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Making Cities Resilient 2030 Assessment for Tourism Cities: An Analytical Study of Local Government Capacity at Batu City, Indonesia

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Batu East Java, Indonesia, as a tourist city, is categorized as a disaster-prone area; hence city resilience should be improved. Increasing resilience has a function in protecting the city from the rising number of disaster risks. This study aims to analyze the regional capacity based on the Regional Disaster Management Agency (Badan Penanggulangan Bencana Daerah – BPBD) capacity assessment criteria using the resilient stage based on Making Cities Resilient 2030 (MCR2030) and to determine the relationship between the BPBD capacity assessment criteria and the MCR2030 assessment. This study used a mixed methodology with a sequential explanatory design. The data collection technique involved 55 respondents using a purposive technique. The data analysis is based on the capacity assessment results in Batu City, which reached “moderate” criteria since the disaster risk index tends to decrease while the threat level rises. According to MCR2030, Batu City achieved 79.04% and was classified in stage C (progression implementation) because BPBD well defined the knowledge and planning stages for Batu City. This research indicated a significant gap between BPBD and other organizations, indicating that the “moderate” capacity and stage C categories only apply to BPBD. Other organizations, particularly in the economic and tourism sectors, are aware of the risks at stage B (planning) but have not yet developed a comprehensive plan or strategy to manage them. In contrast to the MCR2030 assessment, practically all respondents outside the BPBD stated that they had not participated in any regulations or public consultations in the past year and were unaware of such activities. The critical success of MCR2030 is the creation of resilience between stakeholders and local organizations; therefore, the suitability between the MCR2030 assessment and the capacity of BPBD can be used as a reference and adapted by other organizations, particularly the tourism industry in Batu City.

Keywords: tourism city resilience, local government capacity, disaster risk, sustainability of tourism.

Introduction

City resilience is one method to increase sustainable development. City resilience aims to protect every city from shock, stress, and disaster risk (UNDRR MCR2030, 2021). The growth and diversification of environmental issues and disasters in cities are a consequence of urbanization (Park and Lee, 2019). This disaster risk is also reflected in several Indonesian cities with efficient land use (Febrianto et al., 2016; Hizbaron et al., 2021; Kriswibowo et al., 2021; Marfai et al., 2015; Sagala et al., 2021; Waloejo et al., 2021). It started with the influence of a growing population, facility and natural resource management practices, and the lack of industry investment in disaster risk reduction (Ariansyah, 2021; Wibowo, 2021). Therefore, it is necessary to integrate different industries to increase city resilience (UCLG, 2021).

Generally, cities are the central focus of significant sustainable development sectors that are implemented to maintain consumption efforts (UNDRR MCR2030, 2021). The tourism industry is the main economic pillar in Indonesia (Ollivaud & Haxton, 2019); therefore, certain cities to the village level have a large concentration of development and promotion in this field (Afnarius et al., 2020; Azis et al., 2020; Gosal et al., 2020), increasing the intensity and effect of development, including efforts to survive the crisis and natural disaster risks. According to previous research, the tourism industry is not well prepared to manage crises and disasters (Chan, Nozu & Cheun., 2020; Espiner et al., 2017; Wang & Ritchie, 2012). Tourism research tends to focus excessively on tourism management crises; thus, more tourism research must focus on disaster risk reduction in the tourism sector (Prayag, 2018).

Descriptions of the development of tourist cities in Indonesia cannot be separated from the possibility of natural disasters, one of which occurred in Batu City, East Java. Batu City is now known as the "The City of Tourism"; it is the only city in East Java that has a variety of different tourist attractions (Cholis et al., 2019; Hardianto et al., 2020; Hidayatullah et al., 2017; Kodir, 2018; Setiawati & Jasmin, 2020). As a city with a major tourist destination, Batu City experiences challenges in mitigating disaster risk simultaneously with

its development. Previous studies show that not all cities are resilient to disaster risk following the current development sectors (Wong et al., 2022).

Batu City in 2021 is subjected to several natural disasters. This city has a population of 215,248 people and a predicted vulnerability of 4% to floods, 21% to flash floods, 82% to extreme weather, 13% to earthquakes, and 100% to drought (inaRISK, 2021). One of the disaster risks in Batu City was exposed by the flash flood on November 4, 2021, which disrupted the main access to several tourist locations and caused tourists to feel scared (Nunung, personal communication, 2022). This condition is probably able to give tourist locations a poor image, as was the case in India and Japan, which demonstrated that a natural disaster would significantly harm the image of a tourism destination.

Vulnerability of natural disasters and tourism areas is certainly also experienced by several other cities, where one of the triggers is the resilience of cities and destinations. Studies in Japan, especially on the threat of earthquake disasters in several tourist cities such as Hokkaido City and Kumamoto in 2018, provide a strong indication of the need for a specific stakeholder role in disaster threat management (Chan, Nozu, & Cheun, 2020; Chan, Nozu, & Zhou, 2020). Nanshan Scenic Zone in Sanya City on Hainan Island, China, is a disaster-prone area with approximately 21 million overnight visitors in 2018, with a total of 18 major flash flood events occurring (Zhang et al., 2021). The study recommends that disaster management agencies and tourism stakeholders carry out investment or integrated assessment, so that risk reduction, adaptation efforts, and their application in building an early warning system run sustainably. Through recommendations from several previous studies, it underlies the researcher's frame of mind to start an investigation of local government and tourism stakeholders in Batu City. Researchers will focus on investigating the capacity of disaster management and resilient cities based on MCR2030 so that resilience to cities and destinations can be prioritized.

Making Cities Resilient is a UNDRR program to lower disaster risk through disaster resilience on the city (UNISDR, 2019). The *Making Cities Resilient* campaign started in 2010 (World Urban Forum, 2020). The objective is to determine how local government, community involvement, stakeholder roles, financial management, multi-hazard risk assessment, improving informal settlements, and adapting urban planning can address resilience (Johnson & Blackburn, 2014). Recognizing the importance of the city resilience campaign, this program was renamed Making Cities Resilient 2030 (MCR2030) on October 28, 2020, as part of the 2030 Sustainable Development Goals, specifically goal no 11 (MCR2030, 2021).

