CIQAL: Disaster Risk Reduction Innovation by Increasing Disability Participation in Kepuharjo Village, Sleman Regency

Kevin Arya Pranaja[1], *Eko* Priyo Purnomo[1,*], *Tiara* Khairunnisa[1,2]

[1]Department of Government Affairs and Administration, Jusuf Kalla School of Government, Universitas Muhammadiyah Yogyakarta, Indonesia
[2] E-Governance and Sustainability Institute, Yogyakarta, Indonesia

Abstract. Natural catastrophes are common in some parts of Indonesia, including the Special Region of Yogyakarta. Natural disasters that occur in this region not only impact the surrounding environment but also impact society, especially groups of people with disabilities. The government took the initiative to form a community which aims to minimize the impact of disasters on people with disabilities. In the end, through collaboration between sectors, a community called CIQAL was formed in Kepuharjo Village. This article aims to examine the CIQAL community in mitigating disasters by carrying out disaster management. This article uses disaster management theory which focuses on three phases, namely, pre-disaster, disaster emergency response when a disaster occurs and post-disaster. The method used in writing this article is qualitative research methods. Data collection techniques are carried out by collecting secondary data through mass media, websites and news. The data that has been collected is then analyzed using interactive modeling by the Qualitative Data Analysis Software (QDAS) technique using Crosstab analysis from the NVIVO 12 plus software. The results of the article show that there are a number of disaster management actions carried out by CIQAL to minimize the risk of disasters for people with disabilities.

1 Introduction

The The Special Region of Yogyakarta is one of the disaster-prone areas in Indonesia. Extreme weather conditions are one of the causes of natural disasters in this region. The Regional Disaster Management Agency for the Special Region of Yogyakarta recorded at least 1,418 disaster incidents in the Yogyakarta region spread across a number of districts, such as Gunungkidul Regency with 389 incidents, Bantul Regency with 385 incidents, Kulon Progo Regency with 263 and Sleman Regency with 259 incidents. There are various types of disasters that occur, ranging from forest fires, land fires to landslides. The most fires occurred in Bantul Regency, with 204 incidents. Then in Sleman Regency there were 112 incidents, in Gunungkidul Regency 89 incidents, in Yogyakarta City 75 incidents, and in Kulon Progo Regency 67 incidents. Many landslides occurred in the Gunungkidul

* Corresponding author: eko@umy.ac.id

Regency area, with 201 incidents recorded. Furthermore, in Kulon Progo Regency there were 92 incidents, in Bantul Regency 84 incidents, in Sleman Regency 48 incidents, and in Yogyakarta City 13 incidents [1]. The presence of natural disasters in the Yogyakarta area has had negative environmental and social impacts. This impact was felt in a number of areas, such as in Gunungkidul there were fallen trees at 52 points, damage to 124 houses, damage to road access at 8 points, damage to health and government facilities at 2 units, places of worship at 2 units and electricity networks at 7 units. Meanwhile in Sleman Regency there was damage, including Trees fell at 23 points, road access at 10 points, electricity network at 3 points, houses at 9 units and market at 1 unit. Meanwhile, in Bantul district, damage occurred to 8 houses, 4 business premises, 9 road access points and 1 electricity network [2]. It can be seen that on the one hand, natural disasters have a very significant impact on the environment, on the other hand they also have a negative impact on social groups, especially groups that require special attention, namely groups of people with disabilities. When a disaster occurs, people with disabilities are often invisible and ignored, because most people prefer to save themselves without looking around them. This is of course very dangerous for the safety of people with disabilities considering that their condition is vulnerable to disasters so the risk of exposure will be much higher. This is due to the physical and mental limitations they experience, making it difficult to save themselves.

