

Report Card of Universities' Ability to Manage Their Institutional Resources and Capabilities in Times of Disasters

Hanife Yeşilyurt^{#1}, Sonyel Oflazoğlu^{*2}

[#]*Business Administration, Hatay Mustafa Kemal University, (Rectorate, Mardin Artuklu University), Turkey*

¹hanifeyesilyurt@artuklu.edu.tr

^{*}*Hatay Mustafa Kemal University Turkey*

²oflazoqlusonyel@gmail.com

Abstract— This study aims to reveal the potential of Hatay Mustafa Kemal University (HMKU) to use its resources and capabilities and its effectiveness in the region after the February 6, 2023 earthquake. In the study, focus group interviews were conducted using the qualitative research method, and the role and effectiveness of HMKU in the post-earthquake process were analyzed within the framework of the concepts of institutional memory, institutional capacity, institutional learning and institutional social responsibility. The participants of the study consisted of academicians, administrative staff and students working in different units of HMKU. In addition, local government representatives and people from civil society organizations were interviewed. A focus group interview was conducted with a total of 8 participants. The participants were selected using the purposive sampling method and were determined among those who were actively involved in disaster management processes or directly affected by these processes. The research data were collected through a semi-structured interview form. The study revealed the university's potential to manage its resources and capacity during disaster periods. In addition, it showed that the university can undertake critical roles not only in academic but also in crisis management and social solidarity processes during disaster periods. However, the findings have shown that current disaster response plans are inadequate in practice, institutional memory is not used effectively, and contributions are based more on individual efforts. In this context, the 4K + Model, which includes systematic recording and transfer of past experiences, effective use of university resources for crises, integration of post-disaster experiences into institutional development, and provision of supportive services for the community, has been proposed. The model aims for universities to provide sustainable contributions to disaster management with a multi-stakeholder approach. Data was collected primarily from 8 participants in the study, and the research process is ongoing.

Keywords— Corporate Social Responsibility (CSR), Corporate Memory, Corporate Learning, Corporate Capacity, Disaster.

I. INTRODUCTION

Disasters are sudden and destructive events that deeply affect the social, economic and physical structures of societies [1], [2]. Natural disasters, especially earthquakes, floods and landslides, cause extensive damage to residential areas and negatively affect human life and the local economy [2]. Major disasters experienced since the beginning of the 20th century have shown that disasters are not only natural events but also turn into disasters when combined with the fragility of social systems. In particular, the 1906 San Francisco Earthquake, together with the administrative weaknesses experienced in the post-disaster reconstruction process, brought the need for systematic disaster management approaches to the agenda for the first time on a large scale [31]. In the post-World War II period, events such as the 1953 Dutch flood and the 1964 Alaska earthquake accelerated the institutionalization of disaster planning, especially in developed countries; during this process, studies by researchers such as Gilbert White revealed that disaster risk should be evaluated not only in terms of physical but also social dimensions [32]. Turkey is a country frequently exposed to such natural disasters due to its geographical location. Large-scale disasters, especially the 1999 Marmara Earthquake and the 2023 Kahramanmaraş Earthquake, have been one of the most important turning points that questioned the country's disaster management system. The lack of coordination, legislative inadequacies and inter-institutional communication problems that emerged after these earthquakes have necessitated a comprehensive reform process [3], [4]. Within this framework, with the establishment of the Disaster and Emergency Management

Presidency (AFAD) in 2009, a more integrated and planned disaster management structure has been established [33].

Disaster management is a comprehensive discipline that encompasses pre-disaster preparation, disaster response and post-disaster recovery processes [5]. Public institutions, non-governmental organizations, the private sector and universities play a critical role in these processes. Universities can make significant contributions to both emergency response and long-term recovery efforts in the post-disaster process thanks to their knowledge, human resources and infrastructure [6]. Regional universities, in particular, have the capacity to respond quickly to local needs and can play a leading role in the reconstruction of society in the post-disaster process [7].

