Analysis of Community Participation based Approach to Disaster Mitigation Reduction

Kurniadi Anwar

Disaster Management Study Program, Faculty of National Security, Indonesian Defense University, Jl. Salemba Raya, Central Jakarta, INDONESIA
anwarmoker68@gmail.com

Abstract

It is hoped that a change in the paradigm of disaster management that prioritizes disaster risk management will prevent adverse impacts when a disaster occurs. One of the actions to realize the new paradigm is to conduct a disaster risk mitigation study. Success in disaster mitigation from the results of previous research is involving community participation. This study aimed to examine the benefits of a disaster mitigation approach through community participation.

This study used a literature review research method which originates from international and national journals as well as books related to community participation-based disaster mitigation. The results of this study are: a) Community involvement is a solution in disaster mitigation which is achieved by conducting risk assessments and planning for disaster risk reduction for community capacity building in disaster mitigation; b) Community-based disaster mitigation is a project that saves costs, promotes community self-help so that it can support sustainable development; c) The key to successful implementation of community-based disaster mitigation applies a practical methodology with a bottom-up approach, creating an organizational structure that accommodates formal and informal types, prioritizing forms of disaster awareness through education and training used local wisdom, empowering the abilities of volunteers and developing partnerships. with stakeholders.

Keywords: Approach, Disaster Mitigation, Community Participation.

Introduction

One of the objectives of disaster management in RI Law Number 24 of 2007 concerning Disaster Management is to protect the community from the threat of disaster[29]. So far, the implementation of disaster management has been handed over to the government. In other words, there is a tendency in the field to show that community participation is sometimes seen as an additional element.

However, currently, community participation has been proven to be able to encourage the success of disaster management. The trend of increasing community participation in assisting disaster management can be used as a means of enhancing safety culture and the development of sustainability after a disaster. This study provides a new perspective on why, what, who, when and how to carry out community-based disaster mitigation. One of the good impacts of community participation is solving complex problems in an unexpected disaster.

Community-based risk assessment is an act of making development planning and implementation successful including disaster mitigation[2]. This community participation will create a sense of trust and community pride. Communities can utilize what resources they have in coping with disasters. Community involvement are to increase their capacities by actively participating in disaster preparedness and structural and non-structural mitigation activities as well as other innovative activities. In the end, the community will feel that what they are doing is in their interest, so a high commitment arises to be personally and collectively responsible.

As a concrete example of the implementation of community participation in Indonesia, the regulatory chief of The National Disaster Management Agency (NDMA no. 1 of 2012) and regulation of The Indonesian Ministry of Social Affairs no. 128 of 2011 have made policies and carried out direct facilitation for the establishment of village disaster preparedness institutions[9]. The concepts of Disaster Preparedness Villages and Disaster Preparedness Villages and Disaster Resilient Villages have become attractive brands for the communities.

The form of activity in a village or village on disaster preparedness or a disaster resilient village is to provide understanding and awareness to the community, form networks and strengthen social interaction, organize, ensure continuity and optimize the potential and resources they have[3]. At the end of the day, this is all done as a community-based capacity-building effort.

Another key to success in community-based disaster mitigation is applying a practical methodology that directly uses community capabilities by utilizing traditional structures or organizations, both formal and informal[18]. In other words, community-based disaster mitigation must involve community leaders and empower disaster volunteers in villages or villages by providing community awareness and education, not forgetting local wisdom such as local dialects, local values and culture.

Apart from that, community partnerships were also formed with various stakeholders such as community-based organizations, community leaders, local government units,

higher-level governments and non-governmental organizations, less vulnerable groups and other donors. Therefore, this study will discuss community-based disaster mitigation (CBDM) related to the factors of community participation in disaster mitigation activities.

Material and Methods

This literature review used a qualitative method with a descriptive design[24]. This qualitative method is expected to provide in-depth and broad information and data about disaster mitigation involving community participation so that it can capture the meaning of this phenomenon in the form of word descriptions and a scientific context[17]. Sources of data in this study were obtained via the internet in the form of online library results at local, national and international levels, journals related to comprehensive reports from 2000 to August 2021, as well as from related books and regulations. Articles that meet the requirements or criteria are selected systematically. The keywords used to obtain these articles included disaster mitigation and community participation.