Seeing the lack of protection for people with disabilities during a disaster, the government does not remain silent and acts as quickly as possible to overcome this problem. Through collaboration between the government, communities and related stakeholders, a number of sustainability innovations related to reducing disaster risk for the community, especially people with disabilities, have been produced. CIQAL (Center for Qualified Activities in Life of People with Disabilities) is an innovation that accommodates people with disabilities in reducing disaster risk. Apart from that, CIQAL is a community that develops innovations to increase disability participation in disaster preparedness programs in Kepuharjo Village, Sleman Regency. This innovation is realized in the form of, among others; disability data in Kepuharjo Village which is visualized in a Management Information System, Standard Operational Procedures for evacuation and rescue, provision of flexible refugee camps and budget policies that provide protection for people with disabilities, formation of village disability groups, strengthening village government and people with disabilities to obtain knowledge about disasters [3]. Innovation development began with data collection activities for people with disabilities in Kepuharjo Village, which includes 8 hamlets. With this, a map of the existence of people with disabilities, the type of disability according to the Disability Law No. 8 of 2016, was obtained, as well as their educational background, map of needs, ownership of social security, and the desired empowerment expectations. Then, CIQAL held several activities in the form of workshops and focus group discussion, one of which was the preparation of standard operating procedures involving people with disabilities. The standard operational content of these procedures is evacuation and rescue in emergency situations which provides special protection for people with disabilities. Currently, standard operational procedure documents are still being refined. The Focus Group Discussion was held in the context of advocating for the provision of accessibility at refugee camps and temporary shelter locations as well as for policies and budgets that provide protection for people with disabilities [4].

The presence of CIQAL is a form of disaster mitigation or management carried out by Kepuharjo Village. Talking about disaster management, there are a number of studies or research that discuss disaster management. Previous research has placed its views on disaster management studies, such as research from [5] research works on optimising catastrophe communication in mass media as a support for disaster management. Research from [6] focuses its research on the impact of disaster management simulations and

education on disaster volunteer preparedness. Research from [7] investigates disaster management by regional disaster management authorities dealing with floods in Semarang City. Research from [8] focuses on collaboration among stakeholders in the landslip disaster management in Semarang City. Research from [9] investigates disaster mitigation management among school children to lessen the probability of earthquake disasters. Research from [10] explores minimising the danger of landslides through disaster management in Sadu Village, Bandung Regency. Research from [11] Her research concentrated on the investigation of earthquake catastrophe management at the Bengkulu City regional general hospital. Research from [12] investigated disaster management in the Semarang City regional disaster management department. Research from [13] investigates the role and leadership of nurses in disaster management throughout the emergency response stage. Research from [14] investigated the factors that influence community awareness in preventing natural landslip disasters.

