in Iran. <i>International Journal of Disaster Risk Reduction</i> vol. 45 (2020) 101512		Observation & literature review	Schools can play a key role in leading DRR activities at the village level in many local communities with different socioeconomic characteristics taking into account the legal basis, sources of funds, level of participation, and advanced training
Seher, Ozkazanc (2015)	Evaluation of disaster awareness & sensitivity level of higher education students (Turkey). <i>Procedia - Social and Behavioral Sciences</i> 197 (2015) 745 – 753	249	Survey	75.1% of students agree to achieve DRR success through training which requires collaboration between the central government and local governments, and also cooperation from the community is needed to organize visual campaigns and social campaigns [20].
Ana, Delicado et al (2017)	Children in Disaster Risk Reduction in Portugal: Policies, Education, and (Non) Participation. <i>Int J Disaster Risk Sci</i> (2017) 8:246–257 DOI 10.1007/s13753-017-0138-5		Document analysis and interview	Children are an important part of the community but their perceptions and needs are not the same as adults and they have an important role to play in risk prevention and mitigation [15].
Jui-Sheng Chou et al (2015)	Ex-post evaluation of preparedness education in disaster prevention, mitigation and response (Taiwan). <i>Int J Disaster Risk Sci</i> http://dx.doi.org/10.1016/j.ijdr.2015.01.002		Mix qualitative and quantitative	Participation in Joint disaster prevention training courses. Regular disaster prevention exercises enhance the community's ability to deal with disasters and unforeseen situations, reduce social and economic losses and accelerate disaster recovery [18].
Aldila Rahman (2018)	Implementation of Disaster Risk Reduction Program (DRR) Through Formal Education. <i>Varia Pendidikan</i> , Vol. 30, No. 1, July 2018: 1-11		Literature review	In Indonesia, schools are formal educational institutions that are considered effective in changing people's mindset and behavior. Education can help shape children's knowledge, skills and attitudes, which will later act as agents of change in society, to form a disaster-aware community culture [14]
Muhammad Rizal Pahlevianur (2019)	Disaster Awareness Education Through Disaster Socialization as an Effort to Increase Students' Knowledge of Disaster Mitigation. <i>Journal of Education and Social Sciences</i> Vol. 29 No. 1, June 2019	11	Qualitative	Given that Indonesia has a high level of vulnerability to disasters and the state of preparedness is still relatively low. Increased understanding of disaster can be carried out through socialization activities that can educate with the aim of reducing the risk of a disaster occurring in an area [19].
Parajuli (2020)	Citizen Disaster Science Education for effective disaster risk reduction in developing countries. <i>Geoenvironmental Disasters</i> (2020) 7:12 https://doi.org/10.1186/s40677-020-00150-2		Literature review	Two The main part of disaster risk reduction is risk assessment and early warning in preparedness and awareness. It helps individuals and communities to prepare, enabling. Quick evacuation during disaster events and equip key stakeholders to plan for rapid response and recovery.
Yung Fang Chen (2020)	Enhancing school safety through university engagement in DRR education. <i>International Journal of Disaster Risk reduction</i> Vol 44 (2020) 101386	127	Kirkpatrick's model	The college engages the community in DRRE through field trips and internship placements to evaluate the effectiveness of pedagogy and its impact on learning Incorporating DRRE in the HE curriculum benefits the community and students. It is argued that HE agencies must engage with local communities to maintain a sustainable impact on society; furthermore, agencies should expand their scope and impact to national and international organizations [21].

3. RESULTS AND DISCUSSION

In developing an interactive space intervention to educate students about earthquake preparedness, the majority of students have never taken a disaster class before. After attending a disaster class, the level of knowledge and disaster mitigation strategies increases [7]. This research at California State University Northridge proves that disaster education in schools is not enough without real implementation in the local community.

Parallel online surveys of residents in earthquake-prone areas of Japan and the United States reveal that belief in scientific positivism increases policy support in both countries and belief in seismological uncertainty reduces the risk of an expected earthquake in Japan. Preparedness was not affected by this predictor. Motivation strongly influences risk assessment, preparedness, and policy support. Low-motivated Japanese and highly motivated Americans showed associations that were most similar to the overall findings for their country [8].

In Katmandu (Nepal), the National Society for Earthquake Technology in collaboration with Kyoto University and the University of Nepal, has organized several CBDRM groups in different communities using the capacity of local volunteers. These groups played a significant role in disaster management and emergency response following the 2015 Kathmandu earthquake [9].