MCR2030 classifies three types of city resilience (Stage Resilience): 1) Stage A (knowledge), 2) Stage B (planning), and 3) Stage C (application) (MCR2030, 2021). Furthermore, the objective of the MCR2030 assessment is the achievement of integration (linked) between several institutions (UNDRR MCR2030, 2021), where it is known that integrated planning strategies are recognized to be challenging, particularly across sectors, non-governmental organizations, and the private sector (Lassa, 2018; Rivera et al., 2015). Therefore, this study begins from the analysis of the regional capacity based on the Regional Disaster Management Agency (Badan Penanggulangan Bencana Daerah – BPBD) as a fundamental agency in disaster management and the relationship between the BPBD capacity with other local governments such as the tourism industry as a fundamental economic sector in Batu City by MCR2030 assessment. Firstly, we collect data with a survey based on the MCR2030 assessment according to 3 stages of city resilience. Secondly, there are a face-to-face interview and written responses by BPBD, the tourism Government, tourism stakeholders, village staff, also the Minister for Public Works and Public Housing for their perspective on the integration of tourism and disaster management in a tourism city. The novelty of this research is to determine the capacity of regional institutions through stage resilience. Moreover, the recommendations from the MCR2030 instrument can be prioritized while managing tourist resilience in Batu City.

Methods

This study was conducted in Batu City, East Java Province, Indonesia, between 10 October 2021 and 20 July 2022. This research used a mixed method with a sequential explanatory method design. This study design process begins by collecting and analyzing quantitative data, followed by collecting and analyzing qualitative data in sequential order (Othman et al., 2020; Sugiyono, 2020). A total of 55 participants were selected using a purposive technique to complete the questionnaire and engage in in-depth interviews. We collected data from 12 respondents in lower-level regional disaster management organizations, 12 respondents from tourism offices, 12 respondents from the Minister for Public Works and Public Housing, 11 respondents as village officials staff, and 8 tourism managers, with some of this determination based on who knows the most and has a role in implementing destination and risk reduction policies (Sugiyono, 2020).

The resilience of Batu City is determined using a quantitative method for initial collecting data. These questions are the first step to determine the position of Batu City on the Making Cities Resilient 2030 assessment, which consists of 3 stages, namely stage A (knowledge), stage B (planning), and stage C (implementation) (MCR2030, 2021). Each question corresponds to a resilience roadmap assessment, with questions 1–3 representing stage A, questions 4–8 representing stage B, and questions 9–15 representing stage C (UNDRR, 2021). For the reliability score of Batu City resilience stage, each question is scored as follows: 1 for stage A questions, 2 for stage B questions, and 3 for stage C questions. Quantitative data processing is used to calculate the position of Batu City before adjusting the stipulated proportion of respondents using the Likert scale (shown in *Table 1*).

Qualitative data were collected through interview guidelines developed from the Making Cities Resilient 2030 instrument. Meanwhile, the selected respondents were representatives of regional institutions that were the focus of the resilience assessment of Batu City in responding to disaster risks. To finish the qualitative data collecting activities, the researchers

began with observation, in-depth interviews, documentation, and secondary data from each institution/ stakeholder, using purposive techniques. The feature of the purposive technique is identifying respondents in a qualitative method that focuses on those who have the most knowledge about the topics being addressed

(Sugiyono, 2020). The combination analysis step follows the collection of quantitative and qualitative data, specifically data comparison. Data comparison is conducted so that quantitative data may exhibit similarities and differences after being reinforced, broadened, and deepened by qualitative data (Sugiyono, 2020). The

Table 1. Basic question and Likert Scale of Resilience Stage 2030 (MCR2030) in Batu City

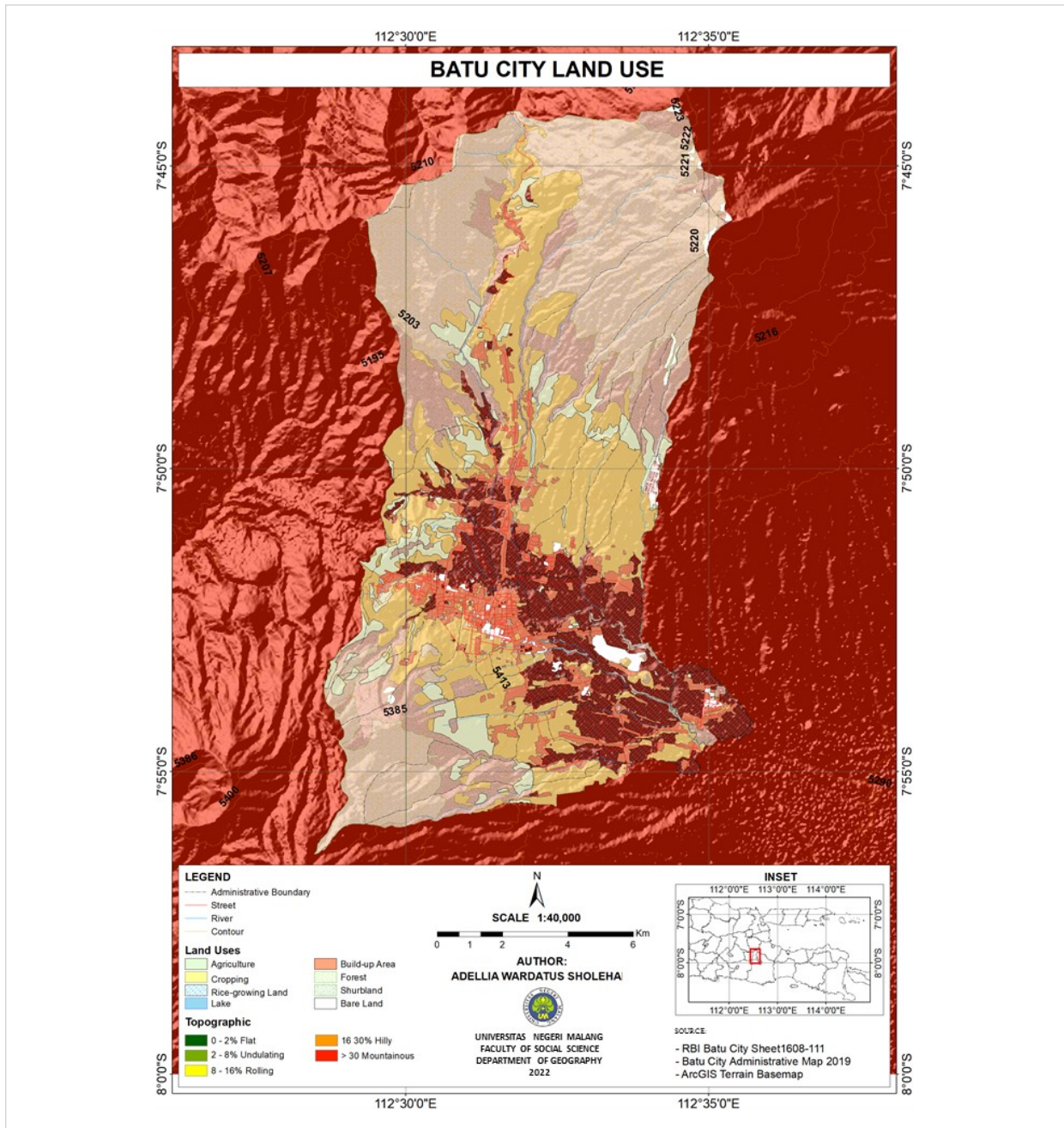
No.	Resilience Stage	Likert Scale
1.	<p>Stage A (Awareness and advocacy)</p> <p>Commitment to increase understanding of DRR strategies for city resilience. Basic questions of Stage A:</p> <ol style="list-style-type: none"> 1 Has the local government set a vision and development goal for urban sustainability? 2 Has the government established a BPBD? 3 Has the government coordinated to increase city resilience with all relevant government departments and staff? 	< 30%
2.	<p>Stage B (Diagnostic and Planning Support)</p> <p>Commitment to develop risk analysis, increase sensitivity in responding to disaster threats, and develop strategic plans for risk reduction. Basic questions of Stage B:</p> <ol style="list-style-type: none"> 1 Has the government established a policy or bureaucracy to communicate with stakeholders? 2 Is there synchronization between the government and other stakeholders as a medium for communicating information on city resilience planning? 3 Has the government built a multi-stakeholder platform to improve resilience awareness, collaboration, and support? 4 Does the government intend to conduct training before developing methods for risk reduction? 5 Does the government have a plan for disaster risk reduction and resilience, with readiness as a key indicator? 	30%–70%
3.	<p>Stage C (Implementation Support)</p> <p>Commitment to implementing DRR and resilience strategies in all sectors, one of which is by focusing on financial improvements, improving capacity infrastructure, and applying <i>nature-based solutions</i>. Basic questions of Stage C:</p> <ol style="list-style-type: none"> 1 Has the government conducted public consultations for the community in the past year regarding the improvement of city resilience? 2 Has the government evaluated the institutional capability for resilience to disaster risk? 3 Has the government conducted a multi-hazard assessment, data exposure, risk, and resilience evaluation of the city? 4 Have policies with sufficient accountability been established? 5 Is there a strategy for implementing risk reduction/resilience that has been decided by the responsible authority? 6 Have risk reduction and resilience initiatives been integrated into the strategic plan for city development? 7 Are climate-related risk variables considered in risk reduction strategies? 	> 70%