Data analysis used four stages: (1) data collection from documentation studies; (2) data compaction by selecting, clarifying, abstracting and simplifying to get themes, categories and focus on important data; (3) display of data in the form of brief descriptions, correlations between categories and combining data to make it meaningful and 4) drawing conclusions that become new findings or clarify phenomena so that they become problem solutions[16].

Results and Discussion

Participation is a voluntary contribution from the community to a project (development), without being involved in the decision-making process[15]. However, there is community involvement in efforts to develop the environment, life and themselves. Community participation will be proven by the process of social interaction and communication in solving problems[22]. Definition of community participation is the participation or involvement of the community in the process of identifying problems, identifying potential in the community, selecting and making alternative decisions on problem-solving solutions, implementation and evaluation[15]. In progress, activities that involve the community, must include the culture that belongs to the community[26].

Cultural determination in this study is a special group in the form of a Disaster Prepared Village or Disaster Resilient Village group. In this study, the authors limit the notion of community participation to the voluntary sense of community forming a special group to develop their region by participating in planning, implementing and evaluating to reduce local disaster risk.

Community-Based Disaster Mitigation / CBDM Factors): The factors related to community-based disaster mitigation include:

(a) The Importance of a Community based Approach: In the last decade, there has been recognition of the importance of community participation in disaster risk reduction which is manifested in the form of community-based disaster management[14]. This development was followed by many countries around the world, by calling for a change in perspective from disaster management prioritizing emergency phase actions, changing to disaster risk management which prioritizes disaster management before a disaster occurs. This is a form of disaster management activity that is proactive and based on local community participation.

The community-based approach is a correction to the shortcomings of the Government's top-down approach. This approach to development planning and disaster management fails to meet local needs, ignores local potential resources and capacities and can even increase individual vulnerability. Experience in developing countries shows the advantages of community-based disaster mitigation. The level of commitment to involve the community can be realized at the regional, country and local levels, all leading to a community-based mitigation approach in managing and reducing disaster risk.

Examples are Community-Based Disaster Mitigation (CBDM) from PREDES and the Network for the Social Study of Disaster Prevention in Latin America (La Red) found in the 1980s[13]. Duryog Nivaran which is a network of organizations and individuals in South Asia, 1994, has been committed to promoting and developing alternative perspectives in disaster management. The Periperi organization (partners enhancing resilience for people exposed to risks) in South Africa is a partner for increasing resilience for people exposed to risks. This organization has a network for risk reduction and sustainable development that prioritizes minimizing the impact of natural and other threats by strengthening the environmental, social and economic resilience of vulnerable communities.

The Asian Disaster Preparedness Center (ADPC) started the Asian Urban Disaster Mitigation Program (AUDMP) in 1995 in partnership with the USAID Office of Foreign Disaster Assistance to reduce the disaster vulnerability of urban populations, infrastructure, living facilities and residences in target cities in South and Southeast Asia[1]. There are four community-based participatory AUDMP projects, namely: (a) a community-based approach to community-based urban flood disaster mitigation in Bangladesh; (b) flood risk mitigation in Cambodian society; (c) implementing disaster mitigation in 34 Villages of the Kathmandu Metropolitan Municipality and (d) reduction of landslide disasters in Sri Lanka.

ADPC has implemented the Partnerships for Disaster Reduction-South East Asia (PDR-SEA) which has made CBDM a core strategy for disaster risk reduction and sustainable development[1]. The PDR-SEA program has been

implemented in Patanka village, Gujarat, India in a rehabilitation and mitigation program in the form of learning about concepts, approaches, interventions, methodologies, tools and practices tips/considerations for communities to improve safety and achieve livelihood security together with economic development. Community members have different perceptions of disaster risk depending on social class, education, age, gender. The disaster risk assessment and planning process for disaster risk reduction help to unite people in understanding disaster risk in the areas of preparedness, mitigation and prevention.