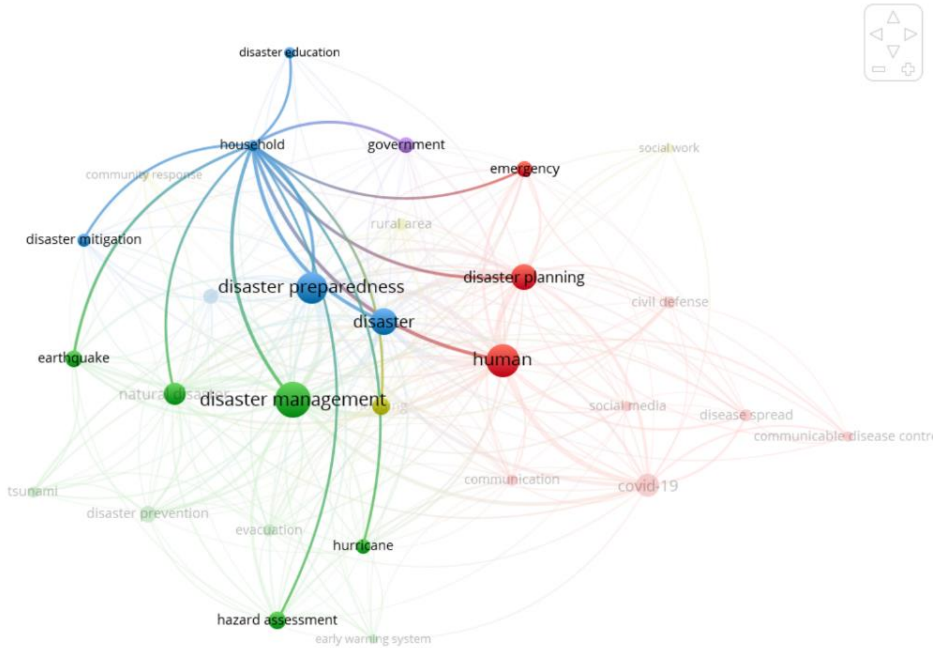

Fig. 1. Analysis of bibliometric Vosviewer

Then there is also research from [15] investigates catastrophe management planning from a risk management perspective. Research from [16] focuses on health centre health professionals' preparedness for disaster management in the Aceh region. Research from [17] investigates the function of disaster management authorities in Tanjung Lesung. Research from [18] focuses on understanding the function of local print media in disaster communication as a tool for disaster management. Research from [19] His research focuses on disaster mitigation management with community organisations in Garut Regency's disaster-prone districts. Research from [20] analyses how the Cilegon City regional disaster management department manages flood disasters. Research from [21] Investigates disaster management knowledge and societal wisdom in Malang Regency. Research from [22] explores the mapping of minor volcanic islands in Indonesia, with a particular emphasis on eruption disaster management. Research from [23] focuses on researching the function of social media in helping to overcome calamities. Research from [24] investigates Ciamis Regency's catastrophe mitigation management using information technology. Research

from [25] focuses its research on attempts to establish a disaster-preparedness culture in Karanganyar Regency through disaster management training. Next, the researcher investigated other past studies utilising the VOSViewer bibliometric analysis approach (Fig. 1.), as seen in the graphic below. This search was conducted to identify patterns in research topics being examined, as well as gaps in previously unexplored research, in order to generate new research.

Based on the findings of previous searches using the Vosviewer literature review technique and bibliometric analysis, it is clear that previous research has only focused on the effectiveness of disaster management programmes, collaboration among stakeholders in disaster management, disaster management education, disaster management in related institutions, and disaster management optimisation. Meanwhile, in the Vosviewer bibliometric analysis, research trends related to disaster management have been widely carried out. Based on the analysis, disaster management has relation with government, disaster mitigation, household, emergency and disaster planning. There are minimal studies that examine disaster management in a disaster mitigation innovation program. In fact, this research is interesting to study because in facing disasters, innovation is the key to success in minimizing the impact of disasters. So, this research aims to fill the research gap by examining in more depth related to disaster mitigation innovation in one of the villages in Yogyakarta, namely Kepuharjo Village which initiated CIQAL as disaster mitigation for people with disabilities. To facilitate this research, researchers used Disaster Management introduced by [26] with a number of indicators in the form of stages for managing a disaster, namely: pre-disaster, during a disaster and post-disaster.

2 Research method

This study employed a qualitative research method (Qualitative methodology). This method can be defined as a research method that employs descriptive data in the form of written or spoken language from persons and actors who can be observed. This qualitative method is used to explain and analyse individual or group phenomena, events, social dynamics, attitudes, beliefs, and perceptions [27]. Experts describe qualitative in a variety of ways, including Sugiono, who knows that this form of qualitative research is founded on postpositivism, a philosophy used to investigate the condition of natural objects. The researcher serves as the primary instrument in this study, with triangulation as the data gathering approach, qualitative data processing, and research outcomes that emphasise meaning rather than generalisations. Meanwhile, Moloeng recognises that this form of qualitative research is conducted with the goal of understanding the phenomena of what the study subject perceives in general through description. Whether in the form of words or language, in the precise setting encountered, and using diverse scientific methodologies [28].

The data gathering strategy utilised in this study is secondary data, which is gathered from official documents, articles, news, books, or other sources relevant to the research being researched (literature review). Data collecting techniques allow researchers to gather the data or information required for their research topic. The data collected was analysed utilising interactive modelling approaches, which included four stages of analysis, namely: 1. The data analysis procedure begins with analysing all the data that we have acquired (data processing step), 2. Data reduction, specifically mapping and selecting secondary sources that are appropriate for your needs. research, 3. Data presentation, that is, writing down the outcomes of mapping and selecting data that focuses on the study subject, 4. Drawing conclusions, i.e., knowing the research findings. The data was further analysed using qualitative data analysis software (QDAS) using the NVIVO 12 Plus Crosstab analysis tool, which aids in data reduction based on research requirements.