Source: Adaptation of Making Cities Resilience (MCR2030) Overview (UNISDR, 2019)

findings of the qualitative data processing will be compared to the quantitative data assessment results of the Making Cities Resilient 2030 questionnaire score. This comparison will be based on each instrument's tabulation analysis. The results of data reduction will be

utilized to complete the comparison process, allowing quantitative demonstration of similarities or differences with qualitative data utilizing descriptive-exploratory analysis. The condition of land use and topography of Batu City as a research location can be seen in Fig. 1.

Fig. 1. Map of Batu City (source: researcher documentation, 2022)



Results and Discussion

The capacity of Batu City based on the assessment criteria of the Regional Disaster Management Agency

From 2015 to 2021, Batu City's disaster risk index is decreasing. Even though the risk index is diminishing, the Regional Disaster Management Agency still classifies regional capacity as "moderate" due to the elevated hazard value (BPBD Kota Batu, 2019). The regional capacity assessment conducted by Batu City's Regional Disaster Management Agency (Badan Penanggulangan Bencana Daerah - BPBD) is influenced by a variety of current development priorities.

Priority 1: Improving institutions and policies

On priority 1, Batu City earned a 68% success rate (BPBD Kota Batu, 2019). This objective is to guarantee that disaster risk reduction becomes a national and local priority with strong local institution implementation. Batu City already has SKPD or Local Government Working Units (Satuan Kerja Perangkat Daerah - SKDP), but implementing policies amongst institutions and competent stakeholders in an integrated approach remains a challenge (Rivera et al., 2015; Seidler et al., 2018). Collaboration is conducted formally and informally, but the forum organization that controls it is not yet effective, as seen by minimal intergroup interactions (BPBD Kota Batu, 2019). Moreover, special engagement with the tourist office and tourism managers, the primary development sectors in Batu City, has neither been implemented nor is it a priority (G. Noegroho, personal communication, 2022). An additional statement from the head of disaster preparedness followed by a clarification from the Batu City disaster risk assessment reporting document is as follows:

"Skema pengurangan risiko bencana telah diupayakan untuk instansi lain seperti Peraturan Daerah tentang Pembangunan Kota Batu namun hingga saat ini belum disahkan. Saya kurang paham kendala birokrasi apa yang menyebabkan tersendatnya pengesahan peraturan ini padahal kami telah mengajukannya dengan berbagai pertimbangan dan urgensi

di Kota Batu. Tidak hanya itu meskipun kami sudah memiliki anggaran sendiri untuk pengurangan risiko bencana, namun jumlahnya masih relatif kecil yang saya mengetahui sendiri bahwa untuk pengadaan alat pengurangan risiko bencana masih minim. Sehingga bukannya tidak ingin menginterasikan dengan instansi lain, hanya saja sebenarnya kami telah berupaya agar pengurangan risiko bencana seperti longsor dan banjir bandang menjadi prioritas dalam pembangunan kota salah satunya proyeksi risiko bencana yang telah kami siapkan sampai beberapa tahun kedepannya." (BPBD Kota Batu, 2019); Gatot, personal communication, 2022).

"Disaster risk reduction schemes have been pursued by other agencies such as the Regional Regulation on the Development of Batu City but until now it has not been passed. I don't understand what bureaucratic constraints caused the delay in the passage of this regulation even though we have proposed it with various considerations and urgency in Batu City. Not only that, although we already have our budget for disaster risk reduction, the amount is still relatively small which I know for myself that the procurement of disaster risk reduction tools is still minimal. So it's not that we don't want to interact with other institutions, it's just that we have tried to reduce disaster risks such as landslides and flash floods as a priority in urban development. One of which is the disaster risk projection that we have prepared for the next few years."

Referring to the results of the interview which seemed to hint at the need for clarification with other agencies, the researcher then conducted the same interview with other agencies, namely the Tourism Office and the Batu City Spatial Planning Office. Below is the information of respondents who have a relationship with the statement of the Head of Disaster Preparedness of BPBD:

"Kaitannya dengan ketahanan bencana kami masih fokus untuk bangkit dari pandemi covid19. Kami sadar bahwa risiko bencana alam seperti banjir bandang yang terjadi pada akhir tahun 2021 juga berpotensi terjadi di masa depan. Namun kami memiliki skala prioritas dulu dimana perbaikan branding dan peningkatan wisatawan karena kondisi perekonomian dalam sektor pariwisata sangat turun. Kami juga beberapa

kali mengadakan komunikasi dengan pihak penanggulangan bencana kota, namun sepertinya melihat banjir bandang yang intensitasnya besar seperti kemarin rasanya memang integrasi kami perlu diperkuat lagi. Jika kebijakan telah disetujui dan untuk keberlanjutan pariwisata tentu kami akan mendukung semampu kami karena mungkin pada penerapannya juga diperlukan dari instansi lain seperti Dinas Tata Ruang dan Perencanaan Wilayah.” (Bidang Destinasi Dinas Pariwisata, Mr. Tio, Personal communication 2022).