CBDM covers a wide range of interventions, actions, activities, projects and programs to reduce disaster risk. This activity is designed by a group of people in areas that have disaster risk and a high level of urgency and empowers their capacities. For this reason, planning for CDBM activities must include[19]:

1) reduce vulnerability and increase the capacity of groups and communities to overcome, prevent or minimize loss and damage to life, property and the environment;
2) minimize human suffering;
3) accelerate recovery.

Through CBDM, vulnerable groups and communities can transform into disaster-resilient groups, which can survive and recover from the adverse effects of natural disasters that impact the social, economic and political environment. The concept of resilience in CBDM is being able to survive and become strong and win against the coming of disaster. The main indicators are safety, security in finding livelihoods and sustainable economic, social and physical development.

The paradigm shift from disaster management which was originally reactive to disaster risk reduction, emphasizes more on pre-disaster proactive interventions such as prevention, mitigation and preparedness. Threats that come because of human activities such as industrial existence, technological failure, pollution and civil strife can be prevented. All of these can be prevented to provide permanent protection from disasters or reduce the intensity or frequency of hazardous events.

Mitigation aims to reduce and limit the destructive and harmful effects on the elements at risk. Structural or physical mitigation measures involve engineering works to make bridges, protective embankments, embankments and building designs safe. Non-structural mitigation measures involve increasing public awareness, risk assessment, community risk reduction planning, food security programs, social security groups, cooperatives, crop insurance, strengthening community disaster management organizations, disaster advocacy development issues, legislation and land use. Mitigation and disaster prevention interventions are directly related to development planning or intrinsically support sustainable development[28].

Preparedness activities are actions to anticipate disasters. The benefit of preparedness is to ensure appropriate and effective action taken during an emergency, such as setting up systems for early warning, coordination and institutional arrangements, evacuation and management of emergency operations, public awareness, disaster and evacuation drills and resettlement in temporary shelters. Emergency response is an activity carried out to maintain the survival of disaster victims and prevent damage to nature and infrastructure from getting worse. Important emergency activities are search and rescue, repair and temporary recovery of vital facilities and infrastructure, carrying out damage needs and capacity assessments, food and non-food assistance, medical assistance, evacuation center management and networking, recovery includes rehabilitation and reconstruction, not only returning the situation to pre-disaster levels but also in the context of mitigation and reducing vulnerability.

Table 1
Differences between the Alternative Perspective Paradigm and the Dominant Perspective

Perspektif Alternatif	Perspektif Dominan
Disasters/conflicts are seen as isolated events or deviations from normal development conditions.	Disasters are unresolved problems arising from excessive development processes
Links to conditions in society during normal times are less analyzed.	Relationships/structure in society determine why certain groups of people are more vulnerable to disaster than any other
Technical/Legal and regulatory solutions.	The emphasis on solutions changes the relationships/structures and attitudes in society that make people vulnerable.
Tend to be top-down and inflexible in methods, lack of participation of people, who are treated as "victims	Community participation is essential in strategy interventions, people are treated as "partners"
Implementing agencies are less accountable and the process is less transparent to people.	Building community capacity to protect themselves against hazards and ensuring accountability and transparency are emphasized in the implementation
Intervention is carried out after the event occurs.	Disaster/conflict mitigation as a fundamental objective.
The intention aim to return to the situation before the disaster.	Disaster/conflict is seen as an opportunity for social transformation

(b) Relevant CBDM Models: The CBDM model chosen contains hazards and opportunities, which has a simple concept so that it is easily accepted at the community level. Disaster mitigation and risk reduction carried out, can be integrated between disaster management and the ongoing development program process. The prevailing model in disaster management applies cycles, which include activities before and after a disaster occurs. A relevant new model, for example, is the Contract Expansion Model used in the South African community, which includes disaster prevention, mitigation, response and recovery that can be carried out at any time in disaster-prone areas.[5]

The relative weight of each component narrows or expands depending on the relationship between the hazard and the vulnerability of the community. The important thing is that the model is easy to apply any time before, during, or after a disaster[28]. Other models such as the Disaster Crunch and Release Model are used to analyze the complex relationships between factors, conditions and processes of vulnerability and in formulating strategies and actions to reduce disaster risk[3].