In some studies on disaster management, the role of universities has been addressed mainly within the scope of knowledge production, capacity development and disaster risk reduction [34], [35], [36]. However, it has also been stated that these contributions cannot be structured at the institutional level. It is seen that the current centralized disaster management structures do not sufficiently integrate universities into the process, and the concepts of institutional learning and memory are generally discussed in the context of public institutions [37], [38], [39]. It is stated that we need more systematic efforts to reduce disaster risks and that studies are supported by higher organizations and programs to increase social resilience against disasters [35]. The Kahramanmaraş earthquakes that occurred on February 6, 2023 caused great destruction in southern Türkiye, especially in the provinces of Hatay, Kahramanmaraş, Adıyaman and Malatya. These earthquakes were considered one of the biggest natural disasters of the last century and deeply affected the lives of millions of people living in the region [4]. During this process, Hatay Mustafa Kemal University (HMKÜ) took an active role in disaster management activities in the region. However, a detailed analysis is needed on how effectively universities can use their resources and capabilities, which collaborations they can develop, and what obstacles they encounter in the post-disaster process [8]. This study aims to reveal HMKÜ's potential to use its resources and capabilities after the February 6, 2023 earthquake and its effectiveness in the region. It also aims to present a model proposal on how universities can play a more effective role in local disaster management processes. In this context, an analysis was made within the framework of the concepts of institutional memory, institutional capacity, institutional learning, and institutional social responsibility, which are critical to understanding and improving the role of universities in disaster management processes [9].

A. Institutional Memory and Disaster Management

Institutional memory refers to the systematic storage of information obtained from past experiences of an organization and the use of this accumulation in future crises [8]. In the context of disaster management, institutional memory includes recording the lessons learned from previous disasters and using this information in preparation for similar situations in the future [9]. The legal and structural arrangements made after the 1999 Marmara Earthquake in Turkey and the experiences gained during the preparation process for the 2023 earthquakes provide important examples of the effective use of institutional memory [3]. In this context, institutional memory does not only store information; it also creates a collective consciousness that directs the decision-making and operational processes of organizations [10], [11]. Universities are also at the center of this process; they play important roles in both transferring documents about disasters to future generations and transforming historical records into educational resources [12]. The reflex shown by Hatay Mustafa Kemal University (HMKU) during the 2023 earthquake process shows how institutional memory can be effectively used in preparation for crises.

B. Corporate Talent and Resource Management

Another important element fed by institutional memory is institutional capability and resource management. Institutional capability is the ability of an institution to organize and use its physical, human and financial resources effectively at the right time [5]. Meeting needs such as post-disaster intervention, shelter, health services and psychological support is possible by implementing this capability [2]. However, having resources alone is not enough; effectively coordinating and directing these resources is also a part of institutional capability [7]. For example, HMKU's direct involvement in the process by establishing field hospitals and psychosocial support centers after the earthquake shows that this capability is successfully implemented. On the other hand, some coordination problems experienced during the process also reveal the limitations of institutional capability and that it is an area that needs to be continuously developed [13].

C. Organizational Learning and Continuous Improvement

Developing and sustaining institutional capabilities is only possible through institutional learning. Institutional learning is the ability of organizations to learn meaningful lessons from their experiences and integrate this information into future processes [8]. In the context of disaster management, the analysis of post-disaster challenges and the transformation of these analyses into policies and practices are important [7]. The experiences gained by HMKU from the 2023 earthquake contribute not only to the solution of the current crisis but also to the formation of a stronger preparedness capacity against future disasters. Institutional learning covers not only the transfer of technical knowledge, but also the development of organizational culture and the strengthening of communication strategies [9]. Thus, the knowledge gained in post-disaster processes can make institutions more resilient and proactive [14]. For higher education institutions, this also means being more effective in knowledge production and sharing [15].