In Aceh (Indonesia) community-based groups played an important role in post-disaster housing reconstruction after the Great Indian Ocean Tsunami of 2004. In fact, the rebuilding of Aceh was carried out using a participatory, community-based approach. In addition, local religious and charitable organizations including the World Conscience Foundation and Muhammadiyah made significant contributions to relief and public safety issues in disaster areas in Aceh and North Sumatra [10].

In Turkey, community-based disaster management activities were first initiated by the Swiss Agency for Development and Cooperation in many cities including metropolitan Istanbul during the years following the devastating earthquake of 1999. The main objective was to empower environmental groups. By acquiring the appropriate skills, organization and equipment, communities can be empowered to build local preparedness and respond adequately when disasters strike. Therefore, many volunteer groups were formed (Environmental Disaster Volunteers) in order to strengthen civil society for disaster preparedness and response [11].

In the Philippines, voluntary self-organizations at the hamlet level are promoted, which are locally called "Purok". Purok has a system similar to that

of a community organization structure (known as Barangay in the Philippines). At first its main function was to solve waste management problems, but later it was expanded to other fields including DRM. Over the past few years, Purok has had its own DRR strategy to strengthen community resilience to natural disasters, focusing on efficient and effective dissemination of information and evacuation measures. This system has shown its effectiveness in many cases [12].

In China, a CBDRM system has also been developed in several landslide-prone areas to increase community resilience. The system was established based on the capacity of the local population, but was supported by experts, the police, the Red Cross and the city government. In this system, local communities are involved in risk assessment, education and training, landslide monitoring, information analysis, early warning and emergency response systems to provide landslide emergency responses [13].

One of the recommendations that is considered as an aspect of improving and sustaining Disaster Risk Reduction (DRR) education in Indonesia is to create a local DRR forum. Joint activities to improve preparedness must be fostered, especially between schools and local councils and disaster management agencies. Schools should also be part of local DRR forums. Schools are formal educational institutions that are considered effective in changing people's mindsets and behavior. Education can help shape children's knowledge, skills and attitudes, which will later act as agents of change in society, to form a disaster-aware community culture. Considering that Indonesia has a high level of vulnerability to disasters and the condition of preparedness is still relatively low, increasing understanding about disasters can be done through educational outreach activities with the aim of reducing the risk of disasters occurring in an area.

In Pakistan, a fast and well-coordinated response is needed to minimize side effects (injuries, mortality, and other losses) so as to help schools, families and local communities return to normal after a disaster occurs. In Iran, schools can play a key role in leading DRR activities at the village level in many local communities with different socioeconomic characteristics taking into account the legal basis, sources of funding, level of participation, and advanced training. In Turkey, 75.1% of students agree to achieve DRR success through training which requires cooperation between the central government and local governments, and also cooperation from the community is needed to organize visual campaigns and social campaigns. In Portugal, Children are an important part of the community but their perceptions and needs are not the same as adults

and they have an important role in risk prevention and mitigation. In Taiwan, Participation in disaster prevention training courses together with regular disaster prevention exercises enhances people's ability to deal with disasters and unforeseen situations, which reduces social and economic losses and accelerates disaster recovery. In the UK, Universities engage the community in DRRE through field trips and internship placements to evaluate the effectiveness of pedagogy and its impact on learning. Incorporating DRRE in the HE curriculum benefits the community and students. It is argued that HE agencies must engage with local communities to maintain a sustainable impact on society; furthermore, agencies should expand their scope and impact to national and international organizations.

4. CONCLUSION

The role and participation of local communities in increasing disaster awareness in various countries can be maximized in various ways according to the demands and conditions of each country. Some of the methods used to increase the role and participation of local communities include establishing a sustainable coordination forum for disaster training and increasing community involvement in disaster education programs in formal schools, ranging from primary, secondary, to higher education. Community involvement can be increased through socialization in the form of campaigns, field visits, and placement of internships from universities to form a disaster-aware community culture.

The grouping of methods used to increase the role and participation of local communities in further research should be accompanied by a more in-depth analysis that focuses on two categories, namely developed and developing countries, then reviewed in terms of program costs or other supporting aspects.