Arnstein's community participation model can accommodate housing program development plans and basic service delivery systems[23]. This model has eight levels of steps or levels of community participation, which is called the Ladder Theory of Participation. Community participation is a picture of the quality of participation to aspire and do work. Arnstein equates community participation with the power of the poor. This is a form of redistribution of power that allows people who do not have authority to participate in political and economic processes in the future.

In table 2, each rung of the ladder contains the power of the community in determining plans and programs. The levels of manipulation and therapy by those in power are forms of non-participation (levels 1 and 2 respectively).

Level 3 is informing, level 4 is consulting and level 5 is reassuring. These three levels are forms of "tokenism" by the "rich" against the "the poor", in which the poor have a say in the process, but still have no right to make decisions. Community participation is strong at the last three levels (6, 7 and 8), namely community participation at the partnership level where there is delegated power and can be controlled by the community. The ladder of participation from Arnstein can be seen in table 2.

(c) Turning Risk Communities into Disaster Resilient Communities: Steps to turn at-risk communities into communities that have a disaster-resilient culture can be carried out as the following steps:

1) Form a network: This network is a process of forming constructive integration relationships for facilitators with prospective disaster-resilient communities. Mutual respect and mutual trust are the key elements that characterize effective integration. The results are in accordance with the finding of research stating that the network has a relationship with transparency and access to information which is very important in the success of community participation[10].

2) Analysis of the community situation: This activity is the process of collecting all relevant data about the community, such as physical characteristics, demographic characteristics and economic-socio-political aspects.

3) Identification of priority sectors: This activity is the process of identifying the target groups or sectors of the project or those who are in need of assistance or most at risk.

4) Identify natural leaders or progressive members: This activity is the natural selection process of a leader or progressive member of the group. The results of the identification of suitable people will be included in the existing organizational structure. These people as the core group should be the catalyst or prime mover in forming the group.

5) Feedback and validation of community situation analysis results: Feedback and validation are intended to inform about the entire current situation and to fill any gaps that occur.

Table 2
Levels of Community Participation

Level	Name of Level	Indicator	Authority	Sebutan
1	Manipulation	a. The real purpose is to treat or educate	There is no clear participation yet	Non-participation
2	Therapy	b. His nickname is still uncertain whether he is conscious or not aware		
3	Informing	a. There is a label of tokenism or signs of participation where one has an opinion but has not been heard	Have a voice but no right to decide	Formality-participation
4	Consultation			
5	Placation	b. Have the right to give advice but have the authority to decide		
6	Partnership	a. Have the right to negotiate and have power.	Strong partnerships and delegation of authority	Citizenship power
7	Delegated Power	b. Society has a strong right to decide.		
8	Citizen Control	c. Has full authority to make policies and self-regulate.		

6) Further analysis of priority problems or aspirations: Further analysis is carried out by discussing and analyzing community problems and turning them into community goals or aspirations.

7) Planning and problem-solving actions: This solution is a process by which people plan how to solve their problems.

8) Group organization: The organization will direct its officials to play a role and be responsible according to the authority of the community that was previously agreed upon. The result is according to the finding stated that the failure of a group organization would easily frustrate the planning program that had been prepared[7].

In reality, members of the CBDM organizational structure must improve their skills in communicating and coordinating with other parties for the success of the disaster-resilient village program.

All of these aim to transform vulnerable or at-risk communities into disaster-resilient ones through CBDM. CBDM activities have steps that may differ according to community conditions and organizational mandates. The process and minimum requirements for disaster risk reduction activities are[19]:

a) Initiating the process, by connecting and building relationships with the community.
b) Community profiling is displayed for an initial understanding of the disaster situation and orientation towards CBDM and disaster mitigation.
c) Community risk assessments to obtain a participatory assessment of hazards, vulnerabilities, capacities and community perceptions of risk.
d) Formulation of an initial disaster risk reduction plan to identify appropriate mitigation and preparedness activity steps including public awareness, through training and education.
e) Formation of a community disaster response organization, to facilitate community organizing and mobilization, capacity building in disaster mitigation and preparedness.
f) Implementation of steps for short, medium, or long-term risk reduction project activities and carrying out the program, strategies and implementation mechanisms that have been stipulated as well as strengthening organizational-institutional.
g) Monitoring and evaluation activities for continuous improvement of the disaster risk reduction plans, documentation and dissemination of good practices for future replication.