3 Results and discussion

3.1 Disaster Management

A collection of techniques for mitigating disasters, disaster management emerged from traditional management activities such as organising, planning, assigning, controlling, and supervising. As well as prevention, mitigation, readiness, early warning, emergency management, rehabilitation after a catastrophe, and reconstruction, it may also be described as a dynamic, continuous, and integrated process aimed at enhancing the calibre of disaster observation and analysis. Disaster management is to prevent and reduce the number of fatalities, property loss, environmental degradation, and other harm to various parts of life [29]. Law No. 24 of 2007 states that disaster management is a dynamic, ongoing, and integrated process that aims to enhance the calibre of actions taken in connection with early warning, prevention, mitigation, preparation, observation, and analysis of disasters, as well as emergency management, rehabilitation, and reconstruction [30]. However according to [31] indicated that changes in organisational structures, such as the establishment of a Disaster Management Centre, as well as social policy, will result in relocation or migration.

Another view regarding disaster management can be seen in [32] declared that the four main stages of the disaster management lifecycle—preparedness, mitigation, response, and recovery—are used to handle disasters and large-scale events, but it ignores the fact that every disaster is a new incident that requires a particular approach. Then [33] said that disaster management is defined as managing the risks and repercussions of a disaster. catastrophic management encompasses many aspects of planning and reaction during all phases of a catastrophic event, including mitigation, readiness, response, and recovery. This is in line with the views of [34] said that disaster management is a process that consists of a range of actions and activities meant to ensure early victim assistance, prevent or lessen the negative consequences of disasters, and achieve recovery. Disaster management is therefore described as the set of administrative and policy decisions, operational actions, players, and technology that are relevant to the many phases of a disaster at all levels [35]. However, the ideas of justice as fairness, substantial and equal respect, and giving a community a major voice in its own recovery and future planning are among the ethical issues that should direct disaster management [36].

In carrying out disaster mitigation, there needs to be involvement from the government to make it happen, this is contained in [37] claimed that governments have a moral duty, as well as a legal and constitutional obligation, to safeguard their populations from predictable causes of danger. As a result, society has developed a complex system of rules, regulations, codes, conventions, protocols, as well as regulatory structures and agencies tasked with enforcing these instruments. The components of this arrangement that pertain to disaster prevention and response form a system that is variably called as emergency preparedness, disaster management, emergency response, or civil protection. Research from [38] and [39] have the same perspective that collaboration between central government agencies, primarily to strengthen disaster management capability at the central and regional levels, such as pre-disaster, emergency response, and post-disaster recovery. Apart from that, in carrying out disaster mitigation, the existence of technology is important, for example [40] A third perspective recognises technology's essential role in developing and maintaining sustainable societies and regards the processes of risk reduction, disaster management, and security management as interconnected through a socio-technical system. Meanwhile according to [26] disaster management is a planned process carried out to manage disasters properly and safely through the following 3 stages:

3.1.1 Pre-disaster

Preparation, early warning, and mitigation are the phases of disaster management in pre-event or pre-disaster settings.

a. Preparedness: A set of actions taken in anticipation of disasters through planning and the implementation of sensible and practical measures is known as preparedness.
b. Early warning: Early warning systems are necessary to alert the public to potential hazards before they materialise, such as floods, tsunamis, volcanic eruptions, and landslides. Early warnings about the likelihood of a disaster occurring in their particular locations are promptly communicated to the community and all parties involved, especially those who may be impacted by disasters. The basis for warnings is a variety of scientific and technical data that is either held, analysed, or obtained from the government that indicates that a disaster may be approaching.
c. Disaster mitigation: Disaster mitigation refers to a set of actions taken to lessen the likelihood that a disaster may occur. These actions include raising awareness and developing physical capabilities as well as enhancing preparedness for potential threats.

3.2.1 Emergency response when disaster occurs

The actual event of a disaster is the most important phase of a disaster management system. It might have happened suddenly, without prior notice, or through an early warning procedure. There are two phases to this phase: disaster management and emergency response.

a. Emergency response: Disaster emergency response refers to a set of actions taken right away following a disaster to mitigate its negative effects. These actions include property damage assessment, protection, refugee management, victim rescue and evacuation, and infrastructure and facility restoration.
b. Disaster management: In the course of emergency response operations, attempts are made to address disasters based on their type and nature. Certain techniques and abilities are needed for disaster management depending on the circumstances and scope of the event. It is required of the emergency response team to be capable of handling any kind of calamity.

