

AN INSTITUTIONAL FRAMEWORK MODEL FOR CULTURAL AGENCIES IN
DISASTER MANAGEMENT OF ENDANGERED CULTURAL HERITAGE: *THE
CASE OF THE DIRECTORATE GENERAL OF FOUNDATIONS, TÜRKIYE*

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ABSTRACT

AN INSTITUTIONAL FRAMEWORK MODEL FOR CULTURAL AGENCIES IN DISASTER MANAGEMENT OF ENDANGERED CULTURAL HERITAGE: *THE CASE OF THE DIRECTORATE GENERAL OF FOUNDATIONS, TÜRKİYE*

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The conservation of cultural heritage in the face of disasters and emergencies has become an important topic in recent years. Since the early 1990s, designated as the "Decade for the Reduction of Losses Caused by Disasters," there has been a growing interest in various concepts within this field. This evolving terminology has directed specialized research in risk assessment, emergency interventions, and effective recovery methods, particularly concerning movable cultural assets like museum collections. It has been observed that while much of the literature on this topic has focused on specific disaster management factors related to cultural heritage, few studies have explored the institutional requirements and essential components that cultural agencies must implement. To address this gap, a framework titled the "Institutional Framework Model for Cultural Heritage Disaster Management" is proposed in the thesis. This model aims to provide a comprehensive approach to disaster management for cultural institutions. It has been developed through comprehensive research that includes a literature review, assessments of established international practices, methodologies, and frameworks, as well as an evaluation of disaster management systems and institutions in different contexts. Additionally, the

study identifies critical components of institutional disaster management by analyzing recurring concepts and issues revealed in the literature review. The proposed institutional framework is examined through the practices of Türkiye's Directorate General of Foundations, one of the most significant cultural institutions. Evaluation results indicate that although the agency has strong financial structure and adequate personnel, it lacks a comprehensive policy framework and an effective collaborative infrastructure. These limitations hinder the institution's ability to manage cultural heritage properly during disasters. As a result, the existing measures are insufficient to address significant emergencies that could lead to serious cultural heritage loss.

Keywords: Endangered cultural heritage, institutional disaster management, cultural institutions, capacity building

ÖZ

TEHLİKE ALTINDAKİ KÜLTÜREL MİRASIN AFET YÖNETİMİNDE KÜLTÜREL KURUMLAR İÇİN KURUMSAL BİR ÇERÇEVE MODELİ: VAKIFLAR GENEL MÜDÜRLÜĞÜ ÖRNEĞİ, TÜRKİYE

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Afet ve acil durum anlarında kültürel mirasın korunması son yıllarda üzerinde önemle durulan konulardan birisidir. “Afetlerden Kaynaklanan Kayıpların Azaltılması On Yılı” olarak belirlenen 1990'ların başından bu yana, bu alana olan ilgi giderek artmaktadır. Son dönemde özellikle müze koleksiyonları gibi taşınabilir kültür varlıklarıyla ilgili, risk değerlendirmesi, acil durum müdahaleleri ve etkili kurtarma yöntemleri konularına değinen yayınlara ağırlık verilmektedir. Bu konuda yapılan çalışmaların büyük çoğunluğu kültürel mirasla ilgili belli başlı afet yönetimi faktörlerine odaklanırken, kültürel kurumlarca benimsenmesi gerekli temel kurumsal bileşenlere bütüncül olarak değinen çalışmaların mevcut literatürde az olduğu görülmüştür. Bu boşluğu gidermek için tezde, “Kültürel Mirasın Afet Yönetimi için Kurumsal Çerçeve Önerisi” başlıklı bir model önerilmektedir. Bu model, kültürel kurumlar için afet yönetimine kapsamlı bir yaklaşım sağlamayı amaçlamaktadır. Model, kapsamlı bir literatür taraması, yerleşik benimsenmiş uygulamaların, üretilmiş metodolojilerin, modellerin ve alanda görev yapan uluslararası kültürel kurumların araştırılmasını yanı sıra, çeşitli bağlamlarda uygulanmakta olan afet yönetim sistemlerinin değerlendirilmesini de içeren titiz bir çalışma metoduyla geliştirilmiştir. Çalışmada ayrıca, konuyla ilgili literatürde tekrar eden kilit konu ve kavramlar analiz

ederek kurumsal afet ynetiminin kritik bileenleri, alt bileenleri ve bileenlerin birbirleriyle olan ilikileri tanımlanmıtır. nerilen kurumsal ereve, Trkiye'deki nemli kltrel kurumlardan birisi olan Vakıflar Genel Mdrlg zerinde test edilmitir. Sonular ve deęerlendirmeler, Vakıflar Genel Mdrlg'nn gl finansal yapı ve personel aısından yeterli kaynaęa sahip olmasına raęmen, kltrel mirasın acil durum ynetimi konusundaki farkındalıęının dk kaldıęını, kurumlararası ibirlięinin alıtırılmadıęını ve afet sonrası kltrel miras kurtarma operasyonlarına ynelik standart protokollerin bulunmaęını ortaya koymutur. Alınan mevcut nlemler, ciddi kltrel miras kaybına neden olabilecek byk bir acil durumla baa ıkmakta yeterli bulunmamı olup, tez kapsamında geliime aık ynlere ilikin somut neriler gelitirilmitir.

Anahtar Kelimeler: Kltrel miras, kurumsal afet ynetimi, kltrel kurumlar, kapasite gelitirme

To my father and my mother...

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ABBREVIATIONS

<i>AFAD</i>	<i>Afet ve Acil Durum Başkanlığı</i> (Disasters and Emergency Management Presidency)
DGF	(Directorate-General of Foundations (<i>Vakıflar Genel Müdürlüğü</i>))
DRM	Disaster Risk Management
<i>EVOS</i>	<i>Entegre Vakıf Otomasyon Sistemi</i> (Integrated Automation System for Foundations Software)
HFA	Hyogo Framework for Action
ICBS	International Committee of the Blue Shield
ICA	International Council on Archives
ICCROM	International Centre for the Study of the Preservation and Restoration of Cultural Property
ICOM	International Council on Museums
ICOMOS	International Council on Monuments and Sites
IFLA	The International Federation of Library Associations and Institutions
INSARAG	The International Search and Rescue Advisory Group
<i>İRAP</i>	<i>İl Risk Azaltma Planı</i> (Provincial Disaster Risk Mitigation Plan)
MoCT	Ministry of Culture and Tourism
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
SOPs	Standard Operating Procedures
<i>TAMP</i>	<i>Türkiye Afet Müdahale Planı</i> (Türkiye Disaster Response Plan)

<i>TARAP</i>	<i>Türkiye Afet Risk Azaltma Planı</i> (Türkiye Disaster Risk Mitigation Plan)
<i>TASİP</i>	<i>Türkiye Afet Sonrası İyileştirme Planı</i> (Türkiye Post-Disaster Recovery Plan)
<i>TASİP-UP</i>	<i>Türkiye Afet Sonrası İyileştirme Uygulama Planı</i> (The <i>TASİP</i> Implementation Plan)
<i>TAYS</i>	<i>Türkiye Afet Yönetim Stratejisi</i> (Türkiye Disaster Management Strategy)
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNDRR	United Nations Office for Disaster Risk Reduction
UNISDR	United Nations International Strategy for Disaster Reduction

CHAPTER I

INTRODUCTION

Disasters, whether natural (e.g., floods, earthquakes, landslides, fires) or man-made, have detrimental effects in various regions worldwide. These events impact all living beings, assets, and the environment, as well as cultural heritage objects and sites being particularly susceptible due to their irreplaceable nature. The threats to cultural heritage properties stem from the passage of time, human interventions, and the destructive forces of disasters. They can cause varying degrees of damage and, in some cases, even the complete destruction of cultural heritage. Additionally, not only physical properties but also important collections, documents, visitors, staff, and local communities in historical sites and neighboring areas have been affected by disasters (UNESCO World Heritage Committee, 2007).

Cultural heritage assets and resources hold immense value for societies. This value extends beyond the cultural dimension to encompass environmental, social, and economic dimensions (Avrami E. M., 2000). Throughout history, specific disasters have imprinted an enduring impact on cultural heritage, shaping both cultural history and the collective memory of societies.

Studies indicate that the **trauma** experienced by society after a disaster is mitigated when individuals unite around **shared values**. Cultural heritage is one of the most significant shared values. Cultural heritage should not only be seen as physical structures requiring protection within effective integration models but also as a vital component of sustainable and practical disaster reduction policies that benefit communities worldwide (ICOMOS, 2008). Therefore, safeguarding them from ongoing pressures posed by natural hazards and the impacts of global changes is of utmost significance (European Commission, 2018; Taboroff, 2000).

Prominent examples include the catastrophic earthquakes in Turkey in 2023, the fire at Notre Dame Cathedral in 2019, the earthquake in Myanmar in 2016, the damage to several historic buildings in Turkey in 2016, the earthquake in Nepal in 2015, and the destruction of cultural heritage due to terrorist attacks in Iraq in 2015. The most striking disaster lately occurred in 2023 in *Kahramanmaraş* province Türkiye. A series of earthquakes hit Türkiye in February 2023. Even for an earthquake-prone region, the disaster was unprecedented in its scope and the magnitude of the destruction it caused¹. As a result of these disasters, numerous cultural heritage properties suffered damage² (Figure 1).



Figure 1. *Habib-i Neccar* Mosque in *Hatay* Before and After the 2023 Earthquakes in Türkiye.

The 2023 earthquakes in Türkiye severely damaged several cultural heritage properties, particularly foundation-based mosques and other monumental buildings. Some of the buildings that suffered major destruction include the *Adıyaman* Grand Mosque, *Malatya* New Mosque, *Hatay Habibi Neccar* Mosque, and *Gaziantep Nurdağı Ökkeşiye* Mosque and Shrine. Many historical mosques in *Adıyaman*, *Hatay*, *Kahramanmaraş*, *Gaziantep*, and *Malatya* were either completely destroyed or suffered severe to moderate damage, rendering them unfit for use without extensive repair and restoration. The repair and restoration efforts for these cultural heritage sites, estimated initially at 8.2 billion TRY, would require significant financial

¹ The Number of fatalities to date is 48.448. Besides, 3.3 million people have been displaced, and almost two million people are being sheltered in tent camps and container settlements. It is estimated that the damage to the cultural assets and museums under the responsibility of the Ministry of Culture and Tourism (MoCT) amounts to approximately 30 million USD (Strategy and Budget Office of Turkish Presidency, 2023).

² For a list of disasters affected cultural heritage around the world see: Appendix A

resources and expertise to preserve the country's cultural heritage (Strategy and Budget Office of Turkish Presidency, 2023).

Preventing the destruction of cultural heritage due to disasters is a challenging task. However, concerted efforts in risk mitigation and prevention can significantly reduce potential losses. As Feilden and Jokilehto emphasized, prevention is the highest form of conservation. If causes of decay can be removed, or at least reduced, something worthwhile has been achieved (Feilden & Jokilehto, 1998).

Recent catastrophic events have shown that fully preventing or accurately predicting certain disasters often exceeds the capabilities of many countries. These incidents underscore the urgent need to protect cultural heritage during major emergencies. **Consequently, it became clear that cultural properties are vulnerable to a wide range of hazards, both natural and man-made, which threaten their integrity and the conservation of their values.** Therefore, a comprehensive understanding of risk probabilities is essential for developing effective disaster management strategies that are tailored to specific scenarios.

While disaster management and cultural heritage conservation were once treated as separate domains, the impact of disasters on cultural heritage began to be strongly examined, especially after World War II in scientific circles. Over the last 60 years, extensive research has been conducted on mitigating disaster impacts on cultural heritage, encompassing risk reduction, disaster response, and post-disaster recovery efforts (UNESCO, World Heritage Center, 2008).

The recognition of the various risks faced by cultural heritage only emerged in the early 1960s, following the conclusion of the Second World War. The devastating consequences of the Second World War catalyzed international efforts to safeguard cultural heritage against threats. The 'Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict Protocol' in 1954 is considered a pivotal moment for the efforts to protect cultural heritage during times of armed conflicts (UNESCO, 1954; UNESCO, 2016)³. **Subsequently, international conferences on cultural heritage disaster management were convened. These gatherings led to**

³ <https://en.unesco.org/protecting-heritage/convention-and-protocols/1954-convention>

the development of innovative concepts, processes, and models and the adoption of novel approaches to address the challenges faced by cultural heritage.

The recognition that **cultural heritage is exposed to various risks** was first articulated in the 1972 World Heritage Convention, which marked the beginning of discussions on the threats faced by cultural heritage. Subsequent scientific gatherings contributed to the conceptual development of cultural heritage conservation, introducing concepts such as hazard, vulnerability, exposure, and capacity building, which began to be used alongside the concept of risk to define the elements of risk faced by cultural heritage. In addition to managing risks, additional concepts, such as preparedness, mitigation, and prevention of risks, have been incorporated into the risk management framework.

Following recognizing the existence of risks, the concept of **risk management** was developed, which was later specialized in the context of disaster risk, becoming known as **disaster risk management**. The concept of risk management has led to a more institutionalized approach, giving rise to concepts such as policy-making, administration, technical implementation, and cooperation and coordination between respective authorities. Moreover, disaster management models have introduced hierarchical levels of governance, including international, national, regional, and local. Additionally, distinct phases of disaster management—pre-disaster, during disaster, and post-disaster—have been defined, each with specific implementation steps and corresponding concepts.

Within the institutional approach, capacity-building measures, such as education and training, allocation of financial resources, insurance, and adequate equipment and supplies, have been focused on as essential components for effective disaster management of cultural heritage.

Building upon the conceptual disaster management of cultural heritage framework, detailed **procedures** have been defined for each phase, and various **disaster management cycles** have been developed to facilitate planning, coordination, and implementation.

Various **global institutions and organizations** have been vital in safeguarding cultural heritage in the face of disasters. These institutions contribute to the field by undertaking initiatives to address threats and risks to cultural heritage from disasters and by adopting and implementing relevant resolutions, decisions, charters, and recommendations (Appendix B⁴, Appendix C⁵).

Some key **organizations** have specifically been established to specialize in this field like INSARAG, ICORP, and ICBS. INSARAG focuses on search and rescue; ICOMOS-ICORP emphasizes preparedness and risk reduction; and the ICBS, specializing in protection from both natural and man-made threats, brings together expertise and resources to address various aspects of cultural heritage conservation in times of crisis.

In addition, intergovernmental institutions like ICCROM and international non-governmental organizations such as ICOMOS, ICOM, ICA, and IFLA have also made significant efforts and contributions in this area. ICCROM and ICOM offer training programs specifically designed for disaster risk reduction in cultural heritage contexts. The network of dedicated institutions fosters international collaboration, knowledge sharing, and the development of best practices for mitigating disaster impacts on cultural heritage. Their combined efforts ensure a more comprehensive and coordinated approach to protecting cultural heritage against disaster risks.

Due to differing levels of risk, exposure, disaster coping capacity, and approaches to disaster management, **universally accepted strategies** for safeguarding cultural heritage have evolved over time. This has led to the development of various models, ranging from centralized to decentralized approaches. Similarly, Turkey's approach to cultural heritage disaster management has evolved in response to the losses suffered in the past due to disastrous events.

⁴ Appendix B - Relevant Charters and Recommendations Regarding Disaster Management of Cultural Heritage

⁵ Appendix C - Decisions Adopted by The World Heritage Committee Relevant to Risks and Disasters

1.1. Definition of the Problem

Throughout history, the region of Türkiye has been a cradle for many civilizations, reflecting a rich cultural heritage defined by a diverse and abundant array of assets. According to the Directorate General of Cultural Assets and Museums, Türkiye is home to **113,137 registered immovable cultural heritage** properties (Table 1)⁶.

Table 1. Total Number of Immovable Cultural Heritage in Türkiye⁷

REGISTERED IMMOVABLE CULTURAL HERITAGE IN TÜRKİYE	NUMBER OF ASSETS
Civil Architectural Property	71.414
Religious Buildings	10.489
Cultural Buildings	13.162
Administrative Buildings	3.102
Military Buildings	1.339
Industrial and Commercial Buildings	4.425
Cemeteries	5.504
Martyrdoms	314
Monuments	388
Ruins	2.929
Streets Reserved for Conservation	71
Total	113.137

⁶ <https://kvmgm.ktb.gov.tr/TR-44798/turkiye-geneli-korunmasi-gerekli-tasinmaz-kultur-varlig-.html> - last seen December 05th, 2020.

⁷ <https://kvmgm.ktb.gov.tr/TR-44798/turkiye-geneli-korunmasi-gerekli-tasinmaz-kultur-varlig-.html> - last seen December 05th, 2020.

A significant part of Türkiye's rich cultural heritage is derived from **foundation-based cultural heritage**. According to the digital database of the Directorate General of Foundations (DGF), there are 9,279⁸ immovable cultural properties classified as foundation cultural heritage. This category includes khans, madrasas, historic baths, fountains, infant schools, mosques, churches, tombs, synagogues, and cemeteries. These properties constitute nearly 15% of the immovable heritage assets and represent 80% of all monumental cultural properties Türkiye⁹.

In addition, the Agency has official archives, which are the registration documents of the pre-republican (mostly Ottoman) period foundations. More than 12 million official documents are preserved in the archives of the Directorate General (Figure 2).

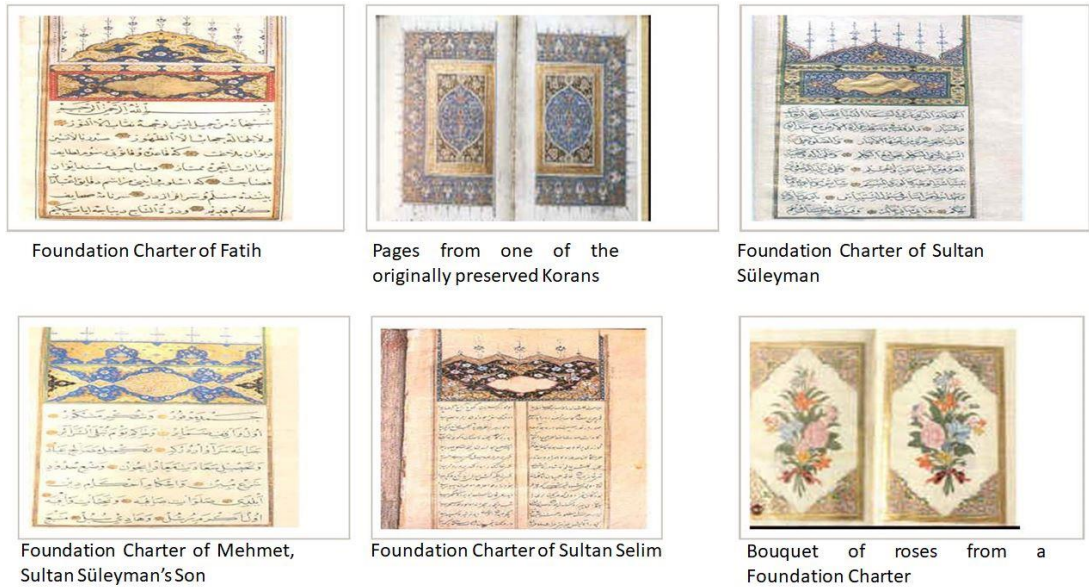


Figure 2. Illustrative Cases of Foundation Charters from the Agency Archives

Given the significance of foundations in Türkiye's cultural landscape, it is essential to explore the concept of foundations, the formation of foundation-based cultural properties, and the responsibilities of the General Directorate of Foundations in preserving this unique heritage.

⁸ https://evos.vgm.gov.tr/GUI/Report/Report.aspx?Anahtar=VBS_TasinmazListesiEskiEser - Last visit, 04.04.2021.

⁹ This information is derived from EVOS – Integrated Foundation Otomated System [*Entegre Vakıf Otomasyon Sistemi*] managed by Information Infrastructure of General Directorate of Foundations: https://evos.vgm.gov.tr/GUI/Report/Report.aspx?Anahtar=VBS_TasinmazListesiEskiEser - Last visit, 04.04.2021

Turkish-Islamic culture and civilization have long been characterized by a strong tradition of charity and philanthropy, exemplified by **the institution of foundations**. Originating in the Seljuk period as a means of collective action and solidarity, foundations evolved into a deeply rooted economic and social structure during the Ottoman Empire, supported by a robust legal framework in Anatolia (Öztürk, 1995). In this respect, a **pious foundation** can be defined as the perpetual allocation of property by its owner for religious, social, and charitable purposes (Günay, 2012).

Foundations in the Ottoman Empire managed many of the essential public services provided by the modern state today. Therefore, pious foundations were crucial in offering various public services, encompassing city infrastructure, economic activities, healthcare, education, environmental initiatives, and cultural activities. Services like religious practices, city water supply, bridges, cemeteries, roads, healthcare, education, and social welfare, which various public administrations now oversee, have been the longstanding domain of foundations¹⁰ (Çuhadaroğlu, 1985; Yediyıldız, 1982).

A significant portion of the public infrastructures, such as mosques, madrasahs, hospitals, inns, baths, bridges, and fountains, encountered and utilized by the Ottoman population in their daily lives, were initially constructed as "*hayrat*" (**charities**) by sultans, administrative groups, and their respective families. To guarantee the sustainability of the services offered by these public buildings, additional properties, such as caravanserais, *bedestens*, shops, vineyards, and gardens, were endowed as *akars*. This strategic approach ensured the **endurance of services** by foundations to society for centuries (Kunter, 1962) (Figure 3).

¹⁰ For detailed information about foundations, see Appendix D – Foundations and Cultural Heritage.

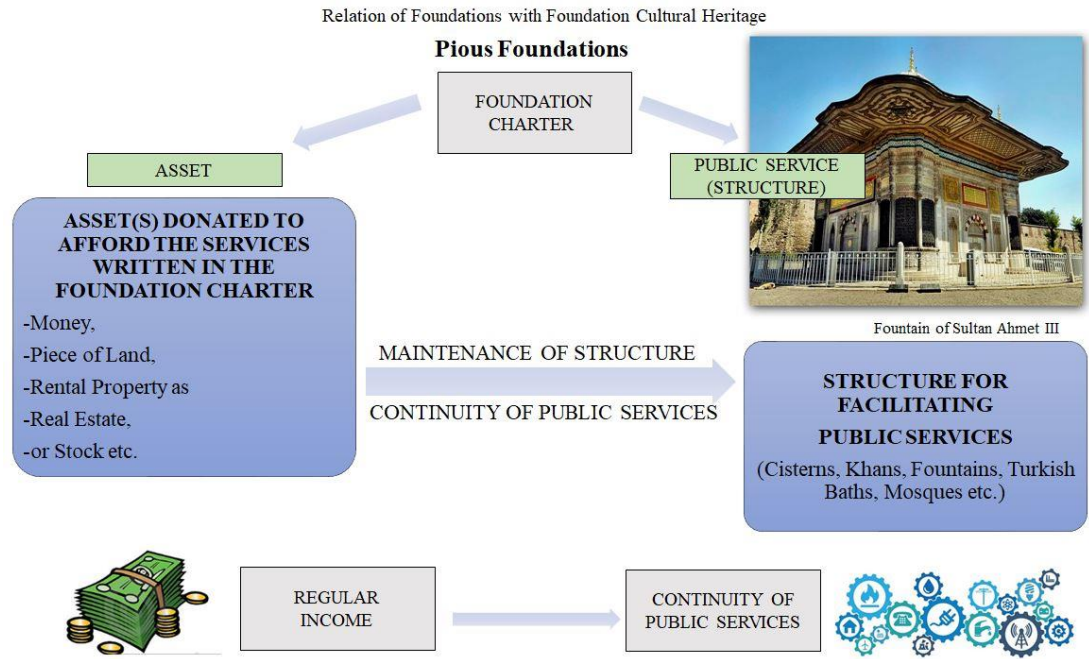


Figure 3. Process Flow of a Pious Foundation

The administration and conservation of foundation cultural heritage in Türkiye are entrusted to **the Directorate General of Foundations (DGF)**, which operates by the conditions specified in the foundation charters. The Directorate-General of Foundations is uniquely empowered to act on behalf of 41,720¹¹ fused foundations, most of which were established before the enactment of the Turkish Civil Code in 1926¹². The institution maintains financial autonomy through income derived from rentals and subsidiaries. As a result, the Directorate-General plays a pivotal role in **protecting, maintaining, and restoring foundation cultural properties.**

Despite having diverse cultural heritage properties belonging to various past civilizations, Türkiye's tectonic and geological structure, topography, climatic characteristics, and delicate multi-ethnic composition **render it vulnerable to a range of disasters**, including floods, droughts, landslides, and earthquakes, as well as

¹¹ www.vgm.gov.tr

¹² “Foundations to be administered and represented by Directorate General of Foundations as per Foundations Laws no 5737 and foundations which are established before effective date of abolished Turkish Civil Code numbered 743 and which are administered by Directorate General of Foundations as per Foundations Laws numbered 2762 are called as "Fused Foundation". - <https://www.vgm.gov.tr/foundations-in-Türkiye/foundations-in-Türkiye/mazbut-fused-foundations> - Last visit, November 18th 2021.

human-induced hazards. The impact of these hazards can be potentially devastating, extending beyond cultural heritage to affect various industries operating within the region (Yılmaz, 2003).

On the other hand, historical sites outside residential areas face additional risks of abandonment, human-induced destruction, and natural disasters. Therefore, the predominant causes of the loss of cultural heritage are attributed to earthquakes, flash floods, fires, and human-induced destructions. The failure to effectively manage both natural and human-induced risks can result in the loss of valuable architectural elements, ornamentation, and the structural integrity of buildings (Figure 4) (Jigyasu R. , 2015). And **foundation cultural heritage**, existing especially in historical city centers of the country, is **highly vulnerable to various disasters**.



Figure 4. *Kurşunlu Mosque in Diyarbakır* After the 2016 Armed Conflict Between Turkish Security Forces and Kurdish Militants¹³

¹³ <https://www.gazeteduvar.com.tr/turkiye/2016/05/31/kursunlu-camiinde-hasar-buyuk>, Last visit: 04.12.2024

In Türkiye, the conservation of cultural heritage adhere to scientific restoration principles. Recently, there has been a heightened focus on conserving immovable cultural assets, particularly within historic city centers. As a result, institutions maintain comprehensive surveys and restoration projects, along with photographs and reports about historic structures in their archives.

Additionally, in order to bolster disaster risk management, Türkiye has developed various strategy and legal documents, including the National Action Program on Combating Desertification (2006), The National Disaster Strategy and Action Plan (2012-2023), Disasters and Emergency Management Strategic Plan (2013-2017), National Climate Change Adaptation Strategy and Action Plan (2011-2023), Türkiye Disaster Risk Response Plan (*TAMP*) (2022), and Twelfth Development Plan (2024-2028).

The Twelfth Development Plan, spanning the years 2024 to 2028, emphasizes safeguarding cultural heritage to enhance social, cultural, historical, and aesthetic awareness, promote cultural tourism, and address disaster risks (TBMM, 2013). The National Disaster Strategy and Action Plan (2012-2023) focuses on safeguarding historical buildings from earthquake risks, leading to establishing the "Conservation of Historical and Cultural Heritage" initiative. The initiative, featuring representatives from various institutions, outlines strategies such as conducting inventories, structural assessments, strengthening methods, and vulnerability reduction of artefacts (National Earthquake Strategy and Action Plan: 2012-2023, 2012). On the other hand, the Strategic Plan of the General Directorate of Foundations (DGF), which outlines the period from 2024 to 2028, designates the conservation of foundation cultural properties in general.

These documents emphasize crucial aspects such as heritage conservation, the creation of disaster-resilient communities and cities, disaster risk reduction, inter-institutional collaboration, and urban planning considerations related to disaster risks. The above-mentioned papers act as policy documents outlining these principles. However, it has been observed that **Turkish institutions lack comprehensive legislation, programs, plans, and procedures** to address the challenges associated with managing disaster risks to cultural heritage. National and local disaster risk plans and legislation **do not**

include detailed regulations regarding the documentation, rescue, and relocation of immovable cultural heritage by the institutions responsible for its conservation. The absence of such specific regulations within the disaster management framework poses a significant risk of losing historical and cultural heritage due to inadequate preparedness and response strategies (Ünal & Behar, 2012).

The aftermath of the 2023 Türkiye earthquakes has exposed considerable gaps in disaster resilience measures for heritage buildings, highlighting the urgent **need for more effective strategies** to protect these structures from future events. Substantial losses have been incurred across various cultural assets in the provinces of *Hatay*, *Malatya*, *Adiyaman*, *Kahramanmaraş*, *Gaziantep*, and *Şanlıurfa*, which were particularly affected by the 2023 Türkiye earthquakes. This situation **reveals significant challenges faced by the institutions** responsible for designing, approving, and overseeing restoration practices in cultural heritage conservation.

A coordinated and systematic approach is essential for effectively protecting and rescuing cultural assets. Thus, **it is crucial to advocate for a comprehensive model that embodies institutional strategies for safeguarding cultural heritage against major events**. Establishing comprehensive disaster management frameworks and procedures within cultural institutions in Türkiye can enhance preparedness and response efforts, ultimately contributing to the conservation of invaluable cultural heritage. In this respect, the literature has been reviewed **to identify publications that present comprehensive approaches** to cultural heritage disaster management.

One of the leading organizations in the cultural heritage field, ICOM has published many publications related to cultural heritage institutions. However, many of these publications have primarily focused on specific areas, such as museum security and collection protection.

The book "Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions," authored by the Getty Conservation Institute in 1999, provides comprehensive insights into the management of cultural institutions. It offers detailed information concerning the roles and responsibilities of personnel and units involved in handling emergencies and disasters and practical guidance on developing

emergency plans and protocols. The publication emphasizes the understanding and development of organizational features within cultural institutions (Dorge V. J., 1999; Decker & Townes, 2015).

Several academic papers and published guidelines focus on the significance of learning from past experiences and establishing pre-disaster, disaster, and post-disaster measures, encompassing both short-term and long-term periods, as vital components of effective Disaster Management (ICOMOS, 2008; Stovel, 1998).

The project/program planning guidelines of global rescue agencies highlight the importance of institutional rescue capacity, stakeholder analysis, SWOT analysis of communities, and capacity building strategies as key aspects (International Federation of Red Cross and Red Crescent Societies, 2010).

Comprehensive guidelines for managing risks to cultural heritage have been established. These guidelines encompass the identification and assessment of risks, research into methods for risk reduction, and the evaluation of risk and risk reduction strategies through cost-benefit analysis. They also include the implementation of both preventive and active strategies, while outlining various implementation methods and concepts related to risk management and disaster risk management (ICCROM, 2010; Paolini, 2012).

Several sources have explored the creation of a disaster management framework, which entails defining the scope, objectives, and criteria, as well as collecting and analyzing pertinent information within the organization. Additionally, they have analyzed the concepts of risk definition, risk analysis, risk assessment, and risk treatment for institutions in depth (CCI, ICCROM, 2016).

While some sources had content related to cultural institutions' organizational and managerial aspects, there was a lack of comprehensive perspective in the field of Disaster Management for cultural heritage. Specifically, topics such as Disaster Risk Management, damage assessment, recording or information management, and recovery or post-disaster needs assessment were addressed as individual areas rather than handled holistically (The European Commission, The United Nations Development Group, The World Bank, 2013).

Some sources have **examined the impact of legislation**, regulations, and administrative systems on risk management implementations in a country, shedding light on the interplay between legal frameworks and effective risk mitigation strategies (Uluç & Şenol Balaban, 2017).

Practical **methods and tools** were proposed in some sources. ICCROM has created the “Cultural Heritage First Aid Framework,” offering a structured approach for assessing damage and risks, ensuring safety, stabilization, and rescue of cultural heritage sites after an event. This manual and tool kit offers information addressing a previously identified gap in the field (ICCROM, 2018; ICCROM, 2018).

Some sources have identified that a key ongoing challenge lies in the **administrative obstacles** that restrict **effective coordination among authorities responsible for cultural heritage and emergency response** at national, provincial, and municipal levels (ICOMOS Canada, 1996).

According to Taylan, political commitment and institutional development were deemed crucial in achieving effective Disaster Risk Reduction (DRR) implementations and outcomes (Taylan, 2011). According to Amaratunga, the key challenge identified was the practical implementation of policy commitments at regional and national levels. Furthermore, it was emphasized that integrating global agreements and nurturing synergies between policies, programs, and institutions are essential for aligning actions and attaining the goals outlined in these agreements (Amaratunga, 2017).

In conclusion, while substantial research has addressed institutional challenges in disaster response, particularly related to risk management and safeguarding museum artifacts, **there is a notable lack of focus on organizational modeling and comprehensive managerial frameworks**. This gap highlights a crucial opportunity for further exploration into developing a comprehensive disaster management framework that enables institutions to effectively address major events and enhance their capacity to mitigate potential losses.

1.2. Aim and Scope

Initially, the main research topics were identified in the study context before exploring the research questions. **The first topic** focuses on the **organizational and administrative aspects** of disaster management for cultural heritage, as highlighted in the literature. This leads to three sub-topics: The general organizational and administrative characteristics of cultural agencies involved in disaster response, as outlined in international documents, meeting proceedings, and published manuals; the models, frameworks, cycles, and schemes developed by cultural institutions to ensure effective disaster management; and the principles adopted by international cultural institutions for the disaster management of cultural heritage. **The second topic** takes a more **practical and legislative perspective**, examining the systems and models that prioritize heritage properties in the face of disasters worldwide. Its sub-topics include: global administrative approaches to address the issue of cultural heritage in disaster situations; Türkiye's approach to safeguarding cultural heritage against disasters; and the global and local challenges faced by institutions and the achievements made in the disaster management of cultural heritage.

This preliminary research has led to a **central research question** concerning structural organization: "What type of **institutional structuring** would be most effective in safeguarding endangered cultural heritage in disaster scenarios?" To further explore this inquiry, four sub-questions have been developed: "What institutional and administrative **levels** should a cultural agency possess for the protection of cultural heritage against disasters?", "How should administrative and managerial **components** be structured to effectively safeguard cultural heritage during disasters?", "What is the current institutional **capacity of the Directorate General of Foundations?**" and lastly, "How can the institutional structure and capacity of a cultural agency **be assessed to define its future strategies** and actions regarding disaster risk management?" The key question and its subcategories have been instrumental in defining the study's objectives and scope (Figure 5).

	MAIN QUESTION	SUB-QUESTIONS
1	What type of institutional structuring would be most effective in safeguarding endangered cultural heritage during disaster scenarios?	<p>How should administrative and managerial components be structured to effectively safeguard cultural heritage during disasters?</p> <p>What is the current institutional capacity of the Directorate General of Foundations (DGF)?</p> <p>What institutional and administrative levels should a cultural agency demonstrate for the protection of cultural heritage against disasters?</p> <p>“How can the institutional structure and capacity of a cultural agency be assessed to define its future strategies and actions regarding disaster risk management?”</p>

Figure 5. Research Questions Asked Within the Study Context

The areas of 'Disaster and Emergency Interventions' and 'Conservation and Rescue of Cultural Heritage' have always been the domain of **two separate areas of expertise**. Disaster management predominantly revolves around the topics of ‘search and rescue’ and ‘civil defense’; however, the active involvement of cultural institutions is essential in addressing the conservation and management of cultural heritage during disasters.

Accordingly, **this thesis aims to develop a comprehensive institutional framework model** that addresses disaster preparedness, response, and post-disaster recovery for endangered cultural heritage properties. It seeks to integrate perspectives on disaster and emergency interventions along with the conservation of cultural heritage from an institutional standpoint. **The research seeks to address existing gaps in knowledge by examining the relationship between disaster management practices and the conservation of cultural heritage. The goal is to improve the understanding and implementation of disaster management strategies that are specifically tailored to meet the unique needs of cultural institutions.**

The proposed framework model is enhanced and implemented on a specific cultural institution in Türkiye, namely the Directorate General of Foundations (DGF). However, the model can be tailored to various cultural institutions, and the findings of this study can contribute to the development of best practices, guidelines, and policies in the field of cultural heritage disaster management. This could ultimately enhance the resilience and protection of cultural heritage.

The thesis may significantly enhance the existing knowledge by clearly defining the components necessary for cultural institutions in the disaster management of cultural heritage and offering a thorough assessment method. By exploring the pre-disaster, disaster, and post-disaster periods, this study seeks to provide insights into effective strategies for safeguarding cultural heritage in times of crisis.

In order to achieve the abovementioned aim, **three specific objectives** are defined:

The first objective is **to examine the relationship** and interconnections between civil defense practices and the conservation of cultural heritage. This involves a thorough exploration of existing global systems, frameworks, models, diagrams, and schemes to identify achievements through different implementations within the field. The second objective is **to identify the organizational and institutional components** necessary for cultural institutions to manage disaster risks to cultural heritage effectively. This includes a comprehensive analysis of relevant literature and knowledge domains related to disaster management protocols tailored specifically for cultural assets. The third objective is **to evaluate the current institutional capacity** of the DGF regarding disaster management activities related to foundation cultural heritage. Additionally, this objective encompasses an assessment of the existing disaster management strategies employed in Türkiye, aiming to highlight areas for potential improvement and enhancement (Figure 6).

AIM OF THE THESIS	OBJECTIVES
<p>To define an institutional framework model encompassing disaster preparedness, response, and post-disaster recovery phases specifically designed for endangered cultural heritage properties.</p>	<p>1- To examine the relationship and interconnection between civil defense practices and cultural heritage preservation, along with developed systems, frameworks, models, diagrams and schemes</p> <p>2- To identify the organizational and institutional components necessary for cultural institutions in managing disaster risks to cultural heritage effectively.</p> <p>3- To assess the current institutional capacity of the Directorate General of Foundations (VGM) concerning disaster management of foundation cultural heritage, while also evaluating the existing disaster management of cultural heritage approach employed in Türkiye.</p>

Figure 6. Aim and Objectives of the Study

The assessments in this study are primarily based on the DGF, which represents and manages the majority of monumental cultural assets in Türkiye. Additionally, to assess the institutional capacity of the DGF, the concept of foundation, the establishment of foundation-based cultural heritage, and the general conservation approach for foundation cultural heritage are also considered.

However, the study has some specific delimitations to focus its research efforts and ensure a comprehensive investigation. The research does not cover an exhaustive analysis of the necessities of the national rescue capacity; instead, it highlights key aspects relevant to enhancing preparedness and response capabilities. In addition, while acknowledging the importance of retrofitting and monitoring monumental cultural heritage, this study does not aim to develop a detailed proposal for each site. Instead, it provides general institutional recommendations. Lastly, factors that increase the vulnerability of historical structures to disasters, such as neglect, lack of awareness, and incorrect restoration practices, have not been thoroughly examined in the thesis.

By setting these delimitations, the study aims to provide valuable insights within the defined scope and contribute to the existing knowledge in disaster management for cultural heritage.

1.3. Methodology of the Thesis

The thesis adopts a multifaceted methodological approach, drawing from **three primary knowledge domains: theoretical exploration, empirical investigation, and personal experience**. First, the study establishes a theoretical and conceptual framework by situating it within a broader international context. Second, a case study is conducted to assess the applicability and relevance of this framework in a specific setting. Finally, the author's personal experience of the 2023 earthquake, as the Regional Director of the DGF in Hatay before and during this disaster, is integrated to offer a nuanced and in-depth understanding of the subject matter (Figure 7).

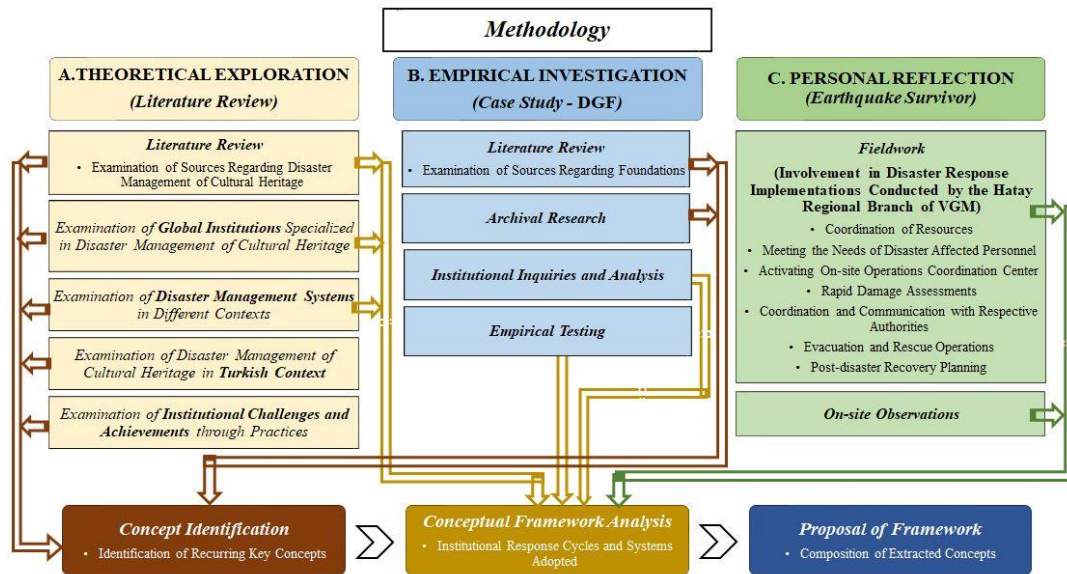


Figure 7. Methodology Adopted in the Thesis

The theoretical framework, constituting the initial phase of this research, was established through a systematic sequence of methodological steps. A comprehensive **literature review** examined how the topic is addressed and has evolved within the international academic discourse. Published sources in the field have been examined, focusing on the conceptual frameworks developed for disaster management and the schematic representations of defined processes and timelines. Specialized cultural institutions and their roles in disaster response have been investigated, including their capacity-building components and activities before and after disasters. The operational models employed in cultural heritage rescue operations have been explored. The research also explored the impacts of international disasters on cultural heritage, identifying institutional challenges and achievements. Furthermore, the evolution of cultural heritage disaster management in Türkiye was examined, focusing on the roles and functions of relevant institutions. This systematic review provided the **conceptual foundation** for the study.

Research has been done by scanning resources such as published papers, UN decisions, international charters, conference proceedings, international reports, institution organization charts, flowcharts, and other legislative documents, including laws and regulations.

The **empirical investigation**, as the second domain of knowledge, was conducted through a systematic sequence of methodological steps. To evaluate the proposed management framework for cultural heritage disaster management from an institutional perspective, it was considered essential to test it through a case study. The General Directorate of Foundations, a Turkish public institution responsible for preserving numerous monumental cultural assets, was selected as the **case study**. The research involved a comprehensive literature review to explore the concept of foundations, the formation of foundation-based cultural properties, and historical cases of disasters affecting these properties. This involved thoroughly examining various documents such as flowcharts, laws, legal documents, and publications related to the conservation of foundation cultural heritage. Additionally, **archival research** within the DGF was conducted to collect information from the Agency. The institution's administrative and organizational structure, financial situation, and technical capacity have been gathered and examined through **institutional inquiries and analyses**. This encompassed the number of technical personnel available, the types of units dedicated to handling major emergencies, and the financial aspects, including allocations and funding for disaster management mandates. To facilitate the evaluation of the proposed system, a **set of standards** was developed and operationalized through a standardized scaling process. This enabled a **systematic assessment** of the extent to which the DGF aligned with the recommended practices, thereby providing a test of the framework.

This research, grounded in the third domain of knowledge—**personal reflection**—was conducted through a systematic methodological approach. As a doctoral candidate studying disaster management of cultural heritage, the author held the Regional Director position at the *Hatay* Regional Directorate of the Directorate General of Foundations during the 2023 Türkiye earthquakes. This unique perspective provided **firsthand experience** of a major disaster and **direct involvement** in the immediate disaster response, including rapid damage assessments, cost estimations, and post-disaster recovery planning. The literature was reviewed to supplement this experiential knowledge by examining existing research, reports, and publications related to the 2023 Türkiye earthquakes.

In collaboration with the General Directorate, the author undertook a series of **fieldwork studies** in *Hatay* and *Osmaniye* provinces. These studies involved conducting rapid damage assessments of affected foundation cultural heritage assets. Moreover, administrative and technical response measures implemented in the aftermath of the disaster have been evaluated through **on-site observations** and comparative analyses with similar studies. While emotionally challenging, this personal experience offers a rich dataset and enhances the credibility and practical applicability of the findings.

This study employs a conceptual framework grounded in an extensive analysis of terminology and concepts relevant to **Institutional Disaster Management of Cultural Heritage**. The development of this framework involved a thorough review of existing literature, encompassing a wide range of sources, including academic papers, books, periodicals, book chapters, conference proceedings, symposium papers, study reports, legislative documents, flowcharts, and the organizational structures of relevant agencies.

The literature review facilitated the **identification and consolidation of key components**, defined as essential terms and concepts critical to this field. These components form the foundation for the conceptual framework that supports the methodological approach of this research. The synthesis of these core terms and concepts highlights the institutional dimension of disaster management within the context of cultural heritage, further elaborated in Appendix E – Concept Identification Based on Sources.

By systematically analyzing the literature on the institutional dimensions of cultural heritage disaster management, this study identified **recurring key concepts and issues** and **established a common conceptual foundation**. Additionally, the research integrates a conceptual framework derived from various models, operational flowcharts, defined procedures, existing plans and programs, and practical guidelines about the institutional aspects of the subject.

Building upon this conceptual groundwork, **the thesis proposes an institutional approach to disaster management** specifically tailored for cultural heritage. This framework is designed to be adaptable for use by diverse cultural institutions, thereby enhancing its practical relevance.

1.4. Structure of the Thesis

The thesis is composed of several sections, starting with an introductory chapter, followed by four body chapters, and concluding with a final chapter. Each chapter plays a crucial role in the overall research, contributing to a comprehensive exploration and analysis of the subject of Disaster Management of Foundation Cultural Heritage.

The Introduction chapter is organized into four key sections: Definition of the Problem, Aim and Scope of the Thesis, Methodology, and Structure of the Thesis. Within the Introduction, the thesis addresses the critical issue of safeguarding cultural heritage against disasters, providing an overview of the underlying concerns, theoretical background, conceptual overview, and a brief exploration of Türkiye's pious foundations. The culture of pious foundations and their connection to the foundation-based cultural heritage is outlined, with a particular focus on the state agency, the Republic of Türkiye Directorate General of Foundations (DGF), selected as the case study of the thesis. Additionally, the Aim and Scope of the Thesis section articulates the primary objectives and goals, aligning them with the pre-established research questions. The Methodology section details the research methods utilized, emphasizing the data sources and approaches chosen to achieve the primary aim of the thesis. Lastly, the Structure section provides a clear outline of the study's content in a logical sequence.

The second chapter provides an in-depth exploration of the terms and concepts surrounding disaster management and cultural heritage conservation. Through a systematic review of the literature, it examines the foundational principles of both fields. The evolution of these concepts and their interconnections are analyzed, with a particular emphasis on the institutional dimensions of cultural heritage management. This includes an overview of conceptual background of cultural heritage disaster management, internationally accepted approaches, principles adopted from cultural institutions, the challenges encountered, and the achievements through different

applications. Additionally, the chapter investigates the cultural heritage disaster management strategies in Türkiye.

The third chapter proposes a framework titled the “Institutional Framework Model for Cultural Heritage Disaster Management.” This novel approach systematically defines the disaster management components for institutions, considering the various levels of policy-making, administration, and technical implementation, as well as the stages before, during, and after the disaster. The chapter provides a comprehensive outline of the mission's workflow and identifies the crucial components of institutional capacity, encompassing necessary departments and teams, along with operational equipment and logistics.

In the fourth chapter, an analysis of institutional capacity measurement is conducted on the Turkish cultural institution known as the Directorate-General of Foundations (DGF). This examination is structured across three distinct levels: policy, administrative, and technical implementation. The primary aim of this analysis is to evaluate the Agency's adherence to predefined standards. These standards basically include the policy framework for managing cultural heritage in the face of disasters, the administrative and managerial practices of the Institution, considering its current institutional capacity, and the technical measures implemented at various stages—before, during, and after a disaster. The findings of this analysis are presented and discussed at the end of the chapter.

In the fifth chapter, a detailed evaluation of the analyses presented in the earlier sections is conducted to identify essential measures for safeguarding foundation cultural heritage during times of disaster. This assessment includes a thorough appraisal of DGF, following the framework established in Chapter III, and concludes with pertinent recommendations.