The seventh step is something that must be done, so it is necessary to establish and strengthen a disaster response organization. The participation and role of the community or a team of volunteer disaster management originating from the local community is the key to mobilizing the community for sustainable disaster risk reduction. Examples are the

Community-Based Flood Mitigation and Preparedness Project (CBFMP) to mobilize communities in flood vulnerability which was implemented in 1998[19]. This project was a collaboration between AUDMP and several social organizations such as the Cambodian Red Cross (CRC), Participating Agencies Cooperating Together (PACT) and the International Federation of Red Cross and Red Crescent Societies (IFRC) in 23 villages, namely in Kang Mesas District, Kampong Cham Province, Kien Svay District, Kandal Province and Peam Ro District, Prey Veng Province. The results of this flood mitigation cooperation are:

a) the targeted project location is the most vulnerable community;
b) select community members as volunteers and train them to work with the community on reducing vulnerability;
c) organizing the community and establishing village-level Disaster Management Committees as coordinating bodies;
d) identify, estimate and rank local disaster risks through risk mapping;
e) build common consensus on mitigation solutions;
f) resource mobilization and implementation of community mitigation solutions;
g) implementation by conducting education and training, as well as carrying out various mitigation measures, processes and requirements, tools and methodology;
h) replication and improvement of disaster mitigation systems and preparedness activities that involve the full community.

(d) Characteristics of Community-Based Disaster Mitigation: Each Government will carry out activities to directly support the community capacity-building process, for example providing the facilities and infrastructure needed to facilitate the social life of the community[6]. The direct effect of these activities is to reduce immediate vulnerability, thereby avoiding the threat of disaster to society in the long term. To avoid threats from disasters, it is necessary to have the characteristics and principles of community-based disaster mitigation.

Characteristics and Principles of CBDM: The basic characteristics of CBDM also apply to community-based approaches to mitigation[19]:
1) Community participation is a means by which community members are the main actors and movers; they also share directly in the benefits of disaster risk reduction and development.
2) Priority for the most vulnerable groups, families, and communities is in urban areas the vulnerable sectors are the urban poor and the informal sector while in rural areas, The vulnerable are subsistence farmers, fishermen, and indigenous peoples; also vulnerable are older adults, disabled, children and women (because of their upbringing and social status).
3) Risk reduction measures are community-specific and identified after an analysis of community disaster risk

(hazard, vulnerability and capacity and perception of disaster risk).

4) Existing capacities and coping mechanisms are recognized and CBDM is implemented to strengthen existing capacities and coping strategies.

5) The goal is to reduce vulnerability by strengthening capacity, ultimately building a disaster-resilient community.

6) Linking disaster risk reduction with development - addressing conditions and vulnerable causes of vulnerability.

7) External parties have a supporting and facilitating role.
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The CBDM principles that involve community participation in their activities must follow the parameters or indicators. The indicators that need to be assessed:

a) Participatory process and content, especially the most vulnerable sectors and groups in the whole process of risk assessment, identification of mitigation and preparedness measures, decision making, implementation and the community directly benefiting from risk reduction and its development process.

b) Responsive, based on the felt and urgent needs of the community; considers community perceptions and priorities of disaster risk and risk reduction actions so that the community can claim ownership.

c) Integrate, all pre, during and post-disaster actions that are planned and implemented as needed by the community; there is community linkage with other communities, organizations and government units/agencies at various levels, especially for vulnerabilities that the community cannot overcome by itself.

d) Proactive, emphasizing prevention, mitigation and preparedness before a disaster.

e) Comprehensive, can be carried out in structural (physical) and non-structural forms (soft, health, education, livelihoods, organizations, advocacy etc.), can also be selected in the short, medium and long term to address vulnerabilities.

f) Multi-sector and multi-disciplinary, able to do all the roles and participation of all stakeholders in society, combining local knowledge and resources with science and technology and support from outsiders and addressing the concerns of various stakeholders while emphasizing the basic interests of the sector and the most vulnerable groups.

g) Empowerment can be done to increase community capacity, increase access to and control over resources and basic social services through joint action, emphasize participation in making decisions that affect their lives, increasing control of the natural and physical environment and increasing trust in participation communities in disaster mitigation and risk reduction in other development efforts.

h) Development is still aimed at sustainable development as a result of the convergence of various elements and parameters, it is necessary to have an organizational mechanism in the form of a Disaster Management Committee (DMC). This committee monitors and evaluates the risk reduction process until it is successful.