3.1.3 post-disaster

After a disaster happens and the emergency response phase is over, the next stage is to begin rehabilitation and reconstruction.

a. Rehabilitation: Rehabilitation is the process of improving and restoring all parts of community services to an appropriate level in post-disaster situations, with the ultimate goal of normalising or resuming all aspects of government and community life. At the industrial or firm level, the rehabilitation phase is used to return activities to their pre-disaster state. Rehabilitation initiatives include rebuilding damaged equipment and resuming normal business operations.
b. Reconstruction: Reconstruction is the process of rebuilding all post-disaster institutions and infrastructure, both at the local and governmental levels. Its primary goals are the maintenance of law and order, the promotion of economic, social, and cultural activity, and the resuscitation of community involvement in all facets of life. communities in places affected by disasters. This is not a simple procedure that calls for the hard work, strategic planning, and involvement of every member of the community.

3.2 Pre-disaster

[26] defined pre-disaster as a stage in pre-event or pre-disaster conditions include preparedness, early warning and mitigation. In this case, CIQAL has prepared steps as initial capital in disaster management for people with disabilities. The initial capital includes having experienced work preparation and knowledge regarding people with disabilities, experience in disaster training for people with disabilities, and having a guidebook, experience in handling disasters involving people with disabilities, experience in advocacy with district and village governments, partners/networks related to disability issues [4]. CIQAL's pre-disaster management in mitigating people with disabilities is divided into a number of pre-disaster sub-indicators, including preparedness, early warning, mitigation phase and disaster management planning. Meanwhile, to find out about CIQAL's preparations for managing natural disasters for people with disabilities, you can see the NVIVO 12 plus analysis below.

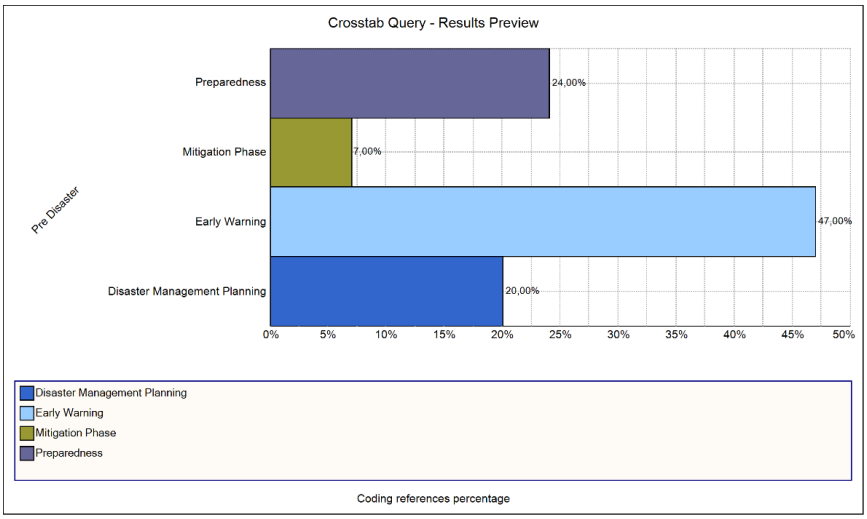

Fig. 2. Crosstab analysis

Based on the Crosstab analysis (Fig. 2.) using NVIVO 12 Plus software above, it can be seen that there are four sub indicators, namely preparedness, mitigation phase, early warning and disaster management planning. Of the four sub-indicators, it can be seen that the early warning sub-indicator achieved the highest percentage, namely 47%, followed by preparedness 24%, disaster management planning 20% and mitigation phase 7%. From this analysis, it can be said that in mitigation efforts for people with disabilities, CIQAL long before the disaster occurred, it had prepared a number of prevention initiatives so that when a disaster occurred, all parties would carry it out smoothly and correctly. One of CIQAL's pre-disaster efforts was to create a special management information system to store disability data. They call the disability data management information system SIMDIS (*Sistem Informasi Manajemen Disabilitas*) in the form of a website. SIMDIS Kepuharjo Village is a system that contains information about people with disabilities in Kepuharjo Village, Cangkringan District, Sleman Regency. This information system can be accessed via the website simdis.desakepuharjo.id. In the Kepuharjo Village SIMDIS there is information on sorting data for people with disabilities in Kepuharjo Village. Disability data in SIMDIS currently consists of 2 categories of data. First, data on people with

disabilities is based on various disabilities. Second, data based on the age range of people with disabilities in Kepuharjo Village.