The Conclusion chapter provides a comprehensive summary of the generalized findings, results, and their implications. It delivers the main idea and emphasizes the overall importance of the study while offering general strategies, measures, and practices applicable to disaster preparedness, response, and recovery. The thesis outlines the fundamental organizational and strategic components cultural institutions should adopt to handle such situations. Furthermore, the Conclusion chapter identifies

the research limitations encountered during the study and suggests potential research topics for further exploration in the field. Additionally, it acknowledges other related aspects that were not thoroughly examined due to time constraints but still deserve attention.

CHAPTER II

INSTITUTIONAL PERSPECTIVE ON DISASTER MANAGEMENT OF CULTURAL HERITAGE

This chapter serves as the foundational basis for the framework proposed in Chapter III of the thesis, offering comprehensive groundwork. It explores **the origins of the concepts and issues** utilized within the proposed framework, detailing their derivation from the analyses conducted and the sources referenced in the thesis.

To establish a solid foundation for the topic, the chapter presents the **Conceptual Background**. It includes an introduction to basic terminology, the development of the concept, internationally recognized systems and models used in various contexts, accepted frameworks, challenges faced and achievements gained through various implementations in cultural heritage disaster management across different contexts, and lastly, the approaches and principles explicitly applied in the Turkish context.

The discussion then moves to an important section titled **Identification and Analysis of Concepts**, where the identified concepts and issues are examined in detail. The concept analysis process includes two categories: first, analyzing recurring themes related to the institutional aspects of disaster management for cultural heritage; and second, examining the main principles adopted and implemented by cultural institutions across the different phases of disasters.

2.1. Conceptual Background of Cultural Heritage Disaster Management

This chapter provides a detailed conceptual foundation and offers practical tools for on-site application by reviewing relevant literature. This is accomplished through an in-depth exploration of key literature, including **definitions** and the adoption of various **processes, models, and diagrams**. The chapter combines these findings to develop a unified conceptual framework.

2.1.1. Introducing the Basic Terminology

The terms and definitions outlined in this section cover the key terms essential for discussing disaster management of cultural heritage, particularly tailored for cultural institutions. The sequence of definitions aligns with the structure presented in the thesis¹⁴ (United Nations General Assembly, 2016).

A **disaster** is defined as a large-scale event that disrupts the normal functioning of a community or society. It causes widespread devastation and loss, exceeding the ability of the affected area to cope alone. Disasters often result from a failure to manage hazards properly (Inter-Agency Standing Committee, 1994)¹⁵.

The term **emergency** is sometimes used interchangeably with the term disaster (Van Westen, 2020). However, emergency is a more general term for an unexpected event that requires immediate action. Emergencies can be smaller in scale than disasters and may not cause widespread disruption. They still threaten life, property, and the environment (United Nations General Assembly, 2016).

The concept of **disaster management** has evolved based on the definitions within the field (UNISDR, 2009). When a disaster impacts on a cultural heritage site, it is assumed to result from the convergence of risk factors. A risk can transform into a disaster when three key elements—hazard, vulnerability, and exposure—occur simultaneously (Figure 8).

¹⁴ It's important to recognize that the definitions can vary depending on the scope of interest.

¹⁵ www.unisdr.org



Figure 8. Diagram of Risk

One of the central concepts in the thesis is **risk**, which refers to the likelihood of a disaster occurring. Cultural heritage exhibits various inherent risks, and managing these risks effectively to mitigate potential negative impacts is crucial. Some structures have been identified as vulnerable to hazards, creating risks. In this context, hazard, vulnerability, and risk emerge as the key terminologies within the study area. Risk is defined as the potential for adverse consequences when hazards intersect with vulnerable and exposed areas, people, property, and the environment. Feilden describes it as the potential loss resulting from location-specific hazards and the vulnerability of buildings and their contents (Feilden, 1987). In essence, risk can be understood as the probability of an event and its potential negative consequences.

A **hazard** encompasses any phenomenon, substance, or situation capable of causing disruption or damage to infrastructure and services and harm to individuals, their property, and the environment (Abarquez & Murshed, 2004). "Geological hazards" refers to earthquakes, volcanic activity, landslides, and mudflows (Wisner, 2012). Conversely, a threat is characterized as a sign of impending danger (Dorge V. J., 1999).

Vulnerability refers to the characteristics and conditions of a community, system, or entity that make it susceptible to the harmful effects of a hazard (OCHA, 2015).

Exposure is defined as the situation of people, infrastructure, housing, production capacities, and other tangible human assets located in hazard-prone areas¹⁶.

Capacity is a combination of all the strengths, qualities, and resources available in a community, society, or organization that can be used to achieve agreed-upon goals (United Nations General Assembly, 2016).

Preparedness encompasses the knowledge and capacities developed by governments, response and recovery organizations, communities, and individuals to effectively anticipate, respond to, and recover from the impacts of likely, imminent, or current disasters¹⁷.

Prevention refers to measures to avoid the negative effects of hazards and related disasters. Since complete avoidance of losses is often impossible, the term "prevention" is sometimes used interchangeably with "mitigation" in everyday use (OCHA, 2015).

Mitigation consists of measures to reduce or limit the negative effects of hazards and related disasters. While it may not completely eliminate the negative effects, it significantly reduces their scale or severity through various strategies and actions (OCHA, 2015).

Response refers to the actions undertaken before, during, or directly after a disaster to safeguard heritage sites, minimize damage, ensure the safety of associated structures and artifacts, and address the urgent needs of affected communities.

The term **evacuation** refers to temporarily relocating heritage objects to safer locations before, during, or after a hazardous event to protect them from harm (United Nations General Assembly, 2016).

Recovery encompasses the restoration or enhancement of livelihoods, health, economic status, physical infrastructure, social cohesion, cultural heritage, and environmental assets, systems, and activities within a community or society affected by a disaster. This approach aligns with the principles of sustainable development and

¹⁶ www.undrr.org/terminology/exposure

¹⁷ <https://www.undrr.org/terminology/preparedness>

"build back better," aiming to prevent or mitigate future disaster risks¹⁸. The recovery process, which includes rehabilitation and restructuring, should commence promptly after the emergency phase concludes. It is worth mentioning that the terms restoration, reconstruction, and rehabilitation are collectively considered within the overarching concept of recovery in the thesis. Hence, they are not individually elaborated upon (OCHA, 2015).

Monitoring is the continuous or periodic review and audit of stakeholders to implement an activity to ensure that input deliveries, work schedules, and target outputs progress according to the plan.

Resilience is defined as the ability of a system, community, or society exposed to hazards to resist, absorb, accommodate, adapt to, transform, and recover from the effects of a hazard in a timely and efficient manner. This includes the conservation and restoration of its essential basic structures and functions through risk management¹⁹ (Alexander D. E., 2013).

In the context of disaster risk management, a **community** is defined as people living in a geographic area exposed to common hazards due to their location.

Documentation is defined as the systematic collection and conservation of information on an agency's cultural properties for future reference (Letellier, 2007).

After introducing general definitions related to the topic, the holistic concepts of disaster risk management and disaster management are mentioned in the following paragraphs.

Disaster risk management is defined as a systematic process involving administrative directives, operational skills, and resources to implement strategies, policies, and enhanced coping mechanisms aimed at reducing the adverse effects of hazards and the likelihood of disasters (Chisholm, 2015). This concept builds upon the broader framework of risk management, specifically addressing risks associated with disasters. The focus of disaster risk management is to avoid, reduce, or transfer the negative impacts of hazards through a range of preventive, mitigative, and

¹⁸ source: www.undrr.org/terminology/recovery

¹⁹ source: www.undrr.org/terminology/resilience

preparedness activities and measures (OCHA, 2015). Its goal is to enhance resilience and minimize the impact of disasters on communities and societies. These interconnected concepts, disaster management, and disaster risk management play crucial roles in safeguarding against disasters and their potential consequences.

The **risk management** process typically involves five key steps: establishing the context, identifying risks, analyzing risks, evaluating risks, and implementing risk treatment measures (Figure 9).

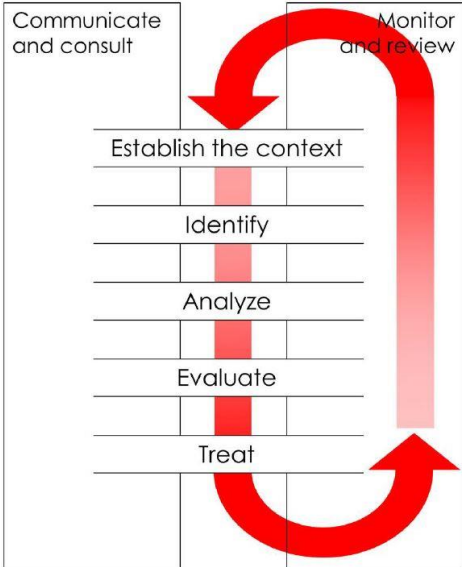


Figure 9. Risk Management Cycle ²⁰

- **Establishing the Context:** This initial step defines the specific cultural heritage collection or site under consideration and its surrounding environment.

- **Identifying Risks:** This involves a systematic effort to recognize all potential risks that could jeopardize the cultural heritage.

- **Analyzing Risks:** After identification, each risk is assessed for its likelihood of occurrence and the potential severity of damage it may cause.

²⁰ (CCI, ICCROM, 2016)

- **Evaluating Risks:** Based on the analysis, each risk is prioritized based on its significance, allowing for the allocation of resources for mitigation efforts.
- **Implementing Risk Treatment Measures:** The final step involves taking concrete actions to address the identified risks. This may involve preventative measures or strategies to minimize damage during an emergency (ICCROM, 2010; CCI, ICCROM, 2016).

Disaster Management, on the other hand, has been defined as "the systematic application of management policies, mitigation, preparedness, response, and recovery procedures and practices." This is illustrated in the Figure below, which is named as Disaster Management Cycle (Figure 10).

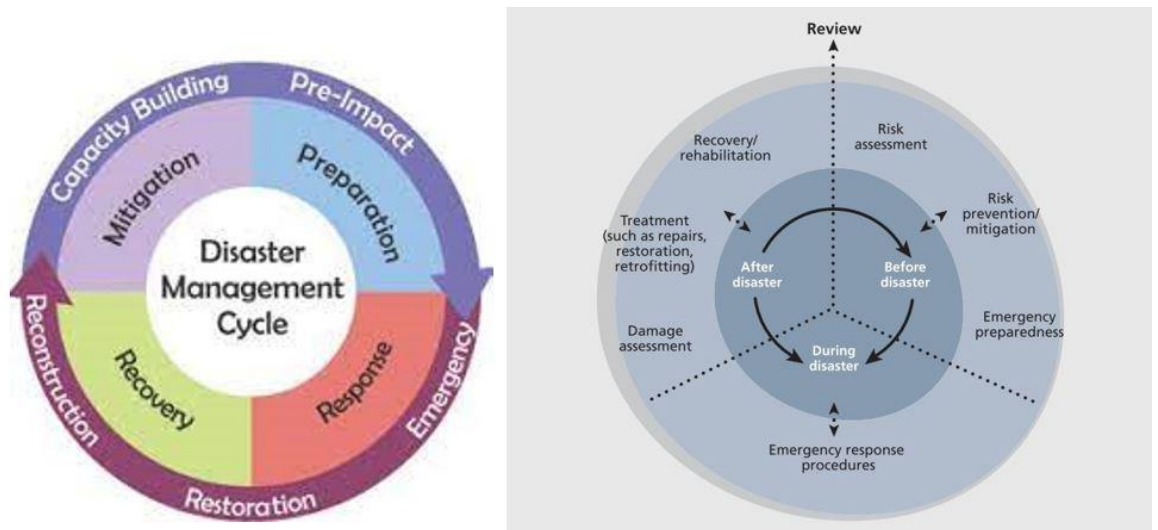


Figure 10. Disaster Management Cycle and the Phases Before, During and After Disaster ²¹

It includes the decision-making process based on the examination of the risks, including the threats and **capacities of people** and **institutions** (Decker & Townes, 2015). Additionally, Disaster Management refers to the organization and management of resources and responsibilities to address all aspects of disasters, focusing on preparedness, response, and initial recovery steps (UN-SPIDER Knowledge Portal, 2024). Disaster management relies on well-defined **action plans** that guide a unified

²¹ (ICCROM, 2010)

response across various entities, including government bodies, NGOs, volunteers, and private organizations²² (OCHA, 2015).

In disaster-affected countries, international organizations and national and local capacities also assume responsibility for the rescue and protection of cultural heritage. Consequently, various **response cycles** have been adopted to preserve disaster-affected cultural properties. These cycles typically consist of five stages: preparedness, mobilization, operations, demobilization, and post-mission (OCHA, 2015) (Figure 11).

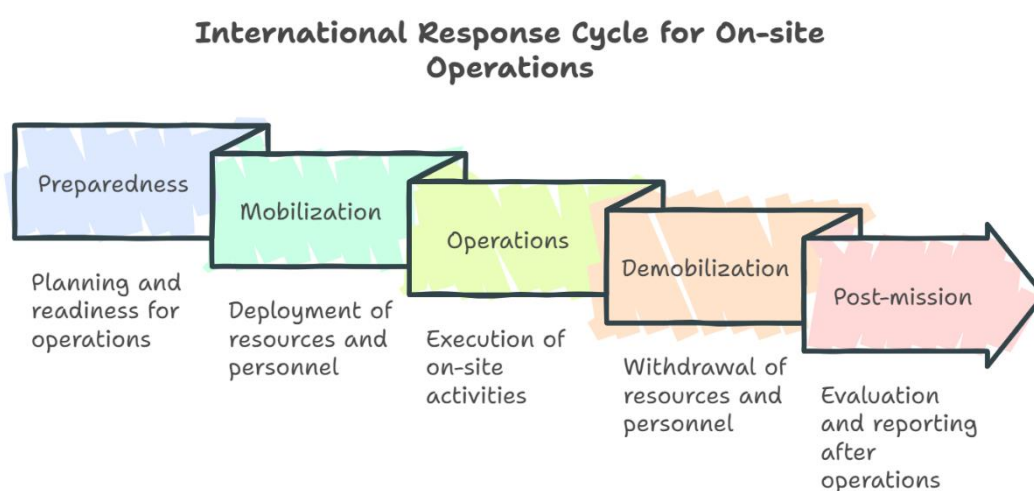


Figure 11. International Response Cycle²³

Preparedness for an operation is a critical preliminary stage for the entire process of rescuing cultural heritage after a disaster. It involves comprehensive planning and training to ensure effective response and recovery readiness. It is not only essential for readiness before rescue but also necessary for each of the subsequent stages. Before any rescue operation, institutions conduct training and exercises for rescue teams,

²² In the realm of emergency management terminology, although the terms "emergency" and "disaster" are frequently used interchangeably, particularly in the context of biological, technological, and health-related crises, a nuanced distinction exists between emergency management and disaster management. Disaster management addresses extensive events that cause significant disruptions to entire communities, surpassing their ability to manage the situation. Emergencies, although they may pose threats to life, are often more localized and may not result in widespread societal upheaval. Essentially, emergency management encompasses a broader spectrum of hazardous circumstances, including emergencies that do not escalate into full-blown disasters (United Nations General Assembly, 2016).

²³ (OCHA, 2015)

conduct region and site-specific analyses, define Standard Operating Procedures, and review lessons learned from previous experiences (OCHA, 2015).

In comprehensive planning, preparedness encompasses strategic, administrative, technical, security, safety, and logistical elements that must be addressed before any rescue operation. This holistic approach ensures that all potential challenges are considered. Institutions conduct training sessions and exercises for rescue teams to familiarize them with procedures and protocols in the context of Training and Exercises. These activities help build skills and confidence among team members, ensuring they are ready to act effectively during a disaster. In the context of Site-Specific Analyses, detailed analyses of specific regions and sites are conducted before any rescue operation to identify vulnerabilities and risks associated with cultural heritage. Understanding the unique characteristics of each site allows for tailored response strategies. Determining Standard Operating Procedures (SOPs) is essential for ensuring that all team members know their roles and responsibilities during a disaster response. These procedures provide a clear framework for action, facilitating coordinated efforts among all parties involved. In the context of reviewing lessons learned from previous disasters, institutions review lessons learned to improve future preparedness efforts. Analyzing past experiences helps identify what worked well and what did not, allowing for continuous improvement in disaster management practices. In the context of integration into broader disaster risk management, preparedness activities should be integrated into broader disaster risk management frameworks that consider natural and human-made hazards. This ensures that cultural heritage protection is part of comprehensive community resilience strategies.

Mobilization refers to the period from the occurrence of the disaster until the institution and rescue teams reach the operation area and commence their activities. This stage involves immediate action by institutions following the emergency. All operational teams are mobilized to carry out their duties and responsibilities. Cultural heritage rescue units are deployed to their designated areas and mobilized for rescue operations in the field (OCHA, 2015).

Operations encompass all the work done by cultural heritage rescue teams in the field. During this stage, the cultural heritage protection team collaborates with other teams participating in the operation. Field teams work in coordination and communicate with each other. This stage concludes when the rescue team completes its work at the affected historical site (OCHA, 2015).

The fundamental principles of rescuing cultural heritage in the aftermath of a disaster are described through an eight-stage cycle, starting from the onset of the disaster and ending with the rescue of cultural heritage objects (Figure 12).

1	Disaster Alert
2	Safety First
3	Getting Started Off-Side
4	Stabilize the Building and Environment
5	Documentation
6	Retrieval and Protection
7	Damage Assessment
8	Salvage Priorities

Figure 12. Disaster Response Cycle ²⁴

According to the approach developed by ICCROM, the cycle begins with situation analysis in the affected historical area, followed by stages such as On-site Damage and Risk Assessment, Security and Stabilization of artifacts, and Early Recovery, namely building back to the original state. All steps are implemented by taking into consideration and adhering to the principles of documentation, risk management, and communication and coordination (Figure 13) (ICCROM, 2018).

1	Situation Analysis	Documentation	Risk Management	Communication & Coordination
2	On-site Damage and Risk Assessment			
3	Security and Stabilization			
4	Early Recovery			

Figure 13. First Aid to Cultural Heritage Action Framework²⁵

²⁴ (Stovel, 1998)

²⁵ (ICCROM, 2018)

Demobilization occurs after cultural heritage rescue teams confirm that their fieldwork is completed. Teams depart the site only after ensuring that all documents are prepared, evacuated objects are secured, and site security measures are taken (OCHA, 2015).

The **post-mission** phase commences after rescue teams return from the field. Upon returning, the first task is to prepare a post-mission report. This report includes information on the evacuated cultural assets, the physical condition of the remaining structures, and the necessary short—and long-term efforts for improvement (OCHA, 2015).

The international response cycle and proposed flowcharts outlined in this section provide a structured framework for disaster rescue and management of cultural heritage, covering the phases before, during, and after disasters. They encompass a series of interconnected stages, from initial preparedness to post-mission evaluation, ensuring a comprehensive approach to disaster management of cultural heritage. As endorsed by international organizations such as OCHA and ICCROM, this comprehensive approach emphasizes the importance of documentation, risk management, and collaboration, ultimately aiming to preserve and restore cultural heritage affected by disasters.

2.1.2. Development of the Concept and Context of Cultural Heritage Disaster Management

The emergence of the Disaster Management of Cultural Heritage field can be traced back to the aftermath of World War II, as indicated by various written sources (Abtahi, 2001). The devastating consequences of the Second World War triggered the need to safeguard cultural heritage against threats. As a significant milestone, the enactment of the “Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict Protocol” in 1954 marked the first international effort to protect cultural heritage during times of armed conflicts (UNESCO, 1954; UNESCO, 2016; Kim J. , 2021)²⁶.

²⁶ <https://en.unesco.org/protecting-heritage/convention-and-protocols/1954-convention>

Eighteen years after the enactment of The Hague Convention, the International Council on Monuments and Sites (ICOMOS) organized “the Convention for the Protection of the World Cultural and Natural Heritage” (The World Heritage Convention) in 1972, which brought attention to the need for **preparing cultural heritage against risks**. During the conference, it was emphasized that the world's cultural and natural heritage faced threats from traditional causes of decay and the adverse impact of social and economic conditions. States were urged to fulfill their responsibility to take action and promote cooperation (UNESCO, The World Heritage Convention, 1972; UNESCO, 1985).

The 22nd Session (22-C/26) of the General Conference of UNESCO held in 1983 focused on several issues, centering around the topic named “Desirability of Adopting an International Instrument on the Protection of the Cultural Heritage Against Natural Disasters and Their Consequences: Report of the Director-General.” The session covered several key areas, including the need for a preliminary study on the **technical and legal dimensions** of safeguarding cultural heritage from disasters. Additionally, discussions revolved around strategies for reducing the **vulnerabilities** of cultural heritage in the face of natural disasters. Another aspect involved formulating an instrument to facilitate access to **international aid** and resources during disasters, especially for developing nations. Moreover, establishing **standards**, guidelines, and relevant advice for countries susceptible to disasters was essential. The discussions emphasized strengthening global solidarity, creating a List of World Heritage Sites in Danger, and establishing a **reserve fund** designated for disaster-related requests (UNESCO, 1983)²⁷.

The conservation of cultural heritage initially centered around World Heritage Sites, particularly emphasizing monumental and archaeological heritage in existing literature. Natural disasters, particularly earthquakes, emerged as a primary concern, leading to the loss of cultural heritage. Feilden's book, published in 1987, offers recommendations for safeguarding cultural heritage in seismic regions. The resource addresses the technical aspects of disaster protection for cultural heritage and emphasizes the issue from an **institutional perspective**. Feilden emphasizes the

²⁷ <https://atom.archives.unesco.org/22nd-general-conference-paris>

importance of institutions in acknowledging the problem, **assessing hazards, establishing policies, developing emergency plans**, and having **knowledgeable staff**. Additionally, the book covers the protection of collections from disasters, providing essential factors for safeguarding cultural heritage from an organizational perspective (Feilden, 1987).

The United Nations officially designated the 1990s as the 'Decade of International Natural Disaster Mitigation' following the adoption of Decision 44/236 on December 22, 1989 (United Nations, 1989). This declaration aimed to address critical issues like reducing loss of life, alleviating poverty, and mitigating social and economic disruptions caused by natural disasters, especially in developing countries. The declaration also emphasized the importance of scientific and technological approaches in facilitating international **cooperation and coordination** to tackle these challenges (Uluç & Şenol Balaban, 2017).

The growing concern for cultural heritage conservation led to establishing the Inter-Agency Task Force, which brought together key organizations such as ICCROM, UNESCO, ICOMOS, and ICOM. This task force actively participated in five crucial areas: **funding, emergency response, training and guidelines, documentation, and awareness**. Additionally, the Inter-Agency Task Force significantly contributed to the formation of the International Committee of the Blue Shield (ICBS) in 1996. The ICBS, representing ICOMOS, ICOM, ICA, and IFLA, focused on coordinating emergency response efforts (European Commission, 2018).

The First National Summit on Cultural Heritage and Preparation to Risk was convened in Quebec, Canada, in 1996. The summit's official statement emphasized that a significant challenge lay in overcoming administrative barriers that hindered **effective coordination among authorities** responsible for cultural heritage and emergency response at the central, provincial, and local levels (ICOMOS Canada, 1996)²⁸.

²⁸ First National Summit on Heritage and Risk Preparedness convened in September 1996 in Québec City at the initiative of ICOMOS Canada

Herb Stovel authored the book 'Risk Preparedness: A Management Manual for World Cultural Heritage' in 1998, introducing the innovative **Emergency Response and Salvage Wheel** as a **practical tool** for cultural institutions. The Emergency Response and Salvage Wheel, developed by the Task Force's working group on Information for Cultural Institutions, is a comprehensive resource to guide cultural institutions and agencies during the critical first 48 hours following an emergency. This two-sided rotating chart provides essential information in two key areas. One side of the wheel outlines nine fundamental emergency response steps, ranging from **security measures to recovery** priorities. Conversely, specific recovery techniques and responses tailored to different collection types or objects are defined on the other side of the wheel (Stovel, 1998).

In 2002, the International Strategy for Disaster Reduction (ISDR) was established through the United Nations General Assembly Resolution 57/150. As a global framework, the ISDR aims to promote disaster risk reduction and enhance resilience. The resolution acknowledges the significance of addressing disaster risks and emphasizes the need for **international cooperation** to reduce vulnerabilities and improve preparedness. These activities are also guided by the INSARAG Hyogo Declaration adopted at the first international INSARAG Meeting held in Kobe in 2010 (INSARAG, 2002; United Nations General Assembly, 2003).

The conservation of cultural heritage and the mitigation of disasters' negative impacts on the socio-economic conditions of states have become increasingly important concerns. Consequently, international conferences have proposed scientific and methodological approaches in disaster management to address these challenges. Notably, the World Disaster Risk Reduction Conference was held in Japan in 1994 (Yokohama), 2005 (Hyogo), and 2015 (Sendai), respectively, to raise **awareness** and promote action. These conferences highlighted the importance of **disaster governance, stakeholder participation, and disaster preparedness** for future events.

The Sendai Framework for Disaster Risk Reduction (2015-2030) emphasizes cultural heritage's crucial role in enhancing resilience against disasters. The framework advocates for the holistic **integration** of scientific knowledge with traditional

practices, emphasizing the importance of **community engagement** through the active participation of local populations and experts. It further highlights the necessity of **investing in cultural heritage** during the post-disaster recovery phase, particularly in developing countries. Additionally, it calls for the development of **risk assessment** studies and the creation of **inventories** of cultural heritage properties. The Framework also highlights several important issues, such as fostering **partnerships**, enhancing **capacity**, and raising **awareness** (United Nations, 1994; United Nations, 2005; United Nations World Conference, 2015)²⁹.

As a specialized agency of the United Nations, UNESCO plays a key role in integrating cultural heritage into the Sustainable Development Goals (SDGs). It actively supports member states in implementing strategies and policies to ensure sustainable management, conservation, and promotion of cultural heritage within the broader sustainable development framework. Specifically, Goal 11, "Sustainable Cities and Communities," recognizes the significance of safeguarding cultural heritage in urban areas and promoting inclusive, safe, **resilient**, and sustainable urban environments. Cultural heritage, encompassing historic sites, monuments, and traditional neighborhoods, enriches cities' identity, character, and livability³⁰. Furthermore, Goal 4, "Quality Education," highlights the value of cultural heritage as an educational resource, providing opportunities to learn about history, traditions, and diverse cultural expressions. By integrating cultural heritage into educational curricula, a sense of belonging, appreciation for cultural diversity, and intercultural dialogue can be fostered³¹. Moreover, Goal 8, "Decent Work and Economic Growth," underscores how cultural heritage can stimulate economic growth and job creation through cultural tourism, creative industries, and cultural entrepreneurship. Inclusive economic development can be fostered by ensuring the sustainable development of

²⁹ <https://digitallibrary.un.org>

³⁰ <https://www.undp.org/sustainable-development-goals#11>. United Nations Development Programme. (2016). Sustainable Development Goals: 11 - Sustainable Cities and Communities. Last visit June, 19th, 2023.

³¹ <https://www.undp.org/sustainable-development-goals/quality-education>. United Nations Development Programme. (2016). Sustainable Development Goals: 4 - Quality Education. Last visit March, 21st, 2024.

cultural heritage sites and promoting local crafts and traditions³². In Goal 13, "Climate Action," the focus is on recognizing that cultural heritage is **vulnerable** to climate change impacts, including sea-level rise, extreme weather events, and increased risks of natural disasters. Preserving and adapting cultural heritage sites to climate change safeguards their historical, artistic, and scientific value and supports climate resilience efforts³³. Lastly, Goal 16, "Peace, Justice, and Strong Institutions," emphasizes the contribution of cultural heritage to peacebuilding, reconciliation, and the promotion of cultural rights and diversity. Preserving cultural heritage can facilitate healing in **post-conflict situations**, foster social cohesion, and enhance mutual understanding among diverse communities³⁴.

Strengthening the **resilience** of cultural heritage is considered a vital aspect of a country's comprehensive disaster risk management (**DRM**) **strategy**. It is essential to establish a comprehensive framework encompassing policy, institutional, legal, and operational aspects, delineate responsibilities, and establish coordination protocols with diverse stakeholders involved in DRM practices for resilient cultural heritage (International Strategy for Disaster Reduction, MARSH, ICCROM, ICORP, & UNESCO, 2013). Maintaining connectivity among interested parties and promoting collaborative practices and coordination among different **stakeholders**, including academia, the private sector, and local communities, is crucial. This approach, as highlighted in "Promoting Disaster Resilient Cultural Heritage", entails implementing physical measures and conducting legislative studies (laws, policies, knowledge, and capacity building) to enhance the resilience of cultural heritage properties. To enhance the resilience of cultural assets against disasters, addressing the deficiencies in the management of disaster risks also becomes imperative (World Bank Group, GFDRR, 2017).

³² <https://www.undp.org/sustainable-development-goals#8>. United Nations Development Programme. (2016). Sustainable Development Goals: 8 – Decent Work for Economic Growth. Last visit June, 19th, 2023.

³³ <https://www.undp.org/sustainable-development-goals#13>. United Nations Development Programme. (2016). Sustainable Development Goals: 13 – Climate Action. Last visit June, 19th, 2023.

³⁴ <https://www.undp.org/sustainable-development-goals#16>. United Nations Development Programme. (2016). Sustainable Development Goals: 16 – Peace, Justice and Strong Institutions. Last visit June, 19th, 2023.

2.2. Managing Cultural Heritage Against Disasters: Legal, Administrative and Operational Aspects

This section examines cultural heritage disaster management systems developed and adopted in different contexts and also in Turkish context, incorporating insights gained from past disaster experiences. It explores the strengths and weaknesses of these adopted models, focusing on the effectiveness of practices such as on-site interventions and management, coordination, and overseeing in the aftermath of disasters. The findings could enhance the proposed model's operational framework in this thesis.

2.2.1. Managing Cultural Heritage Against Disasters in Different Contexts

States have continuously established and refined disaster management systems to address disasters effectively and efficiently. This section examines the disaster management systems applied based on main categories encompassing Hazards and Threats Causing Disasters, Evolution of Disaster Management Approaches, Administrative Aspects of Disaster Management, and lastly Responsible Bodies and Appointed Officials for Disaster Management.

2.2.1.1. Hazards and Threats Causing Disasters

Cultural heritage worldwide is exposed to a wide range of disaster hazards, which can pose risks that can cause significant physical damage and destruction. Almost every country in the world has a potential disaster hazard, but the transformation of disaster hazards into loss risks mostly depends on the exposure and vulnerability factors of countries due to their geographical, economic, and cultural characteristics. This section discusses various **disaster hazards** that cultural heritage faces.

The World Heritage Center under UNESCO defines various types of hazards that cause disasters affecting world heritage sites. Disasters are categorized into two main types: **natural disasters and man-made disasters**. Natural disasters are further divided into three groups encompassing geological hazards, which include earthquakes, volcanic eruptions, and landslides; hydro-meteorological hazards, which comprise flooding, droughts, and wildfires; and climate change impacts, which involve storms, flooding, and extreme temperatures. On the other hand, man-made disasters are classified into two groups: conflict-related damage, which refers to the impact of

armed conflicts, and pollution and environmental degradation, which includes industrial activities that cause air and water pollution³⁵.

The first type of hazard causing disasters is **earthquakes**. Earthquakes are geological events occurring in seismically active regions characterized by the convergence or divergence of tectonic layers. There are mainly four seismically active regions worldwide. The first region is the Pacific Ocean region. Countries surrounding the Pacific Ocean, named the Pacific Ring of Fire, include Japan, the Philippines, Indonesia, Australia, New Zealand, Chile, Peru, and the United States (particularly California and Alaska). The second region is the Mediterranean Sea Region. Countries in this region include Italy, Greece, Turkey, and Spain. The third region is the Himalayan Region. Countries affected in this region include India, Nepal, Pakistan, and China. The last earthquake-prone region is the Middle East, and the countries affected include Iran, Iraq, and Turkey.

Earthquakes are among the most destructive natural disasters, significantly affecting cultural heritage worldwide. The impact of seismic events on cultural heritage can be profound, leading to structural damage, loss of historical integrity, and economic consequences for communities reliant on cultural tourism.

Being in the Mediterranean Region, Türkiye, Italy, and Greece are prone to earthquake hazards. On February 6, 2023, earthquakes in Türkiye resulted in catastrophic damage to the region's cultural heritage. Approximately 3,752 out of 8,444 historical structures were reported damaged or destroyed, affecting sites that reflect the rich history of different civilizations over thousands of years. The estimated restoration cost exceeds \$2 billion (Strategy and Budget Office of Turkish Presidency, 2023).

Italy has also experienced several significant earthquakes that have impacted its cultural heritage. The 1997 Assisi earthquake caused considerable damage to medieval structures in Assisi, prompting extensive restoration efforts. The L'Aquila earthquake in April 2009 damaged over 10,000 buildings, including historic churches and monuments. Recovery efforts faced challenges in maintaining the historical integrity of restored sites. In 2016, a series of earthquakes affected central Italy, severely

³⁵ <https://whc.unesco.org/en/disaster-risk-reduction/>, Last visit, 05.12.2024

damaging towns such as Amatrice and Norcia, where numerous historic buildings were destroyed or compromised³⁶.

Due to its location along the Pacific Ring of Fire, Japan is highly susceptible to earthquakes. The Kobe earthquake in January 1995 caused extensive damage to cultural heritage, with many traditional wooden structures suffering severe destruction (Katayama, 2002).

Nepal is an earthquake-prone country. The Gorkha earthquake on April 25, 2015, with a magnitude of 7.8, had devastating effects on Nepal's cultural heritage. It resulted in 8,844 fatalities and extensive damage to historic sites in the Kathmandu Valley, including UNESCO World Heritage Sites such as the Durbar Squares of Kathmandu, Bhaktapur, and Patan. Many temples and monuments were destroyed or severely damaged, leading to significant losses in both tangible and intangible cultural heritage (Bhagat, 2018).

Iran, on the other hand, is another country in the earthquake-prone Middle East region. The December 2003 Bam earthquake had a catastrophic impact on the ancient city of Bam, a UNESCO World Heritage site known for its mudbrick structures. The quake resulted in widespread destruction and loss of life, prompting discussions about the vulnerability of similar archaeological sites to seismic activity (Ahmadizadeh, 2004).

The second category of hazards causing disasters is fires triggered by earthquakes. These **post-earthquake fires** represent cascading effects of seismic events and are among the most critical secondary impacts associated with earthquakes. These fires can significantly exacerbate the damage caused by the initial earthquake, resulting in widespread destruction, loss of life, and economic disruption. Regions prone to earthquakes, particularly those with dense urban centers, are at a heightened risk of experiencing such fires.

Earthquakes can damage electrical power lines, gas pipelines, and other critical infrastructure, leading to fires when these systems fail. Seismic events can cause flammable liquids or chemical spills, igniting and spreading rapidly. After

³⁶<https://www.iccrom.org/news/italy-earthquake%E2%80%99s-other-casualty-%E2%80%93-cultural-heritage>, Last visit 06.12.2024.

earthquakes, looting and vandalism can lead to conditions that promote fires, such as damaged electrical systems or unsecured buildings.

The San Francisco Bay Area and Los Angeles Basin are known for their high seismic activity and dense urban development, making them particularly vulnerable to post-earthquake fires (Scawthorn C. , 2011). Japan's history of significant earthquakes, dense urban centers, and wooden construction have led to numerous instances of post-earthquake fires (Himoto, 2019; Yoshioka, 2020). Turkey, being on the Anatolian Plate, is a seismically active region, and Turkey has experienced several devastating earthquakes in recent decades, often followed by fires. Chile's Pacific coast is prone to earthquakes, and its large cities, such as Santiago, are at risk of post-earthquake fires (Rivera, 2020). New Zealand's location on the Ring of Fire makes it susceptible to earthquakes, and its major cities, like Christchurch, have experienced significant fire damage following seismic events (Reyners, 2011).

The third category of hazards contributing to disasters includes **floods, storms, hurricanes, and avalanches**. These events, often intensified by factors such as heavy precipitation, localized intense rainfall, rapid snowmelt, and glacial melt, present significant risks to cultural heritage sites on a global scale. Regions with mountainous terrain, such as the Alps, Himalayas, Andes, and the Rockies, are particularly susceptible to landslides and avalanches, which can damage or destroy archaeological sites, historic buildings, and cultural landscapes. Coastal regions, including those in Southeast Asia, the Caribbean, and the Mediterranean, are vulnerable to storm surges, coastal erosion, and flooding, impacting coastal archaeological sites, historic port cities, and maritime cultural heritage. Additionally, inland floodplains and river valleys, such as those in Europe, Asia, and North America, are at risk of flooding, which can damage historic buildings, archaeological sites, and cultural landscapes. These natural disasters can lead to structural damage, loss of historical integrity, and economic bottlenecks for communities that rely mostly on cultural tourism.

Floodwater can cause immediate physical damage to buildings and monuments through inundation or erosion. The catastrophic floods in Central Europe in 2002 severely impacted numerous cultural assets in World Heritage towns such as Prague, Dresden, and Cesky Krumlov. The floods caused substantial damage to historic

buildings, artworks, and archives. In Dresden, the historic Frauenkirche was inundated, leading to significant restoration challenges. Floods in Germany in 2002, 2013, and 2016 resulted in significant financial consequences, costing approximately 22.2 billion euros. The winter storm 'Kyrill' in 2007 and hailstorms in 2013 also severely impacted the country (Amaratunga, 2017).

Flooding can lead to the loss of movable heritage, including artworks and archival materials. Following Hurricane Katrina in 2005, New Orleans experienced catastrophic flooding that resulted in extensive damage to its cultural heritage. The storm destroyed numerous historic buildings and artifacts housed in museums and archives (Verderber, 2009).

Bangladesh is prone to seasonal flooding that impacts its rich cultural heritage. Floods can erode the foundations of historic structures, leading to instability. In Bangladesh, seasonal flooding has caused significant erosion around archaeological sites such as the ancient city of Paharpur, threatening their integrity³⁷.

Storm surges associated with hurricanes can inundate coastal cultural sites. In the aftermath of Hurricane Sandy (2012), significant flooding affected cultural institutions along the East Coast of the United States, including New York City's museums.

Another category of hazards contributing to disasters are **landslides, avalanches, and rockfalls**. These, often triggered by seismic activity, heavy rainfall, or rapid snowmelt, pose significant threats to cultural heritage sites, particularly in mountainous regions.

The Atlantic Ocean borders France to the north and west, while the Mediterranean Sea is located to the south. Notable landforms include the Alps in the eastern and southeastern regions, as well as the Pyrenees in the southern and southwestern areas. The northern and western parts of the country feature flat plains or gently rolling hills, while the southern regions are predominantly mountainous. The most frequent and common hazards observed in France are floods, landslides, and avalanches, impacting both people and the economy significantly. Over two-thirds of municipalities in France have encountered at least one natural disaster risk (Deboudt, 2010; Amaratunga, 2017).

³⁷<https://www.context.news/climate-risks/bangladeshs-historic-coastal-mosques-feel-climate-changes-bite> - Last visit, 18.01.2025.

Switzerland is landlocked between the Jura Mountains to the northwest and the Swiss Alps to the south, with a central plateau in between. The country's main hazards primarily stem from its mountainous terrain, including avalanches, rockfalls, landslides, and debris flows, exacerbated by steep slopes, high erosion rates, and flood risks due to heavy precipitation, rapid snowmelt, and glacier melting³⁸. Avalanches can block access routes to cultural sites, complicating conservation efforts. In Switzerland, traditional wooden chalets are at risk from avalanches during winter, affecting access and maintenance (Amaratunga, 2017).

The last category of hazards contributing to disasters includes **terror attacks and conflicts**. These events have a profound impact on cultural heritage, often resulting in intentional destruction, looting, and the disruption of communities. In recent years, cultural heritage has increasingly become a deliberate target for terrorist groups, serving as a strategic means to erode community identity and social cohesion.

The destruction of the ancient Buddha Statues of Bamiyan in Afghanistan symbolized a deliberate act of cultural erasure in 2001 (Betlyon, 2004). In addition, the Islamic State ISIS systematically targeted and destroyed significant cultural landmarks, including the ancient city of Palmyra and artifacts in the Mosul Museum in 2015. This destruction was described as "cultural cleansing," aimed at erasing the history and identity of local populations (Zarandona, 2018).

2.2.1.2. Evolution of Disaster Management Approaches Over Time

Disaster management is a complex and challenging endeavor due to the unpredictable nature of disasters and their potentially severe consequences. As such, it is a dynamic field that continually evolves, with each disaster offering valuable lessons that shape future responses. This section explores **three approaches** to cultural heritage disaster management that have been developed, including **decentralized** approach that transfers responsibilities from central authorities to regional and local levels; **consolidated** approach where all **fragmented** legislative authorities are centralized

³⁸ <https://www.climatechange.org/countries/switzerland/avalanches-and-landslides/>, last visit 11.09.2024.

within a single coordinating body; and the approach that prioritizes **climate change** adaptation strategies as a key component of disaster risk management.

- In various countries, disaster management strategies have increasingly moved towards **decentralization, transferring responsibilities from central authorities to regional and local levels.**

The first example deserving further examination is **Italy's** approach to responding to earthquake response. Italy's earthquake response relied on personal and local efforts until the catastrophic Messina Earthquake of 1908³⁹. Following this disaster, the state initiated humanitarian action (Alexander D. , 1985). Italy's fire departments faced operational and logistical challenges during the earthquake due to a lack of coordination. In response, new regulations were enforced to establish an integrated "fire protection department" under the Ministry of Interior. In 1915, disaster relief measures were deployed when an earthquake struck the Abruzzo and Avezzano provinces (Alexander D. , 1985). The previously independent city fire departments were unified in 1941 under "Vigili del Fuoco" (Fire Department). Established in 1942, this battalion primarily served military purposes and provided firefighting capabilities. During World War II, it assisted in heavily bombarded cities (Alexander D. , 1985). The enactment of Law No. 996 in 1970 provided a basic framework for civil protection interventions, focusing on emergencies. Realizing the need for a consistent disaster response system, the Ministry of Civil Defense and the Civil Protection Department were established in the country, aiming to decentralize activities, plans, and equipment stocks to regional and local units. DCP is involved in disaster prediction, prevention, coordination, administration, research, and public relations. The department also included three emergency units: air services, maritime services, and logistics (Alexander D. , 1985). With the pivotal Law No. 225 enacted in 1992, the legal framework for the modern Italian Civil Protection System was established and the Italian National Service of Civil Protection was institutionalized (Lambert, 2010). It included central and regional government administrators, regional and provincial municipalities, national and regional public agencies, and public and private institutes and organizations. With the Legislative Decree No. 112/1998, named Bassanini Law,

³⁹ <https://emergenze.protezionecivile.gov.it/en/seismic/>, last visit 11.09.2024.

the allocation of functions between different government levels was restructured, emphasizing decentralization and empowering local authorities, regions, provinces, and municipalities (IFRC, 2022). With the Constitutional Law numbered 3/2001, civil protection was made a competence of regions. With the Law numbered 401/2001, the term “great events” was introduced under the Civil Protection Department's responsibility, allowing them to use extraordinary powers in such situations. With the Law numbered 100/2012, considering the recent reform, the system structure definitions and procedures were refined (Alexander D. , 1985).

In **Japan**, lessons learned from past earthquakes have significantly shaped advancements in disaster risk reduction. One of the most noteworthy measures undertaken was the implementation of the Basic Disaster Prevention Measures Act in 1961, which marked a pivotal step in the country's efforts to mitigate disaster risks⁴⁰. This law defined all powers and responsibilities related to disaster risk management and measures to reduce disaster risk, including disaster planning, disaster prevention, emergency measures, rehabilitation, emergency declarations, and financial measures. As a result of this law, a comprehensive and long-term plan for disaster risk reduction was established, contributing to the creation of a comprehensive disaster risk management planning system in Japan. However, the 1995 Kobe Earthquake revealed that changes should be made to Japan's disaster risk reduction legislation and government policies. Subsequently, in June 1999, a new disaster law was drafted with a decentralized approach, shifting more authority to regions and municipalities⁴¹.

- As disaster management concepts have evolved on a global scale, the legal frameworks and administrative policies of various countries have largely been influenced by their most devastating disaster experiences. As a result, in some nations, each significant disaster has prompted the establishment of specific legal regulations, plans, and programs at both central and local levels, often addressing different components in a **fragmented way**. This lack of cohesion has been recognized as a challenge to effective disaster planning, management, and coordination efforts.

⁴⁰ <https://faolex.fao.org/docs/pdf/jap186123.pdf>, last visit, 11.09.2024.

⁴¹ <https://www.preventionweb.net/publication/japan-disaster-countermeasures-basic-act-act-no-223-15-november-1961-revised-june-1997>, last visit, 11.09.2024.

The United States provides an insightful example as disaster management methods have evolved significantly throughout its history. Law Number 1803 was enacted in response to a major fire in New Hampshire, marking the beginning of disaster legislation in the United States. Numerous laws addressing various disasters, from storms to earthquakes, floods, and other natural events, were introduced as time passed. In the 19th century, disasters were primarily seen as challenges for individual federal states to manage independently. For instance, during this era, President Grover, acting on behalf of the central government, even vetoed \$10,000 in emergency aid for drought victims in Cleveland state, Texas (Holdeman, 2005). However, it soon became apparent that enforcing new laws after each disaster created complications. Significant disasters occurred consecutively in the 1960s and 1970s, necessitating federal assistance, including hurricanes and earthquakes. These events led to increased attention towards disaster management, resulting in a surge of legislative efforts. The National Flood Insurance Law of 1968 solidified protections for homeowners against disasters, and in 1974, the Prime Ministry established the Disaster Relief Law (FEMA, 2010). However, the emergency and disaster laws were unable to adequately cover the fragmented structure of disaster management across the country. With over 100 federal offices involved in disaster management, numerous parallel programs operated at central and local government levels, leading to varying regulations (Holdeman, E.; 2005). Subsequently, in 1979, a presidential decree established the American Federal Emergency Management Bureau (FEMA). This initiative aimed to reorganize several federal agencies operating independently and without coordination. From its establishment, FEMA has emphasized the connection between preparedness for natural disasters and civil defense activities. Recognizing the complexity of disaster management, FEMA developed formal programs to tackle large-scale disasters through comprehensive planning, adopting an approach that covered "every situation and condition" with emergency, control, and warning systems at all scales (FEMA, 2010).

- Certain countries have prioritized adaptation strategies in response to the growing threats posed by **climate change** (Başkan, 2016). As a result, both central agencies and regional/local authorities have been required to fulfill specific obligations to address these priorities.

In **Denmark**, where the legislative framework for disaster management was initiated with the introduction of the First Danish Civil Defence Act in 1949. Subsequently, the current legal framework was established in 1992 with the enactment of the Danish Emergency Management Act. To tackle the challenges associated with climate change, the Climate Change Adaptation Strategy was introduced in 2008. Subsequently, in 2012, municipalities were mandated to develop Climate Change Adaptation (CCA) plans aimed at enhancing resilience and preparedness at the local level. Additionally, the Danish Climate Change Act, enacted in 2014, created an independent Climate Council tasked with providing expertise and guidance on climate-related issues. This act also requires the submission of annual climate policy reports to evaluate progress and recommend strategies for climate action (Wejs, 2014).

The United Kingdom relied on an old version of Civil Defense and Emergency Powers legislation, the Emergency Powers Act, enacted in 1964 (Preventionweb, 2005). However, the Civil Contingencies Act, enacted in 2004, established a coherent framework for emergency planning and response across all levels (Cabinet Office Civil Contingencies Secretariat, 2004). In addition, the 2008 Climate Change Act introduced a legal framework for climate change adaptation (CCA) alongside mitigation efforts.

France serves as a notable example of flood protection legislation. The key legislative framework was established on May 28, 1858. In 1982, the phrase "Risk Prevention Plans" became prominent when a new law was enacted. Subsequently, in 2004, the foundations of civil security were established through the Law on the Modernization of Civil Security. The responsibilities of local authorities in risk prevention were further enhanced by Law number 2014-58, enacted in 2014. Today, there is a strong focus on addressing the impacts of climate change, which has led to the introduction of initiatives such as Action Plans for Flood Prevention (PAPI) and City Safeguard Plans (PCS) in France (Kougkoulos, 2021; Amaratunga, 2017).

2.2.1.3. Administrative Aspects of Disaster Management

Establishing a resilient administrative structure to mitigate the impact of disaster hazards is a crucial factor in minimizing damage during such events. This section analyzes the administrative structures of disaster management systems to uncover

effective strategies for enhancing resilience to natural hazards. In this regard, administrative structuring designed for disaster management and their scope of responsibilities are discussed. The section explores three distinct types of disaster management structures: complex, shared, and centralized.