D. Corporate Social Responsibility and Social Contribution

The most visible aspect of institutional learning and talent reflected in society is corporate social responsibility. The basis of this concept is that an institution takes action with the responsibility it feels towards society, especially in times of crisis, and makes social contributions [16]. Universities can actively contribute to the recovery process by developing projects that meet the needs of society in the post-disaster period [5]. The psychological support programs and public awareness-raising training activities implemented by HMKU after the earthquake are examples of this sense of responsibility. Moreover, corporate social responsibility covers not only post-disaster but also pre-disaster awareness and preparation activities. Universities become integral actors in disaster management by playing an active role in areas such as providing practical support to individuals, assuming community leadership, contributing to policy making, providing information production, and stimulating labor and economic activities [17].

E. Method

This study aims to reveal the potential of Hatay Mustafa Kemal University (HMKU) to use its resources and capabilities and its effectiveness in the region after the February 6, 2023 earthquake. For this purpose, focus group interviews were conducted using qualitative research methods. The qualitative research method offers a suitable approach to deeply understand the experiences and perspectives of the participants [18]. This study was designed using the case study method, which is one of the qualitative research designs. In this context, the role and effectiveness of HMKU in the post-earthquake process were analyzed within the framework of the concepts of institutional memory, institutional capacity, institutional learning and corporate social responsibility. The participants of the study consisted of academicians, administrative staff and students working in different units of HMKU. In addition, a multi-stakeholder perspective was obtained by including participants from local government representatives and non-governmental organizations. A focus group interview was conducted with a total of 8 participants. The participants were selected using the purposive sampling method and were determined among those who actively take part in disaster management processes or are directly affected by these processes [19]. Focus group interviews were conducted with semi-structured forms during the data collection process. The interviews included questions aimed at understanding the participants' experiences in the post-earthquake period, how HMKU used its resources and capabilities, the collaborations developed and the obstacles encountered. The interview questions were prepared in line with the literature review and expert opinions [20].

II. FINDINGS

Within the scope of this study, the roles of universities in disaster management were evaluated through a focus group interview held in Hatay in February 2025. Interviews were conducted with different stakeholder groups (academic staff, students, administrative staff and local actors) and experiences were collected at institutional and individual levels. The profiles of the participants in the focus group interview are given below.

TABLE I
CODED PARTICIPANT PROFILE OF FOCUS GROUP INTERVIEWS

Kod	Group	Position
A1	1. Focus Group	Dean

A1	1. Focus Group	Dean
A2	1. Focus Group	Academician
A3	1. Focus Group	Student Directly Affected by Earthquake
A4	1. Focus Group	Administrative Staff (Administrative Affairs Manager)
A5	1. Focus Group	Administrative Staff (Student Affairs)
A6	1. Focus Group	Local Government Representative (Municipality)
A7	1. Focus Group	Civil Society Organization (NGO) Representative
A8	1. Focus Group	Disaster and Emergency Management Presidency (AFAD) Personnel

The data obtained as a result of semi-structured interviews with the participants indicated in Table 1 were examined under five headings through content and thematic analysis. These are institutional memory, institutional capability, institutional learning, institutional social responsibility and collaboration networks. The responses given by the participants to the questions are shown verbatim under the relevant headings.

A. Institutional Memory

In the focus group interviews attended by academic, administrative staff and students, it was observed that the university's institutional memory was processed in a limited way in disaster management and that past experiences could not be sufficiently transferred to the 2023 earthquake, and that there were serious problems in the transfer of information within the institution.

"Our university had disaster response protocols developed after the 1998 earthquake and we tried to update and use them. However, this earthquake caused destruction beyond all scenarios and plans. When our campus buildings were damaged, all plans became impractical. The information stored in the institutional memory was insufficient for a disaster of this scale." (Interviewer A2)

"There were disaster plans at our university, but they only remained in files and were not sufficiently transferred to the staff. Most of us did not know exactly what to do during and after the earthquake. Since regular drills and training were not conducted, the institutional memory that existed in writing could not be put into practice." (Interviewer A4)

The findings are also consistent with the existing literature. While it is stated that the effective use of institutional memory in disaster management strengthens the response processes, it is emphasized that this memory should be sustainable not only in documents but also in institutional culture and practices [21], [22].