The development of SIMDIS is an innovation to anticipate negative impacts on people with disabilities through providing information. With SIMDIS, the Disaster Preparedness Team can map the whereabouts of groups of people with disabilities. With this map of the whereabouts of people with disabilities, it will make the rescue process easier where people with disabilities should be prioritized in the rescue process. Disability data is also useful for determining needs that are tailored to the variety and obstacles that people with disabilities have. Including if you have to place people with disabilities in shelters. Apart from that, the existence of data also has an influence in determining and implementing government and village government programs.

3.3 Disaster Emergency Response

The disaster emergency response refers to a set of actions taken right away following a disaster to mitigate its negative effects. These actions include property damage assessment, protection, refugee management, victim rescue and evacuation, and infrastructure and facility restoration. Meanwhile according to [26] Disaster emergency response is a set of activities carried out immediately following a disaster to deal with the negative consequences, which include rescue and evacuation activities for victims and property, provision of basic needs, protection, refugee management, rescue, and restoration of infrastructure and facilities. Meanwhile, if it is relevant to this research, the researcher wishes to determine the focus of the CIQAL programme during a disaster by analysing it using the Crosstab Nvivo 12 plus function, as described in Fig. 3.

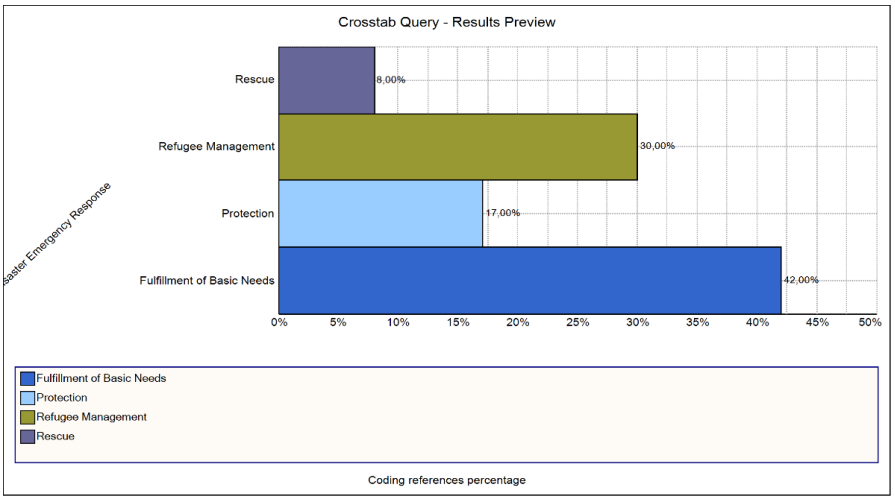

Fig. 3. Crosstab analysis

Based on the crosstab analysis using the NVIVO 12 plus software above, it can be seen that there are four sub indicators, namely rescue, refugee management, protection and fulfillment of basic needs. From the four sub-indicators, it can be seen that full fulfillment of basic needs achieved the highest presentation at 42%, followed by refugee management at 30%, protection at 17% and rescue at 8%. This analysis means that in disaster mitigation efforts for people with disabilities, CIQAL has met the basic needs of people with disabilities, so that when a disaster occurs, they are ready, thereby minimizing the impact of the disaster. In this case, CIQAL together with the Kepuharjo Village held a focus group discussion to provide accessibility and fulfill basic needs for people with disabilities in

refugee camps and temporary shelter locations. In this focus group discussion, we discussed what problems people with disabilities face when a disaster occurs, the potential that the hamlet has to be able to solve problems internally and so far whether the Village Headquarters budget can be accessed. Apart from that, the mapping of needs that arise during a disaster situation lies more in how to deal with it when a disaster occurs, such as the need for adequate accommodation and accessibility which is not yet optimal for each sub-district so that evacuation often experiences obstacles.