- In certain instances, a **comprehensive structuring** for administrative disaster management is implemented, ensuring effective **coordination among all respective authorities and individuals**.

Italy exemplifies a disaster risk management (DRM) system characterized by a comprehensive strategy, decentralized organization, and the incorporation of both public and private resources. It is a **shared responsibility** between national, regional, provincial, and municipal levels, emphasizing disaster risk reduction and effective response. This hierarchical organization ensures coordinated disaster management. The national government sets the framework and leads national emergencies, while regional governments have structures and plans based on specific risks. Regional authorities can customize their civil protection structures to align with regional risk characteristics while following state-defined principles. Regions define "risk forecast and prevention" programs, provinces implement emergency plans, and municipalities draft municipal emergency plans and coordinate relief operations within their territories. Regional governments prepare regional hazard management plans in addition to coordination and operations (IFRC, 2022).

When disasters are severe, responsibility shifts progressively from the provincial and regional levels to the state. Hierarchically, national emergencies are managed centrally through the Ministry of Civil Defense and the National Emergency Operations Center. Medium-level government units, such as Rescue Coordination Centers, operate at the provincial level. When a disaster occurs, the Department of Civil Protection rapidly assesses the situation and determines if local resources are sufficient. If necessary, support is provided to provinces, regions, and municipalities. In severe situations, the Department of Civil Protection coordinates overall, while regional, provincial, and municipal authorities carry out their specific roles (Figure 14) (Amaratunga, 2017).

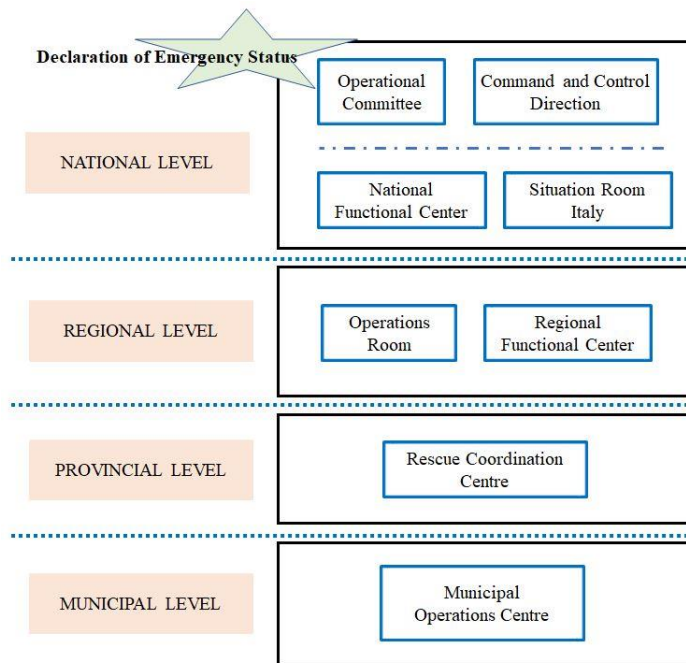


Figure 14. Italian Civil Protection System⁴²

Another noteworthy example is **Japan**. According to Japan's fundamental law on disaster prevention measures, the government is required to develop and execute a comprehensive plan for each phase of disaster management, which encompasses prevention, rescue, and recovery. Furthermore, the government holds the responsibility of ensuring the effectiveness of operations conducted by local governments, various national public institutions, and organizations such as the Japanese Post, the Japanese Bank, the Japanese Red Cross, and entities involved in energy, gasoline, transportation, and other essential public services. It is also charged with coordinating activities and ensuring a fair distribution of financial responsibilities associated with disaster management (OECD, 2006). Additionally, many ministries have specific responsibilities in certain areas, such as zoning, land use, research and education, health, fire services, and critical infrastructure services, particularly those related to earthquake preparedness. The Basic Law of Disaster Prevention allocates responsibilities also to regions and municipalities. In addition to their duties regarding the implementation of national preparatory plans, they are tasked with creating disaster

⁴² Amaratunga, D., Haigh, R., Barton, N., & Malalgoda, C. (2017). Synthesis Report of Existing Legal, Policy and Science Approaches in Relation to DRR and CCA.

prevention plans tailored to their regions and coordinating all activities within their territories. This includes ensuring that disaster response organizations such as fire departments and flood prevention units are adequately equipped, strategically located, and prepared to respond promptly with all necessary equipment. Disaster prevention councils are established at regional and local levels, chaired by the governor and mayor. With 47 regions and more than 2000 municipalities in Japan, local authorities have been strengthened regarding function and authorization after the Kobe earthquake occurred in 1995 (OECD, 2006).

- In certain instances, **disaster management responsibilities are shared between central and local government levels**, fostering a collaborative approach to risk reduction and response.

In **Germany**, responsibility for disaster management is shared between central and local authorities. The federal government establishes the overall framework and coordinates disaster management efforts. The federal states hold primary responsibility for disaster management, except in cases of war, while local authorities are responsible for implementing disaster relief plans (Kammerbauer, 2019).

In **France**, the framework for disaster management is based on the shared responsibility of both central and local authorities. The central government sets the framework and provides some financial support. Risk zones are identified, and plans are approved by state administrations. Meanwhile, local authorities implement risk prevention measures and ensure citizen safety (Gourbier, 2024).

In **Switzerland**, disaster management tasks are carried out through a shared responsibilities approach. The federal government establishes the framework, takes charge during national emergencies, and coordinates efforts across the country. Specialized federal agencies focus on specific hazards and contribute to risk analysis. Additionally, cantonal (state) and local authorities engage in operational activities, collaborating closely with federal agencies to ensure effective disaster response and management at all levels (Prior, 2016; Ammann, 2008).

In **Denmark**, disaster management tasks are executed based on a shared responsibilities approach. The national government establishes the framework, offers guidance, and coordinates responses to national emergencies. Meanwhile, municipalities are responsible for conducting local risk assessments, developing plans, and initiating initial disaster responses. National and municipal authorities collaborate closely to ensure effective disaster preparedness, response, and recovery efforts (DEMA, 2009).

Lastly, **the United Kingdom** utilizes a system in which responsibilities are shared between central and local authorities. The central government serves a coordinating role, providing guidance and establishing an overarching framework. Conversely, local authorities are tasked with managing the majority of emergencies and incidents on the ground, ensuring effective response and coordination at the local level (Davis, 2017).

- In certain countries, the main disaster management authority is a **central coordinating body among respective authorities** specialized in different areas.

In **the USA**, the offices included Federal Insurance Management, National Fire Prevention and Control Management, National Meteorological Services Community Preparedness Program, Federal General Services Preparedness Office, and Federal Disaster Relief Office were consolidated under the purview of FEMA in 1979. Additionally, FEMA absorbed the Civil Defense services, which had formerly been linked to the Ministry of Defense Office. This reorganization aimed to streamline disaster management and enhance coordination among these diverse functions (FEMA, 2010) (Figure 15).

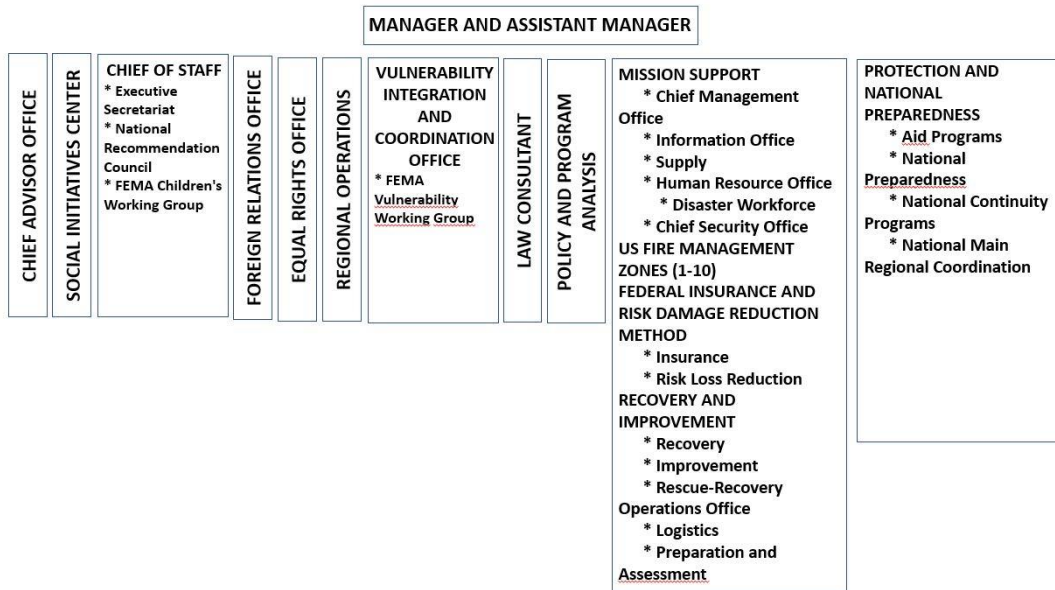


Figure 15. Administrative Structure of the Federal Emergency Management Agency (FEMA), United States⁴³

2.2.1.4. Responsible Bodies and Appointed Officials for Disaster Management

Globally, there is a recognition of the need for dedicated capacities to respond to disasters, including various institutional and administrative structures. While disaster management is a fundamental responsibility of governments, specific institutions and related organizations are entrusted with disaster management roles. This section outlines the **structure of responsible disaster management bodies** and specifies the positions of **officials appointed** at the central, regional, and local levels to oversee disaster response and recovery efforts.

- In some countries, disaster management administrative structures are designed to provide a **comprehensive approach**, integrating all necessary units at all phases of the disaster cycle.

In this regard, **Italy's** civil protection is an integrated structure, ensuring coordinated use of all available state and private resources. Italy's Disaster Risk Management (DRM) system involves a multitude of departments and agencies, including the Ministry of Civil Defense, the Italian National Service of Civil Protection (DPC), the

⁴³ Federal Emergency Management Agency, (2011). FEMA Main, <http://www.fema.gov/about/main.shtm>

Great Risks Committee, and the Italian National Fire and Rescue Agency (Corpo Nazionale dei Vigili del Fuoco) (CNVVF)⁴⁴. The National Civil Protection Department is the leading institute for emergency management for national emergencies, coordinating with various agencies. The mission of National Civil Protection, both centrally and locally, is to safeguard lives, property, and the environment from natural and technological disasters. The Great Risks Committee provides scientific advice to DPC, involving representatives from DPC's Competence/Functional Centers. The "Corpo Nazionale dei Vigili del Fuoco" (CNVVF), the Italian National Fire and Rescue Agency, operates under the Civil Defense and Rescue Department, offering technical support for safety, fire prevention recommendations, and public security in terrorism situations. Civil society is engaged through voluntary organizations, contributing to the National Service of Civil Protection. Additionally, regional and local authorities have emergency planning and management procedures. These organizations collaborate to ensure effective disaster management and response, focusing on protecting lives, property, and the environment⁴⁵ (The Italian Civil Protection National Service, 2012).

As of 1998, the responsibility for coordinating emergency rescue operations shifted to local administrations at the regional and provincial levels in Italy. Within this framework, mayors of municipalities or communities are designated as the chief civil defense officials. The coordination of the National Service and the provision of support for civil defense activities at the national level are overseen by the National Civil Protection Department Director appointed by the Prime Minister. Great Risks Committee members, who constitute representatives from DPC's Competence/Functional Centers and scientific experts from relevant agencies, are responsible officials who take responsibility in disasters and emergencies (Alexander D. , 1985).

⁴⁴ https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/italy_en, last visit 11.09.2024.

⁴⁵ <https://www.preventionweb.net/national-platform/italy-national-platform>, last visit 11.09.2024.

Japan has established a comprehensive disaster management system with various vital institutions responsible for disaster planning, prevention, emergency response, rehabilitation, and financial measures. The state is responsible for developing and executing plans for each stage of disaster management, including prevention, rescue, and recovery. The vital institutions responsible for these functions include the Ministry of the State for Disaster Management and the Central Disaster Prevention Council. However, the 1995 Kobe Earthquake revealed that changes should be made to Japan's disaster risk reduction legislation and government policies⁴⁶. Cooperation is facilitated among key institutions, such as the Fire and Disaster Management Agency, the Japanese Red Cross, the Japanese Coast Guard, the Japanese Bank, and local community members (Ogata, 2016; Atli, 2006).

The state institutions responsible for the implementation of these disaster management functions include the Assembly Office and the respective Minister of State in Japan. Another crucial institution is the Central Disaster Prevention Council (OECD, 2006). The Prime Minister is the head of the Central Disaster Prevention Council, established following the Basic Law on Disaster Prevention. This council comprises relevant ministers of the National Coordination Board, heads of organizations such as the Japanese Red Cross, the Public Radio and Television Broadcasting Body, and other Japanese organizations, semi-public sectors, and external experts (Stigter, 2003; Takayasu, 2005).

- The roles of administrative units within disaster management systems vary widely. Some states have adopted models that facilitate **equal distribution of the central and local units** based on their responsibilities.

In France, disaster management authorities function at both central and local levels. At the central level, the General Directorate for Civil Security and Crisis Management (DGSCGC) takes the lead in preparing and implementing emergency measures. At the same time, the Ministry is responsible for environmental issues⁴⁷. State administrations, known as prefects, are responsible for defining risk zones, informing

⁴⁶ <https://www.bousai.go.jp/en/about/index.html>, last visit 11.09.2024.

⁴⁷ https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/france_en, last visit 11.09.2024.

local authorities, and approving risk prevention plans. At the local level, local authorities are tasked with implementing risk prevention policies, which include urban planning and citizen security measures. Regular collaboration between local authorities, state administrations, and other stakeholders ensures effective disaster management (Amaratunga, 2017).

The Director General of the General Directorate for Civil Security and Crisis Management (DGSCGC) and the Minister for the Environment are responsible officials at the national level in France. Governors at the state administrations and mayors of municipalities are responsible officials at the local level (Amaratunga, 2017).

In **Denmark**, primary departments responsible for disaster management operate at both the national and local levels. At the national level, the Danish Emergency Management Agency (DEMA) leads efforts in national preparedness, prevention, response, and recovery⁴⁸. The Government Security Committee, chaired by the Prime Minister, serves as the highest decision-making body for national emergencies. The Senior Officials' Security Committee provides recommendations to the Government Security Committee. At the same time, the Crisis Management Group (CMG) serves as a forum for ongoing revision of the national crisis management system. At the municipal level, local authorities are responsible for conducting local risk assessments, developing plans, and initiating disaster responses. Additionally, they are tasked with developing and implementing municipal Climate Change Adaptation (CCA) plans to address specific local challenges and vulnerabilities⁴⁹ (Amaratunga, 2017).

The first group of officials responsible for disaster management at the national level includes the Director General of the Danish Emergency Management Agency (DEMA) and the Prime Minister, who chairs the Government Security Committee in Denmark. Additionally, members of the Government Security Committee and the Senior Officials' Security Committee play crucial roles in decision-making and providing recommendations. At the municipal level, responsible officials include

⁴⁸ <https://www.standbypartnership.org/partners/danish-emergency-management-agency-%28dema%29>, last visit 11.09.2024.

⁴⁹<https://civil-protection-knowledge-network.europa.eu/organisations/danish-emergency-management-agency-dema>, last visit 11.09.2024.

mayors and relevant municipal officials accountable for local planning and response efforts. These officials are essential in coordinating and implementing disaster management strategies within their respective municipalities (Amaratunga, 2017).

Departments responsible for disaster management in **the United Kingdom** are structured at both central and local levels. The Civil Contingencies Secretariat (CCS) serves as the national platform within the Cabinet Office and coordinates with government departments at the central level. Various agencies, including the police, fire and rescue services, health bodies, and the Armed Forces, are involved in emergency response and recovery efforts. The CCS provides guidance and support to these agencies, ensuring they are prepared to respond effectively to emergencies. On the other hand, district councils and first responders are responsible for managing most emergencies and incidents at the local level⁵⁰.

Responsible officials in disaster management at the national level include the Civil Emergencies Advisor in the United Kingdom. At the local level, however, mayors of municipalities and council chairs are the responsible officials overseeing disaster management efforts within their respective jurisdictions (Handmer, 1991; Kim H., 2014; Hills, 1994).

- In certain countries, **a centralized disaster management administration** serves as the coordinating body, overseeing and coordinating the efforts of various key departments and units.

In **the USA**, the President decreed the establishment of the American Federal Emergency Management Bureau (FEMA) in 1979. This initiative aimed to reorganize several federal agencies, including Federal Insurance Management, National Fire Prevention and Control Management, National Meteorological Services Community Preparedness Program, Federal General Services Preparedness Office, and Federal Disaster Relief Office, operating independently and without coordination. FEMA plays a crucial role in disaster management by closely collaborating and coordinating with several key departments and units, including local fire departments, police, and other emergency services, as part of its response efforts. This collaborative approach

⁵⁰ <https://www.gov.uk/guidance/emergency-response-and-recovery>, last visit 11.09.2024.

ensures a coordinated response to disasters and emergencies, maximizing the effectiveness of disaster management efforts across various agencies and units⁵¹ (FEMA, 2010).

The individuals responsible for Emergency and Disaster Management in the United States include the FEMA Administrator, who leads the Federal Emergency Management Agency and is primarily responsible for disaster management at the federal level. The Head of the Federal Government, typically the President, also oversees and coordinates disaster management efforts nationwide. Additionally, at the local level, the Mayor assumes significant responsibilities in disaster management within their respective jurisdiction. These officials collectively contribute to a comprehensive disaster management framework from the federal government to local municipalities, ensuring a coordinated and effective response to emergencies and disasters (Waugh, 1994).

- Some nations have adopted a specialized approach, **establishing dedicated units to address specific aspects of disaster management**, such as disaster response, crisis management, and national security, technical assistance, education, and training, or the planning and implementation of disaster relief efforts.

In **Germany**, disaster management operates across four primary departments at the federal level. The Federal Office of Civil Protection and Disaster Assistance (BBK) is the central coordinating body, while the Federal Ministry of the Interior oversees security issues and crisis management. The Academy for Crisis Management, Emergency Planning, and Civil Protection (AKNZ) is responsible for providing education and training, and the German Federal Agency for Technical Relief (THW) offers technical assistance during disasters. Each federal state has its own Ministry of the Interior at the state level, responsible for policy and coordination. Municipal authorities are tasked with planning and implementing disaster relief efforts at the local level. Regular meetings are conducted between federal, state, and municipal levels to ensure effective coordination (Kammerbauer, 2019).

⁵¹ <https://www.gao.gov/blog/2019/05/14/markings-40-years-of-fema>, last visit 11.09.2024.

Officials responsible for disaster management at the federal level include the Director of the Federal Office of Civil Protection and Disaster Assistance (BBK), the Federal Minister of the Interior, and heads of relevant federal agencies. Ministers of the Interior for each state are responsible for disaster management at the federal-state level in Germany. Lastly, local mayors or emergency management officials are responsible for disaster management at the municipal level (Lauta, 2017).

In some countries, disaster management is handled by **specialized administrative units that are tailored to specific disaster types.**

Switzerland is an example of such countries, where primary departments responsible for disaster management at the federal level serve a broad spectrum of functions. The Federal Office for the Environment (FOEN) leads on water-related disasters such as floods and landslides, storms, forest fires, and earthquake mitigation coordination. The Federal Office for Civil Protection (FOCP) focuses on national emergencies, including increased radioactivity, dam bursts, epidemics, and risk analysis. The Federal Office for Spatial Development (ARE) provides national guidance for hazard-informed spatial planning. The Federal Office of Meteorology and Climatology (MeteoSwiss) handles climate and weather-related hazards such as heatwaves and extreme cold weather conditions. Other relevant agencies include the Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), the Federal Roads Office (FEDRO), the Swiss Seismological Service (SED), the Institute for Snow and Avalanche Research (SLF), and the Bundesstab ABCN (National Crisis Coordination Committee)⁵² (Prior, 2016).

The first responsible group of officials in disaster management comprises federal-level directors, including the director of the Federal Office for the Environment (FOEN), the director of the Federal Office for Civil Protection (FOCP), and directors of other relevant federal agencies in Switzerland. The other group of directors includes heads of the Bundesstab ABCN (National Crisis Coordination Committee) and heads of other research institutions (Ammann, 2008).

⁵² <https://www.preventionweb.net/organization/swiss-federal-office-civil-protection>, last visit 11.09.2024.

2.2.2. The Turkish Context: Legal, Administrative and Operational Aspects of Disaster Management of Cultural Heritage in Türkiye

The previous section provided an overview of disaster management approaches in different contexts. This section examines Turkey's emergency and disaster management system, identifying strengths and areas for improvement based on the categories utilized in the previous section.

Hazards and Threats

Türkiye, situated at the intersection of the European and Asian continents, is a geographically and climatically diverse country with a society characterized by various ethnic and cultural traits. Due to its unique geographical location and topography, Türkiye is prone to various disasters, including earthquakes, floods, landslides, and armed conflicts. These hazards significantly increase Türkiye's susceptibility to a wide range of natural and human-made disasters⁵³ (Tatar, 2020).

Evolution of Disaster Management Approach Over Time

According to the JICA Report, the disaster management approach in Türkiye can be categorized into four main groups from past to present. The period before 1944 was characterized by a focus on "intervention after incident." The years between 1944 and 1958 were considered a period of "partially mitigative measures." The period from 1959 to 1999 was termed the "era of ministries responsible for disasters and construction." Finally, the period after the 1999 Marmara Earthquake, which involved studying the disaster management organizations of various countries, particularly the United States, to develop our approach, is referred to as the "post-1999 Marmara Earthquake period" (JICA-İBB, 2002). In addition to the assessment in the JICA Report, the restructuring following the transition to the Presidential system in 2018 represents **Türkiye's current approach to disaster management** (Strategy and Budget Office of Turkish Presidency, 2023).

⁵³ <https://tomorrowcities.org/overview-multi-hazards-and-risks-turkey>

The evolution of disaster management policies in Türkiye can be traced back to the catastrophic 1939 Erzincan earthquake, which had a magnitude of 7.9. In the immediate aftermath of the earthquake, Law No. 3773, titled "Assistance to be Provided in Erzincan and the Affected Areas by the Erzincan Earthquake," was enacted in 1940.

Following this significant devastation, it became evident that the problem could not be adequately addressed solely through post-disaster reconstruction efforts or by enacting new legal regulations after each disaster. Instead, it was recognized that proactive measures were necessary to reduce disaster damage. Consequently, the first actual disaster law, Law No. 4623, titled "Measures to be Taken Before and After Earthquakes," was adopted in 1944. This legislation aimed to identify areas prone to different types of disasters and implement measures to reduce their impact. The law mandated nationwide implementation and included provisions for identifying earthquake-prone areas, implementing special measures and sanctions in these zones, preparing emergency assistance and rescue plans in advance, conducting geological studies before opening new settlement areas, and outlining actions to be taken by authorities and the public during earthquakes.

In addition to these efforts, Türkiye produced its first earthquake hazard map in 1945, marking a significant milestone in disaster preparedness. Subsequently, in 1959, Law No. 7269, named the "Law on Measures to Be Taken Due to Disasters and Aids" was enacted to address legal setbacks in disaster management, aiming for a more comprehensive and effective approach to disaster preparedness and response. With the enactment of Law No. 7269, the Disaster Affairs Directorate was established. Subsequently, in 1965, the Directorate transformed into the General Directorate of Disaster Affairs, which became affiliated with the Ministry of Development and Housing. This organizational restructuring empowered the General Directorate to undertake various responsibilities related to disaster preparedness and disaster mitigation strategies during pre-disaster periods and implementing post-disaster measures.

In 1988, the "Regulation on Emergency Assistance Organization and Planning Principles Regarding Disasters" was enacted. It focused on ensuring swift state facility response to disaster-affected areas and providing effective initial assistance to citizens.

Türkiye experienced a significant transformation in its disaster management approach after the devastating 1999 *Marmara* earthquake. This event emphasized the urgent need to reassess disaster management strategies, redefine the roles and responsibilities of coordinating institutions, and strengthen authority and coordination mechanisms during emergencies (Akdağ, 1974). One crucial step in this revised approach was the establishment of the Disaster and Emergency Management Presidency, which became affiliated with the Prime Ministry through Law No. 5902 in 2009. This new structure facilitated the integration of disaster management throughout the pre-disaster, disaster, and post-disaster periods within a **comprehensive framework**.

Two significant laws and regulations were enacted concerning the disaster management of built environments in response to disasters. The first, "Law No. 5366 on the Renewal and Protection of Dilapidated Historical and Cultural Immovable Assets" (2005), aimed to rebuild regions and protection zones that lost their distinctive features due to natural disasters (Yıpranan Tarihi ve Kültürel Taşınmaz Varlıkların Yenilenerek Korunması ve Yaşatılarak Kullanılması Hakkında Kanun, 2005). The second, "Law No. 6306 on the Transformation of Areas under Disaster Risk" (2012), included provisions for renewing high-risk areas or buildings destroyed by disasters (Afet Riski Altındaki Alanların Dönüştürülmesi Hakkında Kanun, 2012). Lastly, the Regulation for Spatial Plans Production, enacted in 2014, is vital in balancing the conservation and use of natural, historical, and cultural values. It emphasizes the importance of analyzing and addressing dangers and risks related to natural disasters, thus enhancing urban resilience against various disasters, including earthquakes, floods, landslides, fires, and rockfalls. The regulation also recognizes the necessity of open areas, roads, and other spatial requirements during emergencies and disasters (Çevre ve Şehircilik Bakanlığı, 2014).

When evaluating Turkey's efforts in emergency and disaster management to date, it is clear that the 1999 Marmara earthquake marked a turning point in the country's approach to disaster management. After the 1999 earthquake, there has been a **shift**

towards a holistic approach to disasters. This new approach reshaped the overall strategy, encompassing disaster preparedness, risk management, loss reduction, disaster response, and post-disaster recovery (Özerdem, 2000).

Administrative Aspects of Disaster Management

Türkiye has adopted a novel disaster management paradigm, transitioning from a "Crisis Management" to a "Risk Management" orientation. Under this model, Türkiye's emergency and disaster management approach achieves **equilibrium** by effectively distributing responsibilities among central, regional, and local authorities.

Türkiye's Law No. 5902, enacted in 2009, consolidated previously dispersed administrative units operating under various institutions into one entity (AFAD, 2009). This consolidation gave the Prime Ministry Disaster and Emergency Management Directorate (*AFAD*) authority and responsibility for handling emergencies. Notably, *AFAD*, as the primary authority for emergency and disaster management, identifies the roles and responsibilities of the working groups and coordination units that take part in disaster and emergency response studies and maintains direct connections and cooperation with expert institutions. Following the implementation of the Presidential Government System, the Presidency of Disaster and Emergency Management (*AFAD*) became affiliated with the Ministry of Internal Affairs. This affiliation was formalized through Presidential Decree No. 4, issued on July 15, 2018.

TAMP (Türkiye Disaster Response Plan) includes ministries, institutions, and organizations, as well as the private sector, NGOs, and real people, who will participate in responding to potential disasters and emergencies of all types and scales that may occur in the country⁵⁴ (Turkish Presidency, 2018).

Türkiye's disaster risk management planning system, overseen by the Disaster and Emergency Management Agency (*AFAD*), follows a comprehensive approach covering three phases: pre-disaster, during, and post-disaster. Türkiye Disaster Risk Mitigation Plan (*TARAP*) addresses the pre-disaster period. It focuses on measures and strategies to mitigate the risks posed by potential disasters. Türkiye Disaster Response

⁵⁴https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/turkiye_en, last visit 12.09.2024.

Plan (*TAMP*) is activated during the disaster period. It outlines the coordinated response efforts to effectively manage the crisis and mitigate its impact on affected communities. Türkiye Post-Disaster Recovery Plan (*TASİP*) is implemented during the post-disaster period. It aims to facilitate recovery and reconstruction, restoring affected areas and communities to their pre-disaster state. The *TASIP* Implementation Plan (*TASIP-UP*) is a part of *TAMP* and is prepared for the post-disaster process. On the other hand, Provincial Disaster Risk Reduction Plans (*İRAPs*) were prepared in order to ensure life-saving in provinces, reduce/prevent loss of lives, property, etc., that disasters may cause, raise awareness of disaster risk reduction, improve cooperation among stakeholders, decrease expenditures to be made for post-disaster response and recovery activities and ensure effective use of resources. These plans are designed to work in tandem, providing a structured framework for disaster risk management across all phases of a disaster, from preparedness and response to recovery and rebuilding. This systematic approach helps ensure a coordinated and effective response to disasters in Türkiye⁵⁵ (Figure 16) (Strategy and Budget Office of Turkish Presidency, 2023).

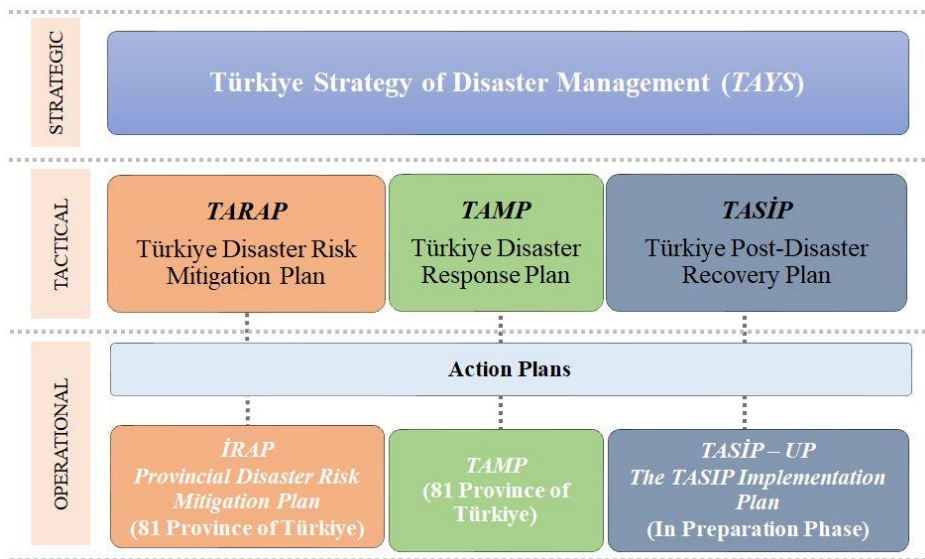


Figure 16. Türkiye's Disaster and Emergency Management System⁵⁶

⁵⁵ https://www.afad.gov.tr/kurumlar/afad.gov.tr/e_Kutuphane/Planlar/TAMP.pdf, last visit 12.09.2024.

⁵⁶ (Strategy and Budget Office of Turkish Presidency, 2023)

Firstly, *TAMP* aims to develop a system that minimizes operational risks during disasters through its integrated planning approach and modular structure. The new version of *TAMP* was published in 2022 after being updated in light of the experiences gained from, and the needs that arose during the disasters between 2014 and 2022. The plan identifies the unit's roles in coordinating 28 service groups by their areas of expertise. It includes the basic principles of planning response before, during, and after disasters. *AFAD* coordinates the execution of the disaster response process in Türkiye using the *TAMP* instructions. Secondly, prepared under the coordination of *AFAD*, the Türkiye Disaster Risk Reduction Plan (*TARAP*) (2022- 2030) identifies objectives, goals, and actions related to public institutions and organizations, local administrations, the private sector, NGOs, and universities that will take part in risk reduction studies for disasters of any type and scale that may occur in Türkiye. The strategic priorities in *TARAP* were determined in line with the internationally accepted strategic priorities in the Sendai Framework (2015–2030). 17 goals, 66 objectives, and 227 actions for 11 different types of disasters are included in the Plan. Regarding earthquakes, the plan includes seven objectives and 29 actions, such as determining Türkiye's crustal structure and model, monitoring crustal deformations in active fault zones, and preparing liquefaction potential maps and local scale soil amplification potential maps, all aimed at reducing earthquake-related risks⁵⁷.

All disaster coordination in the country is *AFAD*'s responsibility. It should be noted that an agency specialized in disasters and emergencies is valuable and necessary for countries. However, in order to overcome the damage and destruction caused by disasters in a short period of time, it is important for teams from all institutions with expertise in relevant fields, such as the armed forces, mining search and exploration, state hydraulic works, administration of highways, the Red Crescent, the Ministry of Environment and Urbanization, and the Ministry of Culture and Tourism, to specialize in disaster preparedness and post-disaster search and rescue operations under the coordination of *AFAD* (Bakir, 2002).

⁵⁷ <https://www.preventionweb.net/publication/turkey-national-disaster-response-plan>, last visit, 13.09.2024.

Responsible Bodies and Appointed Officials for Disaster Management

AFAD’s administrative structure is designed to meet its overarching objectives encompassing a wide spectrum of disaster-related activities, spanning prevention, mitigation, response, and post-disaster recovery (Figure 17) (Turkish Presidency, 2018).

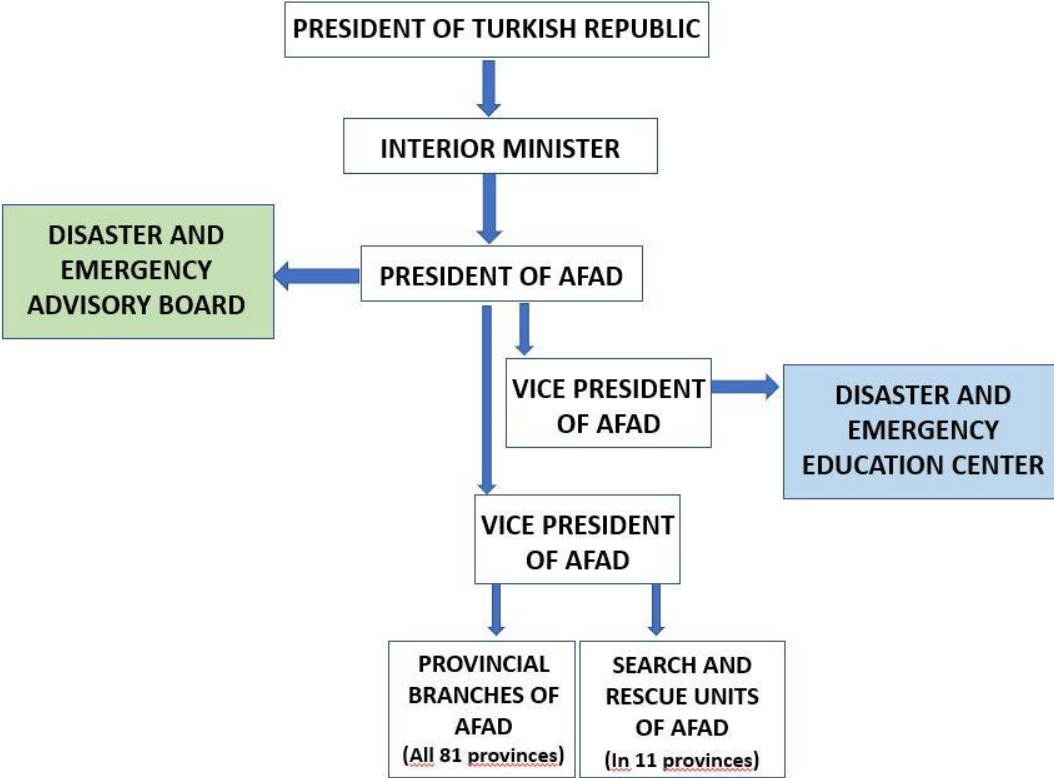


Figure 17. Organizational Structure of Turkish Disaster and Emergency Management Authority (AFAD)

The Disaster and Emergency Advisory Board of Türkiye, led by the President, was established to oversee disaster and emergency management efforts. Its responsibilities include protecting against disasters, reducing risks, making post-disaster recommendations, and setting policies. The Board comprises representatives from various institutions, including the Ministry of Foreign Affairs, Ministry of Interior, Boğaziçi University Kandilli Observatory and Earthquake Research Institute, General Directorate of Mineral Research and Exploration, Scientific and Technological Research Council of Türkiye, and Turkish Red Crescent Association. Additionally, it includes five university lecturers specialized in disasters and emergencies and three members from relevant non-governmental organizations. The Board meets regularly,

convening at least four times annually, with the option for extraordinary meetings. The Presidency provides secretarial support. Concerning Disaster and Emergency Education Center courses, specialized groups are responsible for developing, updating, and assessing course materials, encompassing content, methods, and duration. These groups encompass the Search and Rescue, Chemical-Biological-Radiological-Nuclear, Fire, Basic Disaster Awareness, Planning, Regulations, and Psycho-Social Services teams. Furthermore, regional and provincial coordination unit directors provide services at offices in all 81 provinces and Search and Rescue Units in 11 provinces of the Agency.

2.2.3. An Overall Review of Cultural Heritage Disaster Management

Cultural heritage disaster management is a complex issue that encompasses legal, administrative, and operational aspects. These legal and operational frameworks differ across contexts and are tailored to the unique needs of each country.

The analysis of disaster management systems conducted in the Section categorizes the examination into several key criteria, including Hazards and Threats Causing Disasters, Evolution of Disaster Management Approaches, Administrative Aspects of Disaster Management, and Responsible Bodies and Appointed Officials in Disaster Management. The titles chosen for the study indicate that each diverse region has unique economic, social, and cultural characteristics, along with varying geographic and climatic conditions. The examination provides a valuable opportunity for comparative analysis, shedding light on commonalities and differences across the systems.

Based on the analysis, it is seen that countries represent the presence of multiple hazards and threats that can escalate into disasters. Therefore, states have responded by establishing primarily responsible units, operating under various titles, to deal with these disasters effectively. The main emergency and disaster management departments also maintain close contact and cooperation with specialized units, such as national armed forces, police departments, fire departments, and national Red Cross organizations, particularly during crises.

The findings reveal that, disaster management approaches have shifted from initial central government authority to more balanced responsibility-sharing between central and local administrations. In recent years, the delegation of initial response and disaster management authority has shifted from central to local administrations. This evolution is also evident in the Turkish context. A holistic approach has been adopted, covering the phases of disaster preparedness, response, and post-disaster recovery.

The establishment of civil protection units operating at central, regional, and local administrative levels has significantly enhanced disaster preparedness and response. Furthermore, clearly defined responsibilities ensure effective disaster coordination among central and local units and officials. Key figures involved in emergency and disaster management operations span from the country's president, who serves as the chief of the cabinet, to respective ministers, heads of emergency and disaster management agencies, and regional leaders such as governors and mayors, collectively contributing to emergency and disaster management efforts (Figure 18).

	Hazards and Threats	Primary Depts of Disaster Management	Disaster Management Approach	Status of Adm Responsibilities	Status of Officials Involved in Disaster Management
Italy	Earthquakes, Volcanic Eruptions, Landslides, Floods, Forest Fires, Pollution	Ministry of Civil Defense, Italian National Service of Civil Protection (DPC), The Italian National Fire and Rescue Agency, The Great Risks Committee	Shared responsibilities between the national, regional, provincial and local authorities	National, Regional, Provincial, Local	President of the Council of Ministers (or Ministry of Interior), the National Civil Protection Department Director, Great Risks Committee Members, Mayors
France	Storms, Floods, Forest Fires, Heatwaves, Landslides, Avalanches	General Directorate for Civil Security and Crisis Management (DGSCGC)	Shared responsibilities between central and local authorities	National, Regional, Local	Director General of the General Directorate for Civil Security and Crisis Management (DGSCGC), Minister for the Environment, Governors, Mayors
Germany	Floods, Storms, Extreme Temperatures	The Federal Ministry of the Interior, The Federal Office of Civil Protection and Disaster Assistance (BBK), The Academy for Crisis Management, Emergency Planning, and Civil Protection (AKNZ), German Federal Agency for Technical Relief (THW)	Shared responsibilities between the federal and state governments	Federal government, Federal States	Director of the Federal Office of Civil Protection and Disaster Assistance (BBK), Federal Minister of the Interior, Heads of relevant federal agencies,
Switzerland	Avalanches, Rockfalls, Landslides and Debris Flows, Heavy precipitation, snowmelt, glacier melting	Federal Office for Civil Protection (FOCP), Federal Office for the Environment (FOEN), Federal Office for Spatial Development (ARE), Federal Office of Meteorology and Climatology (MeteoSwiss)	Shared responsibilities between the federal and state governments	Federal government, Federal States, Cantonal and Local Authorities	Director of the Federal Office for the Environment (FOEN), Director of the Federal Office for Civil Protection (FOCP), Head of the Bundesstab ABCN (National Crisis Coordination Committee)
UK	Floods, Storms, Extreme Temperatures	The Civil Contingencies Secretariat (CCS)	Equilibrium of Central, Provincial and Municipal Authorities	Central, Local	Head of the Civil Contingencies Secretariat (CCS), Mayors, Council chairs
Denmark	Storms, Floods, Cloudbursts, Oil spills, Irregular migration	Danish Emergency Management Agency (DEMA), Government Security Committee, Crisis Management Group (CMG)	Equilibrium of Central, Provincial and Municipal Authorities	National, Municipal	Prime Minister, Director General of the Danish Emergency Management Agency (DEMA), Members of the Government Security Committee, Mayors
The US	Hurricanes, Floods, Earthquakes, Terrorism	American Federal Emergency Management Bureau (FEMA), Federal Emergency Management Corps, Federal Fire Dept, Federal Police Dept	Shared responsibilities between the federal and state governments	Federal Government, Federal States, Municipalities	Head of Federal Government (President), FEMA Administrator, Mayors
Japan	Earthquakes, Tsunamis, Fires	Ministry of the State for Disaster Management, Central Disaster Prevention Council, Fire and Disaster Management Agency, Japanese Red Cross, Japanese Coast Guard, Japanese Bank	Decentralization and Empowering Local Authorities	National, Provincial, Municipal	Prime Minister, Minister of State for Disaster Management, Mayors
Turkey	Earthquake, Flood, Landslides, Armed Conflicts	AFAD, Ministry of Interior, Ministry of Env.&Urb, Governorates, Municipalities, Turkish Red Crescent,	Equilibrium of Central, Provincial and Local Authorities	National, Regional, Provincial, Municipal	President, Interior Minister, Head of AFAD, Governors, Mayors

Figure 18. Comparative Assessment of Disaster Management Approaches in Different Contexts

2.3. Insights Derived from Challenges and Achievements in Disaster Management of Cultural Heritage

The Section examines the vulnerabilities causing major disasters, delineating administrative and managerial factors that exacerbated the situation in various examples. Conversely, it also explores lessons learned from successful practices, emphasizing the critical institutional and administrative factors that have been essential for effectively implementing disaster management strategies.

2.3.1. Challenges in Cultural Heritage Disaster Management

- An event is deemed a disaster when it intensifies to a degree that exceeds the capabilities of national, regional, and local response systems. In numerous instances,

the **response capacities at the national level have proven inadequate** to manage the scale and impact of such disasters effectively.

A powerful earthquake struck Nepal in 2015, causing widespread destruction nationwide. Cultural heritage sites were severely affected by the devastation. Several temples, some dating back centuries and representing the unique features of Hinduism and Buddhism in Nepal, were completely leveled by the disaster. This tragic event highlighted the vulnerability of cultural heritage in seismically active zones and the critical need for earthquake-resistant measures to protect these irreplaceable structures (Thapa, 2016) (Figure 19).

The historic city of Bagan, a UNESCO World Heritage Site with over 2,500 Buddhist stupas and temples, suffered extensive damage in 2016. On August 24th, a 6.8-magnitude earthquake struck central Myanmar, directly impacting Bagan. The disaster caused significant destruction to nearly 400 of its ancient structures, highlighting the vulnerability of this culturally significant site to natural hazards (Figure 20).



Figure 19. Patan Durbar Square Kathmandu Before and After the 2015 Earthquake⁵⁸

⁵⁸ <https://www.preventionweb.net/collections/nepal-gorkha-earthquake-2015>



Figure 20. A Historic Buddhist Temple in Myanmar Following the 2016 Earthquake⁵⁹

In 2023, Türkiye was struck by a strong earthquake magnitude of 7.6, significantly impacting the country's eleven provinces. In addition to the loss of life, buildings and cultural heritage structures were severely damaged. Following the disaster, the Ministry of Culture and Tourism swiftly initiated post-disaster efforts for the affected heritage properties by deploying a task force of 100 personnel. This team was tasked with assessing the damage to the structures in the event's immediate aftermath. A total of 2,863 structures were inspected out of 8,444 buildings in these provinces. Among the inspected structures, 169 were destroyed, 535 were severely damaged, 390 were moderately damaged and 721 were lightly damaged. In comparison, 1,048 structures were non-damaged (Figure 21) (Strategy and Budget Office of Turkish Presidency, 2023).

⁵⁹ <https://en.wikipedia.org/wiki/Bagan>



Figure 21. *Antakya* Great Mosque in *Hatay* Province Following the 2023 Türkiye Earthquakes

- In some cases, a common occurrence following disasters is the risk of a primary hazard triggering secondary hazards. Among these, **post-earthquake fire hazards** are particularly prevalent. In such cases, the extent of damage caused by the disaster is further exacerbated.

In **Kobe, Japan**, the devastating earthquake of 1995, with a magnitude of 7.3, caused sparks from short-circuited electrical cables to ignite around one-third of wooden houses. About 250,000 buildings became uninhabitable, leaving 320,000 homeless (Hyogo Prefecture, 2010). A total of 148 separate fires were identified immediately after the earthquake. Buildings in the historic area, constructed primarily of lightweight bamboo, were severely affected due to the fire-vulnerable plaster coating made of non-resistant material. The collapsed buildings created a continuous chain of debris along the streets, facilitating the spread of the fire (NFPA, 1995).

- In some cases, cultural heritage faces significant damage in some regions due to threats arising from **geopolitical risks and associated socio-cultural vulnerabilities**.

The rise of ISIS in Iraq in 2015 witnessed a deliberate campaign targeting the country's rich archaeological heritage. Iconic sites such as Nimrud, an ancient Assyrian city dating back to the 13th century BC, and Nineveh, the once-powerful capital of the Neo-Assyrian Empire, were ruthlessly targeted. ISIS militants employed heavy machinery and explosives to demolish these irreplaceable archaeological treasures, inflicting a devastating blow on humanity's collective memory⁶⁰ (Figure 22).



Figure 22. Iraq's Archaeological Heritage at the Historic Sites of Nimrud and Nineveh Following the Destruction by ISIS Jihadists⁶¹

The historic *Sur* district of *Diyarbakır*, Türkiye, witnessed devastating consequences in 2016 due to clashes between Turkish security forces and Kurdish militants. This culturally rich area, known for its citadel walls, mosques, and traditional houses, suffered significant damage. Several prominent structures, including the *Kurşunlu* Mosque, a masterpiece of 16th-century Ottoman architecture, the Armenian Protestant Church, and the Armenian Catholic Church, all sustained serious damage during the conflict. This incident emphasizes the vulnerability of cultural heritage sites caught in

⁶⁰ <https://archeologie.culture.gouv.fr/mossoul-museum/en/destruction-archaeological-sites>, last visit, 10.09.2024.

⁶¹ <https://www.bbc.com/news/world-middle-east-37992394>, last visit, 10.09.2024.

the crossfire of armed conflict, highlighting the need for awareness and respect for cultural property during political unrest (Figure 23).



Figure 23. Armenian Protestant Church in *Diyarbakır* Province, Türkiye, After the 2016-Armed Conflict Between State Security Forces and Militants⁶²

- In certain instances, there was a **lack of a systematic approach**, resulting in the **failure to follow established plans, programs, and procedures**. Communication and coordination were insufficient, which hindered effective disaster response and recovery of cultural heritage. As a consequence, the loss of heritage properties was significant, leading to irreversible damage to historical and cultural treasures.

In the 1999 Türkiye earthquake, damage assessments of buildings after the earthquake were completed with the support of architects and academics. The Ministry of Culture and Tourism, the Directorate of Surveying and Monuments, and the Regional Directorates of Foundations submitted damage assessment studies and restoration projects to the Conservation Boards for cultural heritage structures affected by the

⁶²<https://www.ohchr.org/sites/default/files/Documents/Issues/CulturalRights/DestructionHeritage/NGOS/DiyarbakirMunicipality.pdf>

earthquake. Municipalities carried out similar procedures, and private individuals owned cultural heritage properties. However, irreversible consequences were encountered when these assessments, evaluations, and demolition of damaged structures were combined with haste, ignorance, and capacity constraints. For example, some registered cultural assets were demolished without permission, and the suspension method of protection was rejected. Although original building materials could have been preserved, they were not systematically protected. Buildings with standing structures but missing fillings were classified as heavily damaged and demolished, leading to the loss of original construction systems, details, and material information. Additionally, the absence of a national database for cultural heritage was recognized as a significant risk. During registration, the lack of photographic, written descriptions, surveys, and other technical information posed a serious deficiency for post-disaster reconstruction (Gündoğdu F. Ü., 2011). The absence of adequate education and training for cultural heritage professionals and disaster management experts hinders the development of a skilled workforce capable of effectively responding to cultural heritage disasters (JICA-İBB, 2002).