B. Corporate Talent

"We used our faculty's greenhouses and storage areas for the classification and distribution of aid materials. We allocated our agricultural machines and vehicles for debris removal and aid distribution. Our faculty's expert staff provided consultancy services to farmers for the sustainability of agricultural production. However, we had difficulties in using our vehicles due to fuel shortages." (Interviewee A1)

"The university's technical equipment and expert academic staff were very valuable in post-disaster studies. In particular, laboratories for water and food safety analyses, technical equipment for building safety assessments and GIS (Geographic Information Systems) infrastructure were of great importance. We received valuable support from academics in conducting drinking water analyses, assessing damaged buildings and creating disaster maps." (Interviewee A7)

These findings support the importance of laboratory infrastructure and expert staff emphasized by universities in Turkey in their studies on their post-earthquake technical assessment capacities [23]. They also overlap with findings on the potential of universities to use their physical resources for the benefit of society in disaster response [24].

C. Institutional Learning

"The collapse of our student information system after the earthquake forced us to develop alternative methods. We tried to track the status of students using paper-based registration systems and mobile applications. The most important lesson we learned during this process was that our information systems should be geographically distributed and redundant. We are now redesigning our systems accordingly." (Interviewer A5)

AFAD personnel "The idea of establishing a joint crisis desk with the university developed after the earthquake and we are now linking this to the protocol. We aim to create a more effective disaster response

system by combining the theoretical knowledge of academics on disaster management with our field experience. We share the lessons the university has learned with us and we share what we have learned with the university." (Interviewer A8)

The findings emphasize that communication and information sharing between organizations are critical in disaster management with similar study results. The importance of organizational learning in disaster management is stated as the systematic recording of lessons learned in times of crisis and transferring them to institutional memory [25]. It is also stated that inter-institutional cooperation and experience sharing are important in disaster management in Türkiye and that universities can function as knowledge sharing centers [26].

D. Corporate Social Responsibility

"We lost our homes due to the earthquake and many of us experienced psychological trauma. The university administration did not leave us alone during this process. Housing opportunities were provided in dormitories, scholarship and financial support programs were initiated. In addition, psychological support groups were formed and these groups helped us hold on to life again. The academic calendar was rearranged and a distance education system was introduced. Thanks to this, we were able to continue our education." (Interviewer A3)

"Approximately 5,000 of our students were directly affected after the earthquake. We created a digital registration system to determine the students' situations and tried to contact each student. We quickly strengthened our distance education infrastructure so that education and training activities would not be interrupted. All courses were moved to online platforms and the academic calendar was rearranged accordingly. In addition, special academic arrangements were made for our earthquake-affected students. Exam dates were postponed, assignment submission deadlines were extended, and alternative assessment methods were applied for some courses." (Interviewer A5)

The findings, which are consistent with the study examining the impact of natural disasters on educational institutions and the strategies required to ensure educational continuity [27], are also supported by the study analyzing the strategies of Firat University to ensure educational continuity after the Elazığ Earthquake [28].

E. Collaboration Networks

In the focus group interview, the difficulties and opportunities experienced by the university in developing coordination and cooperation networks with other institutions were discussed.

"The fact that there was no previous disaster protocol between the university and the municipality caused coordination problems in the early days. We did not know how we could use which resources of the university and which areas of expertise we could benefit from. However, over time, joint working groups were formed and cooperation strengthened. We developed productive cooperation especially in the evaluation of urban infrastructure, environmental health, planning of temporary settlement areas and social services. Now, we are preparing a permanent cooperation protocol based on these experiences." (Interviewer A6)

"When international aid organizations came to the region, there were communication and coordination problems. At this point, the university assumed an important bridge role. Academicians and students who spoke foreign languages served as interpreters. Logistical support was provided to international teams and the university campus was used as a coordination center. Academicians and students who spoke English, German, French and Arabic in particular supported the aid teams coming from approximately 15 different countries. This role of the university ensured that international aid was used more effectively." (Interviewee A7)

The findings are similar to the study emphasizing the importance of cooperation with universities in developing the disaster management capacities of local governments [29]. It is also supported by the study analyzing the contributions of academic institutions to disaster management at the local level in Türkiye [30]. The critical role of university-municipality cooperation was emphasized in the study and the importance of cooperation with universities in developing the disaster management capacities of local governments was emphasized [30].