“Concerning disaster resilience, we are still focused on rising from the covid19 pandemic. We are aware that the risk of natural disasters such as flash floods that occurred at the end of 2021 also has the potential to occur in the future. However, we have a priority scale first where the improvement of branding and the increase in tourists because the economic conditions in the tourism sector are very down. We also had several communications with the city disaster management party, but it seems that seeing flash floods of great intensity like yesterday, it feels like our integration needs to be strengthened again. If the policy has been approved for the sustainability of tourism, of course, we will support it as much as we can because perhaps its implementation is also needed from other agencies such as the Minister for Public Works and Public Housing.” (Bidang Destinasi Dinas Pariwisata, Mr. Tio, Personal communication 2022).

“Kaitannya dengan risiko penanggulangan bencana telah tertuang dalam perencanaan tata ruang wilayah dari tahun-tahun sebelumnya. Kemudian jika diperhatikan dari rekapitulasi perencanaan pembangunan kawasan tahun 2023-2026 kajian risiko bencana memiliki prioritas tersendiri dan bersanding dengan kebijakan pemanfaatan pembangunan di sektor lain. Hanya saja kembali lagi pada optimalisasinya perlu integrasi yang menyeluruh dari berbagai kalangan bahkan masyarakat yang berperan langsung di lapangan. ” (Script Writer direct interview sekretaris Dinas Perencanaan Tata Ruang dan Wilayah Kota Batu, 2022).

“The relationship with disaster management risks has been stated in regional spatial planning from previous years. Then, if you pay attention to the recapitulation of regional development planning for 2023–2026, disaster risk assessments have their priorities and are side

by side with development utilization policies in other sectors. It’s just that back to its optimization requires a thorough integration from various circles and even the community who play a direct role in the field.” (Script Writer direct interview sekretaris Dinas Perencanaan Tata Ruang dan Wilayah Kota Batu, 2022).

This finding is in line with previous research stating that, generally, disaster management institutions will receive a significant amount of attention. But it cannot be denied that non-governmental institutions and the business economic sector should be prioritized for development, as their roles in disaster preparedness can effectively reduce disaster risk (Chan, Nozu, and Cheung, 2020; Lassa, 2018). This problem correlates with the November 2021 flash flood that affected several of the most accessible tourist locations in Batu City. Post-disaster interviews indicated that this flood is projected to be the worst in the past 20 years, a period in which preparation efforts and understanding of disaster risks are said to have risen significantly (G. Noegroho, personal communication, 2022; Nunung, personal communication, 2022). Related to bureaucracy and funding, each agency feels that it is not sufficient if it has to reach other agencies. Therefore, in this priority, not only the realization of policies that were previously formulated, but the various obstacles that are the root of the problem, namely one-stop bureaucracy and funding from each agency need to be increased.

Priority 2: Risk assessment and integrated planning

Batu City scored 67% on detecting, analyzing, and monitoring disaster risks and improving the early warning system to mitigate disaster risks (BPBD Kota Batu, 2019). Overall, the disaster risk assessment component has been accomplished, but its development has several challenges. Details of the results of the disaster risk assessment study cannot be easily accessed by the general public and require methodical processes due to the lack of an online platform for accessing data. The community will probably find it difficult to read the extensive data on the findings of disaster risk measures; therefore, social media are required to translate and present the findings of disaster risk research (Ramakrishnan et al., 2022).

Based on the Batu City disaster risk assessment document, which contains secondary data owned by BPBD researchers, disaster risk assessments and projections through 2023 are provided. To this day, there has been a special early warning system for landslides, but its efficacy and coverage area have not been evaluated (BPBD Kota Batu, 2019). In the risk assessment document, a special vulnerability assessment at the point of a disaster has been conducted for a flash flood. Disaster risk assessment is the key to strategic planning and priority locations for disaster risk reduction (Ramli et al., 2021); thus, it is highly remarkable that the Batu City BPBD has identified an appropriate flash flood disaster risk location. However, disaster risk reduction delivery and training are still required. This is performed frequently because, according to the hypothesis, the high and low acceptance of a disaster risk will be influenced by the community and other parties, so that, in general, they will always be optimistic about the safety of their surroundings (Rittichainuwat et al., 2018).

Priority 3: Developing information system, training, and logistics

In this priority, Batu City was able to achieve a 52% success rate (BPBD Kota Batu, 2019). The objective of this priority is to implement the use of knowledge, innovation, and education to create capacity and a culture of safety against all types of disasters (inaRISK, 2021; Tuladhar et al., 2015). This priority is established and implemented in Indonesian schools as soon as possible to increase disaster awareness through the improvement and innovation of risk reduction education (Irawan et al., 2022; Suarmika et al., 2022; Sumarmi et al., 2021; Triastari et al., 2021; Widowati et al., 2021). Further about disaster education, Batu City through BPBD has provided schools with assistance, but the coaching process has not directly addressed the learning curriculum or subjects, and research in this area is still limited (BPBD Kota Batu, 2019).

Developing disaster risk education through education is a strategic effort that must be maintained. Along with a focus on formal school education, all stakeholders having responsibility in disaster-prone areas must be involved. This cross-sectoral interaction is

based on the fact that 87.6% of high-risk urban areas consist of residential, industrial, and commercial properties (Li et al., 2019). Generally, the tourist industry is an important sector that must be included in the case study of Batu Tourism City. The results of interviews with the management of the Batu City tourist village confirmed that the intensity of training was rarely conducted (B. Pamungkas, personal communication, 2022; Sugeng, personal communication, 2022), and even a tourism manager believed that a disaster risk was a natural phenomenon that could potentially occur in the area. Many people believe that their location is experiencing a natural disaster (Sugeng, personal communication, 2022). The lack of involvement of the tourist sector in Batu City is similar to the perceptions of tourism stakeholders following the 2018 earthquake in Kumamoto, Japan (Chan, Nozu, and Cheung, 2020).