An evaluation of the challenges encountered in disaster management systems reveals several critical issues that can impede their effectiveness. Economic, social, cultural, and political vulnerabilities, combined with a lack of awareness regarding secondary hazards, are critical factors that transform hazards into disasters. Furthermore, in disaster response scenarios, an insufficient supply of materials and inadequate logistical capabilities significantly restrict overall effectiveness. When it comes to post-disaster damage assessments of affected structures, the absence of reliable data undermines the ability to conduct timely evaluations, while the lack of specialized teams of qualified professionals further complicates recovery and planning efforts. Additionally, the failure to develop restoration and repair projects based on these assessments and the neglect of reusing original architectural materials appropriate for restoration pose a threat to the historical integrity of affected structures. Ineffective communication and collaboration among relevant institutions and organizations during these crucial phases exacerbate these challenges, potentially leading to an irreversible loss of historical and cultural heritage.

2.3.2. Achievements in Cultural Heritage Disaster Management Through Different Applications

Examining successful cultural heritage disaster management practices through various examples reveals several key factors that contribute to their success. This section showcases selected instances, emphasizing these factors as crucial elements that have supported their effectiveness.

Recovery and Reconstruction of Notre Dame Cathedral in France After the Roof Fire

The catastrophic fire that engulfed Notre-Dame Cathedral in Paris on April 15, 2019, highlights the challenges and complexities involved in conserving cultural heritage during disasters. The reconstruction of Notre-Dame Cathedral offers valuable insights into the principles of cultural heritage conservation following disasters. It exemplifies a multifaceted approach that integrates thorough planning, international collaboration, careful restoration practices, the adaptive use of technology, innovative design strategies, and community involvement. This case serves as a demonstration of effective cultural heritage management in the aftermath of a disaster.

Notre-Dame Cathedral, a UNESCO World Heritage site and an iconic symbol of French culture, suffered extensive damage in the fire, which destroyed its spire and much of its wooden roof. In response, the French government launched a comprehensive reconstruction project aimed at restoring the cathedral while incorporating modern safety features (Figure 24)⁶³.

⁶³ <https://www.europeana.eu/en/exhibitions/heritage-at-risk/rebuilding-notre-dame>, Last visit, 18.09.2024.



Figure 24. Notre Dame Cathedral After the 2019 Fire Disaster⁶⁴

Comprehensive Planning was crucial in ensuring a coordinated and effective response to the disaster. The Notre Dame project demonstrated the necessity of including risk assessments and preparedness strategies in cultural heritage management to mitigate future risks.

International Collaboration played a crucial role in the reconstruction process. Experts from across the globe, including architects, engineers, and artisans specializing in historical conservation, contributed to the project. The collaboration of various experts ensured that restoration efforts followed both traditional methods and modern safety standards, achieving a balance between historical integrity and contemporary resilience.

Architectural conservation was a primary focus of the effort; the reconstruction aimed to restore the cathedral using original materials and techniques whenever possible. For instance, rebuilding the spire was designed to replicate the original structure created by 19th-century architect Eugène Viollet-le-Duc. This careful

⁶⁴ https://en.wikipedia.org/wiki/Notre-Dame_de_Paris_fire

attention to historical accuracy underscores the importance of maintaining the architectural authenticity of cultural heritage sites.

Another key aspect of the restoration process was the **recovery of heritage objects**. Extensive efforts were made to salvage and restore artifacts damaged during the fire, including stained glass windows and other significant artworks. The successful recovery of these objects was essential to preserving the cathedral's cultural and historical value.

Incorporating **fire-resistant designs** into the reconstruction plan highlights the proactive measures taken to address the vulnerabilities exposed by the fire. Fire-resistant materials and structural designs were integrated into the project to enhance Notre Dame's resilience against future disasters, emphasizing the need for cultural heritage conservation to include measures that mitigate the risk of recurrence.

The adaptive use of technology was essential to the restoration's success. Advanced technologies, such as Building Information Modeling (BIM) and laser scanning, were employed to facilitate detailed planning and ensure accuracy in replicating the cathedral's historical features⁶⁵.

Community involvement was essential for fostering a shared sense of responsibility in preserving cultural heritage. Engaging local communities alongside international stakeholders not only strengthened public support but also enhanced the cultural significance of the site on a global scale.

Public Engagement and Funding were also integral to the reconstruction efforts. The French government launched an international fundraising campaign that raised substantial financial support and fostered a global public interest in the conservation of Notre Dame.

In conclusion, the reconstruction of Notre Dame Cathedral serves as a model for disaster management in cultural heritage contexts. Through international collaboration, meticulous conservation, and innovative design strategies, this project demonstrates how effective planning and execution can lead to successful disaster

⁶⁵ <https://www.autodesk.com/campaigns/make-anything/notre-dame>, Last visit, 18.09.2024.

recovery. As global challenges to cultural heritage conservation evolve, the lessons learned from Notre Dame's restoration can inform future initiatives to safeguard our shared cultural legacy⁶⁶.

Disaster Control Framework of the National Archives of Canada

The National Archives of Canada, established in 1872, is crucial for preserving the nation's historical records. It houses over 60 million manuscripts, government documents, maps, drawings, and paintings. In response to a significant flooding incident in July 1990, which exposed vulnerabilities in its disaster preparedness, the National Archives implemented a comprehensive disaster management framework. This example illustrates a successful implementation in disaster preparedness and response for cultural heritage institutions, highlighting the institution's efforts to safeguard its collections (Oliphant, 2014; Canada, 2010).

The flooding incident underscored the need for more robust disaster planning, prompting the National Archives to reevaluate its strategies. By November 1993, an Internal Disaster Control Organization was established to improve the Archives' ability to respond to emergencies and protect its collections. The development of the Disaster Control Framework at the National Archives of Canada offers valuable insights into disaster management principles for movable cultural heritage.

The **disaster control framework** has been established, consisting of two main guides: the Building-Specific Guide and the Core Guide. The Building-Specific Guide offers tailored procedures for each National Archives facility, providing detailed information such as contact lists for emergency personnel, color-coded floor plans to indicate priority areas for collection rescue, treatment protocols for different types of damaged materials, and inventory preparations for hazardous substances. The Core Guide provides general guidelines for implementing effective disaster management practices across all facilities. Together, these guides form a comprehensive disaster management approach that addresses general principles and building-specific needs.

⁶⁶ <https://www.friendsofnotredamedeparis.org/reconstruction-progress/>, Last visit, 18.09.2024.

Establishing a dedicated disaster control organization highlights the importance of **proactive measures** in protecting cultural heritage. The National Archives demonstrates the value of preparedness in safeguarding collections by creating a framework that anticipates potential emergencies.

The National Archives conducts **regular training** sessions to prepare staff for emergencies. These sessions cover a wide range of topics, including basic and advanced salvage techniques, preventive safety measures, and the use of emergency equipment. By consistently raising awareness and offering practical training, the National Archives equips its staff with essential skills to effectively respond during a crisis.

The National Archives conducts **regular drills**, including tabletop simulations, to enhance preparedness. These exercises help validate emergency contact lists and ensure that staff members are familiar with their roles and responsibilities in the event of an emergency. Drills also provide opportunities for staff to practice coordinated responses to hypothetical scenarios, improving their readiness for real-life disasters.

The Disaster Control Organization holds quarterly **meetings** to review current disaster preparedness practices and update roles and responsibilities. These meetings provide a forum for assessing the effectiveness of existing protocols and ensuring that all team members are informed about recent developments and updates in disaster management.

The National Archives' disaster management framework emphasizes **risk prevention**. This involves conducting regular inspections of the facilities, identifying potential hazards, and addressing any infrastructure deficiencies that could increase the likelihood of future incidents. By proactively mitigating risks, the institution reduces its vulnerability to disasters.

The disaster management guides are regularly updated to include new information, lessons learned from past incidents, and evolving best practices in risk management. By consistently revising its protocols, the institution remains adaptable to new challenges. This dedication to continuous improvement enables the National Archives

to strengthen its strategies for protecting collections from future threats, ensuring that its disaster preparedness remains effective⁶⁷.

In conclusion, the National Archives of Canada's response to the 1990 flooding incident is an exemplary disaster management model in cultural heritage institutions. Through the implementation of a comprehensive disaster management framework that includes detailed guides, continuous training, risk prevention measures, and regular updates, the National Archives has established a robust system for protecting its valuable collections. This case underscores the importance of proactive planning and preparedness in enhancing the resilience of cultural heritage institutions against potential disasters.

Preparation of Italy's Cultural Heritage Risk Map by the Central Restoration Institute

Italy's Central Restoration Institute (ICR) has undertaken an initiative to define and mitigate risks to endangered cultural heritage, focusing on environmental threats. This project demonstrates effective disaster management practices for cultural heritage in a country prone to natural disasters like earthquakes, floods, and volcanic activity. Through a systematic approach involving risk assessment, data collection, and the development of mitigation strategies, the ICR's project serves as a model for safeguarding Italy's historical and cultural legacy (IFRC, 2022).

The project began with collecting **environmental risk data** across selected cities in Italy, focusing on identifying specific hazards that could impact cultural heritage sites. This data formed the foundation for a broader understanding of these sites' threats, informing subsequent project activities. Following this, ICR employed **thematic mapping** to represent various risks visually. These maps illustrated the geographical distribution of hazards, including earthquakes, volcanic activity, flooding, air pollution, and human-induced factors, providing a clear overview of the diverse threats to cultural heritage.

⁶⁷ <https://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/mrgnc-mngmnt-pnnng/index-en.aspx>, Last visit, 18.09.2024.

A key focus of the project was the **identification of high-risk areas**. By prioritizing these areas, the project aimed to direct resources and interventions where they were most urgently needed, thereby enhancing the protection of vulnerable cultural assets. Concurrently, a **detailed cataloging and assessment** process was conducted, including evaluating hazards associated with specific locations, the vulnerability of cultural assets, physical conditions and material deterioration, and necessary climate control measures. This comprehensive assessment allowed ICR to develop a nuanced understanding of the specific needs and risks facing individual cultural heritage items.

To further enhance decision-making processes, ICR utilized **computer-based syntheses** to integrate the collected data on risk factors and cultural heritage values. These analyses, expressed in map form, provided an accessible and comprehensive view of the relationship between environmental risks and the significance of cultural heritage. This approach facilitated the development of targeted risk mitigation strategies that were both data-driven and heritage-focused.

A critical outcome of the project was the establishment of a **national database for risk mitigation**, which serves as a central resource for policymakers, conservators, and disaster management professionals. This database supports informed decision-making by providing comprehensive data on risks to cultural heritage, allowing for more effective planning and resource allocation.

Several important considerations emerge from the ICR's initiative. First, the project underscores the importance of an **interdisciplinary approach** that combines expertise from environmental science, heritage conservation, and urban planning. This collaboration ensures that cultural heritage is preserved in terms of its historical and artistic value and safeguarded within its broader environmental context.

Second, the project emphasizes **proactive risk management**. By identifying risks before disasters occur, cultural institutions can implement preventive measures that enhance the resilience of cultural heritage sites and minimize potential damage. This approach is critical for reducing the long-term impacts of natural disasters on cultural heritage.

Third, the initiative highlights the value of **data-driven decision-making**. Thematic mapping and data synthesis allow for more informed and strategic decisions regarding resource allocation and disaster preparedness strategies. By integrating risk assessments with cultural significance, the project provides a clear framework for prioritizing efforts to protect heritage in the face of environmental threats.

In conclusion, the initiative undertaken by Italy's Central Restoration Institute represents a comprehensive model for disaster management in the context of cultural heritage. Through systematic risk assessment, detailed cataloging, and the development of targeted mitigation strategies, ICR demonstrates how proactive and data-driven approaches can effectively safeguard cultural assets from environmental risks.

Swiss System for Protecting Cultural Property

Through the initiatives led by the Protection des Biens Culturels (PBC) agency, Switzerland has demonstrated a strong commitment to safeguarding its cultural heritage from both natural and human-induced hazards. Operating under the Blue Shield symbol, the PBC has established a comprehensive disaster management framework that emphasizes preparedness and collaboration across multiple levels of government. This example highlights the core components of Switzerland's approach to disaster risk management concerning cultural heritage⁶⁸ (Bianchi, 2015).

Recognizing the increasing threats posed by environmental and human-made factors, Switzerland has prioritized **risk preparedness** in its cultural heritage protection policies. The PBC agency was created to implement policies, tools, and mechanisms that enhance the resilience of cultural heritage sites nationwide.

A central aspect of the Swiss system is its **collaborative approach**. The PBC operates through partnerships at federal, regional, and municipal levels, ensuring that all tiers of government are engaged in safeguarding cultural heritage. Collaborators include the Federal Department of Justice, the Police Department, and the Department of Civil

⁶⁸ https://en.wikipedia.org/wiki/Cultural_heritage_protection_in_Switzerland, Last visit, 18.09.2024.

Protection. This multi-tiered engagement promotes a unified effort to protect cultural property from various risks.

The PBC has developed comprehensive cultural heritage **inventories** to support these collaborative efforts. These inventories catalog cultural assets throughout the country and provide foundational tools for assessing risks and planning protective measures. The inventories are integral to identifying vulnerabilities and prioritizing interventions in disaster preparedness strategies.

Complementing the inventories, **implementation manuals** have been designed to guide local authorities and stakeholders in disaster preparedness and response strategies. These manuals provide practical steps for safeguarding cultural heritage in emergencies, ensuring that all relevant actors can access consistent and actionable guidance during crises.

A key component of Switzerland's disaster preparedness framework is the provision of **training courses** for cultural heritage management professionals. These courses cover various aspects of disaster risk management, including emergency response, recovery planning, and preventive conservation techniques. The PBC fosters a culture of preparedness across the sector by equipping cultural heritage professionals with the necessary skills.

Risk assessment and mitigation are also central to the PBC's framework. Comprehensive risk assessments are conducted to identify the vulnerabilities of cultural heritage sites. The findings of these assessments guide the development of tailored strategies for mitigating risks, ensuring that interventions are targeted and effective in reducing potential damage.

In addition to these internal efforts, the PBC engages the public through **awareness campaigns**. These campaigns aim to raise awareness about the importance of protecting cultural heritage from disasters and to foster a sense of collective responsibility toward conservation. Engaging local communities in cultural heritage protection strengthens the overall resilience of cultural assets.

Another significant element of the PBC's work is its contribution to **policy development**. The agency plays a critical role in integrating cultural heritage considerations into Switzerland's broader disaster management frameworks. By ensuring that cultural assets are included in national emergency planning processes, the PBC reinforces the importance of cultural heritage protection at the policy level.

The development of Switzerland's system for protecting cultural property offers several valuable insights into the principles of disaster management for cultural heritage. Three key considerations emerge from this initiative. First, integrating efforts across various governmental departments highlights the importance of a **collaborative approach** to enhancing disaster resilience. Second, **comprehensive training** programs equip professionals with the necessary skills to effectively manage risks, contributing to a culture of preparedness within the cultural heritage sector. Third, **proactive risk management**, through thorough risk assessments and the development of tailored mitigation strategies, allows for implementing preventive measures, significantly reducing potential damage during disasters.

In conclusion, Switzerland's Protection des Biens Culturels (PBC) agency exemplifies successful disaster management practices for cultural heritage through a comprehensive framework that emphasizes preparedness, collaboration, and public engagement. By prioritizing risk assessment, developing detailed inventories and manuals, and providing training opportunities, Switzerland is effectively enhancing the resilience of its cultural heritage against a range of hazards (Stovel, 1998).

Türkiye's Disaster Mitigation Project for Museum Objects

Türkiye, a nation highly vulnerable to natural disasters, particularly earthquakes, launched the Istanbul Seismic Risk Mitigation and Emergency Preparedness Project (ISMEP) following the devastating 1999 earthquake. From 2006 to 2025, ISMEP represents a comprehensive approach to disaster management that integrates structural and non-structural mitigation strategies, stakeholder engagement, and advanced technological tools. This example outlines the key components and strategies employed in ISMEP to enhance disaster preparedness and the resilience of cultural

heritage in Istanbul, a city characterized by high population density and rich cultural heritage vulnerable to seismic activity⁶⁹ (Ay, 2021; Elgin, 2009).

The 1999 earthquake exposed critical vulnerabilities in Türkiye's infrastructure, prompting a national reassessment of disaster preparedness strategies. ISMEP was specifically designed to address these vulnerabilities in Istanbul by employing a multi-faceted approach to disaster management. The project's key components and initiatives are detailed below⁷⁰.

A central aspect of ISMEP is **risk assessment and mitigation strategies**. The project includes comprehensive seismic evaluations of buildings and cultural heritage sites, focusing on their structural integrity. Utilizing advanced tools such as 3D modeling, ISMEP simulates potential earthquake impacts and identifies high-risk areas, allowing for targeted interventions aimed at minimizing damage. These evaluations are critical for ensuring that at-risk sites receive the necessary attention and resources for seismic reinforcement.

In addition to assessments, ISMEP employs a combination of **structural and non-structural mitigation techniques**. Key strategies include retrofitting existing public buildings, such as museums and cultural sites, to withstand seismic forces. The project also develops risk mitigation methods tailored to the specific needs of collections housed within museums, ensuring that both the physical structure and its contents are protected.

The project also utilizes **Geographic Information Systems (GIS)** to conduct risk assessments and map vulnerabilities across Istanbul. By visualizing risk data through GIS, ISMEP enables informed decision-making regarding resource allocation and intervention priorities. The application of GIS technology provides a modern, data-driven approach to disaster management, improving the accuracy and efficiency of preparedness efforts.

⁶⁹ <https://www.ipkb.gov.tr/en/>, Last visit, 18.09.2024.

⁷⁰ https://www.unisdr.org/files/18408_mr.fikretazilimegacitiesandriskredu.pdf, Last visit, 18.09.2024.

A defining feature of ISMEP is its emphasis on **stakeholder engagement**. The project fosters collaboration among various governmental agencies, local authorities, and community organizations, ensuring that disaster preparedness measures are inclusive and effective. This collaborative approach enhances the resilience of cultural heritage sites and strengthens the overall disaster preparedness framework across the city.

As part of its comprehensive framework, ISMEP includes **training programs** aimed at enhancing disaster preparedness among museum staff and other relevant stakeholders. These initiatives cover emergency response protocols and risk management strategies specific to cultural heritage conservation, ensuring that individuals are equipped with the skills necessary to protect cultural assets during emergencies.

In addition to professional training, ISMEP engages the public through **awareness campaigns**, including seminars, workshops, and community meetings. These initiatives raise awareness about disaster risks and preparedness measures, fostering a culture of safety within the broader community. Public engagement is critical for building resilience, as it ensures that citizens are informed and involved in the protection of cultural heritage.

Another significant aspect of ISMEP is its focus on **long-term planning**. Designed as an ongoing initiative, ISMEP is subject to continuous evaluation and updates to ensure its relevance and effectiveness. The project adapts to new research findings and technological advancements, demonstrating a commitment to sustaining disaster preparedness efforts over time.

The Istanbul Seismic Risk Mitigation and Emergency Preparedness Project offers valuable insights into disaster management principles for cultural heritage conservation. Three key considerations emerge from this initiative. First, the **integrated approach** of combining structural improvements with community engagement underscores the importance of considering both physical infrastructure and social dynamics in disaster management. Second, the project exemplifies **proactive risk management**, as thorough risk assessments are conducted before disasters occur, significantly enhancing resilience. Third, ISMEP's **use of technology**,

particularly GIS, demonstrates how modern tools can improve decision-making and resource allocation in disaster preparedness (D'Ayala, 2008).

In conclusion, the Istanbul Seismic Risk Mitigation and Emergency Preparedness Project (ISMEP) serves as a successful disaster management practice for cultural heritage. By combining structural retrofitting, stakeholder engagement, advanced technological applications, and comprehensive training programs, ISMEP enhances the resilience of Istanbul's cultural assets against seismic risks⁷¹ (World Bank Group, GFDRR, 2017).

Integrating Cultural Heritage into Japan's National Disaster Management Mechanism

Japan, a nation frequently impacted by natural disasters such as earthquakes, tsunamis, floods, and fires, has implemented a proactive disaster management approach aimed at preserving its cultural heritage. The catastrophic impact of the Kobe earthquake in 1995, alongside the Great East Japan Earthquake and tsunami in 2011, highlighted the vulnerabilities of Japan's cultural assets to natural hazards. This prompted the government to incorporate disaster risk management (DRM) into the conservation of cultural heritage. This study outlines the comprehensive framework established by the Central Disaster Management Council under the Disaster Countermeasures Basic Act, highlighting key components and strategies for safeguarding cultural heritage (World Bank, 2024)⁷².

Following these catastrophic events, the Japanese government recognized the necessity of developing a structured framework to mitigate risks and enhance preparedness. The Central Disaster Management Council now oversees a comprehensive system structured by the Disaster Countermeasures Basic Act. This framework includes the **classification of cultural properties** based on their significance, facilitating for resource allocation according to their cultural value. Such

⁷¹ <https://www.worldbank.org/en/country/turkey/brief/the-istanbul-seismic-risk-mitigation-project>, Last visit 18.09.2024.

⁷² <https://www.worldbank.org/en/news/feature/2020/06/19/learning-from-the-japanese-experience-on-resilience-cultural-heritage-drmhubtokyo>, Last visit, 18.09.2024.

a system ensures that conservation efforts are prioritized based on the importance of the assets at risk.

A key component of Japan's approach is **risk assessment and systematic documentation**. The government has invested heavily in the thorough documentation of cultural heritage assets, ensuring detailed records are maintained for future reference. This systematic documentation plays a crucial role in assessing hazards, vulnerability, and risk levels associated with cultural properties, enabling informed decisions on disaster preparedness and response strategies.

Capacity building through training programs is another vital aspect of Japan's disaster management framework. These programs aim to enhance cultural heritage professionals' disaster preparedness and response capabilities by equipping them with the necessary skills for effective risk mitigation and disaster response. By prioritizing training, Japan ensures that those responsible for cultural heritage management are adequately prepared for emergency situations.

The involvement of **local governments** is also integral to this framework. Local authorities are encouraged to create detailed inventories of cultural heritage within their jurisdictions, allowing for more effective protection and management of assets at the community level. This decentralized approach enhances local preparedness and ensures a quicker response to potential hazards.

In addition to governmental efforts, **community engagement** is emphasized as a key strategy. Japan fosters a sense of ownership and responsibility towards cultural heritage conservation by involving local communities in disaster preparedness initiatives. This community involvement is critical for ensuring effective emergency response, as it creates a collaborative environment where citizens actively contribute to safeguarding cultural assets.

An innovative aspect of Japan's disaster management strategy is the **integration of traditional knowledge** into its broader DRM framework. Recognizing the value of knowledge developed over generations, Japan incorporates traditional methods that have been proven effective in enhancing resilience against disasters. This integration not only preserves cultural practices but also strengthens disaster response efforts.

Japan's **post-disaster recovery strategies** are guided by a "build back better" approach, focusing on improving resilience during recovery. By ensuring that reconstruction efforts enhance the safety and sustainability of cultural heritage sites, Japan not only restores damaged assets but also reduces future risks.

The Japanese model for integrating cultural heritage into national disaster management offers valuable insights into effective disaster management for cultural heritage conservation. Some key considerations emerge from this initiative. First, the **holistic approach** emphasizes the interconnectedness of cultural heritage conservation and disaster risk reduction. Second, **proactive risk management** through systematic documentation and risk assessment significantly mitigates potential damage. Third, targeted training programs enhance resilience through **capacity building**, ensuring professionals are well-prepared to respond to emergencies.

In conclusion, Japan's proactive approach to disaster management exemplifies successful practices for preserving cultural heritage in the face of natural hazards. By establishing a comprehensive framework that includes risk assessment, systematic documentation, capacity building, community engagement, and integrating traditional knowledge, Japan effectively safeguards its cultural assets while enhancing resilience against future disasters (GFDRR, The World Bank, 2020).

A Truly Integrated Approach: National Trust Emergency Procedures at Historic Houses in England

The National Trust for Places of Historic Interest or Natural Beauty in England has developed a comprehensive **Emergency Procedures Guide** to assist managers in ensuring adequate disaster preparedness and response for its properties. Recognizing the need for a structured approach to emergency planning, the National Trust initiated the creation of this guide in the 1980s with the aim of improving overall preparedness by incorporating lessons learned from previous experiences. This example outlines the key components and strategies the National Trust employs to enhance disaster preparedness within its historic properties⁷³.

⁷³ <https://collectionstrust.org.uk/spectrum-resources/risk-management/>, Last visit, 18.09.2024.

A notable feature of the Emergency Procedures Guide is its status as a '**working document**'. Rather than static, the guide is designed to evolve over time, incorporating new insights and improvements based on the organization's ongoing experiences with emergencies.

Although concerns frequently arise regarding the usability of comprehensive procedural manuals in emergency situations, the National Trust underscores the significance of staff becoming proficient in the guide's content prior to such occurrences. Employees are urged to thoroughly familiarize themselves with the procedures delineated in the manual in advance, thereby facilitating more effective and assured responses when necessitated.

The guide is structured around **a set of instructions** specifically tailored for emergency procedures at historic properties. These instructions cover key areas such as policy, emergency planning responsibilities, the role of the emergency support team, immediate response measures for different types of emergencies, staff roles and responsibilities, communication protocols, and salvage measures.

In addition to the core instructions, the guide includes **detailed annexes** providing supplementary information and guidelines. These annexes address topics such as establishing emergency plans for National Trust buildings, training emergency support teams, guidelines for the rescue and protection of materials and objects during emergencies, managing media and public relations, and specific responsibilities for different staff positions within property management.

In conclusion, the **National Trust's Emergency Procedures Guide** represents successful disaster management practices for historic properties. By developing a comprehensive and adaptable manual that emphasizes staff preparedness, integrates lessons from past experiences, and offers detailed guidance on all aspects of emergency planning, the National Trust has established a resilient framework for protecting its properties against potential disasters (Stovel, 1998).

Establishment of a Task Force Dedicated to Protecting Cultural Artifacts from Extremist Threats in Conflict Zones

On February 16, 2016, the Italian government and the United Nations Educational, Scientific and Cultural Organization (UNESCO) signed a significant agreement in Rome to establish a specialized Task Force to protect cultural artifacts from threats posed by extremist activities in conflict zones⁷⁴. The agreement represents a milestone in UNESCO's global coalition, "Unite for Heritage," launched in June 2015 during the annual meeting of the World Heritage Committee in Bonn, Germany. This example outlines the key components, objectives, and collaborative efforts that form the foundation of this **Task Force** and highlights its significance for global cultural heritage protection⁷⁵ (MENA Report, 2016).

A central feature of the Task Force is the deployment of **specialized personnel** from various sectors. The initiative leverages the expertise of Italy's Carabinieri cultural heritage protection unit, colloquially known as the "art squad", which specializes in preventing the illegal trafficking of cultural artifacts. The Task Force also includes firefighters responsible for initiating the rescue of architectural elements, while UNESCO-trained experts from Italy's Culture Ministry and conservationists are charged with cataloging, storing, and restoring the rescued objects. In addition, civilian experts and private-sector specialists contribute to the initiative, further enhancing its operational capacity and level of expertise.

The Task Force's objectives and activities are focused on several key areas of cultural heritage protection. These include conducting **damage and risk assessments** of cultural heritage in crisis areas and developing **action plans** tailored to specific threats. The Task Force is also responsible for providing technical oversight and **training** for local personnel in affected regions, facilitating the transportation of movable cultural

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<https://www.ohchr.org/sites/default/files/Documents/Issues/CulturalRights/DestructionHeritage/States/Italy.pdf>, Last visit, 18.09.2024.

⁷⁵ <https://whc.unesco.org/en/news/1436> - Last visit, April 1st, 2024.

objects to safe locations, and enhancing efforts to combat looting and the illegal trafficking of cultural heritage artifacts⁷⁶.

In terms of international collaboration, the agreement directly implements the Strategy adopted by UNESCO member states during the General Conference in November 2015. This Strategy calls for reinforcing UNESCO's efforts to protect cultural heritage and promote cultural diversity. It encourages member states to contribute by establishing mechanisms for the rapid deployment of national expertise during emergency situations under UNESCO's overall coordination⁷⁷.

In conclusion, by enhancing UNESCO's capacity to respond to emergencies and reinforcing the international community's ability to address the growing threats to cultural heritage globally, the agreement serves as a vital instrument in the global effort to protect cultural assets. It also builds on existing international legal frameworks, notably the 1954 Convention for the Protection of Cultural Property in the Event of Armed Conflict, extending their applicability to contemporary threats.

In summary, this section highlights achievements through different implementations that demonstrate the diverse and comprehensive approaches adopted for disaster management of cultural heritage in various contexts. The provided examples encompass proactive measures like risk assessments and capacity building in Italy and Switzerland, and comprehensive response frameworks adopted by the National Archives of Canada and the Republic of Türkiye. Additionally, the emphasis on collaboration between government agencies, international organizations, and private entities, as managed by the National Trust for Places of Historic Interest or Natural Beauty in England and the "Unite for Heritage Task Force," underscores the collective responsibility toward cultural heritage conservation. By adopting a multifaceted approach that integrates preparedness, response, and recovery strategies and fosters collaboration at both national and international levels, these practices offer valuable frameworks for safeguarding cultural heritage in the face of disasters.

⁷⁶ https://italyun.esteri.it/en/news/dalla_rappresentanza/2016/02/italy-and-unesco-create-task-force-2/, Last visit, 18.09.2024.

⁷⁷ <https://news.un.org/en/story/2016/02/522242>, Last visit, 18.09.2024.

In conclusion, the challenges encountered in various contexts highlight the serious consequences of disasters and the significant losses to cultural heritage that may occur when effective disaster management is lacking. Turkey has particularly faced vulnerabilities in its cultural heritage due to deficiencies in its institutional disaster management practices. Conversely, numerous successful disaster management strategies show that losses can be minimized by adopting principles such as raising awareness, implementing planning strategies, ensuring collaboration and community involvement, engaging in proactive risk management, providing education and training, building institutional capacity, and utilizing traditional knowledge.

2.4. Towards a Methodological Framework: Identifying and Analysing Key Concepts and Issues in Institutional Disaster Management for Cultural Heritage

This section aims to identify key concepts and issues in cultural heritage disaster management that should be considered while developing an institutional framework. A comprehensive literature review on cultural heritage disaster management revealed several **recurring concepts and terms** related to institutional governance. These concepts, which form the foundation of the study, have been identified and analyzed in detail within the relevant sections⁷⁸.

2.4.1. Key Concepts and Issues Referring to Institutional Disaster Management of Cultural Heritage

This section focuses on identifying and analyzing concepts and terms related to the institutional aspects of cultural heritage disaster management as existing in the literature. The identified concepts and their analyses are categorized into several main themes: levels and phases, key terminology, strategy determination and policy making, organization and administration, and practical implementation.

2.4.1.1. Key Terms

The evolving field of cultural heritage disaster management has necessitated the development of standardized terminology and definitions. Key concepts such as **risk**, **vulnerability**, **hazard**, and **exposure** have been rigorously defined to provide a

⁷⁸ Each concept discussed in this study has been sourced and elaborated upon in the section titled “Appendix E: Identification of Concepts and Issues Based on Sources.”

common understanding of the factors faced by cultural heritage. The concept of **risk management** has become a key framework for addressing disaster risks, consisting of several stages: identification, prevention, assessment, and monitoring (Stovel, 1998; Feilden & Jokilehto, 1998; Dorge V. J., 1999; United Nations General Assembly, 1999; Özerdem, 2000; United Nations, 2005; UNESCO, 2006; ICOMOS, 2008; ICCROM, 2010; United Nations World Conference, 2015; CCI, ICCROM, 2016; World Bank Group, GFDRR, 2017; ICCROM, 2018; ICCROM, 2018; Yıldırım Esen, 2021).

Distinctions have been established between **disasters** and **emergencies**, and the criteria by which these events are classified have been articulated. Corresponding terms such as **disaster management** and **emergency management** have been introduced, and their application to specific domains, like cultural heritage, has been explored (ICCROM, 2010; OCHA, 2015).

The phases of disaster management have been outlined, with **preparedness** identified as a pivotal stage. Preparedness is a broad concept, encompassing activities such as **disaster preparedness** and **emergency preparedness**. Other crucial phases include **prevention, mitigation, and response**, which involve measures to prevent disasters, reduce their impact, and respond effectively when they occur. **Disaster governance** and **disaster risk reduction** are other significant concepts that refer to strategies aimed at minimizing the likelihood and severity of disasters (United Nations General Assembly, 1989; Council of Europe, 1993; United Nations, 1994; ICOMOS Canada, 1996; Stovel, 1998; ICBS, 1998; United Nations General Assembly, 1999; Dorge V. J., 1999; United Nations, 2005; Jigyasu R. M., 2005; UNESCO, 2006; ICOMOS, 2008; ICCROM, 2010; ICBS, 2012; UNISDR, 2015; United Nations World Conference, 2015; OCHA, 2015; CCI, ICCROM, 2016; World Bank Group, GFDRR, 2017; ICCROM, 2018; Turkish Presidency, 2018; Yıldırım Esen, 2021).

Beyond these core concepts, **resilience** has gained prominence in disaster management. Resilience refers to the ability of a system or community to withstand and recover from a disruptive event. In the context of cultural heritage, the resilience of cultural heritage has become a central focus, emphasizing the importance of building the capacity to withstand and recover from disasters (United Nations General

Assembly, 1999; International Strategy for Disaster Reduction, MARSH, ICCROM, ICORP, & UNESCO, 2013; World Bank Group, GFDRR, 2017; ICCROM, 2018).

Levels and Phases

The literature review reveals a recurring emphasis on various phases and scales within disaster management. One key concept that emerges is the scale of intervention, which categorizes disaster response efforts across **international, national, regional, and local** levels. Numerous studies have examined the roles and responsibilities of stakeholders at each level (UNESCO, 1983; United Nations, 1994; Stovel, 1998; Yıldırım Esen, 2021).

Additionally, various sources have identified interconnected levels of implementation in cultural heritage disaster management. These levels are commonly categorized into groups such as **policy, legal, administrative, and technical** measures (Council of Europe, 1993; Kyoto International Symposium, 2005; United Nations, 2005; UNESCO, 2006; World Bank Group, GFDRR, 2017; Yıldırım Esen, 2021).

Some sources refer to disaster interventions based on the timing of the disaster, which leads to phase-based terminology. Common phase designations include terms such as **before, during, and after disasters; pre-disaster, disaster response, and post-disaster; or preparedness, response, and recovery** (Feilden, 1987; United Nations, 1989; United Nations, 1994; Stovel, 1998; ICBS, 1998; Dorge V. J., 1999; United Nations, 2005; UNESCO, 2006; ICCROM, 2010; Ferraro, 2013; United Nations World Conference, 2015; OCHA, 2015; World Bank Group, GFDRR, 2017; Yıldırım Esen, 2021).

2.4.1.2. Strategy Determination and Policy Making

A comprehensive literature review on institutional disaster management of cultural heritage revealed several recurring concepts centering around strategy determination and policy making.

Studies consistently highlighted the importance of clear institutional roles and responsibilities in cultural heritage disaster management. Concept of **policy setting** is frequently mentioned, emphasizing the need for **clear objectives and goals within**

agencies aligned with the **organization's mission statement, goals, mandate, and purpose**. Moreover, the need for **building a culture of resilience** within organizations is highlighted as a critical factor in effective disaster management (Feilden, 1987; United Nations, 1994; Dorge V. J., 1999; United Nations, 2005; Kyoto International Symposium, 2005; OCHA, 2015; CCI, ICCROM, 2016; Yıldırım Esen, 2021).

A common theme in the literature is the importance of **awareness** and **commitment** to cultural heritage disaster management. This included both **public awareness** and **institutional commitment**. The concepts of **political commitment** and **political determination** are also frequently mentioned, highlighting the need for strong political support for cultural heritage conservation (Feilden, 1987; United Nations General Assembly, 1989; United Nations, 1994; ICOMOS Canada, 1996; United Nations General Assembly, 1999; United Nations, 2005; ICOMOS, 2008; CCI, ICCROM, 2016; World Bank Group, GFDRR, 2017; Yıldırım Esen, 2021).

Additionally, cultural institutions require **authorization** and the **integration of disaster management into general disaster management framework** to manage disaster risks effectively (CCI, ICCROM, 2016). Some studies have highlighted the importance of **decentralizing responsibilities from central to local authorities** in the administrative management of disasters (United Nations, 2005).

The literature stressed the importance of integrating cultural heritage into the broader disaster management framework. The concept **integrating disaster management into policies, plans, and programs** is frequently used. This integration required effective coordination between different levels of government and among various stakeholders (United Nations General Assembly, 1989; United Nations General Assembly, 1999; United Nations, 2005; Kyoto International Symposium, 2005; ICCROM, 2010).

The importance of financial resources is consistently emphasized in literature. Concepts such as **funding** and **allocation of financial resources** are frequently mentioned (UNESCO, 1983; United Nations, 1994; Stovel, 1998; ICBS, 1998; United Nations General Assembly, 1999; Dorge V. J., 1999; ICOMOS, 2008; ICCROM, 2010; OCHA, 2015; Havko, 2016; World Bank Group, GFDRR, 2017). The role of **insurance of cultural heritage** against disaster risks in providing financial protection for cultural heritage assets is also highlighted (United Nations General Assembly,

1989; Council of Europe, 1993; United Nations, 2005; ICOMOS, 2008; Zıvrallı & Cabbar, 2015; CCI, ICCROM, 2016; CCI, ICCROM, 2016).

The literature underscores the critical role of **institutional capacity building** in effective disaster management. Concepts such as national and local capacities, operational capacity and response capacity are frequently discussed. Capacity building in terms of human, technical, and financial aspects often refers to human resources and **technical expertise** that comprises conservation experts and heritage recorders (United Nations General Assembly, 1989; United Nations, 1994; ICOMOS Canada, 1996; Stovel, 1998; ICBS, 1998; United Nations General Assembly, 1999; Moore, 2003; United Nations, 2005; Letellier, 2007; ICCROM, 2010; OCHA, 2015; World Bank Group, GFDRR, 2017; ICCROM, 2018; ICCROM, 2018; Yıldırım Esen, 2021).

2.4.1.3. Organization and Administration

The literature extensively highlights the significance of institutional structures and administrative measures in cultural heritage disaster management. Recurrent terms such as **administrative and organizational aspects** underscore the importance of effective governance (UNESCO, 1983; Feilden, 1987; Council of Europe, 1993; United Nations, 1994; Dorge V. J., 1999; Moore, 2003; Kyoto International Symposium, 2005; CCI, ICCROM, 2016; European Commission, 2018; Yıldırım Esen, 2021).

Many sources emphasize **establishing specialized teams**, often called “scientific and technical committees” or “conservation and emergency teams,” composed of experts to address specific tasks. The delineation of roles and responsibilities for these teams is frequently discussed, with terms like **roles and responsibilities of respective parties** (UNESCO, 1983; Feilden, 1987; United Nations General Assembly, 1989; Stovel, 1998; Dorge V. J., 1999; United Nations, 2005; ICCROM, 2010; United Nations World Conference, 2015; OCHA, 2015; ICCROM, 2018; Yıldırım Esen, 2021).

Education and training are consistently identified as critical components of institutional disaster management. A wide range of terms, including **education and training programs**, and **training of staff, teams and experts** highlight the

importance of developing the necessary skills and knowledge (Feilden, 1987; Council of Europe, 1993; United Nations, 1994; Stovel, 1998; United Nations General Assembly, 1999; Dorge V. J., 1999; United Nations, 2005; UNESCO, 2006; ICOMOS, 200; ICBS, 2012; OCHA, 2015).

Providing essential resources, such as **materials and equipment** is another fundamental aspect of institutional preparedness. Effective logistics and supply chain management are emphasized through terms like providing appropriate **tools, equipment, materials, supplies, and logistics** (United Nations General Assembly, 1989; Stovel, 1998; Dorge V. J., 1999; Letellier, 2007; ICOMOS, 2008; OCHA, 2015; ICCROM, 2018).

Collaboration and coordination are essential for successful disaster management. The literature highlights the importance of the concept using various terminology including **collaboration, cooperation and coordination; stakeholder identification; engaging with local communities; and partnerships with universities, organizations, and institutions** (UNESCO, 1983; United Nations General Assembly, 1989; United Nations, 1994; ICOMOS Canada, 1996; Stovel, 1998; Dorge V. J., 1999; ICBS, 1998; United Nations General Assembly, 1999; United Nations, 2005; Kyoto International Symposium, 2005; Jigyasu R. M., 2005; ICOMOS, 2008; ICCROM, 2010; United Nations World Conference, 2015; OCHA, 2015; CCI, ICCROM, 2016; CCI, ICCROM, 2016; World Bank Group, GFDRR, 2017; Uluç & Şenol Balaban, 2017; ICCROM, 2018; Yıldırım Esen, 2021; Chmutina, 2024)⁷⁹.

Additionally, terms like **communication** and **media management** are used to highlight the significance of collaborative approaches (Stovel, 1998; OCHA, 2015; CCI, ICCROM, 2016; ICCROM, 2018; Yıldırım Esen, 2021).

Post-disaster activities often involve **knowledge sharing** and learning. Terms such as **exchange of information, knowledge, technology, and expertise** and **recognition of traditional knowledge** are frequently used. For the transfer of knowledge and experience following disasters, terms like **dissemination of lessons learned** and

⁷⁹ First National Summit on Heritage and Risk Preparedness convened in September 1996 in Québec City at the initiative of ICOMOS Canada

dissemination of best practices are also prevalent (United Nations General Assembly, 1989; United Nations, 1994; United Nations General Assembly, 1999; United Nations, 2005; Kyoto International Symposium, 2005; King J., 2006; ICOMOS, 2008; Jigyasu R. , 2013; World Bank Group, GFDRR, 2017; GFDRR, The World Bank, 2020; Yıldırım Esen, 2021).

Further recommended post-disaster institutional activities include **organizing symposia** at various levels, **educational and awareness-raising initiatives**, **creating documentary films**, and **printing and publishing scientific papers and reports**. Additionally, some sources emphasize **establishing material laboratories** to support ongoing research and documentation in disaster management for cultural heritage (Stovel, 1998; ICOMOS, 2008; ICCROM, 2010; Yıldırım Esen, 2021).

Analysis, Reports and Standard Forms

The literature on cultural heritage disaster management frequently references the concepts of **short-term and long-term planning** related to the cultural heritage disaster management processes. Various planning documents are recommended for cultural institutions, including **Disaster Plans, Risk Preparedness Plans, Safety Plans, and Disaster Response Plans**. In addition to planning, the importance of **land-use planning** for pre-disaster preparedness and **emergency and conservation planning** for post-disaster recovery are also mentioned (UNESCO, 1983; Feilden, 1987; United Nations General Assembly, 1989; United Nations, 1994; Stovel, 1998; Dorge V. J., 1999; United Nations General Assembly, 1999; United Nations, 2005; UNESCO, 2006; Letellier, 2007; ICOMOS, 2008; ICCROM, 2010; World Bank Group, GFDRR, 2017; Jain, 2019; Yıldırım Esen, 2021).

A common theme in literature is the necessity for cultural institutions to establish and follow standardized procedures and **documentation**. These documents, which may include legislative frameworks such as **laws, plans, programs, procedures, guidelines**, and **standard forms**, provide a foundation for effective disaster management (UNESCO, 1983; Dorge V. J., 1999; United Nations, 2005; UNESCO, 2006; Hughes, 2012; OCHA, 2015; CCI, ICCROM, 2016; CCI, ICCROM, 2016; World Bank Group, GFDRR, 2017; ICCROM, 2018; Yıldırım Esen, 2021).

Documentation is often emphasized as essential for ensuring consistency in actions and decision-making. Documentation is closely linked to record-keeping, and the two terms are mainly used together as **documentation and recording**. While documentation is often used in pre-disaster planning, recording is frequently associated with post-disaster measures. **Inventories** are commonly used to document cultural heritage assets prior to a disaster. After a disaster, documentation plays a critical role in assessing damage, informing recovery efforts, and supporting future conservation initiatives. Key documentation components identified in the literature include **heritage information including key maps, building plans, and survey drawings**, as well as **photography, photogrammetry, GPS; GIS, 3D-laser scanning, and 3D modeling** (Feilden, 1987; Stovel, 1998; Dorge V. J., 1999; United Nations, 2005; Letellier, 2007; ICOMOS, 2008; ICBS, 2012; CCI, ICCROM, 2016; ICCROM, 2018; Yıldırım Esen, 2021).

2.4.1.4. Practical Implementation

This section reviews literature on institutional disaster management for cultural heritage, highlighting recurring concepts and terms used in practical implementations, including emergency response, recovery, and long-term conservation.

In the literature, references to technical and practical measures are frequently encountered when discussing the on-site actions that cultural institutions should take in disaster management for cultural heritage. These measures are often described using terms such as **technical and practical measures** and **emergency and disaster response measures** that are commonly referenced to the technical application processes following a disaster (UNESCO, 1983; Feilden, 1987; Council of Europe, 1993; United Nations, 1994; Stovel, 1998; ICBS, 1998; Dorge V. J., 1999; United Nations General Assembly, 1999; Kyoto International Symposium, 2005; UNESCO, 2006; ICCROM, 2010; ICBS, 2012; United Nations World Conference, 2015; OCHA, 2015; World Bank Group, GFDRR, 2017; Yıldırım Esen, 2021).

After a disaster, assessments and analyses must be conducted before organizing rescue operations, following several steps. Concepts like **situation analysis, risk, hazard and vulnerability assessments**, and **on-site damage assessment** are essential for understanding the immediate post-disaster environment. Sources emphasize the

importance of raising awareness among personnel regarding **hazardous materials** (Feilden, 1987; United Nations General Assembly, 1989; United Nations, 1994; Stovel, 1998; ICBS, 1998; Dorge V. J., 1999; ICCROM, 2010; OCHA, 2015; Decker & Townes, 2015; CCI, ICCROM, 2016; World Bank Group, GFDRR, 2017; ICCROM, 2018; Yildirim Esen, 2021).

The technical implementation phase includes a range of terms that outline procedures from on-site safety measures to the recovery of architectural elements and post-disaster measures. One of the critical concepts of the pre-disaster period is securing the site, often referenced by the term **safety and security measures**. Following this, concepts such as **stabilization measures and shoring** are used to describe additional steps in the security process. **Debris removal** is also noted in the literature as a significant action during this phase (Feilden, 1987; Stovel, 1998; ICOMOS, 2008; OCHA, 2015; ICCROM, 2018).

After securing the site, sources discuss **on-site documentation and recording**, which involves prioritizing rescue operations (**priority setting**). Planning prior to rescue operations for cultural heritage is highlighted as essential, with terms such as **rescue and evacuation plans** underscoring the need for pre-operational organization (Dorge V. J., 1999; OCHA, 2015; CCI, ICCROM, 2016; ICCROM, 2018).

In the immediate aftermath of a disaster, terms like **search and rescue operations** are used to describe critical interventions. Cultural heritage rescue operations are structured around an operation cycle, which includes five phases: preparedness, mobilization, operation, demobilization, and post-mission. Beyond this framework, other models, such as First Aid to Cultural Heritage, exist to rescue cultural heritage in the post-disaster period. Frequent concepts defined in the operations include **evacuation and salvage, emergency protection and pre-maintenance of evacuated objects, retrieval, packing, tracking of evacuated objects, relocation, and temporary storage** (Stovel, 1998; Dorge V. J., 1999; OCHA, 2015; ICCROM, 2018).

For the post-disaster phase, numerous terms are referenced in the literature, including **post-disaster recovery and rehabilitation, early recovery and short-term recovery**. Cultural institutions are recommended to take specific post-disaster actions, often referenced with terms like **restoration, reconstruction, and renewal**. Other

post-disaster actions highlighted include **post-mission reporting; temporary covering of structures; establishing visitor pathways within affected sites; establishing networks among experts; and organizing conferences and workshops** (Alexander D. , 1985; Feilden, 1987; United Nations General Assembly, 1989; United Nations, 1994; Stovel, 1998; ICBS, 1998; Dorge V. J., 1999; United Nations, 2005; UNESCO, 2006; ICOMOS, 2008; ICCROM, 2010; FEMA, 2010; United Nations World Conference, 2015; World Bank Group, GFDRR, 2017; Amaratunga, 2017; ICCROM, 2018; ICCROM, 2018; Yıldırım Esen, 2021; IFRC, 2022).