III. CONCLUSIONS

This study has revealed that universities can play critical roles not only in terms of their academic functions but also in the areas of crisis management and social solidarity during disaster periods. The example of Hatay Mustafa Kemal University after the 2023 Kahramanmaraş Earthquake is a concrete reflection of this potential. However, logistical, financial and coordination deficiencies prevented this role from being fully realized. In the context of Institutional Memory, it was observed that universities experienced significant deficiencies in systematically recording the lessons learned from past disaster experiences and integrating this information into existing plans. It was determined that existing disaster response plans largely remained theoretical, that these plans were not effectively conveyed to staff and students, and that they were not supported in practice by regular drills and trainings. This situation shows that institutional memory should be kept alive not only with documents but also with institutional culture and practices. When the general headings mentioned in the findings were evaluated separately, it was understood that universities made significant contributions to society in the post-disaster process with their physical resources (e.g. greenhouses, laboratories, technical equipment) and manpower (expert academic staff) in terms of institutional capability. However, these contributions are mostly limited to individual efforts and cannot be systematized at the institutional level. Institutional learning stands out as the process of developing new strategies based on the problems experienced by universities after disasters. The need to back up information, especially after the collapse of information systems, has drawn attention again. Crisis desk establishment processes have been initiated with institutions such as AFAD and institutional memory has been strengthened. This learning process has also enabled the development of information sharing and coordination between institutions. In the field of corporate social responsibility, it has been observed that universities have taken rapid and effective steps in issues such as providing accommodation, financial support, psychological counseling and educational continuity to their students. These practices have revealed that universities can function as a life support center in times of crisis, beyond being only an academic institution. In the context of cooperation networks, it has been determined that universities have developed effective cooperation with local governments, NGOs, AFAD and international aid organizations. The coordination deficiencies experienced at the beginning have been eliminated with experience over the process; universities have assumed critical roles with functions such as translation services, logistics support and coordination centers. Thus, universities have reached a strategic position in multi-stakeholder crisis management. In the study, the 4K+ Model was developed so that universities can play a more effective and sustainable role in disaster management. This model offers a holistic approach to university-based disaster management and brings together four basic concepts and various complementary elements. Institutional Memory (K1), which constitutes the first leg of the model, covers the process of systematically recording past experiences, supporting them with digital archives and transferring them to all stakeholders. It is essential to keep this knowledge alive through in-house training, drills and applications. Institutional Capability (K2) includes the active use of the laboratory infrastructure, technical equipment and expert human resources owned by universities in disaster response and the optimization of these resources according to crisis scenarios. Institutional Learning (K3) envisages the evaluation of post-crisis experiences and their integration into institutional policies, the establishment of redundant information systems and the development of learning processes through inter-institutional interaction. Institutional Social Responsibility (K4) covers solidarity-based activities including the provision of accommodation, psychological support, educational continuity and social services for students, employees and the society. The “+” element of the model consists of complementary strategies and collaborations to strengthen disaster management. Crisis intervention mechanisms require the existence of units that can make rapid decisions within the university; while institutional resource management envisages the sustainable use of existing infrastructure and expertise. Multi-stakeholder coordination includes continuous collaboration with local and international actors; disaster-resistant campuses include strengthening infrastructure; social integration includes strengthening student and community ties; innovative technologies, mobile applications, sensor systems and geographic information infrastructure are used in disaster management; and sustainability includes long-term management of environmental, economic and social resources.