Priority 4: Improving the effectiveness of disaster preparedness and mitigation

In this priority, Batu City has reached a lower than 20% success rate (BPBD Kota Batu, 2019). Compared to other priorities, Batu City has the lowest percentage in this category. Environmental management effectiveness has not been effectively linked with disaster risk reduction. According to the results of interviews, the disaster risk reduction techniques in Batu City have not been implemented for measured and targeted capacity-building activities in the economy and industry (G. Noegroho, personal communication, 2022). Whereas the health and resilience of urban ecosystems are highly dependent on the interaction between the natural environment and the designed environment, as well as the relationship between government constructions and conflicts or economic conditions, the designed environment has a significant impact on urban ecosystem health and resilience (Chatterjee & Shaw, 2015; Li et al., 2019).

Areas around water bodies typically have a significant risk of land degradation in addition to collaboration issues that have not been properly integrated (Li et al., 2019). Batu Tourism City is located in a hilly area that has fault lines with water sources and nearby tourist areas. According to interviews with tourism managers

in Punten Village, overflow floods and landslides are more intense than flash floods (B. Pamungkas, personal communication, 2022). The flash flood disaster in November 2021 severely damaged the main access to the Bulukerto Village tourism area, namely Mount Pucung Adventure Park, in Batu City, which was seriously damaged by landslides and flash floods in the river body (shown in Figs. 2 and 3).

This location has been classified as a high risk for flash flood disasters after the BPBD of Batu City revised its report on disaster risk assessment.

Fig. 2. The bridge is the main access to the Gunung Pucung Adventure Park, Batu City which was damaged due to flash floods (source: researcher documentation, 2022)



Fig. 3. The repair process of the river body around the tourist destination of Mount Pucung Adventure Park, Batu City (source: researcher documentation, 2022)



Based on the results of the capacity assessment to increase the effectiveness of disaster prevention and mitigation, which are very low (BPBD Kota Batu, 2019), it is shown that new hazard signs were installed after the disaster occurred, although this location had been identified as high risk two years before. Given the rare intensity, including the theory of declining risk acceptance (Rittichainuwat et al., 2018) given that flash floods are exceptionally rare despite their high risk (inaRISK, 2021), it is not unexpected that the flash floods in Batu City in 2021 were the worst in the past two decades.

Priority 5: Improving disaster preparedness and emergency management

On priority 5, Batu City achieves a 90% success rate and is listed as the highest priority for disaster

management (BPBD Batu City, 2019). In practice, government institutions are supported by volunteers to reduce disaster risks. The evacuation and logistical fulfillment in the flash flood disaster case in 2021 have been executed properly by BPBD and volunteers from various departments, which have been carried out effectively (G. Noegroho, personal communication, 2022). Members of the emergency service are already equipped with the technical skills necessary to respond to natural disasters. Batu City has a mitigation strategy for two disasters; however, it is important to study the relevant documentation (BPBD Batu City, 2019). This goal is extremely important in disaster risk management strategies, where preparation is the crucial component (Wahyuningtyas et al., 2020). Therefore, in this priority, the regional disaster management agency must integrate the evaluation of other priorities and other sectors with a significant role in developing Batu City.

The determination of priorities for regional capacity building by BPBD Batu Tourism City indicates that its efforts continue to expand. The priority scale pursued by BPBD Batu City is indeed by the “moderate” stage when adjusted to 6 assessment parameters for adaptive capacity consisting of (1) system description, (2) technology, (3) infrastructure, (4) institutions, (5) information and skills, and (6) economic and financial resources (Bakkour et al., 2015). The description of a systematic countermeasures system indicates this determination; nonetheless, it has not been completely implemented. Similar conditions exist in other parts of Indonesia, according to the results of an adaptive capacity analysis conducted following Mount Merapi’s eruption in 2010. The resulting similarities with BPBD in Batu Tourism City face similar challenges, including a lack of proper infrastructure, complex interactions between institutions, reliance on funds from external parties, and limited quantitative documentation of human and material losses, which can weaken the system’s adaptive capacity (Bakkour et al., 2015).

Researchers discovered that the results of documentation and descriptions of disaster risk assessments in Batu City were properly characterized. Furthermore, the assessment of disaster preparedness, which is the main resource for disaster risk reduction

(Wahyuningtyas et al., 2020) and has the highest value (90%) when compared to other priorities (BPBD Kota Batu, 2019), has not guaranteed qualified preparation on the field. In a direct interview, the Head of the Batu City Disaster Preparedness Division further stated:

“Kami telah mendokumentasikan upaya dalam penilaian risiko bencana di Kota Batu dan diperbarui setiap tahun sejak 2015. Kami juga telah menetapkan kajian ancaman yang diproyeksikan hingga tahun 2023. Namun, ada banyak faktor yang menyebabkan informasi dari analisis ini belum tersampaikan dengan baik bagi instansi pemerintah atau sektor lainnya. Sebenarnya kami juga telah melakukan beberapa koordinasi dan pelatihan di lapangan dengan kelompok-kelompok kecil, namun keterbatasan keuangan dan perbedaan prioritas kebijakan di Kota Batu yang condong ke arah pariwisata masih menjadi kendala besar dan sepertinya masih membutuhkan kesepakatan dan waktu yang cukup lama untuk mengintegrasikannya” (Gatot, personal communication, 2022).

“We have documented efforts in disaster risk assessment in Batu City and updated every year since 2015. We have also defined projected disaster mitigation efforts until 2023. However, many factors cause the information from this analysis not to be conveyed properly to government agencies or other sectors. We have also carried out some coordination and training in the field with small groups, but financial limitations and differences in policy priorities in Batu City, which is leaning towards tourism, are still big obstacles and it seems that it still requires agreement and a long enough time to integrate them” (Gatot, personal communication, 2022).

This statement implies that the BPBD of Batu City is qualified to integrate disaster management measures in Batu City. Returning to the priority of developing the city region as a tourist area, the city’s resilience in the tourism sector is essential to implement. Researchers emphasize this statement since a huge number of study findings reveal that the tourist industry lacks a complete understanding of dealing with disaster risks, and the region within the city’s scope is indeed quite closely tied to various disaster vulnerabilities (Chan, Nozu, and Cheung, 2020; Lassa, 2018; Prayag, 2018; Rivera et al., 2015)

Analyzing the resilience stage of tourist cities based on the Making Cities Resilient 2030 (MCR2030) assessment