Cultural institutions are often guided by terms like **measuring and assessment of resilience in cultural heritage preservation, setting of indicators and a rating system, and data analysis** to assess the status of damage to cultural assets after a disaster (CCI, ICCROM, 2016; ICCROM, 2018; Yıldırım Esen, 2021).

During the period between the events, institutions focus on ongoing measures, including **regular maintenance and monitoring of affected cultural assets, and developing databases after a disaster**. These practices ensure the continuity and preparedness of cultural institutions in managing heritage assets through the disaster cycle (Stovel, 1998; Letellier, 2007; ICCROM, 2010; Yıldırım Esen, 2021).

2.4.2. Key Concepts and Issues Referring to the Main Phases in Cultural Heritage Disaster Management

This section identifies and analyzes the concepts and issues by examining the principles and practices that cultural institutions use to protect cultural heritage during disasters. The discussion is organized according to the phases of disaster management, addressing the periods before, during, and after a disaster.

2.4.2.1.Pre-Disaster Period

The pre-disaster preparedness phase in cultural heritage disaster management is often the most neglected, largely because it requires significant time and resources. This phase includes several essential components, such as developing policies and advocacy efforts, forming committees and specialized units, organizing education and training programs, and creating plans and procedures.

Policy Development and Advocacy

Some global institutions have developed policies and advocated for considering cultural heritage in practical disaster management applications. For this purpose, the International Committee of Blue Shield (ICBS) aims to promote respect for cultural heritage, encourage **preparedness** for risks, and identify resources for disaster prevention and immediate response (ICBS, 2012)⁸⁰. The International Council on Monuments and Sites (ICOMOS) issues statements advocating for the protection of cultural heritage in conflict zones or post-disaster scenarios, emphasizing the need for respect and safeguarding of heritage sites. International Council of Museums (ICOM) implements programs that **raise awareness** about cultural heritage at risk, particularly in post-disaster contexts. These programs develop resources that help museums effectively prepare for and respond to emergencies⁸¹. International Council of Archives (ICA) also actively engages in disaster management related to cultural heritage. One of the key initiatives of the Institution is the advocacy for archival protection as an integral part of cultural heritage, which involves **promoting policies** and practices that prioritize the safety and conservation of records in disaster scenarios⁸² (ICA, 2024). The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM)⁸³ focuses mainly on research, documentation, technical assistance, and **public awareness** programs to strengthen the conservation of immovable and movable cultural heritage.

⁸⁰ Preserving Cultural Heritage in Times of Crisis: The Significance and Symbolism of the Blue Shield Emblem, <https://gdrc.org/heritage/blue-shield.html>, Last visit: 26.11.2024

⁸¹ <https://icom.museum/en/heritage-protection/emergency-preparedness-and-response/>, Last visit: 17.09.2024

⁸² The International Council of Archives (ICA) is an international non-governmental organization dedicated to promoting global cooperation for the protection of archives and the professional development of archivists. Established in 1948, ICA's mission is to advocate for sound archival management and the physical safeguarding of recorded heritage. It maintains close partnerships with UNESCO and is a founding member of the Blue Shield, an organization committed to protecting cultural heritage threatened by wars and natural disasters

⁸³ ICCROM, established by UNESCO in 1956 and headquartered in Rome, Italy, is an intergovernmental organization crucial to global cultural heritage protection.

Establishment of Committees and Specialized Units

Cultural heritage disaster management is a complex process that necessitates specialized structures within cultural institutions. Consequently, certain institutions have established dedicated units or committees specifically focused on addressing the unique challenges of disaster management in cultural heritage.

One of the significant efforts of the International Council of Museums (ICOM)⁸⁴ in disaster management is the Disaster Risk Management Committee (DRMC). This **committee** is responsible for emergency response coordination for museums worldwide. Comprising museum **professionals** from diverse regions, the DRMC monitors cultural heritage emergencies, provides guidance, and offers assistance in crises. The committee focuses on limiting damage through preventive conservation measures, risk mitigation strategies, and rapid intervention. It also responds to requests for support when national response efforts are insufficient (ICOM, 1993). In 2011, the Governing Board of the International Federation of Library Associations and Institutions (IFLA) **established an Advisory Group** to develop the Principles of Engagement for library-related activities during disasters. These principles provide guidance to IFLA and its members on how to prepare for, respond to, and recover from crises, conflicts, and natural disasters, ensuring that libraries can effectively protect their collections and continue to serve their communities.

Education and Training

Managing cultural heritage in the face of disasters is a complex process requiring specialized expertise. Consequently, global cultural institutions conduct training programs and coordinate practical exercises to prepare individuals for roles in this field, ensuring that theoretical knowledge is reinforced with hands-on experience.

International Committee of Blue Shield (ICBS) provides **training for experts** at national and regional levels for disaster prevention, control, and recovery. The

⁸⁴ The International Council of Museums (ICOM) is a non-governmental organization with around 21,000 members across 146 countries, particularly in regions housing World Heritage sites with museums. ICOM is dedicated to promoting the development of museums and the museum profession on a global scale. One of its key areas of focus is disaster management for cultural heritage, with several initiatives and programs addressing this critical issue

International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) offers various training programs related to disaster risk reduction, including “First aid to cultural heritage in crises,” “Heritage impact assessment,” and “Disaster risk management in cultural heritage.” These courses aim to provide theoretical and practical knowledge on the different aspects of cultural heritage disaster risk management, including risk assessment, preparedness, response, and recovery. Furthermore, ICCROM collaborates with partners such as Ritsumeikan University, UNESCO, ICOMOS, and ICOM to organize the International Training Course (ITC) on Disaster Risk Management of Cultural Heritage annually. The course provides **interdisciplinary training** for an integrated approach to risk assessments and disaster risk management systems incorporating disaster preparedness and urban planning⁸⁵. For the International Council of Museums (ICOM), training is critical to the institution’s disaster management strategy. The organization regularly **conducts courses** to improve disaster risk management practices within museums. These courses cover disaster preparedness, response, and recovery, specifically tailored to the needs of museum professionals. The International Federation of Library Associations and Institutions (IFLA) also conducts training sessions designed to improve the preparedness of libraries and information professionals for disaster situations. These workshops focus on disaster preparedness planning and response strategies specifically tailored for libraries, helping them safeguard their collections in times of emergency. The International Council of Archives (ICA) also offers training programs to improve archivists' disaster risk management skills. These programs focus on emergency preparedness, response strategies, and recovery methods to protect archival materials during crises.

Plans, Programs, Procedures

Certain cultural institutions have developed plans, programs, and procedures to set standards for the preparedness, response, and recovery phases of the disaster management of cultural heritage.

⁸⁵ <https://www.iccrom.org/about/what-iccrom>

The International Federation of Library Associations and Institutions (IFLA)⁸⁶ also actively engages in the disaster management of cultural heritage through several **initiatives and programs**. One of its key efforts is the Cultural Heritage Disaster Reconstruction Programme, which underscores the importance of integrating cultural heritage considerations into disaster risk management and recovery processes. This program aims to ensure that cultural heritage is central to post-disaster recovery, helping communities thrive after crises. On the other hand, the International Council of Museums (ICOM) established an initiative called the Museum Emergency Programme, which supports and trains museum professionals to develop effective disaster response plans. This program emphasizes planning for emergencies like earthquakes, floods, and armed conflicts. It highlights the importance of preventive measures and education tailored to local needs while promoting the establishment of regional networks for greater preparedness.

2.4.2.2. Disaster Response Period

The disaster response and rescue operations phase begins immediately following a disaster. This phase includes some essential components, such as ensuring cooperation and coordination and facilitating assessment of damage at affected structures.

Collaboration and Coordination

Following disasters, certain cultural institutions actively engage in coordinated efforts with relevant actors and stakeholders to safeguard cultural heritage.

The International Search and Rescue Advisory Group (INSARAG)⁸⁷ focuses on search and rescue and operational **field coordination**, providing a network for countries and

⁸⁶ The International Federation of Library Associations and Institutions (IFLA) is the leading global organization representing the interests of libraries and information professionals. As an independent, non-governmental, and not-for-profit organization, IFLA works closely with UNESCO and is a founding member of the Blue Shield, an organization dedicated to protecting cultural heritage during times of conflict or disaster.

⁸⁷ INSARAG, the International Search and Rescue Advisory Group, was established in 1991 following the collaborative efforts of specialized international Urban Search and Rescue (USAR) teams during the Mexican earthquake of 1985 and the Armenian earthquake of 1988. It serves as an inter-governmental humanitarian network comprising disaster managers, government officials, non-governmental organizations (NGOs), and USAR practitioners operating under the UN's umbrella, contributing to the implementation of the International Strategy for Disaster Reduction (ISDR). The United Nations was selected as the secretariat for INSARAG to ensure international participation and

organizations engaged in search and rescue activities in disaster-prone areas. It aims to enhance the effectiveness of **coordination among international search and rescue teams** operating in collapsed structures in disaster areas. In many countries, National Committees of the Blue Shield have been established to coordinate efforts to protect cultural heritage from the risk of damage during armed conflicts or natural disasters⁸⁸. It also assists international responses to emergencies threatening cultural heritage, provides professional expertise during emergencies, and facilitates collaboration with organizations such as UNESCO, ICCROM, and the International Red Cross. As a founding member of the Blue Shield, the International Federation of Library Associations and Institutions (IFLA) also **collaborates** with other cultural heritage organizations to ensure comprehensive protection strategies for libraries and cultural institutions during disasters. This partnership allows IFLA to contribute to developing **coordinated responses** that protect cultural heritage from natural and man-made threats. As a founding member of the Blue Shield, the International Council of Archives (ICA) also collaborates with other cultural heritage organizations to protect archives and cultural property during conflict and natural disasters. During times of crisis, ICA plays a critical role in facilitating communication among its members to coordinate disaster responses effectively. This includes sharing information about damages to archival collections and mobilizing resources for recovery efforts. On the other hand, the International Scientific Committee of Risk Preparedness (ICORP) facilitates coordination and the utilization of all ICOMOS resources during disaster situations (Ünal Z. G., 2013). The International Council of Museums (ICOM) also collaborates with organizations such as ICCROM and the Blue Shield to enhance the protection of cultural heritage during emergencies.

coordination, with the Operational Coordination Support Unit of OCHA in Geneva serving as the secretariat.

⁸⁸ The International Committee of the Blue Shield (ICBS) serves as a guardian for cultural heritage worldwide, akin to the Red Cross for humanitarian aid. Established in 1996, it aims to protect cultural heritage from the threats posed by armed conflicts and natural disasters. The ICBS is comprised of museums, archives, historical sites, and libraries, bringing together the expertise of four specialized institutions: ICA (International Council on Archives), ICOM (International Council of Museums), ICOMOS (International Council on Monuments and Sites), and IFLA (International Federation of Library Associations and Institutions).

Situation Evaluation and Rapid Damage Assessment

Certain cultural institutions conduct situation evaluations and needs assessments in the aftermath of disasters to effectively coordinate disaster response efforts.

The International Council of Museums (ICOM) actively participates in emergency preparedness and response efforts, including evaluating critical situations, **assessing needs**, and devising mechanisms for swift action, such as **rapid damage assessment** reports. In emergency situations, IFLA also coordinates responses by gathering information on damages and threats to cultural heritage and facilitating communication among libraries worldwide. This ensures that effective support is provided during crises.

2.4.2.3. Post-Disaster Period

The post-disaster recovery period is a process requiring several critical activities such as implementing post-disaster recovery measures and producing post-disaster reports and surveys, facilitating knowledge exchange among professionals, and initiating efforts to integrate cultural heritage into broader disaster management.

Post-disaster Recovery and Post-disaster Reporting

Post-disaster efforts are vital for the recovery of cultural heritage. This process encompasses damage assessment, post-disaster reporting and documentation, and repair, restoration, and reconstruction of structures.

In the aftermath of disasters, ICOMOS coordinates resources and expertise from its global network to assess damage and implement recovery strategies in affected regions. For example, the International Council of Museums (ICOM), after disasters affecting cultural sites in the Caribbean and Latin America, mobilized its network to support comprehensive damage assessments and **recovery** initiatives. Additionally, ICOM encourages reporting damages to cultural property affected by disasters, facilitating global communication and coordination among museum professionals. IFLA publishes reports and case studies documenting the best practices in disaster management for libraries, highlighting successful strategies used in diverse contexts.

Knowledge Exchange and Dissemination of the Lessons Learned from the Experience, Establishment of Manuals and Guidelines

Certain cultural institutions contribute to the knowledge exchange in the post-disaster period by disseminating lessons learned from the experience and publishing manuals and implementation guides.

The International Committee of Blue Shield (ICBS) facilitates **sharing knowledge**, ideas, and experiences among professionals and experts⁸⁹. International Council on Monuments and Sites (ICOMOS) disseminates best practices to improve resilience against disasters. Accordingly, it organizes panel discussions, such as the “Expect the Unexpected” series, which shares valuable experiences and knowledge on protecting cultural heritage from natural disasters. The International Council on Archives (ICA) fosters a global network of archival professionals, encouraging **knowledge exchange** and collaboration on disaster management issues. This community engagement allows archivists to share experiences, best practices, and innovative solutions for protecting archives during emergencies. ICA also produces practical resources that offer advice on managing risks to archival collections. These resources include documentation strategies, emergency response protocols, and recovery techniques for records that have been damaged. ICA also researches the impacts of disasters on archives and disseminates its findings to help institutions better understand their vulnerabilities and improve disaster management practices.

The International Council on Monuments and Sites (ICOMOS) identifies and undertakes scientific research on disaster risk planning for cultural heritage. The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), on the other hand, develops **resource manuals and guidelines** to support disaster risk management efforts for cultural heritage, such as “Managing World Heritage” and “Managing Disaster Risk and Building Resilience for World Heritage”. These resources provide a framework for integrating disaster risk management into the overall management of World Heritage properties and other heritage places. The International Search and Rescue Advisory Group (INSARAG)

⁸⁹ <https://theblueshield.org/about-us/history/international-committee-of-the-blue-shield-icbs/>

establishes internationally accepted **procedures, guidelines, and operational manuals** to facilitate collaboration among search and rescue teams. It develops activities to improve search and rescue preparedness in high-risk countries and regions⁹⁰. (OCHA, 2015). The International Federation of Library Associations and Institutions (IFLA) provides various resources and guidelines to assist libraries in disaster preparedness and recovery. These resources include disaster planning, response, and recovery **manuals** designed specifically for library collections. The International Council on Archives (ICA) also develops guidelines and best practices tailored specifically for archives following its efforts. These resources assist archivists and institutions in creating effective disaster preparedness and response plans to safeguard their collections and facilities.

Integrating Cultural Heritage into Broader Disaster Management and Recovery Frameworks

One of the issues certain cultural institutions addresses is the integration of cultural heritage into the broader framework of disaster management.

The International Scientific Committee of Risk Preparedness (ICORP)⁹¹ aims to ensure better **integration of heritage structures, sites, and areas into national and local systems, and international disaster risk management**, preparedness planning, risk reduction, and relief operations. In collaboration with ICCROM, ICOMOS also addresses integrating cultural heritage recovery into broader disaster recovery processes within the guidance documents that offer frameworks for post-disaster recovery and reconstruction of heritage sites. ICOMOS advocates for the **inclusion of cultural heritage considerations in national and international disaster risk management policies**.

In conclusion, this section of the chapter focuses on identifying and analyzing recurring key concepts and terms found in the literature. The analysis allows for the accurate positioning of each concept and issue within a potential institutional framework by examining their interconnections. Based on this identification and

⁹⁰ <https://www.insarag.org/>, Last visit: 17.09.2024

⁹¹ ICORP (International Committee on Risk Preparedness) is a subcommittee of ICOMOS dedicated to working on preparedness, risk reduction, and management of disaster risks in historical environments.

analysis, all related components can be organized according to their relationships. The categories include key terminology and concepts related to policy-making, administration and practical implementation. Additionally, concepts associated with the main phases of a disaster—pre-disaster, disaster response, and post-disaster—have been identified.

2.5. From Theory to Practice: An Overall Evaluation of Disaster Management

A critical review of existing literature and current practices in disaster management reveals that developing a model for institutional disaster management requires a comprehensive identification and analysis of various terms, concepts, issues, implementation scales, and levels, as well as different phases of disaster occurrence. By integrating literature reviews with analytical studies, the chapter aims to provide a foundational ground for institutional cultural heritage disaster management presented in Chapter 3.

First, an examination of international cultural institutions along with disaster management systems employed in different contexts highlights the need for well-defined **policies** and strategies. To achieve this, institutions must be strengthened with the necessary legal **authorization**, supported by relevant **documents** and regulations. Furthermore, adequate **financial resources** must be allocated to ensure effective cultural heritage disaster management. The analysis of efforts and successful implementations in this field indicates that institutions must develop sufficient institutional **capacities**, including human resources, financial support, equipment, and logistics, to enhance their resilience (UNESCO, WHC, ICCROM, ICOMOS, IUCN, 2010; Weichselgartner, 2015).

Second, the challenges faced in different contexts demonstrate that one of the primary reasons for cultural heritage damage during disasters is the lack of adequate **administrative measures**. Post-disaster recovery experiences underscore the critical need for proper **inventories** and documentation of cultural properties to facilitate effective restoration efforts. Additionally, the analysis of various disaster management systems and successful practices underscores the necessity of establishing **specialized teams and units**, implementing **training programs**, and fostering **collaboration** and coordination between institutions and expert organizations (Feilden, 1987; Council of

Europe, 1993; United Nations, 1994; Kyoto International Symposium, 2005; CCI, ICCROM, 2016).

Third, a review of international publications, conferences, and decisions, as well as systems employed in different contexts, underscores the significance of taking **technical and physical implementation** measures to protect cultural heritage in the face of disasters. These measures should not only focus on **post-disaster recovery** but also on **preparedness** strategies that apply during the periods between major events. The challenges faced and efforts of the international cultural institutions have led to the implementation of disaster preparedness measures and **pre-operation checking** procedures prior to rescue operations, and specific procedures for cultural heritage **rescue operations**. These initiatives aim to minimize damage to cultural properties and enhance their protection during disasters (Feilden, 1987; Stovel, 1998; ICOMOS, 2008; ICCROM, 2010; OCHA, 2015; ICCROM, 2018).

Building on the conceptual framework and insights gained from the literature, as well as examining systems and institutions, challenges, and successful implementations, this chapter identifies key institutional components and sub-components. For each component, corresponding standards are defined in a scaling order. These established standards enable institutions to assess their level of compliance and support self-evaluation. The components analyzed in this chapter form the foundation for the framework proposed in Chapter 3.

CHAPTER III

A FRAMEWORK MODEL PROPOSAL FOR DISASTER MANAGEMENT OF ENDANGERED CULTURAL HERITAGE FOR INSTITUTIONS

Disaster management of cultural heritage encompasses a multitude of components, constituting a complex set of measures and implementations. It constitutes a specific procedure that necessitates active involvement from various stakeholders at national, regional, and local levels. A thorough examination of literature is undertaken to comprehensively address the topic, including books, periodicals, research reports, conference papers, workshop findings, and resources related to disaster management for cultural heritage. These sources, which are detailed in Chapter II, served as the basis for the research.

The thesis's preliminary investigation revealed a concentration of certain institutional capacity components across different phases of disaster management, spanning disaster preparedness, disaster response, and post-disaster recovery measures. The components within each framework level have been linked to their corresponding indicators, creating a comprehensive tool applicable to disaster management and post-disaster search and rescue operations for cultural heritage.

The thesis evaluates these focal areas from an institutional perspective and proposes a three-tiered disaster management structure. This structure comprises Policy Making, Administrative, and Technical Implementation Levels, forming the basis of the proposed framework.

The framework proposed in this study systematically categorizes concepts derived from various sources and analyzed in the previous chapter into three distinct levels. First, any new subject introduced to an institution necessitates political backing and should be integrated at the policy-making and strategic levels. This initial category is

referred to as the policy-making level. Second, prior to implementation, the new subject must be addressed administratively, with the institution providing the necessary support and measures. This preparatory phase constitutes the administrative level. Finally, essential actions about the new subject are carried out in the last stage, where practical applications are implemented. This phase is called the technical implementation level. By structuring the framework in this way, the institution ensures that new initiatives in disaster management receive comprehensive political support, appropriate administrative preparation, and effective execution at the technical implementation level (Figure 25).

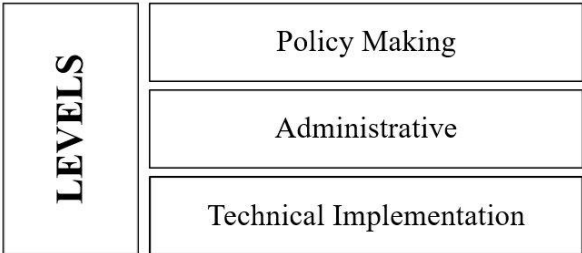


Figure 25. Levels of Institutional Approach to Disaster Management of Cultural Heritage

With the proposal, cultural institutions could be able to verify whether sufficient measures have been taken in terms of policy formation, administrative structure, capacity requirements, and technical implementation areas for disaster management of cultural assets. The proposal facilitates an evaluation of the sufficiency of the existing measures.

The proposed methodology for the "Institutional Framework Model for Disaster Management of Endangered Cultural Heritage" is informed by some key sources. The first study presents a comprehensive set of INSARAG guidelines covering policy, preparedness and response, and operational field aspects (OCHA, 2015). The second is a publication by ICCROM that presents a holistic and systematic approach to cultural heritage rescue in disasters (ICCROM, 2018). Both sources, addressing institutional considerations systematically, have contributed to developing the thesis framework. This process has resulted in a set of comprehensive matrices, one for each level, which visually represent the relationships between components and indicators. The framework encompasses all disaster management phases, including pre-disaster,

disaster response, and post-disaster recovery. While the components within each level are interconnected, they collectively form a unified operational framework.

The evaluation of the proposed framework in this study was conducted through the lens of a specific cultural institution, namely the General Directorate of Foundations of the Republic of Türkiye. As part of this process, the method of Yıldırım Esen and Bilgin Altınöz, called "Heritage Resilience Scorecard," which is a measurement framework previously employed to assess the risk governance of Türkiye's Ministry of Culture and Tourism, has been utilized in the context of this thesis. This framework incorporates a four-point evaluation scale, ranging from "zero" to "three," to measure specific indicators (Yıldırım Esen & Bilgin Altınöz, 2021).

This process has resulted in a comprehensive set of indicators for each framework's three levels. These indicators are designed to assess the institutional capacity of cultural agencies responsible for cultural heritage conservation. Performance criteria and a four-point rating system (0-3) have been established to achieve this objective. Each indicator related to capacity building is assigned a rating, enabling a quantitative evaluation of the effectiveness and proficiency of institutions in safeguarding cultural heritage. The application of this framework may provide valuable insights into the strengths and weaknesses of individual agencies, allowing for a more comprehensive analysis of their overall capacity for cultural heritage disaster management and conservation.

3.1. Policy Level

In the field of disaster management for cultural heritage, the first defined level for institutions is the policy-making level. This level is critical in establishing a robust framework for disaster management strategies, as it involves defining the institution's goals, objectives, priorities, and scope. Policies, in essence, are written declarations outlining an organization's intentions, requirements, and standards related to its activities. Therefore, it is imperative for institutions to clearly define their policies at fundamental levels and ensure their alignment with established legal frameworks and international guidelines (UNESCO, WHC, ICCROM, ICOMOS, IUCN, 2010; Weichselgartner, 2015).

To ensure the adoption and implementation of these policies, cultural institutions must actively seek political support for cultural heritage disaster management. This includes gaining support from politicians, managers, and heads of cultural agencies. It is essential to emphasize the significance of safeguarding cultural heritage during disasters, recognizing that historic environments are valuable assets that require conservation for sustainable development (Avrami E. , 2016).

The thesis details the essential components for policy-making in cultural heritage institutions, providing a structured method to enhance the development of effective disaster management policies (Figure 26).

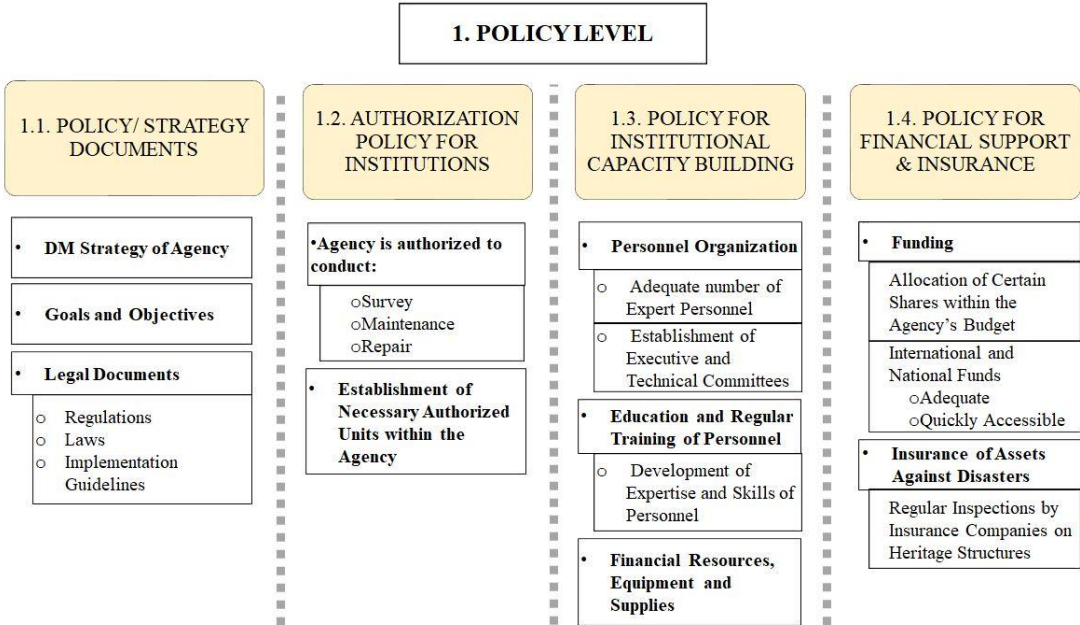


Figure 26. Structure and Components Proposed for the Policy Level

3.1.1. Policy / Strategy Documents

Cultural institutions define policies for the management of disaster risks to cultural heritage. These policies are complemented by the development of a comprehensive management strategy (Wirilander, 2013). Throughout the execution of this process, administrative and technical implementation measures, as well as institutional capacity components, are established in alignment with the policies and strategy documents.

The institution's commitment to preserving heritage and effectively integrating cultural heritage assets and disaster risks finds expression in its policies and legislation (World Bank Group, GFDRR, 2017). Policies and procedures, encompassing aspects such as collection management, building management, and disaster preparedness, contribute significantly to risk reduction across various facets of heritage conservation (CCI, ICCROM, 2016).

Policy documents about the agency responsible for Disaster Management of Cultural Heritage outline its objectives and its mandate. These documents encompass a comprehensive range of laws, regulations, procedures, and implementation guidelines that have been published within the field (McDonald, 2003).

Legislation is drafted and enacted to address various critical matters, such as establishing departments, units, and teams, appointing team members, defining their roles and responsibilities, and organizing education and training related to safeguarding heritage against disasters. The issue of disaster management of cultural heritage is integrated into the existing cultural heritage legislation.

3.1.2. Authorization Policy of Institutions

Institutions tasked with safeguarding cultural heritage possess the authority to enact measures addressing disaster risks specific to cultural heritage. This authority encompasses activities such as conducting surveys, carrying out maintenance and repair work, and implementing other necessary actions. Moreover, the relevant units and personnel of these institutions involved in disaster management are legally empowered to execute these practices. Equipping these authorities with the necessary resources and supplies for disaster prevention and mitigation activities is crucial (ICOMOS, 2008).

An authorized cultural agency has a unit called the Disaster Management of Cultural Heritage. This unit is responsible for implementing measures related to the disaster management of cultural heritage. Additionally, an authorized entity organizes Tabletop Exercises, Drills, and Reassessment processes for the disaster management of cultural heritage, with the participation of relevant institutions from other institutions. Other institutions are obliged to respond to meeting calls and fulfill their

responsibilities. Therefore, an authorized cultural institution has the authority to implement sanctions for violations by other institutions.

3.1.3. Policy for Institutional Capacity Building

As overall institutional capacity increases, the level of disaster risk decreases according to risk management approaches. While the cultural sector may not be directly involved in initial on-site search and rescue operations in the aftermath of disasters, cultural institutions are expected to have the capacity to safeguard cultural heritage effectively in times of crisis.

Preparedness in management, rescue, evacuation, and logistics allows cultural institutions to handle a wide range of disasters (OCHA, 2015). To meet expectations, **capacity-building policies** are implemented, and expertise in the field is developed. An adequate number of experts are provided with regular training focused on risk reduction, preparedness, and response in the context of cultural heritage conservation during disasters (Figure 27).

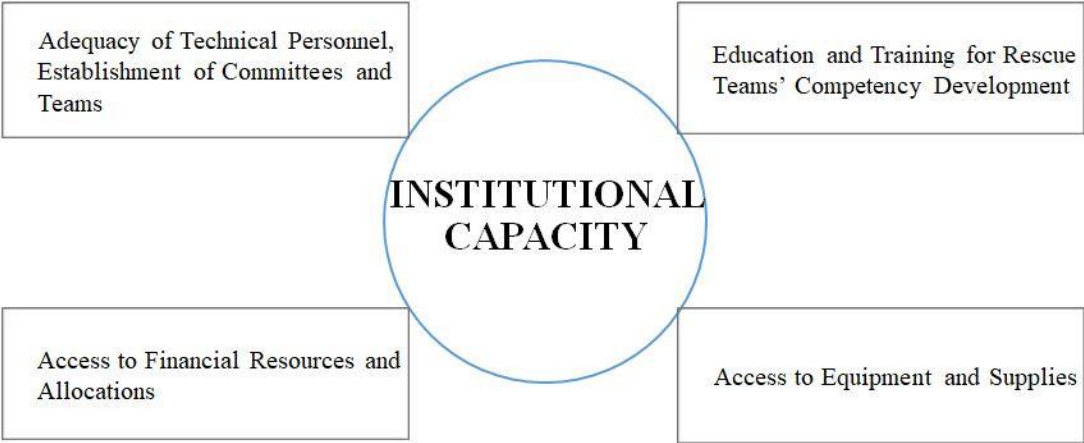


Figure 27. Components of Institutional Capacity

3.1.3.1. Adequacy of Technical Personnel and Establishment of Committees and Teams

Cultural agencies employ or work with an adequate number of expert individuals to handle disaster management for cultural heritage. The personnel mainly consist of individuals with technical backgrounds, including architects, civil engineers, art historians, city planners, and specialists in civil defense.

Cultural institutions enhance their disaster management capabilities by forming dedicated boards. The executive committee provides strategic direction, while the technical committee leverages its expertise to guide implementation.

The executive committee designs the potential structure of teams. Teams are designed to operate with a bottom-up structure rather than a top-down approach. Before a team is formally established, the decision is made regarding the type of team, whether it is multidisciplinary or single discipline, and specific roles and responsibilities are clearly defined. The composition of the teams reflects a diverse range of expertise, including department heads, branch managers, experts from relevant organizations, universities, representatives from the public sector, and individuals. The executive committee is also responsible for determining whether the agency requires a rescue team. If the need arises, a rescue team, as well as additional assessment and documentation teams, are established within the agency (OCHA, 2015). Furthermore, the composition of the rescue teams is defined, and the commitment of its members is provided.

In addition to the executive committee, the technical committee shoulders its own set of responsibilities. Standards used at pre-disaster and post-disaster period implementations, namely preparedness and response measures, are determined. The program and contents of regular education and training are decided. Additionally, a database of team members is established, containing detailed information that is regularly updated to ensure accuracy and relevancy.

The effectiveness of institutional capacity is greatly enhanced through the active participation of respective actors and stakeholders. Basically, rescue teams communicate and collaborate with the top management of the agency, Local Emergency Management Authority (LEMA), as well as other teams during operations

while considering available resources, time constraints, and the quality of their response. Individuals specialized in various areas, such as carpenters, construction workers, and civil engineers, alongside firefighters, civil defense personnel, and military forces, participated as organized first responders, actively contributing to the operations.

3.1.3.2. Education and Training Programs for Competency Development of Rescue Teams

Personnel involved in operations are expected to demonstrate proficiency in four main areas: management, search and rescue, maintenance and storage, and logistics. Therefore, agencies provide continuous education and training through periodic exercises, addressing specific aspects such as establishing and updating emergency priority lists, implementing safety and security considerations, applying pre-maintenance, repair, and on-site stabilization of affected objects, post-disaster rescue and evacuation procedures in the field, and overseeing post-disaster restoration practices.

In addition, the qualifications and key considerations of team members, including acquired skills, knowledge, expertise, and competency, are clearly defined. Each rescue team member possesses qualifications in specific areas such as assessing situations, hazard removal, establishing on-site signaling and labeling protocols, stabilization and rescue activities, and ensuring a high level of readiness. (UNESCO, WHC, 2013).

Implementations requiring specialized treatment, including rigging, lifting, moving of structural concrete and beams, rope techniques for lifting heavy architectural elements, and shoring and stabilizing techniques, are executed with the collaboration of other authorities. This comprehensive approach encompasses tasks like window-door stabilization, vertical-horizontal stabilization, and diagonal stabilization. Team members are also proficient in using technology, including GPS technology. (OCHA, 2015).

3.1.3.3. Financial Resources, Equipment and Supplies

Certain allocations are reserved to afford activities related to the institution's capacity components. In addition, agencies prioritize both the facilitation of evacuation and rescue of heritage objects and the implementation of regular training by ensuring personnel's accessibility to equipment. Detailed personnel rosters with contact information are also compiled, a comprehensive inventory is maintained, and the equipment and supplies necessary for disaster response are provided (OCHA, 2015).

3.1.4. Policy for Financial Support and Insurance

Cultural institutions consider adopting a financial support policy for the disaster management of cultural heritage. They are also prepared to access domestic and international funds during the post-disaster period. Finally, cultural institutions insure their assets against all types of hazards and regularly monitor their current physical condition.

3.1.4.1. Funding

Cultural institutions allocate a specific portion of their budget for the management of cultural heritage during disasters. These allocations cover the financing of the preparation of pre-disaster hazard, vulnerability, and risk assessments for monumental heritage, the routine maintenance of heritage structures in the pre-disaster period, and post-disaster rescue operations for affected heritage. Furthermore, institutions proactively plan to access additional funds at both national and local levels, ensuring that these funds are adequate and readily accessible. Government institutions provide some of these resources in the form of unconditional or delayed repayments, low-interest loans, funds, and grants. In addition to these, various organizations may be encouraged to invest and provide assistance for advertising and commercial purposes, tax incentives, and other privileges, ensuring a strong flow of financial resources to these areas for charitable purposes. Even projects undertaken in the past solely for advertising purposes have shown that well-prepared projects, with the right questions directed toward the field and the target company, can receive positive responses (Havko, 2016). Furthermore, establishing clear legal frameworks and transparent aid

distribution procedures within the agency facilitates the streamlined delivery of international assistance.

3.1.4.2. Insurance

Cultural heritage, encompassing both structures and artifacts of architectural importance, is safeguarded by insurance coverage against potential loss, damage, theft, and arson resulting from disasters. The system is designed to ensure that the structure is insured and that insurance information is readily accessible. Otherwise, in the event of a disaster, where urgent intervention is required for each asset, delays may occur in mobilizing institutional resources for the urgent repair of cultural heritage (Zıvralı & Cabbar, 2015).

Essential measures are taken to promote and facilitate full and appropriate insurance. This entails regular inspections by experts and insurers, with specific terms and warranties associated with these assessments. Efforts are actively made to foster the exchange of knowledge and expertise between authorities and insurance companies. The aim is to ensure that the full estimated cost of loss or damage to cultural heritage is calculated during the post-disaster phase. In cases of damage, the insurance policy plays a pivotal role in restoring buildings or objects to their pre-disaster condition (ICOMOS, 2008).

3.1.5. Indicators and Scorecard for Measuring Compliance at Policy Level

Necessary components, indicators, and scorecard for policy-making in cultural heritage agencies have been proposed and evaluated together according to:

- The policy and strategy documents (indicator 1.1),
- Authorization policy (indicator 1.2),
- Institutional capacity building policy (indicator 1.3),
- Policy of financial support and insurance (indicator 1.4) (Table 2).

Table 2. Indicators and Scorecard for Measuring Performance Requirements at Policy Level

Indicator 1.1 – Policy and strategy documents, an overall DM strategy with comprehensive DM practices and legal documents such as laws, regulations, and implementation guidelines.	Scored rating
<ul style="list-style-type: none"> Neither a policy nor a strategy is adopted by the agency, and the agency has not defined any policy, strategy, or legal documents for the disaster management of cultural heritage. Besides, goals and objectives are not identified either. 	(0) ZERO
<ul style="list-style-type: none"> The agency adopts a strategy for Disaster Management of Foundation Cultural Heritage. However, it lacks legal documents, a Strategic Plan, and a policy paper. Additionally, its goals and objectives are not clearly specified. 	(1) INITIAL
<ul style="list-style-type: none"> The Disaster Management strategy for Foundation Cultural Heritage has been adopted, outlining specific goals and objectives for the disaster management of cultural heritage. However, this strategy is not included in all official documents. 	(2) PROGRESSING
<ul style="list-style-type: none"> The policy for Disaster Management of Foundation Cultural Heritage has been adopted. Clear goals and objectives regarding the disaster management of cultural heritage have been established. Support for the disaster management of foundation cultural heritage is reflected in all legal documents, including laws, regulations, and implementation guidelines. 	(3) SUFFICIENT
Indicator 1.2 - Authorization of Agency	Scored rating
<ul style="list-style-type: none"> The Agency is not authorized to protect cultural heritage affected by disaster. 	(0) ZERO
<ul style="list-style-type: none"> The Agency is authorized to perform basic repairs. However, it cannot undertake actions for disaster preparedness, response, or recovery. 	(1) INITIAL
<ul style="list-style-type: none"> The Agency is authorized to protect and/or restore heritage assets. However, the disaster management approach for cultural heritage is not defined in legislation. 	(2) PROGRESSING
<ul style="list-style-type: none"> The agency is fully authorized to preserve cultural heritage against all types of disasters, covering the phases of pre-disaster, during-disaster, and post-disaster. 	(3) SUFFICIENT
Indicator 1.3 - Policy for Institutional Capacity Building	Scored rating
<ul style="list-style-type: none"> The agency lacks sufficient expert personnel, materials, and supplies for effectively managing disasters related to cultural heritage. Additionally, there is no budget allocation set aside for this purpose, and the agency does not organize education or regular training programs. 	(0) ZERO

Table 2 (Cont'd)	
<ul style="list-style-type: none"> The agency has a sufficient number of expert personnel to manage disasters related to cultural heritage . However, there is no budget allocation specifically set aside for this purpose, and necessary materials and supplies are not provided. Additionally, regular education and training programs are lacking. 	(1) INITIAL
<ul style="list-style-type: none"> The agency has an adequate number of expert personnel and adequate materials and supplies for use in the area of disaster management of cultural heritage. Certain share is allocated in the Agency's budget. However, regular education and training programs are not organized. 	(2) PROGRESSING
<ul style="list-style-type: none"> The agency has sufficient expert personnel and necessary materials and supplies for managing disasters related to cultural heritage. Administrative units have been established, and appropriate financial resources have been allocated. Expert staff have been appointed, and personnel receive regular training with the latest information. Additionally, adequate materials are procured to support these efforts. 	(3) SUFFICIENT
Indicator 1.4 - Policy for Financial Support and Insurance	Scored rating
<ul style="list-style-type: none"> The agency lacks financial resources for disaster management of cultural heritage and does not insure cultural assets against disaster risks. 	(0) ZERO
<ul style="list-style-type: none"> The agency's funding for disaster management of cultural heritage is inadequate. Nevertheless, cultural property is insured against disaster risks. 	(1) INITIAL
<ul style="list-style-type: none"> The Agency provides sufficient financial resources for cultural heritage disaster management; however, access to additional funds remains limited. Cultural property is insured against disaster-related risks. 	(2) PROGRESSING
<ul style="list-style-type: none"> A sufficient amount of financial resources is allocated each year to the agency's budget for disaster management of cultural heritage. Additionally, cultural property is insured against disaster risks. 	(3) SUFFICIENT

3.2. Administrative Level (Institutional Aspects)

Administration plays a vital role in the disaster management of cultural heritage, alongside policy-making and technical implementation measures. Administrative measures are crucial in strengthening institutional capacity and establishing a structured framework to safeguard cultural properties from disasters. This highlights the necessity of adopting a well-defined administrative framework for cultural heritage conservation in the face of potential events.

Essential components required for the administrative level, as proposed for cultural heritage institutions in the thesis, are depicted in the figure (Figure 28).

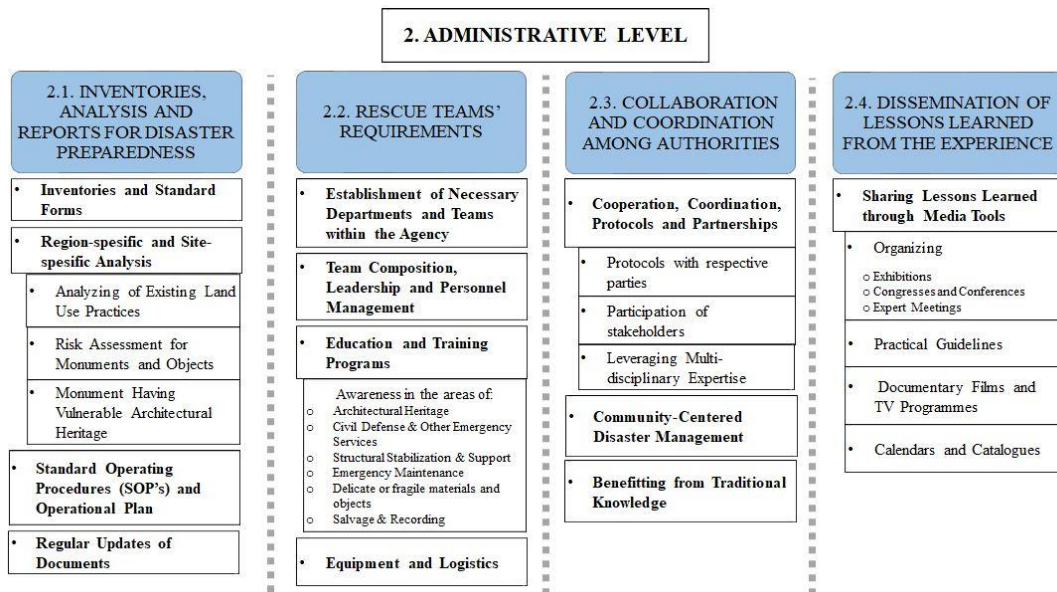


Figure 28. Structure and Components Proposed for the Administrative Level

3.2.1. Inventories, Risk Analysis and Reports for Disaster Preparedness

Cultural institutions complete all necessary documents of the heritage properties they are responsible for protecting during the period between two events. Institutions rely on a foundation of scientific documents, analysis, and reports, including inventories, region-specific and site-specific studies, along with disaster and emergency operational plans and standard operating procedures, as integral components of their disaster preparedness efforts.

3.2.1.1. Inventories, Risk Analysis and Standard Forms

To identify the outstanding universal values of cultural heritage and prioritize salvage efforts, institutions compile detailed lists of heritage buildings, collections, objects, and monuments (Department for Communities and Local Government, 2008). The institutions emphasize the architectural, documentary, authenticity, artistic, cultural, social, historical, economic, and other values inherent in these structures. These values are reflected in the documents produced by the institutions. They maintain complete inventory of cultural heritage properties and prepare survey drawings of remaining structures. These records include photographs and reports containing necessary

information about architectural and artistic features and past interventions, all carefully preserved by cultural institutions. Detailed documents showing the form and condition of each building before the disaster is essential to its post-disaster recovery. Such documenting not only aids in understanding the historical and cultural significance of the heritage but also provides valuable guidance for restoration and conservation efforts following natural disasters or other threats. According to Feilden, it is necessary to assemble the following **documents** relating to each historic structure:

- Detailed architectural description and sketches,
- A detailed chronology of the building, including all previous repairs, maintenance, and conservation works,
- A set of photographs as well as all visual documentation of immovable cultural assets,
- Inventories of the heritage pieces within the structures,
- Up-to-date bibliographic references and documents on the complete history of the structure.

Feilden also recommends that several copies of these documents should be kept and deposited in the safest possible premises, preferably in non-seismic zones. Original documents should be kept in a building constructed according to the highest standards of seismic resistance (Feilden, 1987).

Cultural heritage property documents and all relevant data are also stored within a **software module**. This software facilitates the assessment and evaluation of the data, enabling the prioritization of cultural assets based on their risk or importance.

Furthermore, preparing standard forms is crucial for agencies involved in disaster management of cultural heritage. These documents serve as essential tools for on-site use, facilitating the execution of disaster management strategies in a systematic and data-driven manner. Standard forms facilitate comprehensive assessments of disaster-affected buildings. This includes aspects like value, vulnerability, damage and risk, current situation, and physical condition. By applying these forms consistently, authorities can efficiently gather crucial information about each building. This

includes ownership details and valuable historical, artistic, architectural, and structural features. Such comprehensive data collection is essential for prioritizing restoration efforts and directing resources effectively (López, 2016).

3.2.1.2. Region-Specific Risk Analysis and Site-Specific Risk Studies

The first category of environmental and physical analyses is named as region-specific analysis. These studies provide valuable insights by giving specific information and evaluating existing practices of land use as follows.

- Land use patterns (Burby, 1998),
- Demographic and socio-economic features,
- Legal status of the region concerning heritage conservation,
- Existence of a conservation plan and/or disaster management plan prepared for the region,
 - Number of registered cultural heritage properties in the region (Jigyasu R., 2013),
 - Monumental structures and landmarks in the region (Agapiou, 2016),
 - Indication of locations encompassing heritage structures, hospitals, religious buildings, as well as empty public buildings suitable for temporary use, and vacant parcels (European Commission, 2010),
 - Definition of risks identifying potential hazards that affect the vulnerability level of the region (Torre, 2002),
 - Major alterations previously occurred in the region,
 - Existing local and regional preventive measures,
 - Actions aimed at minimizing the frequency of specific disasters such as floods, avalanches, mudflows, and landslides (The Ecological Sequestration Trust, 2015).

Moreover, they scrutinize geological, hydrological, meteorological, and natural processes, water fields and levels, soil characteristics, and their behavior within the underground geology during disaster scenarios (ICCROM, 2010). Through region-

specific studies, the region's main hazards are also assessed through long-term scientific research and event monitoring based on past disaster information. Based on the outcomes of the analysis, remedial measures are then instituted to mitigate risk (ICOMOS, 2008).

Site-specific measures focus on the regular maintenance, improvement, and emergency response for cultural heritage buildings or objects. These studies help identify heritage structures susceptible to various disasters. In the context of a site-specific analysis of a historic structure, detailed information about the physical location, settlement characteristics, history of past disasters, and the physical attributes of the structure are specified. Additionally, hazard, vulnerability, and risk assessments are conducted, including the identification of potential hazard sources existing near the structure. The structure's legal status and legislative restrictions concerning heritage conservation are also specified (Gündoğdu F. D., 2014). The categories of information collected from the site are outlined as follows:

- **Physical Location:** The precise location of the structure, comprising its address, geographical coordinates, and surrounding topography, is provided. In cases where the environment surrounding the structure has been significantly altered as a result of a disaster, a sketch showing the building lot itself, along with its relationship to neighboring parcels and important reference points, is included.
- **Settlement Information:** Detailed information about the surrounding settlement is provided, including population density, infrastructure layout, and land-use patterns primarily derived from the region-specific analysis. Additionally, the analysis includes parameters such as street width/length ratio, high walls, and street pavement material that constitute the structure's physical environment.
- **Identification of Potential Hazard Sources:** Potential hazard sources in the vicinity of the structure are thoroughly identified, including earthquake faults, floodplains, wildfire-prone areas, industrial facilities, dams, and nuclear power plants that present potential risks.

- **Historical Disaster Data:** A thorough examination of past disasters and events that have affected the region, including their type, intensity, and impact on similar structures, is identified.
- **Physical Characteristics of the Structure:** The structure's physical attributes are extensively examined, encompassing its original structural system, construction technique, building materials, structural integrity, past interventions, and relationship to surrounding structures that could affect its vulnerability to specific hazards.