The 4K+ Model aims to transform universities’ institutional memory, physical and human resources, learning capacities and social responsibility understanding into a systematic structure, and to transform them into not only knowledge-producing institutions but also strategic actors that are resilient to disasters, cooperative, learning and able to establish multi-stakeholder collaborations. This model offers a holistic roadmap for universities to undertake more planned, inclusive and sustainable roles in disaster management.

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REFERENCES

- [1] Ş. Ekinçi, K. Çatı and E. Oskaloğlu, "Afet sonrası ekonomik sürdürülebilirliğin değerlendirilmesi", In: *Anadolu 16. Uluslararası Sosyal Bilimler Kongresi*, Van/Türkiye, pp. 216-237, 2024.
- [2] D. E. Alexander, "Disaster and emergency planning for preparedness, response, and recovery," *Oxford University Press*, pp. 1-20, 2015.
- [3] B. Özmen, "17 Ağustos 1999 İzmit depremi sonrası Türkiye'de afet yönetimi politikalarındaki değişimler," *Ankara Üniversitesi Sosyal Bilimler Dergisi*, vol. 1, pp. 1-15, 2000.
- [4] (2023) AFAD 2023 İdare Faaliyet Raporu. [Online]. Available: <https://www.afad.gov.tr/>
- [5] N. Kapucu and A. Özerdem, *Managing Emergencies and Crises: Global Perspectives*, Jones & Bartlett Learning, 2013.
- [6] W. L. Waugh and G. Streib, "Collaboration and leadership for effective emergency management," *Public Administration Review*, vol. 66, pp.131-140, Nov. 2006.
- [7] L. K. Comfort, K. Ko and A. Zagorecki, "Coordination in rapidly evolving disaster response systems: The role of information," *American Behavioral Scientist*, vol. 48, pp. 95-313, 2004.
- [8] G. Smith, "Leadership in Disaster: Learning for a Future with Global Climate Change," *McGill-Queen's University Press*, 2020.
- [9] K. Tierney, "Disasters: A Sociological Approach," *Polity Press*, 2019.
- [10] R.C. Beckett, "Accessing corporate memory—some knowledge structure concepts," In: *International Working Conference on the Design of Information Infrastructure Systems for Manufacturing*. Boston, 2000, pp. 2-16.
- [11] M. Zacklad, I. Boughzala and N. Matta, "Towards an extended enterprise memory in textile industry," In, *PAKM*. 2000.
- [12] H. Okumura, "The role of universities in passing on memories of major disasters, and research activities: reflections twenty years after the great Hanshin-Awaji earthquake and four years after the great East Japan earthquake," *Community-Based Reconstruction of Society: University Involvement and Lessons from East Japan Compared with Those from Kobe, Aceh, and Sichuan*, pp. 43-49, Jan. 2017.
- [13] W. J. Henisz, "The dynamic capability of corporate diplomacy," *Global Strategy Journal*, vol. 6, pp.183-196, Aug. 2016.
- [14] N. Çavuş, O. Hussain, A. Ubah, A.M. Isa and V. Oluwasusi "Enhancing organizational learning with e-learning capabilities: A systematic literature review," *Journal of Organisational Studies & Innovation*, vol. 11, p.19, 2024.
- [15] R. U. Gill, I. Bano and S. A. H. Naqvi, "Institutionalizing service learning in the higher education. *Educational Research And Innovation*, Vol. 3, pp. 146-157, 2023.
- [16] A. B. Carroll and K. M. Shabana, "The business case for corporate social responsibility: A review of concepts, research and practice," *International Journal of Management Reviews*, vol.12, pp. 85-105, 2010.
- [17] J. Dewar, "The role of universities in times of crisis: a vice-chancellor's perspective," *Qualitative Research Journal*, vol. 20, pp. 405-410. 2020.