CIQAL also serves and fights for people with disabilities based on human rights in order to equalize the rights of people with disabilities in obtaining equal basic rights in society. However, people with disabilities face various obstacles because of their disabilities, but they have the potential to develop. His potential can be developed to overcome various obstacles inherent in him. People with disabilities under the CIQAL foundation have a lot of potential that can be developed, but developing their potential requires social support from family, community and government. Support is needed considering that humans are social creatures who will always need each other to fulfill their daily needs [41].

3.4 Post Disaster

[26] Consider post-disaster recovery to be a process of improving and restoring all parts of community services to a sufficient level in post-disaster areas, with the primary goal of normalising or operating all aspects of government and community life in post-disaster places. At the industrial or company level, the rehabilitation phase is carried out to restore company operations to the way they were before the disaster occurred. Rehabilitation efforts include repairing damaged equipment and restoring company operations to normal. In this case, after a disaster occurs, CIQAL will carry out a series of processes to improve safety for people with disabilities, so that when the next disaster occurs, CIQAL and related parties can learn from previous experiences and improve the quality of safety.

In this case, CIQAL collaborated with sub-districts to create a workshop on Preparing Operational Standards for Evacuation and Rescue which was attended by sub-district officials, representatives of the Tagana Team and people with disabilities. In this activity, participants are invited to identify points that need to be prepared to face disasters related to people with disabilities per hamlet, Mapping needs during a disaster, and available resources. As well as looking at the extent to which the rescue operational strander currently owned by the Kepuharjo District has a disability perspective. At the workshop, participants were also asked to directly add spaces where the needs of people with disabilities have not been met with additional clauses which are expected to further enrich existing rescue operational standards as well as being an effort to fulfill rights.

4 Conclusion and recommendation

Based on the results of the description above regarding disaster management carried out by CIQAL for people with disabilities, it can be concluded that CIQAL's presence plays an important role in mitigating natural disasters for people with disabilities. Apart from that, the disaster management carried out by CIQAL can be said to be very good starting from pre-disaster preparation, preparedness when a disaster occurs and evaluation and capacity building in the post-disaster period. CIQAL's resilience in disaster management for people with disabilities can be seen in a number of findings above, including: first, before the disaster (pre-disaster) CIQAL had taken the initiative to prepare an early warning for people with disabilities. The warning is in the form of a management information system

for storing disability data, called SIMDIS. With SIMDIS, the Disaster Preparedness Team can map the whereabouts of groups of people with disabilities.

Then when a disaster occurred, CIQAL took the initiative to prepare basic needs for people with disabilities. These basic needs are in the form of evacuation and temporary shelter. This was done through the initiation of the village head who held a focus group discussion with the aim of providing basic needs for people with disabilities when a disaster occurs. So that when a disaster occurs, they can immediately evacuate themselves to a refugee camp without having to worry about looking for shelter. Finally, when the disaster is over (post-disaster), CIQAL carries out a series of processes to improve safety for people with disabilities in the form of holding workshops and preparing evacuation operational standards. This is done to identify points that need to be prepared to face future disasters.