It's important to emphasize that all collected information and analysis regarding **vulnerabilities** and **risks** of monumental cultural heritage have been **digitized** and presented in **map format** for better visualization and accessibility. At this stage, depending on the prevalence and intensity of risks, each anticipated hazard can be treated separately, or they can all be grouped together and presented within the same plan.

Digitalizing heritage asset documents and creating **electronic archival** reference material is crucial. Preparing a **cultural heritage database** involves compiling comprehensive information about cultural heritage assets, including historical sites, monuments, artifacts, and other valuable cultural properties. This database is a central repository of information, containing details such as location, historical significance, architectural features, ownership status, past disasters and damages records, and any existing risk assessments related to cultural heritage assets. It enables stakeholders to access accurate and up-to-date information for effective management, conservation, and disaster preparedness planning for cultural heritage. The **database is duplicated and stored** in multiple environments to mitigate the risk of data loss.

Given the diversity and scale of architectural heritage, buildings and objects of paramount significance and those at risk are prioritized. Vulnerability, risks, and potential damage or loss estimates for heritage structures are meticulously assessed. Site-specific analysis involves more detailed examinations for each location, including identifying **potential sites for temporary storage** of salvaged items.

3.2.1.3. Standard Operating Procedures (SOPs) and Operational Plan

Cultural institutions develop comprehensive Standard Operating Procedures (SOPs) to safeguard cultural heritage. These SOPs ensure a well-structured approach to disaster management, outlining policies, planning, and administrative and technical procedures for pre-disaster preparation, disaster response, and post-disaster recovery efforts. Besides, SOPs provide a comprehensive framework covering several areas, including inventory management, documenting procedures, standardized forms, protocols for assessing damage to affected structures, procedures for protecting or salvaging different objects based on their type and level of damage, guidelines for relocating rescued objects, collaboration with authorities, educational and training certification programs, procurement of materials and supplies, instructions for operating specialized equipment and supplies, management of hazardous materials, and establishment of administrative procedures for personnel management (Dorge V. J., 1999).

SOPs detail procedures for maintaining accurate and up-to-date collection inventories, which are essential for prioritizing rescue efforts and ensuring a complete record of cultural assets. They contain necessary standardized protocols for documenting cultural heritage objects, including photographic and written records. SOPs provide clear guidance on the establishment of Standard Damage Assessment Forms, giving details about the type and extent of damage sustained by cultural structures after an emergency event⁹². In addition, informed criteria are created, and techniques for prioritizing and securing valuable items and assets in the event of an emergency are delineated in SOPs. It outlines procedures for safely relocating rescued objects to designated storage or conservation facilities.

SOPs provide clear guidance for all stakeholders involved, specifying the roles and responsibilities of relevant institutions at each stage of the process. They define frameworks of protocols for collaboration with civil defense actors and stakeholders during disaster situations. SOPs also produce guidelines for ongoing staff education

⁹² Appendix F – Checklists for Damage Assessment for Cultural Heritage

and training programs related to emergency preparedness and response (OCHA, 2015).

Furthermore, SOPs contain essential information, including the departure approval process, dispatch of rescue teams, and timeframes of different phases, which are specified in the operational plan. These information flows provide a structured emergency and disaster management process (Schneider, 1992).

Operation Approval Documents

Agencies prepare comprehensive Operation Approval Documents, which rescue teams must complete before initiating any on-site operation. These documents ensure that the operation is authorized and accountability is maintained. This means that approval of the operation is obtained from relevant authorities, and a clear chain of command is established.

The Operation Approval Document includes vital information such as the current situation, team composition, and contact details of local authorities. It provides a detailed overview of the disaster situation, including the affected cultural heritage sites, the nature and extent of the damage, and any existing safety hazards. A clear list of team members designated for the mission is compiled, including their names, roles, and contact information. Essential contact information for local authorities, such as the regional directorate, governor's office, and municipality of the affected area, is specified to facilitate critical communication and collaboration during the response effort.

Operational Plan

On the other hand, while the disaster management process can be challenging due to factors like cost and time investment, a well-defined operational plan is critical for cultural heritage institutions of all sizes in emergency preparedness and response (Dorge V. F., 2002). The operational plan is a detailed practical guide derived from the broader emergency preparedness and response program. It outlines key details such as the chain of command, contact information of members of dedicated teams, and specific response and recovery procedures.

An effective operational plan addresses **four main phases** of emergency management: prevention, preparedness, response, and recovery (Ferraro, 2013).

Prevention involves strategies designed to eliminate or reduce the potential impacts of hazards on cultural heritage buildings and objects. **Preparedness** is about equipping and training personnel to handle emergency situations effectively. This includes conducting staff training exercises, ensuring the availability of appropriate equipment, and maintaining clear communication channels. The disaster plan mainly outlines actions aimed at minimizing injuries and losses during an emergency event. **Response** measures encompass evacuation procedures, salvaging historic objects, and implementing emergency response protocols. Finally, **recovery** refers to the processes involved in restoring normal operations after an emergency situation (Dorge V. J., 1999).

Beyond the core phases, an operational plan should address several critical aspects, such as operational activation procedures, the definition of roles and responsibilities, and communication protocols.

The plan must include clear provisions on when and how to **initiate** emergency response measures. By defining clear **roles and responsibilities** for individuals in the plan, the response to emergency situations becomes more accountable and streamlined. This promotes a clear chain of command and ensures that everyone knows their part in dealing with the event. Lastly, the plan defines **communication** strategies for staff and the public during an event. This ensures timely information dissemination and minimizes confusion.

For optimal effectiveness, the operational plan adheres to some principles:

- **Leadership and Support:** The institution's director, governing body, and all staff levels actively adopt and support the plan.
- **Simplicity and Focus:** The plan is clear and concise, focusing on the most likely emergency scenarios faced by the institution.
- **Flexibility:** The plan is adaptable to accommodate unforeseen situations.

- **Resource Management:** The plan includes a realistic assessment of available resources to ensure feasibility.
- **Regular Testing Through Real-based Scenarios:** The plan follows routine testing exercises and regular briefing meetings. Accessing written documents and navigating complex procedures to determine appropriate actions can be challenging during disasters. Given the importance of making rapid and accurate decisions, scenarios are crafted by agencies and prepared by experts in disaster risk management and conservation. These scenarios are designed to address various possibilities, ensuring responses to specific conditions are clear and precise. Best and worst-case scenarios are examined, and preparations are made for the worst-case scenario, even though average conditions may be anticipated. After the completion of drafting a scenario, it undergoes thorough scrutiny to ensure its effectiveness, the soundness of the reasoning used, and whether it is based on solid foundations. The scenario is reviewed multiple times to ensure all elements are addressed in a balanced manner and no crucial aspect is overlooked. These scenarios serve as the basis for crafting the Operational Plan. Operational plans are then tested at all levels using the scenarios created, ensuring their viability and effectiveness in real-world situations (Lehrer, 2010).

Beyond the core elements outlined above, cultural heritage institutions have specific considerations for emergency preparedness, including personnel safety and site security, structural stabilization and maintenance, collaboration of rescue teams, logistics, and post-operation measures.

The plan specifies measures to ensure the **safety** of personnel and the **security** of sites from theft, arson, and other criminal activities (IFLA, 2006).

Provisions for the structural **stabilization** of heritage buildings and the **maintenance** of rescued materials through recording, salvage, emergency measures, and protective actions such as shoring are identified in the plan (IFLA, 2006).

Clearly defined roles and responsibilities for **rescue teams**, which may include heritage professionals (architects, engineers, archaeologists, etc.), local community members, and external specialists, are included in the plan (Decker & Townes, 2015).

The plan also specifies **collaboration** protocols with security, civil defense teams, and other relevant stakeholders.

Detailed plans for the **equipment, supplies, funding, and logistical** considerations required for emergency response operations are indicated in the plan (Decker & Townes, 2015).

Finally, procedures to be implemented during the post-disaster period, including recovery efforts and long-term restoration projects, are identified.

3.2.2. Heritage Rescue Department's Organizational Requirements

Cultural institutions manage disaster response operations for cultural heritage through qualified personnel and systematic rescue organization. Therefore, they establish a functional system by preparing the organizational components of the disaster management unit, which include establishing rescue teams, defining team composition and leadership, organizing education and training programs, and providing proper equipment and logistics.

3.2.2.1. Establishment of Committees and Teams as well as Readiness of Teams

Disaster management activities are coordinated through the designated department within the Agency. This department has a well-defined administrative structure, clear authorization levels, qualified personnel, and established protocols for collaboration with internal and external stakeholders. Notably, the department effectively integrates personnel from regional branches into its operations.

Rescue teams are organized into two primary phases: The **Preparation Phase** and the **Operational Phase** (OCHA, 2015). In the Preparation Phase, only the assessment and documentation teams are involved. However, in the Operation Phase, both the assessment and documentation teams and the heritage rescue and evacuation teams are included. These teams are responsible for various tasks (Dorge V. J., 1999) (Figure 29).

Assessment and documentation teams have two main responsibilities during the pre-disaster phase, often referred to as the preparation phase. First, they conduct vulnerability and risk assessments of monumental structures⁹³. Secondly, they perform regular monitoring to identify the conservation needs of these structures between events⁹⁴.

In the post-disaster period, these teams shift their focus to assessing the damage and risk to affected structures⁹⁵. They conduct on-site documentation of impacted objects, selected based on rescue priorities, by recording their exact locations. Additionally, they prepare forms for the relocation and tracking of these objects.

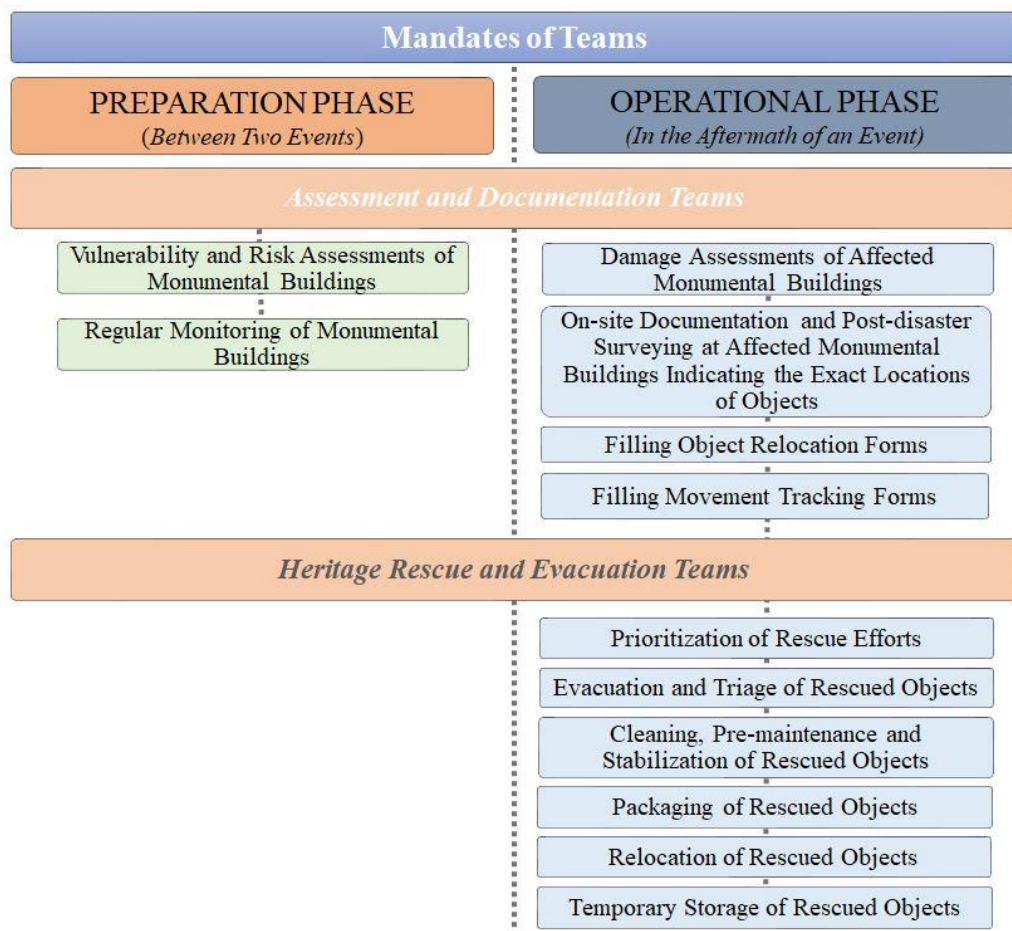


Figure 29. Mandates of Heritage Documentation and Heritage Rescue Teams

⁹³ Standard Hazards and Vulnerability Assessment Forms should be established to serve in this phase of the study.

⁹⁴ Standard Regular Monitoring Forms should be established to serve in this phase of the study.

⁹⁵ Standard Damage Assessment Forms should be established to serve in this phase of the study.

On the other hand, heritage rescue and evacuation teams are tasked with carrying out various measures in the post-disaster period. These measures include prioritizing rescue efforts, implementing stabilization measures, cleaning and pre-maintenance of heritage pieces, conducting evacuation and salvage operations, and managing the relocation and temporary storage of rescued architectural elements (OCHA, 2015).

3.2.2.2. Team Composition, Leadership and Personnel Management

Teams are organized with clearly defined **roles** based on their areas of expertise within organizations. Regarding emergency response, the composition of rescue and evacuation teams includes various roles to ensure effective coordination and execution of operations. These roles typically consist of:

- Team Leader/Deputy Team Leader
- Safety and Security Officer
- Liaison and Coordination Officer
- Media and Communications Officer
- Logistics Officer
- Structural Engineer
- Search and Rescue Specialist
- Hazardous Material Specialist
- Medical (External)

Furthermore, teams include experts specialized in various areas, including historic building structural systems, disaster risk management of cultural heritage, and fire prevention for historic structures.

Each team member plays a crucial role in different aspects of the emergency response, ensuring a coordinated and comprehensive approach to managing crises effectively. Team leaders play a vital role in maintaining personnel coordination and motivation. As such, they require specific **personnel management techniques** and possess communication, coordination, human relations, negotiation, conflict resolution, and

staff welfare skills. Ensuring staff well-being involves considerations such as resting planning, staff rotation, fatigue management, sanitation, and hygiene (Pan American Health Organization, 2009).

Additionally, personnel within the teams are fully documented, including their names, authorities, responsibilities, and job descriptions. Backup personnel for all key positions are identified, and arrangements are made to ensure that the leaves of key personnel with similar roles do not coincide.

3.2.2.3. Education and Training Programs for the Development of Personnel Skill

Agencies are responsible for organizing well-structured education and training programs for disaster management of cultural heritage (Matthews, 2007; European Commission, 2018). In the context of periodic education and training programs, determination of the probability of an event, conducting risk assessments, minimizing vulnerability and risk, taking preventive measures for safety and security, safeguarding cultural heritage pieces by applying rescue and evacuation measures, implementing techniques for protection, repair, and maintenance, that are covering all phases, are emphasized. On the other hand, alert and activation, team recall, pre-deployment logistics checks, personnel preparedness, and equipment readiness appear as additional considerations.

Training programs are tailored to provide trainees with expertise in several specialized areas crucial for disaster management. These include civil defense measures, preparedness for secondary hazards following disasters, handling hazardous materials, disaster risk management principles, building awareness in the recognition of valuable architectural heritage, post-disaster documentation techniques, implementation of stabilization measures, construction of basic structural support and techniques for simple shoring, conservation and pre-maintenance of delicate or fragile architectural elements and rescue and evacuation procedures for heritage items (Walsh, 1997). These programs focus on various essential aspects, including:

- Having **awareness** of emergency procedures,

- Establishing and updating **disaster priority lists** in terms of listing monumental foundation buildings having unique architectural values,
- **Monitoring disaster activities** and developing protection strategies,
- Conducting **vulnerability and risk analysis**,
- Establishing **safety and security procedures**,
- Awareness of **hazards** and **hazardous materials**,
- Awareness of the **value of cultural heritage**,
- Pre-disaster and **post-disaster surveying** heritage buildings,
- Having awareness of **traditional construction techniques** of heritage structures,
- Conducting **damage assessments** at affected monuments,
- On-site documentation and on-site prioritization of heritage objects,
- Carrying out **rescue and evacuation** work at the affected monument,
- Planning and implementing post-disaster **restoration** practices,
- Providing **training** on disaster management, technical assistance, and guidance services,
- Preparing a cultural heritage **database** that is designed to track past disasters and record damages and response measures applied by the agency (Dorge V. J., 1999; OCHA, 2015).

Personnel should be adept at tasks such as identifying historic buildings and objects that constitute architectural heritage, creating rescue plans and priorities based on specific interests, reading building floor plans, identifying escape routes, and locating access points, using firefighting equipment, providing power sources, and treatment of fragile materials including historical fabric, murals, and panels against detrimental effects of secondary hazards (Tardiff, 1987; Seligson, 1992).

Education programs at the operational level also aim to provide trainees with practical skills in working with structural wood, concrete beams, steel, and brick walls. Furthermore, trainees are encouraged to use the requisite equipment, such as cutting tools, breaking tools, ropes, paper, cardboard boxes, ropes, tape, foam, and foam boxes. Other critical aspects include establishing an incident command system, conducting risk assessments, taking necessary actions, removing rubble, lifting loads, providing stabilization and shoring, conducting operational capability evaluation and establishing a Reception and Departure Center (RDC) (Waters, 1993; OCHA, 2015).

In addition, lessons in the **curriculum** are designed to be multidisciplinary, and practitioners are encouraged to stay updated on recent events and developments through continuous vocational training. Public emergency services, including firefighters, civil defense personnel, military personnel and also personnel of insurance companies, are educated on the significance of architectural heritage in their operational areas. Therefore, firefighters, civil defense personnel, and emergency evacuation teams trained in the protection of cultural assets fully comprehend the significance of architectural and cultural heritage within their operational areas. International and regional exchanges of teaching staff are encouraged to facilitate the flow of ideas and information (ICOMOS, 2008).

At the vocational and technical level, a regular training program adheres to certain fundamental principles (Glance, 1997). Qualified and experienced instructors are essential to impart knowledge and skills. Experts are educated about general principles and practices at the pre-qualification or undergraduate level. Furthermore, certification programs as well as **graduate courses** in this field are recommended for those seeking to specialize. Education and training programs are evaluated for improvement.

Practicing theoretical knowledge through realistic **simulations**, combined with regular training sessions, facilitates the internalization of knowledge among team members. This approach ensures that when conscious decision-making may be compromised during emergencies, learned skills are instinctively applied, thereby reducing the likelihood of errors. At the conclusion of each education or training program, participants review the effectiveness and relevance of the program through feedback sessions (Figure 30) (Lehrer, 2010).



Figure 30. The Final Simulation of ICCROM’s Cultural Heritage Emergency Evacuation Training Held in the Netherlands in 2018⁹⁶

3.2.2.4. Equipment and Logistics

Agencies ensure the provision of essential equipment, supplies, and logistical support to effectively conduct rescue operations. Team members at agencies are equipped with personal protective gear, including helmets, gloves, work boots, and specialized clothing such as harnesses, knee pads, and eye protection, essential for on-site preparation and safety. Beyond personal protective equipment, cultural heritage response teams require IT equipment to facilitate communication and documentation. Laptops, printers, scanners, and reliable power sources like generators and power supplies ensure smooth team operations in potentially resource-constrained environments (OCHA, 2015).

The safe relocation and storage of rescued cultural heritage objects is another critical aspect of emergency response. Agencies must provide necessary materials for this purpose, including containers, appropriate packing materials like bubble wrap or specialized foam, and plastic covering sheets for added protection during transport. Additionally, basic tools like pads, tape, scissors, boxes, markers, and paper are

⁹⁶ (ICCROM, 2018)

essential for securely packing and labeling objects. Additionally, items like pens, paper, and other documentation materials are crucial for recording and documenting the rescue and relocation process (Dorge V. J., 1999).

3.2.3. Collaboration and Coordination of Actors and Stakeholders

Cultural institutions collaborate and communicate with disaster-related agencies and organizations during critical events to protect cultural heritage. They establish partnerships and sign protocols with relevant entities. Additionally, they adopt the community-centered disaster management approach to benefit locals and individuals' knowledge and experiences.

3.2.3.1. Collaboration and Coordination, Protocols and Partnerships

Agencies are responsible for ensuring strong collaboration and coordination between relevant authorities and entities involved in both civil defense and cultural heritage conservation. The effective protection of cultural heritage during disasters requires regional, national, and international coordination involving various stakeholders. These include central public authorities such as ministries and general directorates, local public authorities like governorates, municipalities, regional and provincial directorates, and branches of institutions. Additionally, fire departments, security forces, chambers representing relevant professions, academia, the private sector, non-governmental organizations, experts, construction contractors, local communities, and owners of historic buildings all play crucial roles in this coordination effort (Kory, 1998; O'Keefe R., 2016).

Events that affect an area with usually less than 500 structures are generally considered small-scale, triggering local intervention systems. Incidents involving more than 500 structures or affecting multiple neighborhoods are classified as large-scale events, prompting regional organizations to intervene. During large-scale incidents, central organizations must collaborate and coordinate with regional and local authorities (Gündoğdu F. D., 2014). This approach includes the orientation, promotion, and coordination of various civil protection activities and organizations overseen by central, regional, and local authorities at different governmental levels (European Commission, 2018).

Additionally, the signing of protocols is encouraged to leverage multidisciplinary expertise across various institutions, fostering partnerships among related authorities (World Bank Group, GFDRR, 2017). Notably, effective coordination is facilitated between:

- Civil defence departments,
- Central and local public emergency management agencies,
- Governorates and municipalities,
- Fire departments,
- Military forces,
- Police departments,
- Intergovernmental institutions involved in search and rescue, as well as Red Cross and other relief agencies,
- External search and rescue teams,
- International and local experts, local communities and custodians

In some scenarios, external teams augment the existing capacity of local rescue and evacuation teams by contributing additional skills and equipment while ensuring effective coordination of efforts (OCHA, 2015).

Engaging with experts from relevant departments, such as fire departments and civil defense authorities, can significantly enhance preparedness efforts. Thus, experts from these departments can be invited to conduct site visits of cultural heritage institutions. Structured discussions on relevant topics, such as evacuation procedures or hazard mitigation strategies, can foster a collaborative **exchange of knowledge**. It's important to acknowledge that information flow is not unidirectional. Cultural heritage professionals can benefit from the expertise of emergency response personnel, while the visiting experts gain a deeper understanding of the specific needs and challenges of protecting heritage structures. Therefore, it is important to encourage specialists from civil defense authorities to develop awareness of cultural heritage and its universal value. Ultimately, this collaborative exchange of knowledge fosters **mutual**

learning and strengthens the overall effectiveness of disaster management efforts. By working together, cultural heritage institutions and emergency response agencies can build a more robust and coordinated system for safeguarding cultural heritage in times of crisis (Dorge V. J., 1999).

On the other hand, facilitating access to international aid and resources during disasters is crucial for effective disaster management. This entails coordinated efforts between national and international agencies to streamline the process and ensure timely assistance. Building strong partnerships with international aid organizations and donor countries helps accelerate the mobilization of resources when disaster strikes.

3.2.3.2. Community-Centered Disaster Management Approach and Insights Gained from Traditional Knowledge

Community-centered disaster management is indispensable for effectively safeguarding cultural heritage against disasters (Barton, 1969). The overarching goal is establishing sustainable partnerships between community-based organizations and cultural heritage institutions. Activities that facilitate the exchange of information, knowledge, and skills and strengthen local capacity are actively encouraged to mitigate disaster risk. In this context, it is emphasized that individuals residing in affected areas, users of structures, those possessing local cultural and historical knowledge, area-specific experts, and dedicated volunteers all play pivotal roles in preserving cultural heritage (Jigyasu R. , 2013).

Local communities possess invaluable **traditional knowledge** about construction techniques that were tested against previously occurring disaster risks, enhancing resilience (King J., 2006). Unfortunately, the insights of local communities are often overlooked by heritage experts, as this knowledge is frequently excluded from institutional planning for disaster risk management. However, statistics demonstrate that in most disasters, lives are initially saved by family members and neighbors before professional rescuers gain access to affected areas. For instance, in the aftermath of the 1995 Kobe earthquake in Japan, approximately 80% of those rescued were aided by their neighbors. This principle extends to the conservation of cultural heritage. In Haiti, for example, the majority of cultural collections were safeguarded by local residents (Bertrand, 2010). Similarly, during the conflict in Mali, private owners of

ancient manuscript collections managed to protect them with the assistance of their neighbors and community networks (Ba, 2020).

3.2.4. Dissemination of Lessons Learned from Experience

Cultural institutions disseminate lessons learned from disaster preparedness, response, and recovery efforts to the public and the scientific community, both in the aftermath of events and during the period between the two events. They employ various media tools and organize events to facilitate knowledge transfer.

3.2.4.1. Sharing Lessons Learned

Agencies effectively share their disaster management experiences with the community through various channels. Collaborative activities are central to this approach, with agencies actively participating in national and international conferences, workshops, and expert meetings held in collaboration with relevant authorities, scientific institutions, and international centers. Additionally, agencies curate exhibitions targeting diverse audiences, such as students, professionals, and the public. These exhibitions employ a variety of formats, including interactive displays and multimedia presentations, to raise awareness and educate the public on best practices in cultural heritage disaster management (ICOMOS, 2008).

3.2.4.2. Media Management and Media Tools

Agencies leverage visual media to enhance the accessibility and impact of their disaster management projects. This includes transforming ongoing projects into various engaging formats, such as documentary films, television programs, infographics, and animations. These visual media tools are widely disseminated through national and international channels, fostering public awareness and education. Furthermore, calendars and catalogs featuring cultural heritage are produced to vividly showcase these sites' beauty and vulnerability, potentially serving as a pre-disaster preparedness tool (ICOMOS, 2008).

3.2.5. Indicators and Scorecard for Measuring Compliance at Administrative Level

The components at the administrative level are integrated into a scoring system, which serves as the basis for measuring and evaluating elements, as outlined in the table (Table 3). This evaluation encompasses the following dimensions:

- Inventories, analysis, procedures, programs, and plans produced for disaster preparedness of cultural heritage (indicator 2.1),
- Rescue Teams’ Requirements (indicator 2.2),
- Collaboration and Coordination Among Authorities (indicator 2.3),
- Dissemination of Lessons Learned from Experiences (indicator 2.4).

Table 3. Indicators and Scorecard for Measuring Performance Requirements at Administrative Level

Indicator 2.1 - Inventories, analysis procedures, plans and programs for disaster preparedness of foundation cultural heritage	Scored rating
<ul style="list-style-type: none"> • There are neither inventories, analyses, and reports, nor Standard Operating Procedures and Operational Plans existing in the agency. 	(0) ZERO
<ul style="list-style-type: none"> • The agency has a complete inventory, but region-specific and site-specific studies, Standard Operating Procedures, and Operational Plans have not been prepared. 	(1) INITIAL
<ul style="list-style-type: none"> • The Agency has complete inventory and scientific reports, including region-specific and site-specific studies. However, Standard Operating Procedures and Operational Plan do not exist. 	(2) PROGRESSING
<ul style="list-style-type: none"> • The agency maintains a comprehensive inventory. Additionally, scientific reports, including those specific to regions and sites, are available, and Standard Operating Procedures and Operational Plans have been prepared. 	(3) SUFFICIENT
Indicator 2.2 - Rescue Teams’ Requirements and Logistics	Scored rating

Table 3 (Cont'd)	
<ul style="list-style-type: none"> • Within the agency, there are no established administrative units or teams. The composition of teams, along with the roles and responsibilities of their members, remains undefined. Additionally, no education or training programs are organized for personnel working in disaster management during times of crisis. Furthermore, the equipment needs of rescue teams are unmet, and logistics support is lacking as well. 	(0) ZERO
<ul style="list-style-type: none"> • The respective units and teams are established, with team composition, roles, and responsibilities determined by the agency. However, regular education and training programs are not organized, and staff lacks the necessary information regarding civil defense and disaster management. Additionally, the equipment needs of the rescue teams are not being met, and logistics support is also lacking. 	(1) INITIAL
<ul style="list-style-type: none"> • Respective units and teams are established, with their composition and roles determined by the agency. The agency organizes both theoretical and practical training focused on rescuing cultural property during disasters. Staff receive training on salvage, evacuation, conservation, and storage of valuable architectural elements, as well as information about sensitive and fragile materials and objects that need protection. However, the equipment needs for the rescue teams and the logistical support are not fully addressed. 	(2) PROGRESSING
<ul style="list-style-type: none"> • Unit and team structures are established, with team composition, roles, and responsibilities determined by the agency. Regular education and training programs are organized, supported by periodic exercises that often utilize real-life scenarios in collaboration with specialized institutions. Personnel, actors, and stakeholders receive training in civil defense, disaster management, the protection of valuable architectural elements, the handling of fragile and sensitive materials, salvage operations, and the evacuation of cultural property during disasters. The equipment needs of rescue teams are addressed, and logistics are provided to support their operations. 	(3) SUFFICIENT
Indicator 2.3 - Cooperation and Coordination Among Authorities	Scored rating
<ul style="list-style-type: none"> • The agency does not have a signed protocol or a partnership established with relevant parties regarding the coordination and cooperation in disaster management for cultural heritage. Additionally, the agency has not adopted a community-centered approach to disaster management. Furthermore, valuable traditional knowledge from the local population has not been utilized. 	(0) ZERO
<ul style="list-style-type: none"> • The agency has established protocols with only a few local authorities to protect a select number of cultural properties. However, the roles and responsibilities of related actors and stakeholders in the disaster management of cultural heritage are not clearly defined in these protocols. Additionally, the agency does not adopt a community-centered approach to disaster management, and it fails to incorporate valuable traditional knowledge that could be gathered from local residents. 	(1) INITIAL

Table 3 (Cont'd)	
<ul style="list-style-type: none"> The agency establishes protocols with relevant parties involved in the disaster management of cultural heritage. Collaboration and coordination are defined at national, regional, and local levels. However, valuable traditional knowledge is not being gathered from the local communities. 	(2) PROGRESSING
<ul style="list-style-type: none"> In the context of disaster management for cultural heritage, protocols are established with all relevant parties, including national and local authorities, civil protection and security forces, non-governmental organizations, experts, volunteers, and local communities. These protocols outline the roles and responsibilities of each party throughout all phases of a disaster: before, during, and after. A community-centered approach to disaster management is adopted, allowing for the incorporation of valuable traditional knowledge from local residents, which is then recorded by the agency. 	(3) SUFFICIENT
Indicator 2.4 - Dissemination of Lessons Learned from Experiences	Scored rating
<ul style="list-style-type: none"> Lessons learned from experiences are not shared with the community through various channels, such as conferences, expert meetings, or publications. Additionally, no educational media tools like documentaries or films are being produced. 	(0) ZERO
<ul style="list-style-type: none"> The Agency documents lessons learned from its experiences but does not effectively share this knowledge in accessible formats for the community. The absence of publications, documentaries, or educational films restricts the distribution of these important insights. 	(1) INITIAL
<ul style="list-style-type: none"> The Agency shares lessons learned through conferences, workshops, and expert meetings. However, these insights are communicated only to national audiences and do not include information exchange. 	(2) PROGRESSING
<ul style="list-style-type: none"> Lessons learned from the disaster are shared with relevant stakeholders through scientific publications, conferences, documentaries, and various dissemination methods. Additionally, both national and international information exchange is actively promoted. 	(3) SUFFICIENT

3.3. Technical Implementation Level (Physical Measures)

The implementation of technical and physical measures to safeguard cultural heritage is crucial throughout all stages of disaster management, including preparedness, on-site readiness, response, and recovery after disasters. Essential components required at the Technical Implementation Level, as proposed for cultural heritage institutions in the thesis, are outlined in the figure (Figure 31).



Figure 31. Structure and Components Proposed for the Technical Implementation Level

3.3.1. Disaster Preparedness Measures Between Two Events

Cultural institutions undertake essential efforts during the period between events to enhance the resilience of cultural heritage against hazards and reduce their vulnerability. These efforts include regularly monitoring and maintaining cultural properties, reviewing and completing existing inventories and documents, and ensuring personnel readiness through regular exercises.

3.3.1.1. Regular Monitoring and Maintenance of Monumental Cultural Heritage

During the pre-disaster phase, cultural institutions continuously monitor heritage buildings and receive regular reports. This monitoring process entails periodic inspections of all listed structures, enabling the identification of any required repairs or maintenance tasks. Subsequently, maintenance activities for cultural properties are conducted based on the data collected from these monitoring efforts. Regular inspections and proactive maintenance help ensure heritage buildings' structural integrity and conservation, enhancing their resilience to potential disasters (Feilden & Jokilehto, 1998).

3.3.1.2. Regular Education and Training Programs for Relevant Stakeholders

Routine education and training are organized in collaboration with relevant stakeholders, including disaster managers, authorities, national disaster response teams (such as the military and police), local media, and other organizations involved in disaster response (OCHA, 2015).

3.3.1.3. Self Assessment of Agency's Preparedness Level as well as Producing and Completing of Necessary Documents and Reports

During this phase, agencies conduct self-assessments to evaluate their level of disaster preparedness. Key personnel complete questionnaires and existing checklists are updated⁹⁷. Furthermore, they review existing documents such as inventories, region-specific analyses, site-specific reports, standard operating procedures, and operational plans. These sets of documents are thoroughly compiled into manuals and implementation guidelines.

In the preparatory phase before disasters occur, it's crucial to assess institutional vulnerability factors, evaluate institutional capacity, write scenarios, test scenarios through exercises, and deploy ground operations. Additionally, all analyses, reports, procedures, and operational plans should undergo regular monitoring, evaluation, and updates to ensure maximum effectiveness (Philips, 2001; ICOMOS, 2008).

3.3.2. On-site Preparedness Measures Prior to Heritage Rescue Operations Following a Disaster

In the event of a disaster, local and regional departments of the agency submit a request for assistance to the agency's headquarters. Following the alert and request issued by the Headquarters, rescue teams are prepared for on-site disaster preparedness. On-site preparedness measures encompass a comprehensive and systematic approach, addressing various facets of operational planning from conducting situation analysis and damage and risk assessments to ensuring readiness of heritage rescue teams, establishing necessary service units, and pre-operation checks like communication,

⁹⁷ For further information:

Appendix G – Checklist for Measuring Agency's Preparedness Level for an Emergency, and
Appendix H – Questionnaire for Disaster Risk Management of Cultural Heritage

media engagement, coordination of support, and plan review. This multifaceted approach is crucial for the effective protection and recovery of foundation cultural heritage during disasters.

3.3.2.1. Situation Analysis and Damage Assessment

Upon arrival at the affected site, a comprehensive situation analysis is conducted to guide response efforts. This analysis includes collecting baseline information, such as specific location maps and floor plans of affected buildings.

Additionally, hazardous materials are removed from the site, and the extent of damage to heritage structures is assessed. This assessment details the number of affected buildings, their general condition, and the presence of secondary hazards like fire outbreaks, water damage, or gas leaks. Standard damage assessment forms specifically designed for cultural heritage buildings are also utilized (Figure 32) (Tandon, 2013)⁹⁸.

Comprehensive inventories and databases of the monument are compiled before any assessment. A two-stage damage assessment process follows this. First, a rapid assessment of damaged areas is conducted to determine the overall damage scope. Then, a more detailed damage and risk assessment is undertaken, utilizing standard forms specifically designed for cultural heritage structures (Hughes, 2012). Dedicated assessment and documentation teams evaluate the structures using the Damage Assessment Forms. These teams conduct inspections both during and immediately after the incident. They identify necessary precautions, such as stabilization or temporary roofing, and inform the agency headquarters of their findings. Based on the severity of the damage, the team may recommend actions ranging from structural stabilization to comprehensive restoration or even controlled demolition (Vafadari, Philip, & Jennings, 2017; Gündoğdu F. D., 2014).

⁹⁸ The teams responsible for preparing damage assessment forms for monumental cultural heritage must primarily consist of architects and civil engineers.



Figure 32. Museum of Islamic Art Cairo, 2014 After a Car Bomb⁹⁹

3.3.2.2. Deployment of Teams and Definition of Roles and Responsibilities

Upon a disaster alert sent by the affected regional directorate, the Agency immediately activates its mobilization plan. Clearly defined roles and responsibilities for all stakeholders are essential to ensure a successful response. This includes agency personnel, local communities with their invaluable knowledge, and emergency responders.

In the context of on-site preparedness, operational teams ensure the planning of the rescue and evacuation process. They are well-informed about emergency procedures, emergency planning, and civil defense. They assess the situation, determine operational objectives, and adapt and develop an Operational Plan tailored to the specific disaster. Team members remain present before, during, or immediately after the disaster to supervise salvage and recording (Erkan & Ünal, 2015).

An accountability system for personnel is implemented, with regular roll-calls specified during operations and a "buddy system" connection utilized to ensure team

⁹⁹ (ICCROM, 2018)

member safety. Team members are encouraged to have backups. Team leaders have been assigned responsibilities for monitoring various indicators, which include the physical readiness of team members, safety and security measures, and the presence of hazardous materials. The team in charge of emergency operations must be ready to address various psychological and physical challenges, including power outages and increased levels of fear and anxiety among those involved. Additionally, team leaders adhere to Agency policies and provide coordination with other teams (Decker & Townes, 2015).

During or immediately after the incident, the Agency's Headquarters sends a database related to affected cultural heritage and historic environments to the rescue and evacuation teams, along with a summary report. This ensures that the rescue teams are well-informed about the buildings, structural systems, traditional construction techniques, and building materials, enabling them to make informed decisions during operations. Additionally, personnel participate in decisions related to controlled demolition and emergency repairs. The Agency briefs the Local Emergency Management Authority (LEMA) about structural stability concerns and post-disaster demolition plans (Gündoğdu F. D., 2014).

Crucial steps in rescue operations include establishing a command-and-control system and improving coordination among teams. Thorough evaluation and planning at each phase and sub-phase of the operation are essential (OCHA, 2015)¹⁰⁰.

3.3.2.3. Establishing the Reception and Departure Center (RDC) and Base of Operations (BoO)

The initial phase of responding to a cultural heritage disaster relies on establishing a coordinated infrastructure for managing rescue operations. This infrastructure includes key service spaces, such as Reception and Departure Center (RDC) and Base of Operations (BoO).

¹⁰⁰ It is important to emphasize that cultural heritage rescue operations should commence only after life-saving screening and operations by civil defense and disaster and emergency teams are completed in the buildings, and confirmation is received that the building has been fully screened. Additionally, permission for cultural heritage rescue operations must be obtained from the emergency authority. It is crucial to formalize this process through a protocol signed before the disaster.

Reception and Departure Center (RDC):

Upon arrival at the disaster site, a Reception and Departure Center (RDC) is immediately established. The RDC serves as the initial point of contact for incoming teams, facilitating registration and providing them with a comprehensive briefing on the disaster situation. The RDC works collaboratively with the Local Emergency Management Authority (LEMA) or National Disaster Management Authority (NDMA) to assess immediate needs and coordinate overall response efforts.

This center continuously operates until the arrival of designated personnel and facilitates crucial tasks such as:

- Conducting **initial situation and needs assessments**,
- Selecting a **suitable location** for the Base of Operations (BoO),
- **Coordinating** with suppliers and **other teams**,
- Engaging with **local resources**,
- Establishing **safety** and **security** protocols,
- Preparing **media statements**,
- Communicating a **current situation report** with damage assessments and operational plans (OCHA, 2015).

Base of Operations (BoO):

The BoO closely collaborates with LEMA and is crucial in coordinating incoming support teams. Information provided by the BoO and LEMA includes current situation updates, safety and security considerations, and the communications plan (OCHA, 2015).

Information gathered by the RDC, including team capabilities and situational updates, is relayed to the Base of Operations (BoO). The BoO facilitates operational planning and serves as the central hub for coordinating rescue efforts.

The BoO is responsible for establishing, deploying, and ensuring the **data flow** of documentation and rescue teams. It reports to the national and local emergency and

disaster agencies. Initially, the unit is responsible for ensuring that search and rescue teams working in historic areas include experts having an awareness of the heritage structures and traditional construction techniques. In the second stage, the unit is responsible for the **management of rapid assessment teams** and the swift processing of data received from them to make **intervention decisions** promptly (Gündoğdu F. D., 2014).

The BoO briefs on incoming teams on various aspects, including:

- Type and condition of available transportation equipment,
- Movement of equipment and supplies,
- Special hazards (road conditions, infrastructure, weather, etc.),
- Security concerns (looting, restricted areas, checkpoint procedures),
- Local medical capabilities (OCHA, 2015),

Following initial assessments, the location for the Base of Operations (BoO) is chosen in collaboration with LEMA officials. The Base of Operations (BoO) serves as a central command center where teams can evaluate their work, duplicate forms and results, transmit these forms to relevant locations digitally and in print, plan operations in coordination with other units, and ensure coordination among field teams. Additionally, the BoO provides logistical support, accommodation, and communication facilities for personnel, serving as the hub for the relief effort. Key criteria for selecting the BoO location include:

- Safety and security,
- Hard, well-drained surface of settlement,
- Adequate space (approximately 50x40 meters),
- Proximity to worksites,
- Easy access to transportation and logistics,
- Access to satellite and other communication means (OCHA, 2015),

The BoO is organized into functional sections to ensure efficient operations, typically including:

- Equipment storage and maintenance areas,
- Personnel lodging,
- Management and briefing spaces,
- Communications center,
- Food preparation and dining facilities,
- Sanitation and hygiene facilities,
- Medical facilities,
- Vehicle parking and transportation access (OCHA, 2015).

Establishing these coordinated structures—Reception and Departure Centers (RDC) and Base of Operations (BoO)—can streamline and optimize cultural heritage disaster response efforts, enabling a swift and effective response to safeguard cultural treasures during times of crisis.

3.3.2.4. Pre-operation Checks: Liaison, Communication, Coordination and Briefing Protocols, Coordination of Local Support and Operational Plan Review

Before the operation, the rescue teams complete the Approval Document. This document includes essential information such as the current situation, the team composition assigned to the mission, the chain of command, the names and contact information of team members, and the contact details of local authorities. These authorities include the regional directorate, the governorship, and the municipality of the affected area.

The operation team completes pre-operation checks, ensuring that rescue and evacuation processes are well planned. Operation objectives are determined, rescue team readiness checks are controlled, and passenger and equipment lists are verified. Liaison, communication, and coordination are prioritized, briefing protocols are evaluated, needed resources are requested from responsible authorities, and plans are

reviewed to ensure preparedness. **Coordination** between assessment/documentation and rescue/evacuation teams is ensured. The locations of affected structures, possible locations for the Base of Operation, and relocation for rescued objects are identified.

The **intervention priorities** at the Base of Operations are communicated based on the rapid damage assessment results, which identifies structures or architectural elements that can be quickly rescued, as well as those containing heritage objects that necessitate immediate attention (Gündoğdu F. D., 2014).

Pre-maintenance conditions for affected heritage pieces are defined, and procedures for evacuation, salvage, relocation, and protection of rescued architectural elements are outlined. Once the preparedness measures are completed, the agency decides on the launch of a rescue and evacuation operation (OCHA, 2015).

Liaison, Communication, Coordination and Briefing Protocols

Rescue teams receive a **briefing** about the operational plan before the operation. Furthermore, a meeting with the Local Emergency Management Authority (LEMA) or National Disaster Management Authority (NDMA) is convened immediately.

During on-site operations, teams and the **Agency's top management** effectively **communicate** with each other. The agency's top management is briefed about the current situation. Critical aspects of operations, including safety and security considerations, selection of the Base of Operation, readiness of local teams, liaison with other teams, and requests from suppliers, are discussed. Briefings detail the total number of identified worksites categorized as currently active, pending, and completed worksites during the operation period.

The Agency **collaborates** closely with LEMA, providing coordination for incoming supporting teams around several issues encompassing information management, administration, liaison, safety and security, operations, support and logistics, and media. Any local support needs required by the teams are identified and forwarded to the Base of Operations (BoO), which coordinates the supply of essential local support, such as fuel, timber, compressed gases, heavy lifting equipment, and specialized personnel, including local emergency responders, civilian volunteers, NGOs, military personnel, etc., in collaboration with LEMA officials.

The agency prepares **media statements** and **disseminates progress** updates through media channels. It also sends out current situation reports that provide information about assessing the operational plan.

Evaluation and Updating of Disaster Plan and Other Related Documents

Each phase and sub-phase of the operation are meticulously planned and reviewed. The plan is then executed, monitored, and updated if necessary. The agency regularly monitors and evaluates disaster plans and current documents. Continuous updates and evaluations are documented in manuals and implementation guidelines, facilitating a well-documented and adaptive disaster management framework.

3.3.3. Operations: Rescue, Evacuation, Relocation and Temporary Storage of Affected Heritage Objects

Cultural institutions undertake essential measures to rescue affected cultural heritage in the post-disaster period. These efforts include ensuring the safety of personnel and security of the site, stabilization, on-site documentation, on-site prioritization, and pre-maintenance of affected objects, as well as evacuation, relocation, tracking, and storage of relocated materials.

3.3.3.1. Safety Measures: Safety of Personnel and Security of Site

Cultural institutions undertake essential physical measures following disasters to safeguard and rescue cultural property. Before evacuating heritage objects, ensuring the **safety of personnel** and **securing the site** against looting and theft are top priorities. Additionally, measures are implemented to mitigate potential issues, such as structural damage due to increased visitor density. Outside access is restricted, and additional measures are taken until a comprehensive solution is applied to safeguard the buildings. **Signaling, labeling, and markings** are systematically placed at worksites to enhance coordination and safety (Figure 33).

Clear instructions for shutting off utilities such as gas, electricity, and water are provided. If needed, temporary shelters are established to protect damaged buildings and ensure the safety and security of evacuated objects in the relocation area.

Usable: green	
Grade 1	slight superficial damage, virtually intact
Grade 2	superficial damage, nonstructural
Grade 3	superficial, light structural damage
Temporarily unusable: yellow	
Grade 1	structural damage, e.g., roofs and ceilings
Grade 2	serious structural damage to walls, etc.
Unusable: red	
Grade 1	severe structural damage, unsafe but capable of repair
Grade 2	partial collapse, e.g., roofs and floors
Grade 3	total collapse, requiring reconstruction of walls, etc.

Figure 33. Labelling of Structures Following a Major Disaster¹⁰¹

3.3.3.2. Debris Removal and Structural Stabilization

Once the security of staff and the site is ensured, **stabilization measures** are implemented to maintain structural integrity and prevent the structure from further damage caused by collapses and aftershocks. Structural integrity is established through **shoring** and simple support construction, and **debris** is removed if necessary (Figure 34).



Figure 34. Removal of Debris¹⁰²

¹⁰¹ (Feilden, 1987)

¹⁰² (ICCRUM, 2018)

In cases where the structure needs to be demolished, if the building is still standing, it should first be stabilized to prevent damage to its surroundings. Subsequently, controlled demolition should be carried out, ensuring that architectural elements are rescued and preserved before demolition (Gündoğdu F. D., 2014). The debris resulting from the collapse of structures due to disasters and building materials scattered across the area is preserved in a suitable location, preferably within the courtyard of the buildings, if available. If there is no suitable space within the parcel of the structure, the debris is preserved in a designated area to be used in the restoration of the structure¹⁰³. **Preserving the debris is crucial** because it contains original building materials and valuable architectural elements that are likely to be used in the restoration phase.

3.3.3.3. On-site Documentation and On-site Prioritization of Affected Materials

The initial response to cultural heritage emergency operations requires a well-coordinated effort and actions including on-site documentation, on-site prioritization, and emergency protection of affected materials.

Before evacuation and salvage operations begin, thorough **on-site documentation** captures the condition of remaining architectural elements. This baseline data serves a critical role in future restoration efforts, providing a clear picture of the pre-damage condition. Photographs, detailed notes, and sketches can all contribute to this essential documentation process. During this stage, the pre-disaster documentation of the affected monument is compared with the post-disaster damages through a rapid visual assessment. This comparison helps evaluate the rescue and evacuation priorities (Gündoğdu F. D., 2014).