- [18] J. W. Creswell and C. N. Poth, "Qualitative Inquiry and Research Design: Choosing Among Five Approaches," *Sage Publications*, 2018.
- [19] M. Q. Patton, "Qualitative research & evaluation methods: Integrating theory and practice," *Sage publications*, 2014.
- [20] R. A. Krueger and M. A. Casey, "Focus group interviewing. Handbook of practical program evaluation," pp. 506-534, 2015.
- [21] D.P.Coppola, D. P. (2006)., *Introduction to international disaster management*. Butterworth-Heinemann 2006,
- [22] K. Seneviratne, D. Baldry and C. Pathirage. "Disaster knowledge factors in managing disasters successfully". *International Journal of Strategic Property Management*, 14(4), 376-390. 2010.
- [23] M. Erdik, K. Şeşetyan, M. B. Demircioğlu, U. Hancılar and C. Zülfiyar. "Rapid earthquake loss assessment after damaging earthquakes". *Soil Dynamics and Earthquake Engineering*, 112, 25-38. 2018.
- [24] N. Kapucu and S. Khosa. "Disaster resiliency and culture of preparedness for university and college campuses". *Administration & Society*, 45(1), 3-37.2013.
- [25] C. Lalonde. "Crisis management and organizational development: Towards the conception of a learning model in crisis management". *Organization Development Journal*, 25(1), 17-26. 2007.
- [26] B. Özmen, B. and A.T. Özden. "Türkiye'nin afet yönetim sistemine ilişkin eleştirel bir değerlendirme". *İstanbul Üniversitesi Siyasal Bilgiler Fakültesi Dergisi*, 49, 1-28.2013.
- [27] C. Mutch. "The role of schools in disaster settings: Learning from the 2010–2011 New Zealand earthquakes". *International Journal of Educational Development*, 65, 190-200.2018
- [28] C. Aydın. "2020 Elazığ Depremi Sonrası Yükseköğretim Kurumlarında Eğitim Sürekliliğinin Sağlanması: Fırat Üniversitesi Örneği". *Afet ve Risk Dergisi*, 3(1), 1-18.2020.
- [29] B. Kusumasari, Q. Alam and K. Siddiqui. "Resource capability for local government in managing disaster", *Disaster Prevention and Management*, Vol. 19 No. 4, pp. 438-451.2010
- [30] Demirci, A. and Karakuyu, M. (2004). Afet Yönetiminde Coğrafi Bilgi Teknolojilerinin Rolü. *Doğu Coğrafya Dergisi*, 9(12), 67-100.
- [31] S. Tobriner, *Bracing for disaster: Earthquake-resistant architecture and engineering in San Francisco, 1838–1933*. Heyday. ORIM, 2015.
- [32] G.F. White, *Human adjustment to floods: a geographical approach to the flood problem in the United States*. Diss. The University of Chicago, 1942.
- [33] B. Özmen and S.Gerdan. "Afet ve Acil Durum Yönetimi Başkanlığının Değişimi ve Dönüşümü." *Emergency Aid and Disaster Science* 5.1 (2025): 27-37.
- [34] R. Shaw and T. Izumi. *Civil society organization and disaster risk reduction*. Springer Japan, 2014.
- [35] R. Djalante, F. Thomalla, M.S. Snapoy and M. Canegie "Building resilience to natural hazards in Indonesia: progress and challenges in implementing the Hyogo Framework for Action." *Natural Hazards* 62 (2012): 779-803.
- [36] M. Erdik. "Report on 1999 Kocaeli and Düzce (Turkey) earthquakes." *Structural control for civil and infrastructure engineering*. 2001. 149-186.
- [37] A.U. Şahin. "Afet yönetimi ve planlaması perspektifinden Türkiye afet müdahale planının değerlendirilmesi." *Resilience* 4.1 (2020): 129-158.
- [38] C. Argyris and D.A. Schön. "Organizational learning: A theory of action perspective." *Reis* 77/78 (1997): 345-348.1997.
- [39] A. Boin and A. McConnell. "Preparing for critical infrastructure breakdowns: the limits of crisis management and the need for resilience". *Journal of contingencies and crisis management*, 15(1), 50-59.2007.