References

1. S. D. Setiawan, Rejogja.Republika.Co.Id (2024)
2. Y. Leon, Jogapolitan.Harianjogja.Com (2024)
3. Siaga Bencana, Siagabencana.Com (2022)
4. Laporan Ideaksi, (2022)
5. D. Asteria, J. Komun. **11**, (2016)
6. R. Ambarika, J. Kesehat. Mesencephalon **2**, 245 (2016)
7. D. Mahardika and E. Larasati, J. Public Policy Manag. Rev. **7**, 502 (2018)
8. A. Masyhuri, H. Purnaweni, A. R. Herawati, and B. P. Priyadi, J. Educ. Hum. Soc. Sci. **4**, 854 (2021)
9. I. Irawan, Y. Subiakto, and B. Kustiawan, PENDIPA J. Sci. Educ. **6**, 609 (2022)
10. M. Ulfa, S. A. Zahroh, A. I. Yuwono, and B. Apriyanto, Maj. Pembelajaran Geogr. **6**, 36 (2023)
11. H. Febriawati, W. Angraini, S. Ekowati, and D. Astuti, J. Ilmu Kesehat. Masy. **8**, 28 (2017)
12. R. B. Nugroho, M. Mustam, and D. Lituhayu, J. Public Policy Manag. Rev. **4**, 1 (2015)
13. 13. A. Putra, R. Juwita, Risna, R. Alfiandi, Y. Arnita, M. Iqbal, and Ervina, Idea Nurs. J. **6**, 25 (2015)
14. A. W. S. Putra and Y. Podo, Urecol 6th 305 (2017)
15. D. Ahdi, Reformasi **5**, 13 (2015)
16. A. Adisah, E. M. Silitonga, J. Manurung, and W. Hidayat, PREPOTIF J. Kesehat. Masy. **6**, 188 (2021)
17. Syuryansyah, S. Sukendar, and D. Andini, J. Ilmu Adm. Negara ASIAN (Asosiasi Ilmuwan Adm. Negara) **11**, 69 (2023)
18. M. Annapisa, Bul. Pembang. Berkelanjutan **2**, 102 (2019)
19. R. A. Buchari, Sawala J. Pengabdi. Masy. Pembang. Sos. Desa Dan Masy. **1**, 1 (2020)
20. S. Nurillah, D. Maulana, and B. Hasanah, JDKP J. Desentralisasi Dan Kebijak. Publik **3**, 334 (2022)
21. O. Sukmana, Sosio Konsepsia **7**, 190 (2018)
22. A. Hidayat, M. A. Marfai, and D. S. Hadmoko, J. Planoearth **4**, 95 (2019)
23. A. D. Malawani, A. Nurmandi, E. P. Purnomo, and T. Rahman, Transform. Gov. People, Process Policy **14**, 237 (2020)

24. E. Emaliyawati, A. Prawesti, I. Yosep, and K. Ibrahim, J. Keperawatan Padjadjaran **v4**, 79 (2016)
25. E. H. Lidiana, A. Widiastuti, and F. Eka Resti Wijayanti, Empower. J. **3**, 59 (2023)
26. S. Ramli and H. Djajaningrat, *Pedoman Praktis Manajemen Bencana (Disaster Management)*, Seri Manaj (Dian Rakyat, Jakarta, 2010)
27. Ananda, Gramedia.Com (2017)
28. L. Tysara, Liputan6.Com (2023)
29. Dinas Sosial NTB, Sosial.Ntbprov.Go.Id (2017)
30. N. L. Maghfiroh and D. Purbowati, Akupintar.Id (2023)
31. A. Nurmandi, Z. Qodir, E. P. Purnomo, and I. Muallidin, 21 (2015)
32. I. H. Sawalha, Foresight **22**, 469 (2020)
33. S. H. Othman and G. Beydoun, Inf. Manag. **50**, 218 (2013)
34. N. R. Alrehaili, Y. N. Almutairi, H. M. Alghamdi, and M. S. Almuthaybiri, Int. J. Disaster Manag. **5**, 93 (2022)
35. E. Lettieri, C. Masella, and G. Radaelli, Disaster Prev. Manag. An Int. J. **18**, 117 (2009)
36. S. K. Geale, Disaster Prev. Manag. An Int. J. **21**, 445 (2012)
37. D. Alexander, Spring **9**, 61 (2007)
38. E. P. Purnomo, R. Ramdani, Agustiyara, A. Nurmandi, D. W. Trisnawati, and A. T. Fathani, Int. J. Wildl. Fire **30**, 733 (2021)
39. E. P. Purnomo, Agustiyara, A. Nurmandi, A. Dewi, E. M. Rosa, A. H. Bayu, and R. Erviana, SAGE Open **12**, (2022)
40. L. K. Comfort, Annu. Rev. Polit. Sci. **8**, 335 (2005)
41. S. Aminatun and Hidayatullah, Sosio Konsepsia **6**, 269 (2017)