Community Empowerment: Community empowerment means increasing the ability of the community to be able to do what we want, regardless of their wishes and interests[25]. All disaster management agencies are now following the paradigm shift towards a disaster risk management framework because the community and private partners are aware of the importance of disaster risk reduction. Empowering communities provides opportunities for communities to participate in their disaster risk assessment, action planning and decision-making on mitigation and preparedness solutions and in the implementation phase. Community participation can be sustainable if the risk reduction project is felt urgent and involves them.

For example, disaster mitigation measures undertaken by the Philippines are mostly non-structural such as community organizing, raising awareness and advocating nutrition for food security[19]. The assessment and decision-making process are carried out by identifying mitigation and preparedness that are relevant, realistic and workable. Community cooperation and participation are needed to achieve disaster mitigation success. Groups of community-based organizations or volunteers as grassroots groups are the key to success in mobilizing the community broadly[27]. These groups are the focal point for empowering local leaders to take responsibility for CBDM. It is this disaster organization group that educates and motivates members and the public to prepare themselves for disaster mitigation. These leaders work with communities to open people's minds to the importance of appropriate disaster risk reduction. This group in Indonesia is known as the Disaster Resilient Village and Disaster Preparedness Village group.

1) The role of the Government in community-based disaster mitigation: The government's role in implementing community-based disaster mitigation is as a facilitator, initiator and partner. The decentralization approach by giving authority and responsibility to the regions is what is needed by the community. The government provides basic facilities and infrastructure from the center to the regions. There is a need to synchronize government and regional programs in integrating formal disaster management, regional development planning and urban management systems.

Even though the reality depends on the political will of officials, the implementation of disaster mitigation that is oriented towards sustainable development must still receive support from the local government. Therefore, community-based disaster mitigation programs must be included in the agenda, plans and programs of local Government units.

2) Appropriate Methods to increase Community Participation: The process of implementing community-based disaster mitigation is mostly carried out in partnership methods, mobilization and independence, control and access to power and resources, provision of basic services and decision-making to solve community problems[12]. The

community-based disaster mitigation team from Cambodia felt that there was an engagement process that shared responsibilities and was at the highest level of community participation. The form of evaluation of community participation is the number of community-based disaster mitigation projects that have not yet been completed. The community participation model encourages team partnerships with non-governmental organizations and government agencies.

Community-based disaster mitigation may fail if the community is not involved in decision-making and monitoring. If this happens, it will not be following the needs and expectations of society. For example, during the construction of a reservoir, trucks will damage the community's roads so the construction of the dam will be stopped by the community. Communities and disaster volunteer groups in villages are key groups in community capacity building and the development of local organizations of community-based disaster mitigation organizations[7].

Tools and methods in risk assessment and action planning resulting from a disaster risk assessment can involve community participation. This is useful for equating different perceptions about risks and the solutions chosen among stakeholders and other interest groups. Participatory risk assessment and action planning tools can be drawn from the village level. Tools for hazard assessment can be a hazard vulnerability assessment matrix including vulnerability maps and hazard maps showing elements at risk, transects, seasonal calendars, historical profiles, timelines, institutional analysis and social networks.

3) Replication and Sustainability: Replication or imitation of the success of community-based disaster mitigation programs can be marked by the success of projects at home and abroad. The existence of initiatives by local groups and volunteers in carrying out community-based disaster mitigation programs to overcome floods is an example of a successful replication solution. Success in carrying out disaster preparedness and mitigation will increase self-confidence and self-esteem in overcoming bigger problems.