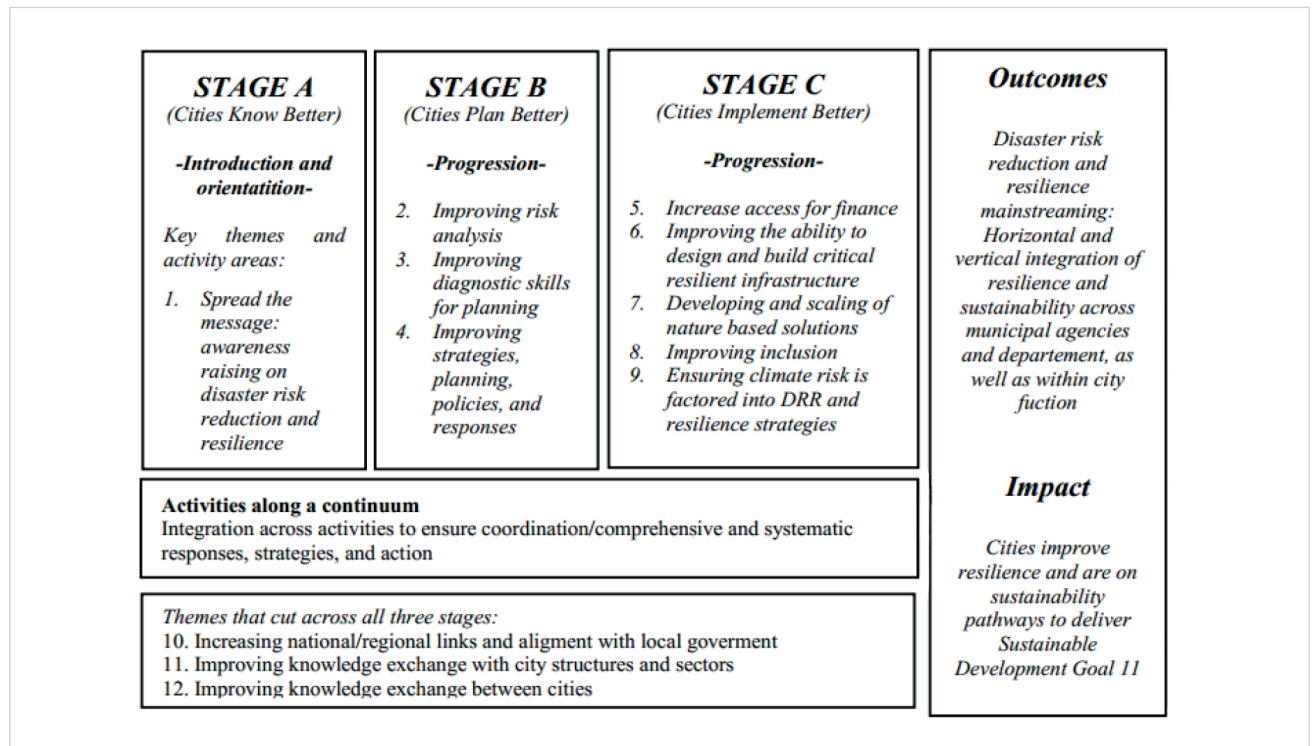
The MCR2030 program strategy is based on three Resilient Roadmaps, or stages that show cities how to improve resilience. Cities can participate in MCR2030 at any time and have access to a variety of technical advisory tools and inputs provided by various partners due to the flexibility and dynamic nature of this resilience-focused roadmap (UNDRR MCR2030, 2021). The probability of achieving SDG 11, which aims for “building secure, resilient, and sustainable cities,” can be increased by having a clear understanding of the position (stage) of resilience and the steps that must be taken for disaster risk reduction (UNDRR MCR2030, 2021).

Batu City is in stage C, with a percentage of 79.04%, based on a score obtained from 55 respondents who completed the questionnaire. This calculation result is as follows:

- a Questions 1–3, at stage A (knowledge), received 159 out of 165 total points. The score for Stage A was multiplied by 1, resulting in a score of 159 or 11%.
- b Questions 4–8, at stage B (planning), received 229 out of 275 total points. The score for stage B was multiplied by 2, resulting in a score of 458 or 31%.
- c Questions 9–15, at stage C (implementation), received 287 out of 387 total points. The score for stage C was multiplied by 3, resulting in a score of 58%.

Based on the accumulated final scoring results from the Making Cities Resilient 2030 questionnaire, it was determined that Batu Tourism City is in Stage C or “*progression implementation*” (shown in Fig. 2) (UNDRR, 2021). The implementation phase (Stage C) of Making Cities Resilient 2030 is a systematic effort to increase finance, infrastructure development, and policy development based on nature-based solutions, increasing participation, and focusing on reducing climate risk (MCR2030, 2021). The recommendations for stage C of the Making Cities Resilient 2030

Fig. 4. Resilient stage of making cities resilient 2030 (source: UNDRR, 2021)



The Making Cities Resilient 2030 assessment has reached stage C if the daily management and staff of the regional disaster management agency in Batu City are properly calculated (implementation). At this stage, BPBD has met the assessment requirements for the development of a vision and mission, multi-risk assessment, involvement in collaboration with urban spatial planning authorities, and community engagement through formal education in schools and through the disaster-resilient village project. Regarding the economic and industrial sectors, there has been a lack of intensive effort, which is influenced by restrictions on attractiveness and conflicting interests.

Analysis of the local government capacity assessment in Batu City with the Making Cities Resilient 2030 Assessment

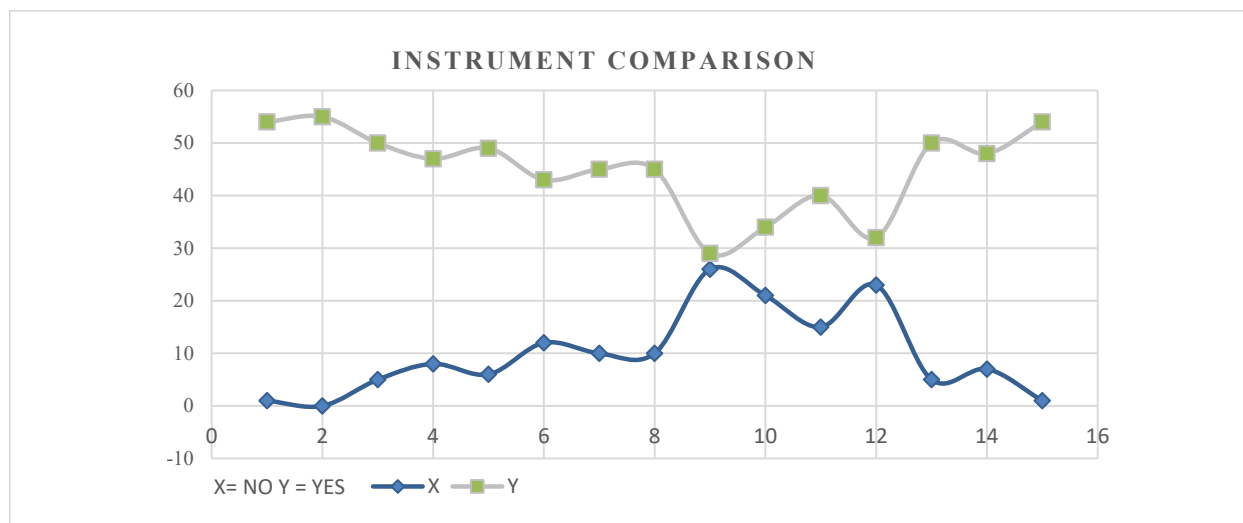
The Regional Disaster Management Agency of Batu City plays a significant role in handling disasters through four stages: preparation, mitigation, response, and recovery for each disaster (Sawalha, 2020). Based on secondary data related to the decrease in the disaster risk index, it can be determined that the performance of BPBDs in dealing with disaster risks has become increasingly serious. The decrease in the disaster risk index was then followed by a rise in the medium capacity and the risk of disaster

(G. Noegroho, personal communication, 2022).