Effective **on-site prioritization** of affected cultural heritage objects is crucial during an emergency. The first step is to review the emergency evacuation inventory, which provides a detailed list of all objects within the affected monument. This inventory serves as the foundation for determining rescue and evacuation priorities. The

¹⁰³ It is important to emphasize that if the designated area for placing debris is not owned by the agency, official permission must be obtained from the property owner. Additionally, it is advisable for the agency to prepare protocol templates in advance to facilitate these procedures, ensuring compliance with legal and procedural standards.

prioritization scheme is directly linked to the institution's established cultural heritage database, which assigns significance levels to various assets based on factors such as historical value, rarity, and cultural importance. By using established priorities, institutions can allocate resources effectively and concentrate their efforts on protecting the most vital assets. This ensures they focus their efforts on safeguarding the most critical cultural assets during a crisis.

After prioritizing, agencies can evaluate the risk of loss for each object. This assessment helps them identify which cultural assets need immediate rescue. Buildings that are in poor physical condition but could be saved with intervention may be examined first to prevent further damage (Menegazzi C. , 2010).

3.3.3.4. Operations: Salvage, Evacuation, Pre-maintenance, Packing and Relocation of Affected Architectural Heritage

Cultural heritage rescue operations are crucial activities undertaken by agencies after disasters occur. In the context of emergency response for cultural heritage, rescue and evacuation involve the careful retrieval of collections, objects, or fragments of objects from damaged areas, all conducted under the supervision of a heritage expert.

Protocols are established to **designate a registrar**, conservator, or official responsible for emergency response within agencies. These individuals are granted the authority to approve administrative documents and manage the movement of objects. Pre-determined criteria guide decisions in rescue and evacuation operations and inform the selection of techniques to ensure efficient and effective responses. Cultural heritage objects that are deemed to be at the highest risk undergo emergency protective measures. The primary goals of rescue and evacuation operations are to act quickly and safely while prioritizing the safety of all individuals involved (Dorge V. J., 1999).

The affected heritage objects undergo a **documentation** and **triage** process to ensure their conservation. Sketches are created to record the locations of objects within the affected structure accurately. These sketches serve as a valuable reference for later recovery and restoration efforts. Each object determined for rescue receives a **unique location code** that includes its name, description, condition based on the damages identified, and the location (room number and floor) where it was found (Figure 35).



Figure 35. Location Code System for Rescued Materials¹⁰⁴

This detailed labeling facilitates proper identification, handling, and storage during the triage process. Objects are then carefully transported to a designated safe area outside the damaged structure. On-site stabilization and maintenance measures are undertaken for portable, displaced, or fragile objects as circumstances allow. These interventions may include cleaning, pre-maintenance, and temporary stabilization to mitigate further damage and preserve the objects' integrity.

Effective implementation requires an understanding of how different materials react to various hazards. Exposure to excessive water, for example, can have a diverse range of detrimental effects on heritage objects. Organic materials like wood or textiles may swell, warp, split, or even rot. Metals can corrode, while inorganic materials like ceramics may become brittle and susceptible to cracking. In some cases, water exposure can also lead to the growth of mold or other harmful microorganisms. Therefore, tailoring the emergency response to the specific characteristics of each object and the type of hazard it faces is crucial. A "one-size-fits-all" approach can exacerbate the damage. For instance, objects sensitive to moisture may require immediate drying techniques, while objects at risk of structural collapse may require temporary shoring or bracing for stabilization.

The Emergency Response and Salvage Wheel, developed by Stovel (1998), provides a valuable framework for guiding the **treatment** of delicate and fragile materials affected by disasters (Figure 36).

¹⁰⁴ (ICCROM, 2018)

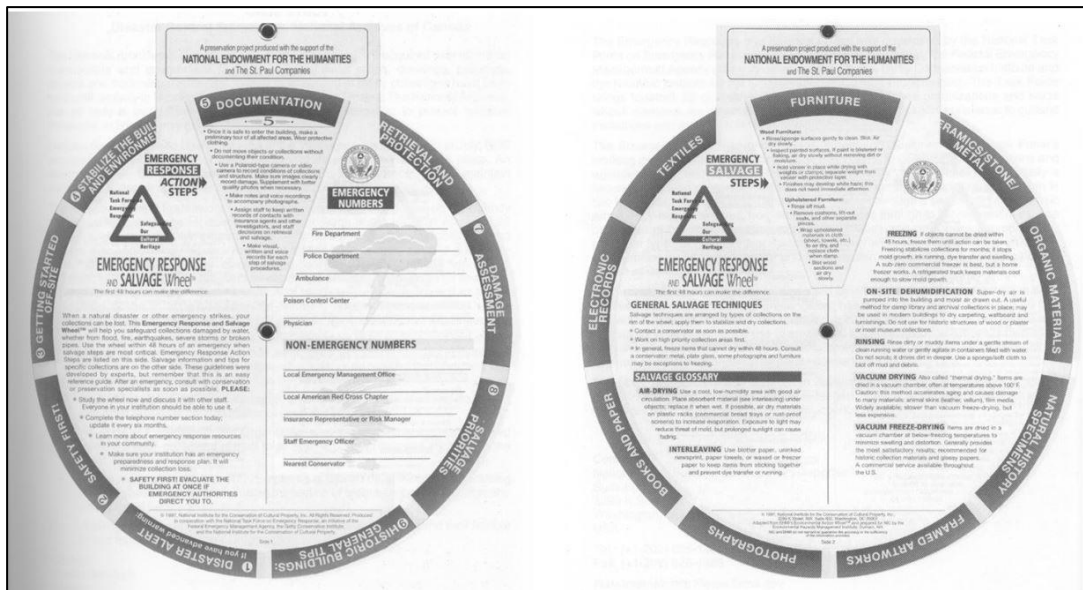


Figure 36. Stovel's Emergency and Salvage Wheel ¹⁰⁵

This framework outlines several key principles for stabilizing and minimizing further damage to cultural heritage objects:

- Objects are **only moved if absolutely necessary** to prevent further harm. In situ stabilization may be preferable whenever possible.
- Objects are **protected from additional damage** during handling, storage, and transportation.
- Once a secure location is established, **undamaged objects are separated from damaged ones** to prevent cross-contamination or the spread of mold.

The methods for intervening in damaged architectural objects based on their material types and storage conditions are detailed in the same source:

Organic Materials: Damp organic materials, like textiles or wood, are lightly wrapped in breathable plastic and stored in a cool, well-ventilated space to prevent mold growth. Daily monitoring for mold is crucial.

Paintings: Damaged paintings are laid horizontally on a stable surface with corner supports to facilitate air circulation and prevent warping.

¹⁰⁵ (Stovel, 1998)

Wet Books: Wet books require prompt intervention. Depending on the severity of water damage, wrapping and freezing or air-drying with good airflow are potential options.

Wet Inorganic Materials: Wet metal, glass, or ceramic objects are air-dried as quickly as possible. Gentle mopping may be necessary to remove excess water. Once dry, these objects are stored in a cool, well-ventilated area with low humidity.

Partially Damp Objects: Partially damp objects are inspected for mold growth. The affected area is carefully wiped with dry cloth if mold is present. Objects suspected of having mold are isolated to prevent its spread (Figure 37) (Stovel, 1998).



Figure 37. Emergency Protection and Labeling of Evacuated Objects¹⁰⁶

¹⁰⁶ (ICCROM, 2018)

By understanding material vulnerabilities and selecting appropriate post-disaster conservation and maintenance measures, cultural heritage professionals can minimize further deterioration of objects and significantly improve the chances of successful object recovery and conservation of heritage objects during the initial stages of emergency response (Merrill, 2003).

Once salvaged and packed, the objects are transferred to a designated **relocation area** for further conservation and care. (World Bank Group, GFDRR, 2017). To ensure the safety of movable works of art and other cultural properties during a disaster, it is imperative to transport them to secure storage places located outside the disaster zone. Before relocation, each rescued architectural element should be assigned a **unique number and location code** for identification purposes. All boxes containing these objects must be properly labeled with the corresponding number and type of objects stored within them (Figure 38) (Feilden, 1987).

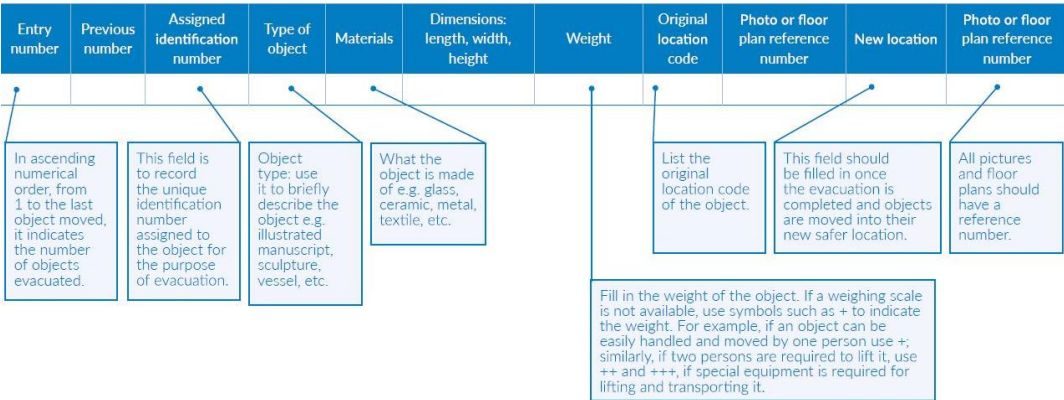


Figure 38. An Example of a Relocation Form¹⁰⁷

Following the completion of search, documentation, rescue, pre-maintenance, and packaging activities at the site, the agency seeks **official permission** to relocate the objects to a designated area for **temporary storage**. In the temporary storage space, a location code system is established to organize the relocated objects effectively. Furthermore, a designated team member responsible for documentation fills out a **movement tracking form** to monitor the placement of relocated objects and ensure accurate record-keeping (Figure 39) (ICCROM, 2018).

¹⁰⁷ (ICCROM, 2018)

Entry number	Box number	Total number of items in a box	Instructions for handling/ transportation	Dispatched by	Date left	Courier/vehicle number	Date received	Box number	Total number of items in a box	Received by
1	12	20	Glass: handle with care	Abdel Hamid, curator	25 Jan	xxx256	25 Jan	12	20	xxx store keeper
...

Figure 39. An Example of a Movement Tracking Form¹⁰⁸

3.3.3.5. Demobilization and Post-Mission

Upon completion of the rescue operation, the team leader ensures that policies are followed, and work is carried out in coordination with the Local Emergency Management Authority (LEMA). The rescue team’s operation, training, gaps, and personnel issues are evaluated through **self-assessment** after the mission. LEMA is briefed about structural stability concerns and post-disaster demolition plans to reduce hazards. The BoO site is restored to its original state before teams leave (OCHA, 2015). The top management of the agency is notified of the current situation that the operation is completed, and the BoO is disestablished.

The rescue and evacuation teams prepare a **post-mission report** and ensure its completion. The operation period is reported. Reports contain detailed information indicating the start-end date and start-end time of operation, the total number of identified monuments, the number of currently active worksites, the number of currently pending worksites, and the number of currently completed worksites.

3.3.4. Post-Disaster Period and Recovery Measures

The post-disaster phase seamlessly transitions into the preparedness phase. Cultural institutions undertake essential measures to recover and restore affected cultural heritage during this period. These efforts include immediate recovery actions, detailed strategies for recovery and resilience, adherence to established post-disaster restoration principles, and a review of existing plans and strategies.

3.3.4.1. Immediate Recovery Efforts

In the aftermath of a disaster, immediate recovery efforts are initiated as the first step towards restoration. These efforts include several key components: post-disaster

¹⁰⁸ (ICCROM, 2018)

reporting, surveys of the affected cultural heritage, and various recovery initiatives such as repair and restoration projects. Additionally, information exchange and expert meetings are organized to facilitate the recovery process.

Post-disaster report and Post-disaster Surveying of Affected Structures

The Rescue and Evacuation Team creates and presents a detailed post-mission report and post-disaster survey to the agencies' top management. These documents serve as valuable learning tools, detailing the mission's successes and challenges. In addition to outlining the mission, the report includes a comprehensive lessons-learned process. This involves critical reflection on the operation's planning and training phases. By objectively analyzing what worked well and identifying areas for improvement, the team can enhance coordination during future operations (OCHA, 2015).

The post-disaster report details key aspects of the emergency response, including a reevaluation of results, safety and security concerns, type and extent of damage, immediate financial resource needs, and a review of lessons learned. The safety and security evaluations include information on the number of affected structures, the types of hazards faced by personnel, and any security breaches that have occurred.

Another essential aspect of immediate recovery efforts is the post-disaster survey of affected cultural heritage. This survey includes detailed documentation of the type and extent of damage to structures, collections, and surrounding areas.

Post-disaster surveying involves three sequential phases:

- A **preliminary site tour** of the disaster-affected area led by responsible staff,
- A systematic **photographic survey**,
- A **detailed inspection** along with photography of important details.

These steps should be carried out sequentially whenever time permits to ensure a comprehensive assessment of the damage (CCI, ICCROM, 2016). Surveying documentation comprises several key elements, including detailed technical drawings, photographs, and witness testimonies. At this stage, after assessing the damage to all structures, their intervention priorities are determined by categorizing them into "safe," "to be suspended/reinforced," and "requires demolition" (Waller, 1994).

Repair, Restoration, and Recovery of Affected Cultural Heritage

After a disaster, initiatives are launched to repair, restore, and recover heritage buildings that were affected. These efforts focus on enhancing the buildings' ability to withstand future disasters. This approach ensures that the structures can endure such events with minimal damage and are better prepared for any future occurrences.

Information Exchange and Expert Meetings

Cultural agencies organize expert meetings, both domestic and international conferences, and exhibitions to promote the exchange of knowledge and collaboration. Establishing connections with universities at both regional and global levels is deemed essential. These agencies work together with national and international cultural heritage conservation organizations on various initiatives, coordinating the involvement of international experts in the region for joint projects.

3.3.4.2. Detailed Post-Disaster Recovery and Resilience Strategies

Following the immediate recovery efforts, cultural agencies implement a detailed set of post-disaster recovery strategies to ensure a well-coordinated and successful recovery process. These strategies include developing short-term and long-term plans, proposing conservation plan revisions, publishing reports and guidelines, and establishing material laboratories.

Short-term and Long-term Plan Preparation

Clear and actionable plans are vital for effectively recovering cultural heritage affected by disasters. Agencies implement a structured planning process that addresses both **short-term stabilization** needs and **long-term restoration** goals in the post-disaster period (Drury, 2008; Kitamoto, 2005)¹⁰⁹.

Short-term plans focus on immediate actions to secure the affected sites and prevent further deterioration. This involves shoring up damaged structures, mitigating environmental threats, and creating a safe working environment for responders. Building upon the short-term plans, long-term plans outline the comprehensive process

¹⁰⁹ ICCROM. (2018). *First Aid To Cultural Heritage In Times Of Crisis: 2 Toolkit*. Rome: International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM).

for restoring the cultural heritage to its pre-disaster condition or a stabilized state if full restoration is not possible. These plans give definitions on various aspects, including recovery priorities, allocations of financial and human resources, and restoration strategies.

New Conservation Plan Proposals

In the post-disaster period, a conservation plan revision is formulated to preserve the region's historical character, specifically tailored to address the city's cultural heritage. Emphasis is placed on safeguarding monuments, historic sites, open spaces, and buffer zones for historical buildings. Additionally, integrating disaster risk management (DRM) concerns for cultural heritage into conservation plan proposals is required (FEMA, 2005).

Publications and Guidelines

Activities and research outcomes are recorded and published by agencies in order to improve disaster resilience of cultural heritage. Additionally, technical guidelines are produced to enhance the resilience of architectural heritage to disasters. These guidelines are based on experimental, analytical, and comparative research, covering the resistance of historic buildings and materials, historical concepts, methods of improving resistance, and the behavior of different structures and materials (timber-frame, rubble or ashlar masonry, earth structures, etc.). Moreover, guidelines consider the effects and possible behavior of building defects in the event of a disaster, evaluate previous practices and techniques, and assess different levels of disaster intensity and frequency. (ICOMOS, 2008).

These guidelines cover several important topics, including:

- **Resistance of Structures and Building Materials:** Resistance of different building materials and construction techniques used in monumental architectural characteristics is analyzed.
- **Structural Behavior under Different Disasters:** The behavior of different structures and materials (e.g., timber-frame, masonry) under various disaster scenarios is examined.

- **Historical Concepts and Methods:** Historical concepts and methods for improving disaster resistance are explored and evaluated.
- **Building Defects and Disaster Impact:** The effects and potential behavior of intrinsic and extrinsic building defects in the event of a disaster are analyzed.
- **Evaluation of Existing Practices:** The effectiveness of previous practices and techniques used in disaster response and recovery are assessed.
- **Disaster Intensity and Frequency:** Studies based on realistic probability assessments of different disaster intensities and frequencies are designed.

Proposals for Inscribing Affected Monuments to ‘World Heritage List in Danger’

As part of efforts to preserve the region's identity during the recovery process, preparations are made for the possible inscription of the heritage on the "World Heritage List in Danger".

Establishing Material Laboratories for Traditional Building Materials

Traditional material laboratories aim to preserve and revive traditional technical knowledge related to conventional building materials. Establishing these laboratories is essential for producing materials suitable for conventional construction practices. This initiative seeks to protect traditional buildings that have survived disasters and to revive traditional architecture in the region.

3.3.4.3. Restoration Principles and Guidelines

Agencies prioritize the adoption of scientific restoration principles and adherence to international conservation guidelines when repairing and restoring cultural properties. They ensure the use of appropriate materials, techniques, and methodologies to preserve the integrity and historical value of cultural heritage objects. Additionally, efforts are made to protect existing structures by maintaining their original integrity and respecting the cultural significance of the heritage site.

3.3.4.4. Review of Operation and Continuous Improvement

Cultural heritage agencies require regular assessments to evaluate their strengths and weaknesses in relation to disasters. The accuracy and comprehensiveness of these

assessments significantly influence the success of efforts to protect assets and reduce damage to heritage buildings and objects during emergencies. A thorough **institutional self-assessment** typically covers several key areas, including the evaluation of inventories, human resources (such as security personnel), equipment, and current protection measures.

Accuracy of Heritage Inventory Used at Operations: This involves critically examining existing inventories to ensure their accuracy and completeness. Outdated or incomplete inventories hinder effective emergency response planning and resource allocation.

Adequacy and Proficiency of Human Resources: The assessment evaluates the adequacy of personnel in terms of numbers, training, and preparedness for various emergencies.

Equipment Used at Operations: Assessing the equipment used in emergency responses. This includes evaluating the functionality, suitability, and adequacy of equipment for various disaster scenarios.

3.3.5. Indicators and Scorecard for Measuring Compliance at Technical Implementation Level

The components at the technical implementation level are integrated into a scoring system, which serves as the basis for measuring and evaluating elements, as outlined in the Table (Table 4). This evaluation encompasses the following dimensions:

- Disaster preparedness measures in the period between two disasters (indicator 3.1),
- On-site preparedness measures before heritage rescue operations in the aftermath of disasters (indicator 3.2),
- Rescue, evacuation, relocation, and temporary storage of salvaged architectural elements (indicator 3.3),
- Post-disaster period and recovery measures (indicator 3.4).

Table 4. Indicators and Scorecard for Measuring Performance Requirements at the Technical Implementation Level

Indicator 3.1 – Disaster Preparedness Measures in the Period Between Two Disasters	Scored rating
<ul style="list-style-type: none"> Neither regular monitoring nor regular maintenance of cultural properties is done. Regular education program needs of personnel are not met. Necessary documents, including inventories, analysis, and scientific reports, are not prepared either. 	(0) ZERO
<ul style="list-style-type: none"> In the pre-disaster period, inventories, analyses, and scientific reports are prepared. However, regular monitoring and maintenance of cultural properties are not carried out. Additionally, the needs for regular education programs are not met. 	(1) INITIAL
<ul style="list-style-type: none"> Inventories, analyses, and scientific reports are prepared and completed. During the pre-disaster period, regular monitoring and maintenance of cultural properties are implemented. However, the agency fails to meet the needs for regular education programs. 	(2) PROGRESSING
<ul style="list-style-type: none"> Cultural properties are consistently monitored and maintained. Personnel education program needs are addressed regularly. The agency prepares and completes necessary documents, including inventories, analyses, and scientific reports, during the pre-disaster period. 	(3) SUFFICIENT
Indicator 3.2 - On-Site Preparedness Measures Before Heritage Rescue Operations in the Aftermath of Disasters	Scored rating
<ul style="list-style-type: none"> The agency lacks established methodologies for situation analysis and damage assessments. The readiness of rescue teams is not ensured, and their roles and responsibilities are undefined. Necessary service units for rescue operations are not established, and pre-operation checks are often overlooked. 	(0) ZERO
<ul style="list-style-type: none"> On-site assessments, including situation analyses and damage assessments, are being carried out; however, the readiness of rescue teams is still unaddressed, and their roles and responsibilities have not been defined. Moreover, essential service units for rescue operations are not established, and pre-operation checks continue to be overlooked. 	(1) INITIAL
<ul style="list-style-type: none"> The agency conducts situation analysis, damage assessments, and risk assessments, ensuring the readiness of rescue teams and defining their roles. However, necessary service units are not established. 	(2) PROGRESSING
<ul style="list-style-type: none"> The agency has developed a clear assessment methodology for on-site preparedness measures, which includes situation analyses and damage assessments of affected structures. It ensures the readiness of rescue teams and has clearly defined their roles and responsibilities. Necessary service units for rescue operations are established, and pre-operation checks are completed effectively. Necessary service units are established for rescue operations. Pre-operation checks are completed. 	(3) SUFFICIENT

Table 4 (Cont'd)	
Indicator 3.3 – Rescue, Evacuation, Relocation, and Temporary Storage of Salvaged Architectural Heritage Pieces	Scored rating
<ul style="list-style-type: none"> The agency has no pre-defined measures for rescue, evacuation, relocation, and temporary storage of cultural heritage in times of disaster. 	(0) ZERO
<ul style="list-style-type: none"> During the disaster response period, the agency focuses on ensuring the safety of personnel and securing the site. To prevent further damage, stabilization measures such as shoring and basic supports are applied as needed, and debris is removed. However, there is no on-site documentation or prioritization of affected items. Additionally, rescue, evacuation, and pre-maintenance of impacted heritage pieces are not conducted. There are also no established protocols for packing, moving, tracking, demobilization, or post-mission measures. 	(1) INITIAL
<ul style="list-style-type: none"> The agency ensures the safety of personnel and takes site security measures. Stabilization and debris removal are done. Rescue and evacuation of affected heritage pieces are done. However, neither on-site documentation nor on-site prioritization and emergency protection of affected objects are done successfully. Packing, moving, and tracking protocols, as well as demobilization and post-mission measures, do not exist either. 	(2) PROGRESSING
<ul style="list-style-type: none"> Safety of personnel is provided, and site security measures against looting and theft are taken. Structural stabilization is done, and debris is removed. On-site documentation and on-site prioritization of affected objects are done successfully. Evacuation, salvage, pre-maintenance, relocation, and temporary storage of affected heritage objects are done. In addition, packing, moving, and tracking protocols, as well as demobilization and post-mission measures, are existing. 	(3) SUFFICIENT
Indicator 3.4 - Post-disaster Period and Recovery Measures	Scored rating
<ul style="list-style-type: none"> No measures are implemented by the agency to recover the affected cultural heritage in the post-disaster period. 	(0) ZERO
<ul style="list-style-type: none"> Immediate recovery efforts are done, including post-disaster reporting and surveying of the affected cultural property. However, detailed recovery reports, including short—and long-term action plans and a Conservation Master Plan, do not exist. In addition, restoration and recovery of affected cultural property are not completed, and rescue operations are not evaluated and audited in the post-disaster period either. 	(1) INITIAL
<ul style="list-style-type: none"> Immediate recovery efforts include post-disaster reporting and surveying of the affected cultural property. Restoration and recovery work are carried out, and rescue operations are evaluated and audited in the post-disaster period. However, detailed recovery reports, which should include short- and long-term action plans as well as a Conservation Master Plan, are still not prepared. 	(2) PROGRESSING

Table 4 (Cont'd)	
<ul style="list-style-type: none"> • Immediate recovery efforts, including post-disaster reporting and surveying, are implemented for the affected cultural property. Detailed recovery reports featuring both short- and long-term action plans and a Conservation Master Plan are generated, and updates are provided. Restoration and recovery efforts are applied to the affected property, and rescue operations undergo evaluation and auditing in the post-disaster period. 	(3) SUFFICIENT

3.4. Evaluation of the Framework Proposed in the Thesis

This assessment evaluates two key issues related to the thesis methods. First, it is important to highlight that this study is grounded in concepts and issues derived from existing literature, which are essential for developing the proposed framework in the thesis. A comprehensive literature review was conducted to identify and analyze relevant concepts and terminology. The review also examined global structures and models implemented by international organizations in this field. Additionally, it explored Turkey's approach to managing cultural heritage disasters. This research involved archival work within the General Directorate of Foundations and analyzed global challenges and achievements through various practices. Furthermore, insights were drawn from the 2023 earthquakes in Turkey—events that the thesis author both personally experienced and managed within disaster response efforts.

The identified concepts have been classified based on their timing, interrelationships, and levels established by building on existing models. Following this classification, standards were developed from the derived concepts, which facilitated an assessment of the institutional capacity of the Directorate General of Foundations, the case study for this thesis. This assessment also included evaluating relevant categories in accordance with the established standards. To assist with this scoring, a scale template consisting of four levels was utilized. This practical method for measuring the institutional capacity of the Directorate General of Foundations proved to be efficient and time-saving for the author.

Secondly, it is essential to underscore that several components outlined in the proposed model can be implemented simultaneously across various stages, including policy-making, administration, and technical implementation. These components encompass

the establishment of committees, provision of equipment and supplies, organization of educational and training programs, facilitation of communication and coordination among relevant parties, and the creation of necessary documents such as inventories, reports, and analyses.

For an institution to commit to these components at the policy-making level, it is essential to integrate them into the curriculum at the administrative level, while also ensuring their practical execution at the technical level. For instance, when an institution incorporates "education and training" into its policy, it lays the groundwork for developing training programs within its curriculum, enabling both theoretical and practical training sessions. As a result, the component of "education and training programs" can be effectively implemented across policy-making, administrative, and technical levels, which is crucial for efficient institutional management.

In this regard, the framework is designed to enable institutions to assess their own compliance with specific standards. This allows them to evaluate their progress in fulfilling requirements and identifying areas that need improvement.

CHAPTER IV

DISASTER MANAGEMENT OF CULTURAL HERITAGE IN THE TURKISH CONTEXT: ANALYZING THE PROPOSED FRAMEWORK THROUGH THE CASE OF DIRECTORATE GENERAL OF FOUNDATIONS (DGF)

The previous chapter clearly outlined the institutional components necessary for cultural institutions involved in managing cultural heritage against disasters. Building on those components, this chapter offers an in-depth analysis of the existing institutional capacity of the General Directorate of Foundations (DGF), specifically regarding disaster management of foundation cultural heritage. The analysis employs a proficiency scale with four levels: zero, initial, progressing, and sufficient (Figure 40).

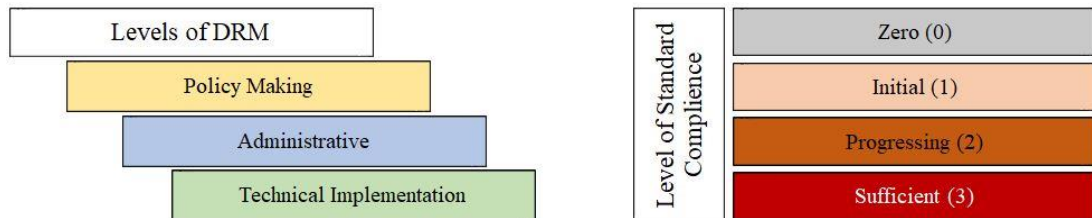


Figure 40. Disaster Management Levels for Cultural Heritage and Assessment of Compliance with Standards

4.1. DGF's Policy Analysis

In Türkiye, the Ministry of Culture and Tourism (MoCT) serves as the primary public authority responsible for the conservation of cultural heritage. The MoCT also establishes the regulatory framework for heritage conservation. However, the main responsibility for implementing conservation efforts lies with property owners. As the owner, or responsible body, of foundation assets, the General Directorate of

Foundations (DGF) takes on the responsibility for conservation activities related to foundation cultural heritage.

This section conducts a comprehensive analysis of the DGF's disaster management strategy for foundation cultural heritage, focusing on four key policy-making components: policy documents, authorization, capacity building, and financial support within the context of disaster management for foundation cultural heritage.

4.1.1. Policy and Strategy Documents of DGF

The institution was evaluated based on the "policy and strategy documents" standard for disaster management of cultural heritage, using a grading scale defined in the thesis. After the assessment, a score was assigned to indicate the current level of compliance with this standard.

4.1.1.1. Policy and Strategy Documents

The conservation efforts for cultural heritage in Türkiye are governed by the "Law on the Protection of Cultural and Natural Heritage," numbered 2863. This law designates various boards, institutions, and organizations that have the authority to protect cultural heritage, approve interventions, and carry out conservation activities. It addresses key aspects such as the identification and registration of immovable cultural property, the types of property eligible for protection, the entities authorized to conduct conservation, the establishment and operation of scientific boards, committees, and commissions, as well as the role of the General Directorate of Foundations (DGF).

However, the law (No. 2863) only briefly mentions the conservation of cultural heritage against disasters, stating, *In places where public order is disrupted or where a natural disaster occurs, restoration works of affected immovable cultural assets—regardless of public or private ownership—can be restored by the Ministry free of charge.* Apart from this provision, the law (No. 2863) lacks specific statements concerning disasters.

The Twelfth Development Plan (2024-2028) for Türkiye emphasizes the importance of preserving the country's domestic and international cultural heritage while considering disaster risk. It states that immovable cultural assets will be utilized in

accordance with the conditions outlined in their registration charters, and that both cultural and natural assets will be made more resilient to disasters. **However, the plan lacks detailed information regarding preparedness, response, and recovery measures for disaster situations.**

In response to the *Kahramanmaraş* and **Hatay** earthquakes, concrete measures have been announced to protect and preserve cultural heritage as part of a disaster management strategy. These initiatives, outlined in the "12th Development Plan" published by the Presidency of Strategy and Budget of the Republic of Türkiye, include the following actions:

- Efforts will be made to ensure that the population responsible for sustaining the local culture can return to their homes. This work aims to holistically revive the historical and cultural fabric while strengthening the connection between the old city districts and new city settlements.
- New city developments will incorporate cultural infrastructure elements such as libraries, museums, cultural centers, and city parks. These facilities will promote social and cultural interaction, enhancing the overall well-being of the community. Additionally, new city squares will be designed to include monuments that commemorate history and foster a vibrant city culture.
- A Scientific Commission will continue assessing the damage to 8,500 registered immovable cultural heritage buildings in the affected areas. They will oversee the repair and restoration of these structures.
- Cultural infrastructure will be developed concurrently with housing projects in the earthquake zone.

The preservation of the built environment and cultural heritage buildings is outlined in the National Disaster Response Plan (2022). The Plan assigns the Ministry of Culture and Tourism (MoCT) the responsibility of ensuring the security and protection of movable national assets, valuable documents, and cultural properties, as well as facilitating the transportation of these cultural assets.

The General Directorate of Foundations (DGF) has announced a series of activities to be undertaken in response to the Kahramanmaraş and Hatay earthquakes. These activities are outlined in the "Medium-Term Program (OVP)" published by the Ministry of Treasury and Finance of the Republic of Türkiye, covering the years 2024-2026^{110,111,112}: The key actions include:

- **Restoration of Socio-Economic Life:** Prioritizing projects that will restore socio-economic life to normalcy and address the damage caused by the earthquakes in the affected provinces. This includes providing financial assistance to impacted families and businesses, as well as rebuilding damaged infrastructure.

- **Effective Coordination Mechanism:** Establishing a practical coordination mechanism among institutions to ensure that efforts to compensate for earthquake damage are organized and prioritized. This will involve collaboration with government agencies, non-governmental organizations, and the private sector, ensuring that resources are utilized effectively and efficiently.

- **Disaster-Resilient Infrastructure:** Ensuring that the infrastructure in the earthquake-affected areas is resilient to future disasters as part of the reconstruction efforts. This includes constructing new buildings designed to withstand earthquakes and other natural disasters, as well as retrofitting existing structures to enhance their resilience.

Additionally, the protection and conservation of foundation cultural properties is a key objective outlined in the DGF's Strategic Plan for the period 2019-2023. **However, it is important to note that the disaster management of foundation cultural heritage is not explicitly addressed in any of DGF's policy documents**

4.1.1.2. Scoring of the Agency on Policy and Strategy Documents

An examination of regulations and strategy papers reveals that **the Directorate General of Foundations (DGF) lacks specific policies, strategies, and legislation regarding the disaster management of cultural heritage.** While this topic is briefly

¹¹⁰ For the list of legislations see Appendix I—List of Legislations Cited in the Thesis.

¹¹¹ Medium-term Program (2024-2026) published by Ministry of Treasury and Finance.

¹¹² Performance Accomplishment Report-2024 published by the Directorate General of Foundations.

mentioned in various macro strategy documents, the agency's goals, objectives, and mandates in the area of disaster management for cultural heritage are not clearly defined. Additionally, there is no articulated institutional approach to preserving heritage or to establishing an effective framework for managing disaster risks associated with foundation cultural heritage properties. There are also no detailed administrative or technical measures for implementation, including components related to institutional capacity, to carry out this essential process.

Consequently, Indicator 1.1 is scored at 0, indicating that the current level of preparedness is considered to be at Zero (Table 5).

Table 5. Agency Compliance with the Standard: Policy and Strategy Documents

Case	DGF- General Directorate of Foundations
Category	1 POLICY LEVEL
Standard	1.1 Policy/Strategy Documents
Definition of Standard	Agencies establish strategies, policies, goals, and objectives for managing cultural heritage disasters. These are clearly documented in the form of laws, regulations, procedures, and implementation guidelines.
Current Situation	The agency does not develop strategies, policies, or objectives in document format specifically for the disaster management of cultural heritage.
Current Score	(0)
Current Level	Zero Level

4.1.2. Authorization of DGF

The institution has been tested against the “Authorization of the Agency” standard required for disaster management of cultural heritage using a grading scale outlined in the thesis. After the assessment, a score has been assigned, and the current level corresponding to the score has been determined.

4.1.2.1. The Status of the Agency’s Authorization

The Agency operates as an autonomous entity, managing its finances independently. Key decisions require approval from the supreme council, known as the Foundations Council (*Vakıflar Meclisi*), which serves as the highest decision-making body.

The General Manager, who serves as the president of the Supreme Council, holds the chief executive position within the Agency. Three Deputy General Managers assist the General Manager during meetings. The Agency's administrative structure includes both central and provincial branches that operate nationwide (Figure 41).

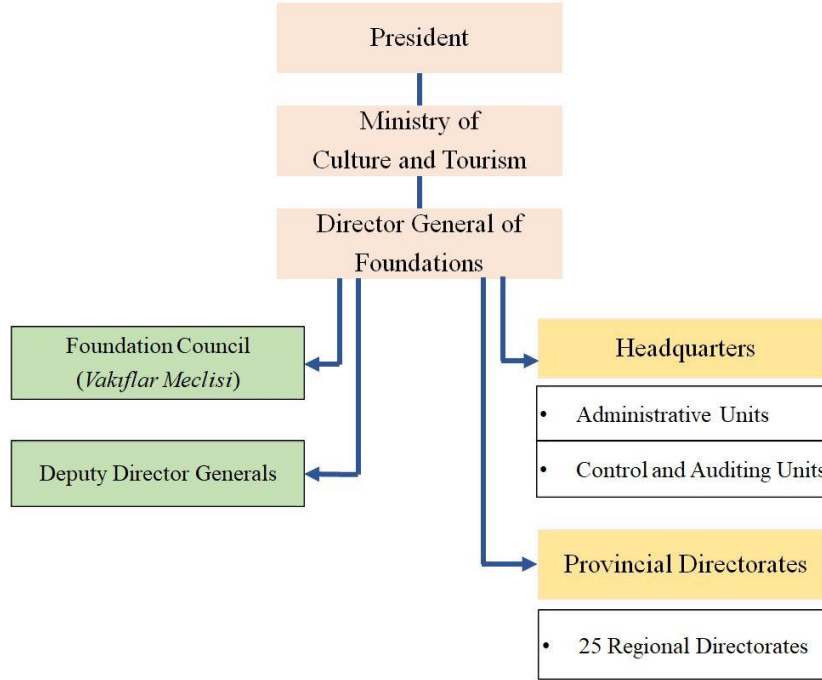


Figure 41. Organizational Structure of DGF¹¹³.

The central organization comprises 14 departments, and twenty-five Regional Directorates operate as provincial branches (Table 6).

The Agency's Administrative Units are listed as follows:

- Legal Consultancy Department (*Hukuk Müşavirliği*),
- Department of Guidance and Inspection (*Rehberlik ve Teftiş Başkanlığı*),
- Internal Audit Unit (*İç Denetim Birim Başkanlığı*),
- Department of Press and Public Relations (*Basın ve Halkla İlişkiler Müşavirliği*),
- Department of Strategy Development (*Strateji Geliştirme Daire Başkanlığı*),

¹¹³ <https://www.vgm.gov.tr/organizational-structure> - Last visit: 29th March, 2021.

- Department of Art Works and Constructions (*Sanat Eserleri ve Yapı İşleri Daire Başkanlığı*),
 - Department of Investments and Estates (*Yatırım ve Emlak Daire Başkanlığı*),
 - Department of Archives and Deeds of Foundations (*Kültür ve Tescil Daire Başkanlığı*),
 - Department of Charity Services (*Hayır Hizmetleri Daire Başkanlığı*),
 - Department of Services for Foundations (*Vakıf Hizmetleri Daire Başkanlığı*),
 - Department of Foreign Relations (*Dış İlişkiler Daire Başkanlığı*),
 - Department of Personnel Management (*Personel Daire Başkanlığı*),
 - Department of Facilities and Supplies (*Destek Hizmetleri Daire Başkanlığı*)
- and,
- Department of Health Services (*Sağlık Hizmetleri Daire Başkanlığı*).

On the other hand, the Regional Directorates are listed as follows:

Table 6. Regional Directorates of DGF¹¹⁴

Regional Directorates of DGF				
1	Adana Regional Directorate		14	İstanbul 2 nd Regional Directorate
2	Ankara Regional Directorate		15	İzmir Regional Directorate
3	Antalya Regional Directorate		16	Kastamonu Regional Directorate
4	Aydın Regional Directorate		17	Kayseri Regional Directorate
5	Balıkesir Regional Directorate		18	Konya Regional Directorate
6	Bitlis Regional Directorate		19	Kütahya Regional Directorate
7	Bursa Regional Directorate		20	Malatya Regional Directorate
8	Diyarbakır Regional Directorate		21	Samsun Regional Directorate
9	Edirne Regional Directorate		22	Sivas Regional Directorate
10	Erzurum Regional Directorate		23	Şanlıurfa Regional Directorate
11	Gaziantep Regional Directorate		24	Tokat Regional Directorate
12	Hatay Regional Directorate		25	Trabzon Regional Directorate
13	İstanbul 1 st Regional Directorate			

The administrative units described above are intended to maximize efficiency in the regions where DGF operates, both centrally and locally. These units are subject to revision as necessary. However, it is important to note that **none of the main units or**

¹¹⁴ www.vgm.gov.tr

their sub-units have a designated directorate or commission specifically responsible for "Disaster Management of Foundation Cultural Heritage."

Moreover, the Agency includes 11 foundation museums, two cultural centers, and two foundation libraries, enriching its cultural contributions¹¹⁵ (Table 7).

Table 7. Museums, Libraries, and Cultural Centers of DGF¹¹⁶

1	Ankara Foundation Museum / <i>Ankara Vakıf Eserleri Müzesi</i>	Museum Ankara
2	Selimiye Foundation Museum / <i>Selimiye Vakıf Müzesi</i>	Museum Edirne
3	Gaziantep Mevlevihane Foundation Museum / <i>Gaziantep Mevlevihanesi Vakıf Müzesi</i>	Museum Gaziantep
4	İstanbul Foundation Museum / <i>İstanbul Vakıf Eserleri Müzesi</i>	Museum İstanbul
5	Foundation based Turkish Art of Calligraphy Museum / <i>Türk Vakıf Hat Sanatları Müzesi</i>	Museum İstanbul
6	Akaretler Mustafa Kemal Museum / <i>Akaretler Mustafa Kemal Müzesi</i>	Museum İstanbul
7	Sivas Gökmedrese Foundation Museum / <i>Sivas Gökmedrese Vakıf Eserleri Müzesi</i>	Museum Sivas
8	Sheikh Şaban-ı Veli Foundation Museum / <i>Şeyh Şaban-ı Veli Vakıf Müzesi</i>	Museum Kastamonu
9	Sahip Ata Foundation Museum / <i>Sahip Ata Vakıf Müzesi</i>	Museum Konya
10	Foundation Museum of Double Minaret Madrasah of Erzurum / <i>Erzurum Çifte Minareli Medrese Vakıf Eserleri Müzesi</i>	Museum Erzurum
11	Tokat Mevlevihane Foundation Museum / <i>Tokat Mevlevihanesi Vakıf Müzesi</i>	Museum Tokat
12	Halef Sultan Cultural Center / <i>Halef Sultan Kültür Merkezi</i>	Cultural Center Tokat
13	Taceddin Dergah and Mehmet Akif Ersoy Cultural Center / <i>Taceddin Dergahı ve Mehmet Akif Ersoy Kültür Merkezi</i>	Cultural Center Ankara
14	İbrahim Hakkı Konyalı Library / <i>İbrahim Hakkı Konyalı Kütüphanesi</i>	Library İstanbul
15	Tire Necippaşa Library / <i>Tire Necippaşa Kütüphanesi</i>	Library İzmir

¹¹⁵ <https://www.vgm.gov.tr/faaliyetler/kulturel-faaliyetler/muzeler> - Last visit: 17th November, 2022.

¹¹⁶ www.vgm.gov.tr

According to Law No. 2863, the Directorate General of Foundations (DGF) is the only authorized institution responsible for the preservation and conservation of immovable cultural and natural properties owned by fused foundations (*mazbut vakıf*)¹¹⁷. This authorization encompasses various activities, including surveys, maintenance, and repairs related to disaster management for foundation cultural heritage.

With the approval of the relevant regional Conservation Council, disaster management practices are implemented for various types of foundation cultural heritage, which include mosques, tombs, caravanserais, medreses, khans, public baths, masjids, zaviyahs, mevlevihanes, and fountains.

Although Law No. 5737—the Law of Foundations—designates the DGF as the sole institution responsible for protecting foundation cultural property, **it lacks specific provisions regarding disaster management**. The legislation does not clearly outline the establishment of administrative units, the authorization of central and regional branches, the formation of rescue teams within the agency, or the response times of collaborating institutions.

4.1.2.2. Scoring of the Agency on Authorization

The DGF has the authority to implement conservation measures for disaster risk management, which includes conducting necessary surveys, maintenance, and repair work. Additionally, the agency is empowered to allocate supplies and resources for essential restoration activities. However, the legislation currently lacks adequate provisions regarding the treatment of cultural heritage in the context of disaster management. As a result, Indicator 1.2 is rated a 2, indicating that the current status is considered to be in the Progressing Phase (Table 8).

¹¹⁷ Fused Foundation: *Mazbut vakıf* – Go to the Appendix D for further information. <https://kvmgm.ktb.gov.tr/TR-43249/law-on-the-conservation-of-cultural-and-natural-propert-.html> (Last visit, December 6th, 2020).

Table 8. Agency Compliance with the Standard: Authorization Policy

Case	DGF- General Directorate of Foundations
Category	1 POLICY LEVEL
Standard	1.2 Authorization Policy
Definition of Standard	Agencies have the power to carry out necessary works, encompassing survey, maintenance, and repair, to safeguard its cultural heritage against the disruptive effects of disasters.
Current Situation	DGF is authorized to carry out necessary implementations to safeguard foundation cultural heritage. However, the legislation does not clearly outline the establishment of administrative units, the authorization of central and regional branches, the formation of rescue teams within the agency, or the response times of collaborating institutions.
Current Score	(2)
Current Level	Progressing

4.1.3. DGF’s Policy for Institutional Capacity Building

This section conducts an analysis of the institutional capacity of the Directorate General of Foundations (DGF), which manages a variety of movable and immovable cultural assets. Key indicators are presented to provide a comprehensive understanding of DGF’s institutional capacity. For DGF, these components include well-educated and trained expert personnel, effectively organized rescue teams, sufficient technical equipment and supplies, and adequate budgetary resources.

4.1.3.1. Financial Overview, Assets and Investments of the Agency

Tables 9 and 10 illustrate the annual revenues and expenditures of DGF for 2021-2022, shedding light on the sources of income and where budgetary allocations are directed. Notably, the revenue streams mostly include Rental Income, Real Estate Sales Revenues, Donations, and Grants, Revenues from Participants, and Interest income, while expenditures are concentrated mostly on Financial Expenses, Goods and Services, Staff Expenses, and Loans (Tables 9, 10). The tables indicate that the Agency has a robust financial position due to the consistent revenue generated by its valuable foundation assets.

Table 9. Revenues of DGF (2022-2023)¹¹⁸

Type of Revenue	2022 (TL)	Percentage	2023 (TL)	Percentage
Rental Income	1,557,639,990.77	34,54	2.572.336.064,30	27,42
Participation Revenues	639,892,944.05	14,19	1,092,711,203.99	11.65
Other Various Revenues	83,518,693.40	1,85	351,800,513.73	3.75
Revenues from the Sale of Immovable Property Belonging to Endowed Foundations	655,033,732.08	14,53	516,567,712.73	5,51
Interest Revenues	199,105,052.89	4,42	261,387,230.25	2,79
Endowed Foundation Concession Fee	44,673,314.79	0,99	99,936,908.96	1,07
Foundation Management and Representation Revenues	16,068,173.77	0,36	28,147,219.44	0,30
Unconditional Donations and Aids	3,761,524.07	0,08	5,259,764.09	0,06
Bond, Securities, and Treasury Bills	1,264,403,281.71	28,04	4,454,490,460.21	47,48
Project Grants	44,995,918.04	1,00	0.00	0.00
Total	4,509,092,625.57 (259.2 m €) ¹¹⁹	100,00	9,382,637,077.70 (360.5 m €) ¹²⁰	100,00

Table 10. Expenditures of DGF (2022-2023)¹²¹

Type of Expense	2022 (TL)	Percentage	2023 (TL)	Percentage
Staff Expenses	365.692.841	8,83	822.016.997	9,71
Social Security Institution State Premium Expenses	63.467.102	1,53	136.291.724	1,61
Purchase of Goods and Services Expenses	432.061.841	10,44	1.499.693.228	17,72
Money Transfers	163.694.413	3,95	389.197.395	4,60
Financial Expenses	1.917.453.68	46,32	3.394.439.534	40,10
Loan	1.197.616.500	28,93	2.223.100.236	26,26
Total	4.139.986.377 (238.0 m €)	100,00	8.464.739.114 (325.2 m €)	100,00

¹¹⁸ www.vgm.gov.tr¹¹⁹ <https://paracevirici.com/doviz-arsiv/merkez-bankasi/gecmis-tarihli-doviz/2022/euro>, Last visit 19.12.2024¹²⁰ <https://paracevirici.com/doviz-arsiv/merkez-bankasi/gecmis-tarihli-doviz/2023/euro>, Last visit 19.12.2024¹²¹ www.vgm.gov.tr

The Directorate General of Foundations (DGF) has created various subsidiaries using the income generated from the foundations it oversees. These subsidiaries include banks, universities, and other partnerships. Notable examples include:

- *Vakıf Katılım Bank,*
- *Kuveyt Türk Bank,*
- *Fatih Sultan Mehmet Foundation University,*
- *Bezm-i Alem Valide Sultan Foundation University*¹²².

Moreover, certain foundation-based cultural properties in Türkiye have been allocated to various institutions and organizations, provided that their original architectural and functional attributes are preserved. The table presents the number of foundation-based cultural heritage assets allocated to different institutions and organizations¹²³ (Table 11).

Table 11. DGF's Assets/immovables Allocated for the Use of Other Institutions

No	Name of the Institution	Number of Assets Allocated
1	Ministry of Justice	1
2	Ministry of Family, Labor, and Social Services	3
3	Directorate of National Palaces	4
4	Directorate of Religious Affairs	1019
5	Ministry of Youth and Sports	14
6	Ministry of Interior	4
7	Ministry of Culture and Tourism	44
8	Ministry of Education	193
9	Ministry of Defence	2
10	Ministry of Health	4
11	The Manuscript Institution of Türkiye	7
12	Other Public Institutions	15
13	Universities	21
14	Municipalities	153
15	Governorates	8
16	Foundations	264
17	Associations	62
TOTAL		1.818

¹²² www.vgm.gov.tr, Last visit, 19.12.2024.