ADPC provides examples of programs that can be replicated, namely the Community-Based Flood Mitigation and Preparedness Project (CBFMP), a flood project in Cambodia and The Kathmandu Valley Risk Management Project (KVERMP), an earthquake project implemented in 1997 by the AUDMP in Nepal[1].

Another example is from Vietnam, for a village in Peam Mean Chhey Commune, Prey Veng built 2 more bridges after building the first under CBFMP, then in Prek Andong Village, Kampong Cham carried out road elevation including Angkor Ban Village to raise part of their road, finally in Kampong Cham raised the road and built an embankment to protect the road during the rainy season. All of the local people contributed to the plan and organized themselves to build a levee in their village along the road they owned.

(e) Measuring the Complexity of The Impact of Community-Based Disaster Mitigation: The basis for measuring the impact of community-based disaster mitigation is the extent to which the implementation of risk reduction processes to reduce vulnerability and increase community capacity can be achieved. Indicators for measuring the impact of community-based disaster mitigation include the social and economic welfare of the local population, physical configuration and quality of the environment and the institutional capacity of local organizations[8].

The Bangladesh Urban Disaster Mitigation Project (BUDMP) has used participatory evaluation measures. Community vulnerability risk assessment is based on physical or material, social or field organizational, vulnerability motivation or attitude[4]. Assessment tools and the implementation of participatory risk assessment exercises can be used in monitoring and evaluation processes.

Apart from what can be measured and what people said, it is also necessary to know what are the benefits of community risk reduction process projects[11].

The complexity encountered in the implementation of disaster mitigation projects will benefit more than the difficulties encountered. The complexities that occur when implementing a community-based approach to disaster mitigation are:
(1) Recognizing and considering the interests or demands of various stakeholders by taking into account the interests of vulnerable groups and carrying out synchronization efforts and strategies that involve many stakeholders.
(2) Challenges and efforts to mobilize the community, especially volunteer members, are carried out to increase public awareness and increase capabilities by overcoming obstacles such as ignorance, fatalism and pessimism.
(3) Community organizing and mobilization take time and means to raise awareness, increase capacity, strengthen disaster management organizations at the grassroots level, need time for meetings with communities and volunteers, arrange considering the right time for production and social events.
(4) Development of tools, instruments and technology, as well as mechanisms so that they can be applied to both urban and rural communities.
(5) Provision of large funds for the cost of tools and methods used for structural mitigation and various schemes to mobilize resources.
(6) Donor concern and commitment (external and internal) are needed for effectiveness and efficiency in building a safety culture in mitigation projects because it is time-bound.
(7) Community participation in evaluating and measuring the impact of risk reduction needs to be increased.

(8) If a political approach is not possible, then non-structural mitigation is carried out by way of lobbying and advocacy or in a more confrontational form to build consensus.

Conclusion
Based on the explanation of community participation-based disaster mitigation, it can be concluded:

a. Community involvement is a solution in disaster mitigation which is achieved by carrying out risk assessments and planning for disaster risk reduction, a sense of pride, ownership and high commitment will arise in taking joint action to develop community capacity in disaster mitigation.

b. Community-based disaster mitigation is a project that saves costs and promotes community self-help so that it can support sustainable development.

c. The key to the successful implementation of community-based disaster mitigation applies to a practical methodology with a bottom-up approach, creating an organizational structure that accommodates formal and informal types, prioritizing forms of disaster awareness through education and training involving local wisdom, increasing the capacity of volunteers and partnering with stakeholders namely the government, local community organizations/groups, non-governmental organizations, central and regional government agencies, donors and community leader.