5. ACKNOWLEDGEMENTS

This paper can be in the form of a literature review carried out smoothly, because of the help and cooperation of various parties. Because of that, The author thanks Prof. Dr. Insih Wilujeng, M.Pdas a lecturer in Master of Science Education at the Yogyakarta State University who has provided guidance to me, especially in the field of research studies that are relevant to the topic of my thesis

6. REFERENCES

[1] United Nations. Global Indicator framework for the sustainable development goals and

- targets of the 2030 agenda for sustainable development, Geneva. 2018.
- [2] United Nations. The sustainable development goals report 2019. Geneva. 2019.
- [3] UNDRR. Local disaster risk reduction and resilience: words into action. Geneva
- [4] UNISDR (2016) UNISDR strategic framework 2016–2021, Geneva. 2019.
- [5] Parajuli. Citizen Disaster Science Education for effective disaster risk reduction in developing countries. *Geoenvironmental Disasters* (2020) 7:12
- [6] Kambod, Amini, et al. From “Earthquake and safety” school drills to “safe school-resilient communities”: A continuous attempt for promoting community-based disaster risk management in Iran. *International Journal of Disaster Risk Reduction* vol. 45 (2020) 101512.
- [7] Novak, Jenny, et al. Development of an Interactive Escape Room Intervention to Educate College Students about Earthquake Preparedness. *Nat. Hazards Rev.*, 2019, 20(1): 06018001
- [8] Johnson, B, et al. Examining associations between citizens' beliefs and attitudes about uncertainty and their earthquake risk judgments, preparedness intentions, and mitigation policy support in Japan and the United States. *International Journal of Disaster Risk Reduction* 22 (2017) 37–45
- [9] Marahatta, Community-based approach to reduce earthquake vulnerability in Kathmandu Valley, *Indones. J. Geogr.* 44 (2) (2012) 161–172,
- [10] Suppasri, K. Goto, A. Muhari, P. Ranasinghe, M. Riyaz, M. Affan, E. Mas, M. Yasuda, F. Imamura, A decade after the 2004 Indian ocean tsunami: the progress in disaster preparedness and future challenges in Indonesia, Sri Lanka, Thailand and the Maldives, *Pure Appl. Geophys.* 172 (12) (2015) 3313–3341.
- [11] Amini, Hosseini, et al. Main challenges on community-based approaches in earthquake risk reduction: case study of Tehran, Iran, *Int. J. Disaster Risk Reduct.* 8(2014) 114–124.
- [12] Matthies, Community-based disaster risk management in the Philippines: achievements and challenges of the purok system, *Austrian J. South-East Asian Stud.* 10 (1) (2017) 101–108.
- [13] Liu, K. Yin, L. Chen, W. Wang, Y. Liu, A community-based disaster risk reduction system in Wanzhou, China, *Int. J. Disaster Risk Reduct.* 19 (2016) 379–389.

- [14] Aldila, Rahman. Implementation of Disaster Risk Reduction Program (DRR) Through Formal Education. *Varia Pendidikan*, Vol. 30, No. 1, July 2018: 1-11.
- [15] Ana, Delicado.et al. Children in Disaster Risk Reduction in Portugal: Policies, Education, and (Non) Participation. *Int J Disaster Risk Sci* (2017) 8:246–257 DOI 10.1007/s13753-017-0138-5
- [16] Ashfaq, Ahmad Shah.et al. Disaster Risk Manajement Insight on SchoolEmergency Preparedness:A Case Study of KhyberPakhtunkhwa, Pakistan. *InternationalJournal of Disaster Risk Reduction*vol. 51 (2020) 101805
- [17] Avianto, Amri.et al. Disaster risk reductioneducation in Indonesia: challenges andrecommendations for scaling up. *Nat. Hazards Earth Syst. Sci.*, 17, 595–612, 2017
- [18] Jui Sheng-Chou.et al. Ex-post evaluation of preparedness education in disaster prevention,mitigation and response. *Int JDisaster Risk Sci*
- [19] Muhamad, P. Disaster Awareness Education Through Disaster Socialization as an Effort to Increase Students' Knowledge of Disaster Mitigation. *Journal of Education and Social Sciences* Vol. 29 No. 1, June 2019
- [20] Seher, O. Evaluation of disaster awareness and sensitivity level of highereducation students. *Procedia - Social and Behavioral Sciences* 197 (2015) 745 – 753.
- [21] Yung Fang Chen. Enhancing school safety through university engagement in DRR education. *International Journal of Disaster Risk reduction* Vol 44 (2020) 101386