The evaluation of the resilient stage in Batu City is at stage C (implementation). This assessment has a good result and is in line with the capacity assessment of the Regional Disaster Management Agency of Kota Batu which is at a “moderate” level (BPBD Kota Batu, 2021). This evaluation indicates that Batu City is similar to other villages in East Java, which are at stage C. However, this assessment still requires an in-depth analysis of the response and readiness of the particular sector or other stakeholders who also have a role in sustainable development in Batu Tourism City. Therefore, it is necessary to compare the questionnaire findings about the level of expertise and background of each role. The evaluation comparison from 55 respondents is shown in Fig. 6.

The instrument comparison score began to experience a significant decrease in questions 9, 10, and 12 (stage C). The score for question 9 was 87 out of a total of 165. This instrument revealed that over 50% of the respondents, except disaster management agencies, answered NO to this question. Based on the summary of interviews and the capacity value at “moderate” criteria, public consultation activities were conducted at all levels during the last year. The tourism sector, including managers, developers, and tourists, will likely be optimistic that tourist sites will always be

Fig. 6. The instrument comparison from respondents (source: research primary data, 2022)



safe, given that the intensity of rare disasters tends to decrease risk acceptance and understanding (Ritti-chainuwat et al., 2018).

Moreover, question 10 received a score of 102 out of a total of 165. This evaluation demonstrated that the institutions used as research respondents were not evaluated as a whole, particularly in terms of tourist capacity and village officials. The assessment mainly focuses on disaster management institutions and regional spatial planning, where applications will be limited until other sectors participate. This condition becomes an important issue for several cities, particularly those with intensive regional development (Chatterjee & Shaw, 2015; Lassa, 2018; Rivera et al., 2015). Furthermore, question 12 received a total score of 96 out of a total of 165. This evaluation aligned with the suggestion from MCR2030 at Stage C that immediate accountability improvements are required (MCR2030, 2021). The results of the interview with the Director of the Department of Disaster Preparedness revealed that Batu City has a budget for disaster management but has not been able to meet all needs optimally (G. Noegroho, personal communication, 2022). Therefore, establishing clear accountability is crucial for reducing the risk of disaster in Batu City, which will have an impact on promoting cross-sectoral collaboration.

Several post-disaster studies have attempted to understand risk perceptions and risk reduction strategies (Lo and Cheung, 2015), but multi-disciplinary or multi-sectoral integration has a low integration value (Gall et al., 2015). This research has made significant contributions to both sectors, but the reaction to natural disasters is still insufficient, particularly regarding tourism recovery and sustainability in the future (Gurtner, 2016). Moreover, the majority of these studies emphasize more pre-disaster prevention and preparation (Ritchie & Jiang, 2019). In addition, the depth of the study on pre-disaster preparation is still limited, as indicated by the fact that individuals who are directly involved in tourism activities tend to have poor disaster preparedness (Wahyuningtyas et al., 2020).

This study found a significant gap from other government agencies, where the results of stage C in Batu City only apply to the disaster management agency and the Minister for Public Works and Public Housing,

while for the tourism office, tourist village managers, and village staff have not met the criteria to arrive at the stage C (implementation). Approximately 70% of respondents were ignorant of any regulations or training plans for disaster risk reduction in tourist areas. Meanwhile, a network with stakeholders in tourism studies can usually offer modules, typologies, and frameworks that contribute to the conceptual development or field of tourism subject management (March & Wilkinson, 2009). Studies related to tourism resilience will be achieved if there is a collaboration between local stakeholders, the public, and private sectors, and other external or community-based organizations (Chan et al., 2021). The following are direct interviews with the tourism office on measures to preserve environmental balance and disaster management:

"Kami sangat bersyukur masyarakat dapat menerima secara positif hingga kota Batu dengan wisata berbasis masyarakat juga mampu berkembang seperti sekarang ini. Kita tidak dapat memungkiri bahwa perkembangan pariwisata ini dapat memiliki pengaruh negatif dan positif atau pro dan kontra. Karena berasal dari lahan pertanian, banyak tanaman dan pohon juga harus dikorbankan. Dapat dilihat bahwa Kota Wisata Batu memiliki potensi untuk mengembangkan pariwisata dan jika berkaitan dengan lingkungan kita juga telah mencoba yang terbaik, namun sekali lagi ini adalah proyek utama dari badan lingkungan hidup yang tidak dapat kita jangkau" (Yossi Dinas Pariwisata, Personal Communication 2022).

"We are very glad that the community can embrace favorably till the city of Batu with community-based tourism may thrive as it is now. We cannot dispute that tourist expansion can have both positive and bad effects, or pros and cons. Because it came from agriculture, many crops and trees must be sacrificed as well. It can be seen that Batu Tourism City has the potential to expand tourism, and in terms of the environment, we have also done our best, but once again, we are unable to reach the main project from the environmental agency" (Yossi from Tourism Staff, Personal Communication 2022).

"Saya menyadari bahwa agrowisata sekarang memimpin perekonomian dan bahkan nilai lokasinya sekarang sehingga seperti nilai-nilai daerah yang

meningkat jika anda tidak mampu menanggung risiko bencana, sehingga hal sekecil apapun yang terjadi adalah lingkungan tidak terpisah dari hal-hal yang tidak terduga. Untuk itu, kita harus sadar lingkungan dan lebih antisipatif agar tidak mengurangi kepercayaan masyarakat yang datang berkunjung ke wisatawan. Semoga para pemegang polis mengupayakan dan merangkul kita untuk upaya pariwisata berkelanjutan yang tahan bencana” (Suwito P, Stakeholder Desa Wisata, Personal Communication, 2022).

“I realize that agrotourism is now leading the economy and even the value of the location is now so it’s like the values of the area are increasing if you can’t bear the risk of disaster, so even the slightest thing that happens is that the environment is not separated from unexpected things. For this reason, we must be environmentally conscious and more anticipatory so as not to reduce the trust of people who come for tourist visits. Hopefully, policyholders will strive and embrace us for disaster-resistant sustainable tourism efforts” (Suwito P, Stakeholder tourism village, Personal Communication, 2022).