References
1. Asian Disaster Preparedness Center (ADPC), Participant's Workbook, Community-Based Disaster Risk Management for Local Authorities, Bangkok, Asian Disaster Preparedness Center **(2006)**

2. Abe Alexander, Participatory Regional Planning, Yogyakarta, Renewal **(2005)**

3. Blaikie et al, At Risk: Natural Hazards, People's Vulnerability and Disasters, London, Routledge **(1994)**

4. BUDMP, Status Report for AUDMP, *Journal of Disaster Prevention and Management*, **20(3)**, 220-237, DOI:10.1108/09653561111141682 **(2002)**

5. Chambers Robert, Participation and Poverty, *Journal of Development*, **50(2)**, 20-25 **(2007)**

6. Conyers Diana, Social Planning in the Third World – An Introduction, Translator: Susetiawan, ed., Affan Gafar, Yogyakarta, Gadjah Mada University Press **(1991)**

7. Eshkol Batel and Eshkol Alon, Participatory Planning in Israel: from Theory to Practice, *Journal of Place Management and Development*, **10(3)**, 213-239 **(2017)**

8. Ferdinand Kalesaran et al, Participation in the Taas Urban Community Empowerment National Program in Manado City, *e-Journal "Acta Diurna"*, **IV(5)**, 221-233 **(2015)**

9. Habibullah, Community-Based Disaster Management Policy: Disaster Prepared Villages and Disaster Resilient Villages/Kelurahan, *Journal of Information*, **18(02)**, 133-149 **(2013)**

10. Hansen Henning Sten and Mäenpää Milla, An Overview of The Challenges For Public Participation in River Basin Management and Planning, Management of Environmental Quality, *International Journal,* **19(1)**, 67-84 **(2008)**

11. Ife Jim and Tesoreiro Frank, Community Development: Alternative Community Development in the Era of Globalization, Yogyakarta, Student Libraries **(2008)**

12. Lorna P. Victoria, Community-Based Approach to Disaster Mitigation, Regional Workshop on Best Practices in Disaster Mitigation, United Nation Office Disaster Reduced Risk (URNDRR): Asian Disaster Preparedness Center, https://www.preventionweb.net/publication/community-based-approaches-disaster-mitigation **(2003)**

13. Mardikanto Totok and Soebiato Poerwoko, Community Empowerment in Public Policy Perspective, Bandung, Alphabet **(2015)**

14. Maskrey Andrew, Disaster Mitigation: Community-Based Approach, Oxford, Oxfam **(1989)**

15. Maulana C., The High Incidence of Disasters, BNPB Encourages Communities to Understand Disaster Mitigation, Retrieved from https://swa.co.id/swa/listedarticles/tingginya-kejadian-bencana-bnpb-dorong-Masyarakat-pahami-mitigasibencana **(2019)**

16. Mikkelsen B., Participatory Method, Jakarta, Indonesian Torch Foundation **(2005)**

17. Miles Mathew B. and Michael Huberman, Qualitative Data Analysis, Jakarta, UIP **(2014)**

18. Moleong Lexy, Qualitative Research Methods, Bandung, PT Juvenile Rosdakarya **(2005)**

19. Muluk M.R. Khoirul, Claiming Public Participation in Local Government, Malang, FIA Publishing and Documentation Institute, Unibraw with Bayumedia Publishing **(2007)**

20. Regulation of the Minister of Social Affairs of the Republic of Indonesia Number 128 of 2011 concerning Disaster Preparedness Villages **(2011)**

21. Regulation of the Head of BNPB Number 1 of 2012 concerning General Guidelines for Disaster Resilient Villages/wards **(2012)**

22. Soerjono Soekanto, The Role of Sociology An Introduction, Jakarta, Rajawali Press **(2009)**

23. Sri Daniati, Level of Community Participation in Planning for Use of Village Funds in the Context of Poverty Alleviation in Kesiman Tengah Village, *JIAP Public Administration Scientific Journal*, **5(2)**, 172-180 **(2019)**

24. Sugiyono, Qualitative Research Methods, Bandung, Alphabet **(2017)**

25. Suharto Eddie, Building a Community Empowering the People, Bandung, Rafilka Aditama **(2006)**

26. Sumardjan, Social Change in Yogyakarta, Depok, Bamboo Community **(2009)**

27. Sumaryadi, Autonomous Regional Development Planning and Community Empowerment, Jakarta, CV Citra Utama **(2005)**

28. Twigg John, Charlotte Benson and Mary Myers, NGO Initiatives in Risk Reduction: Summary of a research study for the British Red Cross Society, Funded by the Department for International Development **(2000)**

29. The Republic of Indonesia Law Number 24 of 2007 about Disaster Management **(2007)**.