“Kita tidak bisa menebak kapan itu terjadi. Selain itu, bencana juga bisa terjadi di mana saja dan mungkin sudah saatnya terjadi di Kota Batu dan merusak aksesibilitas wisatawan. Ya, semoga kejadian ini tidak terjadi lagi kedepannya karena dampaknya sangat terasa dengan rusaknya fasilitas, bahkan pengunjung belum datang berbulan-bulan setelah bencana banjir bandang tahun 2021. belum lagi dampak covid, jadi pemulihannya secara ekonomi benar-benar mempengaruhi kehidupan kami sebagai pengelola wisata” (Sugeng. Stakeholder Desa Wisata, Personal Communication, 2021).

“We don’t know when it happened. Furthermore, disasters may strike anytime, and one may strike Batu City and disrupt some visitor accessibility. Yes, hopefully, this disaster will not reoccur in the future because the damage is massive with the loss of infrastructures, and even visitors have not visited for months following the flash flood disaster in 2021” (Sugeng. Stakeholder tourism village, Personal Communication, 2021).

This study found that the capacity value in disaster management agencies has not been able to determine the capacity value in other government agencies. The

results of the instrument comparison suggest that the MCR2030 assessment launched by UNDRR is capable of providing local governments with a high predicate and serving as a standard for developing resilience in other institutions. The key to the success of city resilience (MCR2030, 2021) and tourism resilience (Chan et al., 2021) is the establishment of cross-sector coordination and consistency in reducing disaster risks. However, the key to city resilience and tourism resilience in Batu City has not been effectively integrated due to several difficulties, particularly policy limitations. Theories relating to the frequency of disasters that influence the high and low bias of disaster risk acceptance (Rittichainuwat et al., 2018) are also clearly visible at the location of the study. This condition occurs in Batu Tourism City where when disasters occur stakeholders and communities around tourism do not have preparedness because disasters with similar intensity are very rare. Some managers state that they are unprepared to respond to the flash flood disaster in 2021 since the previous disaster occurred in 2004 with a low intensity (Utomo et al., 2017).

The goal in evaluating the resilience of Batu Tourism City is the achievement of sustainable tourism. Sustainable tourism needs to meet the following objectives: a) ecological for the preservation of natural resources and the reduction of pollutant emissions caused by tourism, b) the economy to ensure the economic well-being of the population that accommodates tourists, and c) social for the participation of local communities in their tourism policies and quality of life (Włodarczyk & Cudny, 2022). As the dominant sector, the fact is that this tourist city is at a risk of disaster so its sustainable goals are still full of question marks. If it is associated with the results of disaster risk assessment, the annual index has indeed decreased (BPBD Kota Batu, 2019), but the results of the study explain that this decrease in risk can cause problems if the intensity of mentoring decreases (Rittichainuwat et al., 2018). Tour managers who know their potential locations could be exposed to landslides and flash floods, also objected to changing locations. The condition of this dilemma is generally that the mountainous area and rough topography offer good tourist visuals (Chen et al., 2019). This area

also has fertile land for agro-tourism activities so the value of tourism will also increase. Therefore, one of the middle grounds is to increase disaster resilience so that this area can be sustainable as a tourism area. The results of the instrument show that all disaster management staff have conducted training/mentoring in the past year. Researchers also submitted some evidence of documentation of this activity to prove that disaster risk reduction efforts involving the community have been carried out. However, the response of the tourism village staff and tourism managers admitted that they had not been involved in the activity. Therefore, it can be concluded that the inequality of the stage value of the disaster management agency with other local governments is the lack of precise targets for mentoring. Then another question arises which is whether they as local governments with other priorities will agree? The condition of uniting the two is quite difficult because tourism studies tend to separate the two. However, the unavoidable fact causes integration efforts to become an obligation so that they can receive the rights or benefits of sustainable tourism.

Disaster risk reduction management is a basic sector that should be prioritized before prioritizing resource development and marketing efforts. The evaluation of the MCR2030 assessment does specifically focus on disaster management, but researchers use it as a basis for evaluating development policies and utilizing tourist areas to be resilient to disasters to produce recommendations for resilience. Policy recommendations that need to be considered by institutions and stakeholders in Batu Tourism City following the MCR2030 roadmap can be started at Stage B (planning). In contrast to BPBDs that have reached stage C (better implementation), respondents from other sectors demonstrate enough knowledge but lacking in disaster risk reduction strategies or plans.

Therefore, the results of the disaster risk study and projections by BPBD must be communicated to other sectors, especially the tourism office and tourism managers, so that tourism resilience in areas that are prone to natural disasters can be improved and become an integrated part of tourism management.

Disaster risk assessment is the main key to determining locations that are indicated to be exposed to disasters both quantitatively and qualitatively (Ramli et al., 2021). Therefore, the recommendations from stage B consist of 1) improving disaster risk analysis in tourist destinations, 2) improving fundamental skills for disaster risk reduction planning in tourist destinations, and 3) improving methods (planning, policy, and response) (UNDRR MCR2030, 2021). Recommendation B is a disaster risk reduction study from MCR2030 that can be adopted and carried out by the economic and tourism sectors in Batu City.

Conclusions

Through the case of Batu Tourism City, our research determination city resilience stage is based on the responses of staff from the regional disaster management agency (BPBD), the tourism office, the Minister for Public Works and Public Housing, village officials, and tourism managers based on Making Cities Resilient 2030 assessment. The cumulative results for Batu Tourism City have a position in stage C (progressive implementation), scoring 79.04%. But according to our findings, the capacity value in BPBD has not been able to define the capacity value of other government organizations. Batu City has a "moderate" capacity value and is at stage C (implementation), which is highly relevant to the condition of BPBD capacity but not to other institutions/sectors, such as tourism, which is typically at stage B.

According to the results, BPBD can directly implement the recommendations from Making Cities Resilient at stage C (implementation). As for the tourism sector and other institutions, management implications must play a role in accommodating the recommendations from stage B (planning), which is integrated so that collaboration can improve city resilience and tourism resilience as a unified total system. Stage B recommendations for the sustainability of tourism include: 1) improving disaster risk assessments in tourist destinations, 2) improving fundamental skills for planning disaster risk reduction in tourist destinations, and 3) improving

strategies (planning, policies, and response). This research focuses on evaluating the resilience stage of the city through local governments that have the authority to handle tourism policy and disaster management to be sustainable until achieving sustainable tourism. Recommendations for the next research are better to discover the perspective and the role of each stakeholder in the tourism industry to build destination resilience. Furthermore, because in this study researchers used a mixed method, the use of specific quantitative or qualitative methods related to resilience in each type of tourism in the city area is highly recommended.

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