¹²³ The Activity Report of the General Directorate of Foundations (DGF), 2023.

4.1.3.2. Personnel Composition of DGF

The Agency's headquarters is in Ankara, Türkiye. It consists of a main building consisting of two blocks and two annex buildings. The Agency also has 25 regional directorate buildings located in 24 provinces across Türkiye. The Directorate General employs a total of 2,397 personnel. The table displays the distribution of personnel at the headquarters by gender, which indicates that the majority of the staff are male (Table 12).

Table 12. Number of DGF's Personnel According to Gender ¹²⁴

Gender	Number (Person)	Percentage
Female	716	29,87
Male	1681	70,13
Total	2397	100,00

The distribution of personnel by age is illustrated in the table. As shown, most personnel are between 36 and 50 years old (Table 13).

Table 13. Distribution of DGF's Personnel According to Age¹²⁵

Age	Number (Person)	Percentage
18-35 yrs	590	24,88
36-50 yrs	1158	48,84
51-60 yrs	483	20,37
61+ yrs	140	5,91

The status of the educational background of the personnel working at the Headquarters is shown in the Table below. Notably, half of the personnel possess a four-year higher education or above (Table 14).

¹²⁴ The Activity Report of the General Directorate of Foundations (DGF), 2023.

¹²⁵ The Performance Accomplishment Report of the General Directorate of Foundations (DGF), 2024.

Table 14. Number of DGF's Personnel According to the State of Education¹²⁶

State of Education	Number (Person)	Percentage
Primary School	138	5,76
Secondary School	107	4,46
High School	544	22,69
Higher Education (2 yrs)	365	15,23
Higher Education (3 yrs)	1	0,04
Higher Education (4 yrs)	1045	43,60
Graduate/Postgraduate	180	7,51
Doctorate (PhD)	17	0,71
Total	2397	100,00

Out of the total personnel, 504 are stationed at Headquarters, while 1,867 work in the regional directorates. The table below displays the distribution of personnel according to their respective departments. As illustrated in the table, the majority of employees are grouped into three main categories: General Administrative Services, Workers, and Technical Services (Table 15).

Table 15. Number of DGF's Personnel According to the Class of Services¹²⁷

Class of Service	Number of Personnel	Percentage
General Administrative Services	949	39,59
Technical Services	550	22,95
Advocacy Services	72	3,00
Health Services	3	0,12
Assisted Services	65	2,71
Contracted Personnel	75	3,13
Workers	683	28,49
Total	2397	100

¹²⁶ The Activity Report of the General Directorate of Foundations (DGF), 2023.

¹²⁷ The Activity Report of the General Directorate of Foundations (DGF), 2023.

The Directorate-General has a total of 135 branch managers, which includes 23 technical branch managers and 692 technical service staff. The qualifications and areas of expertise of the staff, which demonstrate their suitability for involvement in disaster management for cultural heritage, are detailed in the table (Table 16). Despite having a significant number of technical personnel, the Agency **has not established executive committees or rescue teams** to protect heritage assets from disasters.

Table 16. Titles of DGF's Personnel Suitable to be Commissioned at Heritage Rescue Operations ¹²⁸

Special Areas of Staff at the Headquarters (Ankara) and Regional Directorates						
Title (Administrative)		Number	Title (Technical)		Number	
General Manager		1	Architect		133	
Supreme Council Member		4	Civil Engineer		82	
Deputy General Manager		3	Lawyer		73	
Head of Law and Audit		3	City Planner		11	
Head of Department		11	Archaeologist		7	
Regional Director		25	Art Historian		25	
Deputy Regional Director		13	Book Pathologist		1	
Branch Manager		136	Technician		183	
			Other Engineers (Mechanical, Map, Electricity, Electric-Electronics, Computer, Geology, Physics, Agriculture, Environment, Food, Bioengineering)		204	
			Workers (Leading specialists, Carpenters, Bricklayer, Plumber, Forklift Operator, etc.)		135	
Administrative		194	Technical		854	
					Total	1.049

¹²⁸ The Activity Report of the General Directorate of Foundations (DGF), 2023.

4.1.3.3. Education and Training Activities at DGF

The data below illustrates the in-service training statistics, including the number of trainings organized and the number of participants who attended, for agency personnel between 2015 and 2018. None of the trainings focused on disaster management of cultural heritage (Figures 42, 43).

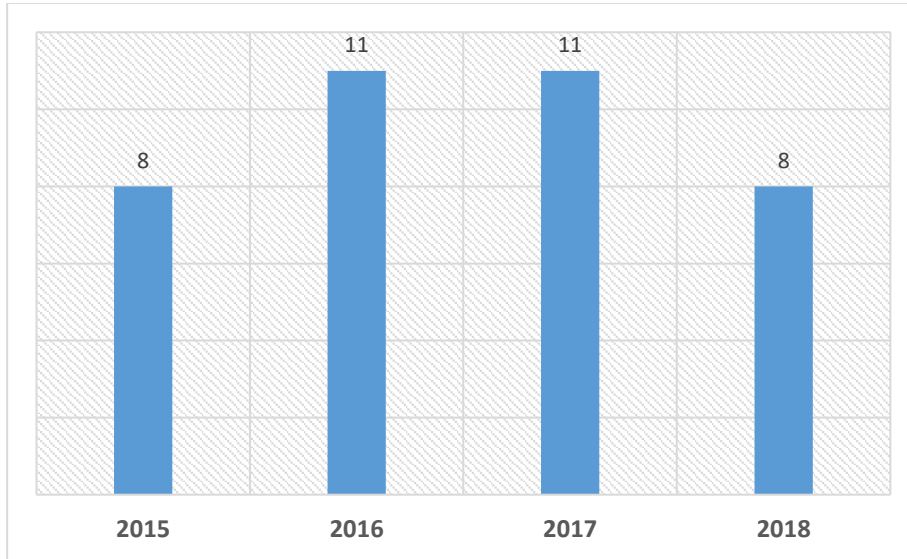


Figure 42. Number of In-Service Trainings Held by DGF Between 2015-2018¹²⁹

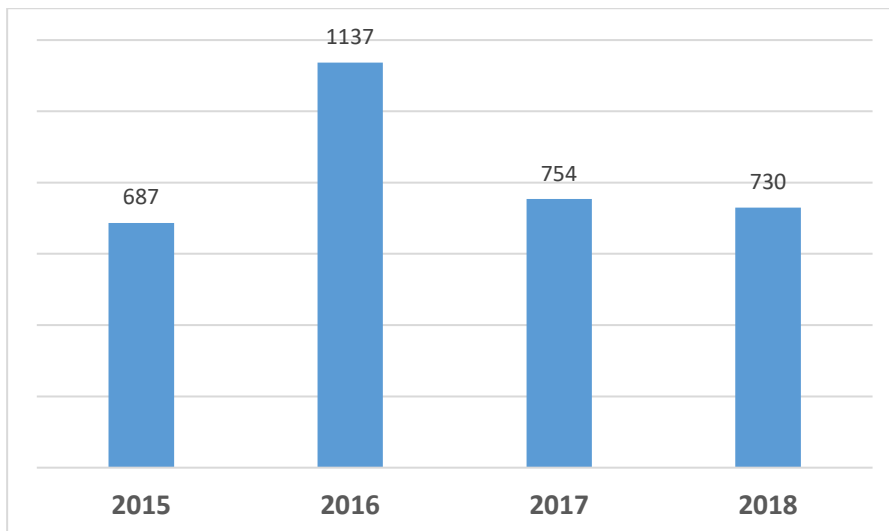


Figure 43. Number of DGF's Personnel Participated in the In-Service Training Held Between 2015-2018¹³⁰

¹²⁹ The Activity Report of the General Directorate of Foundations (DGF), 2023.

¹³⁰ The Activity Report of the General Directorate of Foundations (DGF), 2023.

4.1.3.4. Equipment and Technologies Used by DGF

The table displays the number of vehicles owned by the Agency. DGF has a fleet of 72 vehicles, which includes minibusses, cars, pickup trucks, trucks, and tractors. These vehicles are used to transport personnel and equipment and facilitate various activities (Table 17). The data indicates a shortage of suitable vehicles, emphasizing the need for additional support from relevant authorities during disasters.

Table 17. Vehicles Owned by DGF¹³¹

Type of Vehicle	Number Vehicle
Minibus	14
Car	47
Pickup Truck	6
Truck	1
Tractor	4
Total	72

On the other hand, the scientific data utilized by the Agency is collected through the Integrated Automation System for Foundations (EVOS), which consists of 17 integrated modules. EVOS is a comprehensive digital platform developed by the Agency to streamline and enhance the management of foundation assets. The platform includes a wide range of institutional processes across its 17 modules. Key features of the software are outlined below:

Property Inventory: *EVOS* maintains a comprehensive inventory of all foundation properties, providing detailed information on each property's location, size, condition, and value.

Rental Management: The platform facilitates the management of rental information for foundation properties, including lease agreements, payment tracking, and maintenance requests.

¹³¹ The data is sourced from the Performance Accomplishment Report of the General Directorate of Foundations (DGF), 2024.

Revenue and Expense Tracking: *EVOS* tracks all revenue and expenses associated with foundation properties, offering detailed insights into their financial performance.

Cash Flow Monitoring: The system allows for real-time monitoring of cash flow related to all foundation properties.

Real Estate Transactions: The platform supports the management of real estate transactions involving foundation properties, such as sales, purchases, and exchanges.

Budget Allocation and Investment Planning: *EVOS* supports the allocation of budget and planning of investments for foundation properties.

Legal Processes: The platform supports the management of legal processes related to foundation properties, such as disputes and litigation.

Information and Document Management: *EVOS* provides a centralized repository for storing and managing all information and documents related to foundation properties, such as photographs, maps, and historical records.

Accommodation Management: The platform helps manage accommodation requests and assignments for foundation properties.

Overseas Cultural Assets: The platform tracks and manages cultural assets owned by the foundation that are located overseas.

Charitable Properties: *EVOS* facilitates the management of charitable properties owned by the foundations.

Archiving: The platform provides a centralized repository for storing and managing all archival records related to foundation properties.

Online Payments: The platform allows tenants to pay their rent online through a secure payment gateway.

This structured approach clarifies the functionalities of the *EVOS* platform, making it easier to understand its key features and benefits.

Thus, the Agency's software offers several benefits, including:

- Increased efficiency: The platform automates many manual processes, leading to significant improvements in efficiency.
- Improved transparency: *EVOS* provides a centralized and transparent view of all foundation assets, which enhances decision-making.
- Enhanced accountability: The platform ensures that foundation assets are managed in a responsible and accountable manner.
- Reduced risk: *EVOS* helps mitigate risks associated with managing foundation assets by specifying maintenance, repair, and restoration dates.
- Improved stakeholder engagement: The platform allows stakeholders, including tenants and donors, to interact with the Agency.

While *EVOS* facilitates the Agency's asset management and contributes to the conservation of foundation cultural heritage, there is a critical **lack of scientific data on disaster risk assessments for these cultural assets**.

Lastly, the table lists the technological equipment, materials, and vehicles belonging to the Agency. The table provides a detailed inventory of technological equipment, materials, and vehicles that can be used for disaster management of cultural heritage (Table 18).

Table 18. Technological Equipment and Material Capacity of DGF¹³²

Item	Quantity	Description	Relevance to Disaster Management
Computers (Laptops-Tablets)	521	A wide range of computers, including laptops, tablets, and desktop computers.	Can be used for data entry, documentation, and communication during and after a disaster.
Fax Machines	39	Machines used to transmit and receive documents over a telephone line.	Can be used to transmit important documents and information during a disaster.
Photocopiers	150	Machines used to make copies of documents.	Can be used to copy important documents and records before or after a disaster.
Scanners	31	Devices used to convert physical documents into digital images.	Can be used to digitize important documents and records before or after a disaster.
Phones (Landline/Wireless/IP/Mobile/Vehicle)-Walkie-Talkies-PBXs-Call Tracking Systems	1833	A wide range of communication devices, including landline phones, mobile phones, and walkie-talkies.	Can be used for communication during and after a disaster.
Printers (Laser-Inkjet/Inkjet/Dot Matrix/Multifunction etc.)	475	A wide range of printers include laser, inkjet, and multifunction printers.	Can be used to print important documents and information during and after a disaster.
Satellite Receivers/Satellite-Microphone Transceiver Systems-Navigation Devices-GPRS Devices	8	A range of devices used for navigation and communication, including satellite receivers, GPS devices, and GPRS devices.	Can be used for navigation and communication during and after a disaster.

¹³² The Performance Accomplishment Report of the General Directorate of Foundations (DGF), 2023.

Table 18 (Cont'd)			
Weight/Length/Height/Distance Measuring Instruments-Humidity and Density-Precision Measuring/Speed Measuring Instruments-Tools and Equipment	125	A range of tools and equipment used for measurement, including weighing scales, rulers, and speedometers.	Can be used at damage assessment and recovery efforts after a disaster.
Line-Online Interactive Uninterruptible Power Supplies/Generators-Regulators	130	A range of devices used to protect electrical equipment from power surges and outages, including UPSs, generators, and regulators.	Can be used to protect critical equipment during a disaster.
Vehicles (Cars-Minibuses-Midibuses-Minivans-Ambulances-Caravans)	63	A range of vehicles, including cars, minibuses, and ambulances.	Can be used for transportation of personnel and equipment during and after a disaster.
TOTAL	3375		

The table reveals that the Agency possesses a diverse range of technological equipment and materials, both in quantity and type, suitable for deployment during emergencies.

4.1.3.5. Scoring of the Agency on Institutional Capacity

Despite having sufficient personnel, **neither executive nor technical boards or committees, nor heritage rescue and evacuation teams**, have been established within the Agency. Additionally, roles and responsibilities have not been defined.

The Agency organizes regular education and training programs each year; however, it has **not yet developed a specific program** focused on disaster management for cultural heritage. This program should address critical topics such as institutional capacity assessments, scenario planning, and on-site operational activities.

As a result, personnel who should be knowledgeable in these areas—including safety and security considerations, search and rescue operations, maintenance and storage, and logistics—**lack the necessary training**. Furthermore, members of the rescue team do not possess the qualifications needed to assess situations, remove hazards, or perform rescue and stabilization activities, which are essential for maintaining a high level of readiness.

While the Directorate General of Foundations (DGF) demonstrates institutional disaster management capacity in terms of having enough personnel, materials, and supplies due to its strong financial position, it requires a restructuring of its institutional capacity to effectively manage major disasters. Currently, there are **no policies for capacity building** in disaster management, and specialized training for risk reduction, preparedness, and response is absent. This lack of preparedness puts the Agency in a vulnerable position regarding risks that threaten cultural heritage. Consequently, Indicator 1.3 is scored as a 1, indicating that the current level is in the Initial Phase and signifying a need for significant improvement in disaster management for cultural heritage within the Directorate General (Table 19).

Table 19. Agency Compliance with the Standard: Capacity Building Policy

Case	DGF– General Directorate of Foundations
Category	1 POLICY LEVEL
Standard	1.3 Capacity Building Policy
Definition of Standard	Agencies have the capacity to manage risks that threaten cultural heritage. To do this effectively, they need to develop institutional capabilities in several key areas, including having qualified personnel, providing education and training to ensure proficiency, establishing administrative committees and teams, acquiring adequate equipment and supplies, and securing sufficient financial resources.
Current Situation	The DGF possesses qualified personnel and has a stable financial income; however, this capacity has not been organized for disaster management related to cultural heritage. Related administrative units and teams have yet to be established, and there are no regular education and training programs in place for the staff.
Current Score	(1)
Current Level	Initial Phase

4.1.4. DGF’s Policy for Financial Support and Insurance

The institution has been evaluated according to the "Financial Support and Insurance" standard necessary for disaster management of cultural heritage, following a grading scale outlined in the thesis. Following this assessment, a score has been assigned, which indicates the current level corresponding to that score.

4.1.4.1. Financial Support and Insurance

The Directorate General of Foundations (DGF) relies on financial resources obtained from the real estate and investments associated with the foundations it oversees. The management of these financial assets is the responsibility of the Foundations Council, which is the highest decision-making body within the organization.

While a portion of the budget is designated for routine maintenance activities at the DGF, there is **no special allocation for disaster financing**. Additionally, the DGF does not facilitate access to extra national or local funds for disaster response.

In terms of risk management, DGF ensures that its monumental cultural heritage buildings are fully insured against losses, damages, theft, and arson with all-risk

coverage. However, experts and **insurers rarely conduct** routine inspections of heritage buildings.

4.1.4.2. Scoring of the Agency on Policy for Finance and Insurance

The indicator 1.4 has been scored as 1, which indicates that it is in the Initial Phase. This highlights the need for improvements in DGF's financial strategy for disaster financing, as well as better access to national and international funds. These enhancements are crucial to ensuring the effectiveness of financial support and insurance policies (Table 20).

Table 20. Agency Compliance with the Standard: Financial Support and Insurance Policy

Case	DGF– General Directorate of Foundations
Category	1 POLICY LEVEL
Standard	1.4 Financial Support and Insurance Policy
Definition of Standard	Agencies allocate sufficient funds each year for the disaster management of cultural heritage properties and ensure that all cultural assets are insured against various types of risks.
Current Situation	Insurance of foundation cultural heritage against all kinds of risks is done by DGF. Additionally, a specific amount from the budget has been set aside for the restoration of disaster-affected cultural heritage in the aftermath of the 2023 Türkiye earthquake. However, there are currently no annual funds allocated specifically for the disaster management of cultural properties.
Current Score	(1)
Current Level	Initial Phase

4.2. Analysis of Administrative Level

This section evaluates DGF based on the key administrative components necessary for effective disaster management of cultural heritage, as outlined in the thesis. These components include inventories, analysis, plans, and programs, as well as standardized procedures. Additionally, it addresses the requirements for rescue teams, the need for cooperation and coordination with relevant authorities, and the importance of disseminating lessons learned from past experiences.

4.2.1. Inventories, Risk Analysis and Reports for Disaster Preparedness

The institution has been tested according to the “Inventories, Analysis, Plans, Programs, and Procedures” standard necessary for disaster management in cultural heritage. This evaluation used a grading scale defined in the thesis. Based on the assessment, a score has been assigned to indicate the current level of compliance with the standard.

4.2.1.1. Inventories and Standard Forms

The Agency has a collection of scientific documents and inventories. The Directorate General of Foundations (DGF) maintains a detailed inventory supported by foundation deeds and registration records that highlight architectural and artistic features, as well as photographs and reports of past interventions.

Additionally, the Agency utilizes a software system known as the Integrated Automation System for Foundations (*EVOS*) to manage the foundation cultural heritage inventory. To prevent data loss, the Agency ensures that its data is backed up and stored in a secure facility located in a low-seismic area, separate from the General Directorate building.

Although DGF has compiled a list of foundation cultural heritage buildings within the *EVOS* software, this **data has not been collectively assessed** to establish priorities for protection during disasters.

4.2.1.2. Region-Specific and Site-Specific Risk Analysis

The Agency lacks reports and analyses focused on region-specific and site-specific studies. In the case of region-specific studies, land use patterns are not analyzed, regional preventive measures are not established, past disaster frequencies are not documented, and effective disaster preparedness strategies are not developed. Meanwhile, site-specific studies fail to address the maintenance, improvement, and emergency response measures necessary for the preservation of cultural heritage buildings. Several fundamental tasks have not been completed, including probability assessments, fragility assessments, risk assessments, and the development of preventive and protective measures aimed at minimizing vulnerability and risks.

The Agency conducts routine maintenance and conservation for monumental heritage buildings, but it **does not systematically evaluate** the buildings' vulnerability to disasters based on their geographical locations. This oversight may create a gap between identifying the most at-risk architectural heritage and prioritizing appropriate protective measures.

4.2.1.3. Standard Operating Procedures (SOPs), Guidelines, Programs, and Operational Plans

The DGF **does not currently have Standard Operating Procedures (SOPs)** or a comprehensive operational **disaster plan** dedicated to protecting cultural heritage. The existing legislative framework at DGF does not adequately address key capacity-building factors, such as personnel management, education and training programs, financial resources and allocations, as well as necessary equipment and supplies. Furthermore, there are no defined or published provisions for the rescue, evacuation, relocation, storage, and emergency conservation of objects that have been saved.

Additionally, there is a lack of a specific operational plan that covers personnel safety, site security, structural stabilization measures, the maintenance of rescued architectural elements, and other emergency protection methods. This gap also extends to clearly defined roles and responsibilities for heritage rescue teams and their collaboration with security and civil defense teams.

On the positive side, the Agency has published a book titled “Guideline for the Management of Earthquake Risks in Historic Buildings.” This guideline, which embraces the concept of “integrated risk management,” serves as a comprehensive manual for pre-disaster risk assessment, risk reduction, preparedness, emergency response during disasters, and post-disaster recovery. It is organized into distinct sections for each phase, outlining strategic, tactical, and operational stages. However, there remains a notable absence of region-specific and site-specific studies, standard operating procedures, programs, and operational plans within the field of disaster preparedness.

4.2.1.4. Scoring of the Agency on Inventories, Analysis, and Reports

Although the agency has provided some useful resources in this specific area, current legislation does not address all phases of disaster management. As a result, Indicator 2.1 has been assigned a score of 1, which indicates the Initial Phase. This highlights the need for the DGF to enhance its disaster management efforts through region-specific studies, site-specific analyses, and the development of comprehensive Standard Operating Procedures (SOPs) as well as a detailed Operational Disaster Plan (Table 21).

Table 21. Agency Compliance with the Standard: Inventories, Analysis, Standard Operating Procedures and Disaster Plans

Case	DGF– General Directorate of Foundations
Category	2 ADMINISTRATIVE LEVEL
Standard	2.1 Inventories, Analysis, Reports, SOPs, and Operational Disaster Plan
Definition of Standard	Agencies have a set of documents and reports, including inventories, region-specific and site-specific analyses, standard operating procedures (SOPs), and operational plans for endangered cultural property, ready for use in disaster management.
Current Situation	The DGF maintains inventories of all monumental cultural buildings, which are recorded in the Agency's database. However, the Agency has not developed region-specific or site-specific studies, nor has it established standard operating procedures or operational plans.
Current Score	(1)
Current Level	Initial Phase

4.2.2. Rescue Teams' Requirements and Logistics at DGF

The institution has been evaluated based on the "rescue teams' requirements" standard for disaster management of cultural heritage, using a grading scale outlined in the thesis. After the assessment, a score was assigned to indicate the current level of compliance with this standard.

4.2.2.1. Establishment of Committees and Readiness of Teams

The disaster management **department** within the Agency **appears to be non-existent**. Several critical aspects need to be addressed, including the department's administrative status, level of authority, staffing qualifications, and protocols for cooperation with internal and external stakeholders. Furthermore, the integration of personnel from regional branches into the headquarters department has not been considered.

The Directorate General **lacks established rescue and evacuation teams**, which is a significant deficiency in disaster response preparation. These teams are not organized to function effectively during the preparation, response, and recovery phases. There are no dedicated heritage rescue and evacuation teams, nor are there teams for assessment and documentation, which could hinder the Directorate General's response capabilities. A list of team members and equipment does not exist, and there is no internal communication among team members. Additionally, necessary coordination between the assessment/documentation teams and the rescue/evacuation teams is lacking, and there are no appointed Policy Focal Points or Operational Focal Points.

Roles within the teams remain undefined concerning specific areas within the organization. Essential personnel, such as Team Leaders, Planning Officers, Rescue Team Officers, Structural Engineers, Hazmat Technicians, Liaison Officers, Logistics Managers, and IT Specialists, are not included in the composition of the rescue and evacuation teams. Furthermore, medical personnel are absent from on-site operations.

4.2.2.2. Team Composition and Personnel Management

Heritage rescue teams do not currently exist within the Agency, and as a result, there is **no established personnel structure** that ensures a diverse range of expertise and clearly defined leadership roles. These elements are crucial for effective coordination and motivation during emergencies. Additionally, essential personnel management techniques, such as negotiation, conflict resolution, and measures to support staff well-being, have not been defined or implemented. The leadership lacks the necessary skills in communication, coordination, and human relations. Furthermore, basic staff well-

being practices, including rest planning, staff rotation, fatigue management, and sanitation and hygiene protocols, are not in place.

4.2.2.3. Education and Training Programs for Personnel Skills Development

Education and **training programs** focused on disaster management for cultural heritage **have not been organized** by the agency between the two recent events. These training programs lack coverage of critical aspects, including an understanding of the universal values of cultural heritage, disaster management principles, civil defense procedures, hazard awareness, safety and stabilization measures, preservation of delicate and fragile materials, post-disaster documentation, emergency maintenance of heritage objects, evacuation and rescue of cultural heritage, and post-disaster restoration practices.

Personnel from the DGF are **not adequately trained** to perform essential tasks. This includes locating lists of historic buildings, conducting risk assessments, identifying secondary hazards on-site, managing hazardous materials, understanding the effects of various extinguishing agents on delicate historic fabrics, murals, and panels, reading floor plans, creating evacuation plans, protecting valuable architectural elements, and salvaging and evacuating cultural property during disasters.

The **training programs** also **lack crucial information** on alert and activation protocols, personnel preparedness, the establishment of an incident command system, pre-deployment logistics checks, and personal equipment lists. Personnel are not expected to perform vital operations such as rubble removal, load-lifting, stabilization, shoring, basic search techniques, and using necessary equipment. Moreover, they lack practical skills related to structural wood, concrete beams, steel, and brick walls at an operational level. Lastly, the competency status of personnel is not consistently monitored.

The DGF does not provide rescue and evacuation teams with evaluations of their operational capabilities or training in basic civil defense principles. Training is not conducted by qualified experts, nor are there realistic scenarios incorporating contributions from relevant experts and institutions. There is no encouragement for the international and regional exchange of teaching staff to promote the flow of ideas and

information. Multidisciplinary disaster management lessons are absent from the curriculum, and practitioners miss out on opportunities to stay updated on the latest advancements and successful practices through continuous vocational training.

Additionally, **training does not involve collaboration** with other public emergency services, including firefighters, civil defense, and military personnel. These stakeholders and civil defense experts are often not adequately informed about the significance of architectural heritage in their operational areas. Insurance companies and other interested parties also lack proper training.

4.2.2.4. Equipment and Logistics

The agency does not fully provide personal equipment needed, such as personal protective equipment, gas monitoring devices, and air masks at the site. However, IT equipment, including laptops, printers, scanners, power generators, and power supplies, is provided.

4.2.2.5. Scoring of the Agency on the Rescue Teams' Requirements

Although the Agency has sufficient personnel and resources, it does not possess a formal plan for establishing and managing rescue teams, as specified in the relevant standards. Currently, the formation of rescue teams occurs only reactively in response to emergencies, rather than through proactive planning. This absence of a formal plan has resulted in a score of 0 for Indicator 2.2, indicating a Zero Level. This highlights the urgent need for the Agency to establish permanent rescue teams, improve operational readiness, and implement comprehensive training programs that address all phases of disaster management (Table 22).

Table 22. Agency Compliance with the Standard: Heritage Rescue Department’s Organizational Requirements

Case	DGF– General Directorate of Foundations
Category	2 ADMINISTRATIVE LEVEL
Standard	2.2 Heritage Rescue Department’s Organizational Requirements
Definition of Standard	Specialized teams are established based on their specific compositions. Team leaders are appointed, and personnel management techniques are implemented. Regular education and practical training programs on disaster management for cultural heritage are conducted for personnel through in-service training. The equipment needs of rescue teams are addressed, and logistical support is provided.
Current Situation	The agency has not developed a formal plan for establishing and managing rescue teams. The formation of rescue teams is only considered reactively in response to emergencies, rather than being planned proactively.
Current Score	(0)
Current Level	Zero Level

4.2.3. Collaboration and Coordination Efforts of DGF Among Authorities

The institution has been evaluated according to the “Collaboration Between Related Authorities” standard for disaster management in cultural heritage, using a grading scale defined in the thesis. After the assessment, a score was assigned to indicate the current level of compliance with this standard.

4.2.3.1. Collaboration, Coordination, Protocols and Partnerships

The Agency **lacks a comprehensive approach to collaboration and coordination** in cultural heritage disaster management. Throughout all phases of the process, the Directorate General of Forestry (DGF) fails to engage with key stakeholders, including central and local authorities, security forces, civil protection departments, academia, non-governmental organizations (NGOs), the private sector, relevant experts, local communities, volunteers, and owners of historic buildings. Additionally, the participation of various stakeholders in cultural heritage rescue operations is not facilitated, which includes trained emergency response personnel, spontaneous responders, local residents, and custodians. This lack of engagement hampers effective communication, information sharing, and coordinated action at regional, national, and international levels.

Furthermore, DGF **lacks formal protocols** that outline cooperation and coordination among stakeholders in disaster management. This absence of guidelines hinders collaboration, as partnerships with relevant authorities are not established. DGF also fails to coordinate efforts between internal teams, such as search and rescue, and external actors, including experts, local communities, and custodians. The Directorate General does not seek contributions from external teams to enhance the operational capacity of its existing rescue and evacuation teams. By not utilizing additional skills and resources, DGF misses opportunities to coordinate joint efforts during operations.

4.2.3.2. Community-Centered Disaster Management Approach and Insights Gained from Traditional Knowledge

The agency **does not implement a community-centered approach** to disaster management and lacks sustainable partnerships with community-based organizations. Furthermore, the Directorate General for Foundations (DGF) does not actively pursue initiatives to effectively protect cultural heritage from disasters. There is a lack of encouragement for essential activities that promote knowledge and skill exchange, as well as local capacity building aimed at reducing disaster risk.

Additionally, the DGF **fails to gather and document local communities' knowledge** of traditional construction techniques, which are vital for minimizing disaster risks and enhancing resilience. The agency also does not conduct studies on successful models that involve collaboration with communities to preserve cultural heritage. Overall, the concept of community-centered disaster risk management is neither adopted nor supported.

4.2.3.3. Scoring of the Agency on Cooperation and Coordination with Related Authorities

There is a significant lack of critical collaboration between the DGF, civil defense authorities, and cultural heritage conservation organizations. Consequently, Indicator 2.3 has been assigned a score of 0, which signifies a Zero Level. This highlights the urgent need to adopt a community-centered approach (Table 23).

Table 23. Agency Compliance with the Standard: Cooperation and Coordination of Actors and Stakeholders

Case	DGF– General Directorate of Foundations
Category	2 ADMINISTRATIVE LEVEL
Standard	2.3 Cooperation and Coordination of Actors and Stakeholders
Definition of Standard	Agencies at national, regional, and local levels work together to ensure cooperation and coordination, actively involving various actors and stakeholders. They sign protocols and establish partnerships. Additionally, they gather insights from traditional knowledge within the context of community-centered disaster management.
Current Situation	There is currently no signed protocol or established partnership that defines the cooperation and coordination of the relevant institutions involved in disaster management for cultural heritage. Community-centered disaster management is not adopted, the exchange of knowledge is not facilitated, and traditional knowledge is not being recorded by the Agency.
Current Score	(0)
Current Level	Zero Level

4.2.4. Dissemination Activities of DGF Regarding Lessons Learned from Experiences

The institution was evaluated based on the "Dissemination of Lessons Learned from Experiences" standard, which is essential for disaster management of cultural heritage. This evaluation used a grading scale outlined in the thesis. After conducting the assessment, a score was assigned to indicate the current level of compliance with this standard.

4.2.4.1. The Agency’s Media Management, Experience Sharing, and Usage of Media Tools

The Directorate General does **not organize exhibitions** for various interest groups, including national and international congresses and conferences, **nor** does it hold **expert meetings** with scientific institutions from different countries. As a result, it fails to share insights gained from its experiences with relevant authorities and experts. Consequently, the exchange of national and international information remains insufficient.

There is also a **lack of documentary films** and television programs focused on post-emergency events. These materials are neither produced nor shared through national and international channels, or at conferences and meetings hosted by the Directorate General. Furthermore, there are no initiatives from the Directorate General aimed at creating calendars and catalogs that effectively showcase cultural heritage affected by disasters. Despite these shortcomings, the Directorate General does publish important conservation projects in periodicals. Its conservation studies on cultural heritage are released in these periodicals, which positively contribute to public awareness.

4.2.4.2. Scoring of the Agency on Disseminating Lessons Learned from Experiences

DGF has made significant efforts in various areas; however, there is a clear need to enhance how lessons learned are shared with broader audiences. To increase its impact on the conservation of foundation cultural heritage, DGF should diversify its dissemination methods. Currently, DGF primarily relies on limited media tools such as publications and TV broadcasts. It would be beneficial to incorporate a wider range of methods, including exhibitions, congresses, conferences, expert meetings, and documentary films. As a result, the overall assessment of Indicator 2.4 scores a 1, indicating it is in the Initial Phase (Table 24).

Table 24. Agency Compliance with the Standard: Dissemination of Lessons Learned from Experience

Case	DGF– General Directorate of Foundations
Category	2 ADMINISTRATIVE LEVEL
Standard	2.4 Dissemination of Lessons Learned from Experience
Definition of Standard	Agencies share lessons learned from their experiences through various formats such as publications, conferences, exhibitions, documentary films, TV programs, catalogs, calendars, and other means.
Current Situation	While some conservation activities related to cultural heritage are published in periodicals by DGF, the lessons learned are not communicated through organizations at national or international congresses, conferences, or expert meetings with scientific communities.
Current Score	(1)
Current Level	Initial Phase

4.3. Analysis of Technical Implementation Level (Physical Measures)

This section evaluates DGF based on the essential technical implementation components required for managing the disaster related to cultural heritage, as outlined in the thesis. These technical components include measures for disaster preparedness between events, on-site preparedness actions following a disaster, disaster response strategies, and recovery measures during the post-disaster period.

4.3.1. DGF's Measures for Disaster Preparation Between Two Events

The institution has been evaluated according to the "Disaster Preparation Measures Between Events" standard for disaster management of cultural heritage, as detailed in the thesis. Following the assessment, a score was assigned to reflect the current level of compliance with this standard.

4.3.1.1. Pre-Disaster Period Measures and Regular Monitoring Conducted by DGF

The Agency **properly monitors** monumental foundation cultural heritage buildings. A systematic approach is adopted that all monumental structures on DGF's inventory undergo regular visits, which facilitates the identification of repair needs. Maintenance schedules of foundation monumental buildings are conducted based on the determination acquired through regular monitoring processes.

4.3.1.2. Education and Training Programs Organized by DGF

The Agency does not provide regular training to equip stakeholders with the necessary skills for safeguarding cultural heritage from disasters. This **lack of structured training** sessions for disaster managers, authorities, national disaster response teams (including military and police), local media, and other disaster response organizations creates a significant gap in preparedness.

Furthermore, the DGF **does not effectively promote the involvement of external parties** in cultural heritage rescue operations. Responders at various levels, including trained rescuers and spontaneous volunteers such as carpenters, construction workers, and civil engineers, are not engaged in these efforts.

4.3.1.3. Review and Completion of Existing Documents

Due to the **absence of essential documents**, including Standard Operating Procedures (SOPs) and an Operational Disaster Plan, several critical components are missing. Standard forms, such as incident reporting forms and damage and risk assessment forms, have not been filled out. Additionally, the plan lacks important provisions, including contact information for local authorities, guidelines for handling hazardous materials, procedures for evacuation and transportation, communication protocols, and media relations.

4.3.1.4. Scoring of the Agency on Disaster Preparedness in the Pre-disaster Period

DGF shows strengths in certain pre-disaster measures, such as regular monitoring and maintenance. However, the Agency has training deficiencies and documentation gaps that need to be addressed to progress to a more robust disaster preparedness phase. The lack of comprehensive documents, including Standard Operating Procedures (SOPs), Operational Plans, standard forms, and implementation guidelines, highlights the need for improvement. Addressing these gaps could significantly enhance DGF's overall disaster management capabilities in protecting cultural heritage. Therefore, Indicator 3.1 has been assigned a score of 1, indicating an Initial Phase (Table 25).

Table 25. Agency Compliance with the Standard: Disaster Preparation Measures Between Two Events

Case Category	DGF– General Directorate of Foundations
Standard	3 TECHNICAL IMPLEMENTATION LEVEL
Definition of Standard	3.1 Disaster Preparation Measures Between Two Events
Current Situation	Cultural properties are consistently monitored and maintained, with agencies producing inventories, analyses, and scientific reports during the pre-disaster period. Additionally, regular educational programs are organized for personnel.
Current Score	(1)
Current Level	Initial Phase

4.3.2. On-Site Preparedness Measures Applied by DGF Prior to Heritage Rescue Operations Following a Disaster

In response to the 2023 Türkiye earthquake, the affected Regional Directorates of DGF established communication with the Directorate General (Headquarters). Upon receiving the disaster alert, the Directorate General quickly deployed rescue teams.

4.3.2.1. Situation Analysis and Damage and Risk Assessment Considerations

Following the 2023 Türkiye earthquake, the Agency promptly conducted a situation analysis and a rapid damage assessment of the affected monumental buildings. Pre-existing lists of these buildings facilitated the assessment process (Figure 44).

No	Province	District	Quarter	Property Name	Type	Ownership
1	<i>Hatay</i>	<i>Antakya</i>	Center	<i>Habibi Neccar Mosque</i>	Mosque	<i>VGM</i>
2	<i>Hatay</i>	<i>Payas</i>		The Fountain in the Historic Complex of <i>Sokullu Mehmet Pasha</i>	Fountain	<i>VGM</i>
3	<i>Hatay</i>	<i>Belen</i>		The Historic Complex of <i>Kanuni Sultan Süleyman</i>	Caravanserai	<i>VGM</i>
4	<i>Hatay</i>	<i>Yayladağı</i>		The Tomb of Sheikh Ahmet Kuseyri	Tomb	<i>VGM</i>
5	<i>Hatay</i>	<i>İskenderun</i>		St Nicholas Greek Orthodox Church	Church	<i>VGM</i>
6	<i>Hatay</i>	<i>Arsuz</i>		Mar Yuhanna Greek Orthodox Church	Church	<i>VGM</i>

Figure 44. Preparation of Monumental Heritage Structure Lists¹³³

¹³³ The table prepared by the thesis writer shows the information included in the lists prior to rapid damage assessments.

Locations of affected foundation monuments were pinpointed on map format to facilitate quick site access planning for assessment teams (Figure 45).



Figure 45. Marking the Locations of Affected Structures on the Map Prior to Operations

The agency employed Standard Damage Assessment Forms to assess damaged structures rapidly. Specific location maps of affected sites, floor plans, inventories of collections of affected structures, and databases were used in the rapid damage assessment phase (Figure 46).

Damage Assessment Form for the Affected Foundation Cultural Properties at 2023 Türkiye Earthquakes	
Region/Province	Hatay Regional Directorate / Osmaniye
District	Center
Town/ Neighborhood/ Village	-
Name of the Artifact	-
Type of Structure (e.g., mosque, shrine, etc.)	Mosque
Coordinates	Latitude: -, Longitude: -
Block	-
Parcel	-
Satellite Photos	
Damage Type	Severe Damage
Load-Bearing System	Masonry Structure
Construction Material	Stone
Action to Be Taken	Urgent repairs required. Visible cracks and structural damages in load-bearing walls and minaret.
Photos of the Property	
Notes	The mosque minaret poses a risk of collapse. Immediate measures should be taken to reinforce or dismantle the minaret. Stone injections are necessary.
Date of the Assessment	

Figure 46. Standard Damage Assessment Forms Used by DGF After 2023 Türkiye Earthquakes

The Agency developed a damage scale for rapid damage assessment. Based on the pre-determined scale, levels of damage at the investigated structures were categorized (Table 26).

Table 26. Scaling of Damage Defined for Rapid Damage Assessment at Affected Structures Following the 2023 Türkiye Earthquakes

Extent of Damage	Definition of Standard
1 – No Damage (No intervention required)	Integrity is maintained regarding mass properties, structural systems, and building materials.
2 – Slight Damage (Requires minor repair)	Integrity is preserved regarding mass properties, structural systems, and building materials. However, there are cracks in plaster and paint layers and non-structural walls, as well as partial material losses and roof material losses.
3 – Moderate Damage (Requires comprehensive repair)	Mass properties can be clearly distinguished, and the structural system is partially damaged but still standing. However, integration is disrupted in the building materials that form the structural system. cracks and material losses are present in the structural system’s building materials, non-structural walls, plaster and paint layers, and the roof.
4 – Severe Damage (Requires reconstruction)	Mass properties and structural systems can be partially distinguished. Integration is disrupted in the building materials that form the structural system. There are significant material losses in the structural system’s building materials, walls, plaster and paint layers, and roof.
5 – Collapsed (Requires reconstruction)	Mass properties and structural systems are indistinguishable. Building materials are scattered within the area.

However, DGF has not implemented critical measures, such as assessing hazardous materials and identifying potential secondary hazards like fire outbreaks, water damage, or gas leaks.

4.3.2.2. Deployment of Teams and Definition of Roles and Responsibilities of the Personnel Involved in Disaster Response Efforts

The Agency initially deployed personnel following the disaster (Figure 47).

Regional Directorate	Name Surname	Title	Phone Number	Arrival Date	Estimated Arrival Time
ERZURUM		Director			
		Worker			
		Cleaning Staff		9.02.2023	18.20
KAYSERİ		Driver			
		Clerk			
		Driver			
		Clerk		10.02.2023	20.30
BALIKESİR		Director			
		Deputy Director			
		Security		11.02.2023	14.30
		Cleaning Staff			
		Cleaning Staff			
		Cleaning Staff			
İSTANBUL 1		Cleaning Staff		11.02.2023	06.00
		Cook			
		Forklift Operator		11.02.2023	08.00
		Former Artifact Worker			
		Worker			
SİVAS		Engineer			Currently in <i>Hatay</i>
		Clerk			
BURSA		Museum Researcher			Currently in <i>Hatay</i>
		Security			
		Permanent Worker			
İSTANBUL 2		Deputy Director			
		Construction Engineer		11.02.2023	16.00
		Technician			
		Cleaning Staff			

Figure 47. Deployment of Personnel by the Agency Following the Earthquake

To conduct rapid damage assessments of disaster affected foundation cultural assets, teams were formed at each impacted Regional Directorate. These teams consisted primarily of technical personnel, including civil engineers and architects (Figure 48).

No.	Name Surname	Title	Department	Location
27		Deputy Director General	Headquarters	HATAY (Coordinator)
28		Engineer	Dept of Artifacts and Constructions	HATAY
29		Engineer	İSTANBUL	HATAY
30		Engineer	EDİRNE	HATAY
31		Architect	İSTANBUL	HATAY
32		Engineer	İZMİR	HATAY
33		Engineer	BALIKESİR	HATAY
34		Architect	İZMİR	HATAY
35		Engineer	TRABZON	HATAY
36		Engineer	İZMİR	HATAY
37		Architect	ANTALYA	HATAY
38		Engineer	İSTANBUL	HATAY

Figure 48. Deployment of Teams for Affected Regional Directorates

4.3.2.3. Establishing Necessary Service Units Including Reception and Departure Center (RDC), and Base of Operations

After the 2023 earthquakes severely damaged the Hatay Directorate Building, a temporary service hub has been established using container units on a suitable parcel owned by the Directorate General¹³⁴. The selection criteria for the location consider factors such as safety, accessibility, and closeness to affected cultural properties. The BoO unit is designed to include essential functional components, such as equipment storage, personnel lodging, management areas, and sanitation and hygiene zones (Figures 49, 50).



Figure 49. Selecting the Location for the Base of Operations Unit in *Hatay* Province Following the Earthquakes

Following the disaster, the Agency promptly identified affected foundation properties and prioritized rescue operations based on initial rapid damage assessments. The Agency effectively managed information flow and delivered well-structured briefings from the Base of Operation (BoO). The BoO served as a central hub for disseminating vital information, including situational updates, operational details, logistical support needs, and coordination of equipment and supplies. Additionally, the Agency promptly assessed urgent needs and communicated them to Headquarters for fulfillment.

¹³⁴ Base of Operation units are refunctioned for the use of Hatay Regional Directorate personnel one year after the 2023 Türkiye earthquake.



'Coordination Center',
Antakya

Figure 50. Establishment of the Base of Operation Unit in *Hatay* Province Following the 2023 Earthquakes

4.3.2.4. Considerations for Pre-operation Checks: Safety and Security Measures, Liaison, Communication, Coordination and Briefing Protocols, Coordination of Local Support and Operational Plan Review

The Agency has conducted checks on safety, security issues, and role assignments for various teams. However, an accountability system, regular roll calls, and the implementation of a "buddy system" have not yet been established. On a positive note, the roles and responsibilities of staff involved in the rescue operations, including rescue team members, building experts, and local residents, have been clearly defined. Group leaders, who play a crucial role in site safety assessments, structural evaluations, and hazardous material considerations, have been appointed. Additionally, the disaster response and evacuation process has been organized by DGF's operational teams.

Liaison, Communication, Coordination and Briefing Protocols

After the earthquakes, a meeting took place in Hatay with various stakeholders, including public authorities, the private sector, academia, NGOs, individual experts, and local residents. This meeting was led by the Minister of Culture and Tourism and was named the "Hatay Cultural Heritage Conservation Project." Its goal was to address the post-disaster planning for the province. One of the key topics discussed was the establishment of a "Coordination Center" in Antakya, which was heavily impacted by the earthquake. The purpose of creating this hub is to facilitate necessary activities aimed at preserving the affected cultural heritage in the area (Figure 51).



Figure 51. Stakeholder Meeting in *Hatay* Province Following the 2023 Türkiye Earthquakes

Vital operational aspects have been discussed among stakeholders during the meetings. The responsible authorities have prepared adequate media statements to provide the public with necessary information. Key topics of discussion included the Base of Operations site, suppliers, safety and security, coordination with local emergency management authorities, and media communications.

Updating of Disaster Plan and Other Related Documents

Although the agency was active during the disaster response, it did not make use of pre-established emergency procedures or an Operational Plan. This Operational Plan, which outlines strategies for possible rescue and evacuation scenarios, could have been a valuable resource to improve the agency's response efforts.

4.3.2.5. Scoring of the Agency on On-site Preparedness Measures in the Aftermath of Disaster

The Agency plays an active role in information management, liaison, safety and security, logistics, and administration, demonstrating its ability to coordinate effectively in the aftermath of a disaster. Although the appointed team members possess skills in assessing damage and risks to monumental heritage, they lack training in emergency planning, civil defense, and emergency services, which are essential for prioritizing actions across all areas of disaster planning.

Additionally, while the Directorate General of Foundations (DGF) has the capacity to undertake significant actions in critical areas such as situation analysis, damage and risk assessment, and clarifying roles and responsibilities, some fundamental preparedness steps—like maintaining a pre-operation checklist and reviewing operational plans—require improvement within the context of disaster risk management (DRM) for foundation cultural heritage. Consequently, Indicator 3.2 receives a score of 1, indicating an Initial Phase status (Table 27).

Table 27. Agency Compliance with the Standard: On-site Preparedness Measures Prior to Heritage Rescue Operations Following a Disaster

Case Category	DGF– General Directorate of Foundations
Standard	3 TECHNICAL IMPLEMENTATION LEVEL
Definition of Standard	3.2 On-site Preparedness Measures Prior to Heritage Rescue Operations Following a Disaster
Definition of Standard	Agencies have the expertise to carry out essential post-disaster activities for the protection of cultural heritage. These activities include conducting situation analyses, assessing damage and risks, defining roles for various stakeholders, establishing critical service units such as a Base of Operations, and ensuring that rescue teams complete necessary pre-operation checks.
Current Situation	DGF’s disaster management for cultural heritage has shown strengths in conducting situation analyses, assessing damage and risks, and defining roles and responsibilities after a disaster. However, the agency needs to enhance its preparedness measures on-site, particularly in terms of pre-operation checks and reviewing operational plans.
Current Score	(1)
Current Level	Initial Phase

4.3.3. Operations: Rescue, Evacuation, Relocation, and Temporary Storage of Affected Heritage Objects Conducted by DGF

The institution has been evaluated based on the Agency’s post-disaster cultural heritage rescue operations, which include safety, security, stabilization, on-site documentation, emergency prioritization, pre-maintenance of salvaged materials, evacuation, relocation, and storage of affected heritage pieces, packing and tracking protocols, and demobilization during emergencies. This evaluation follows a grading scale outlined in the thesis. As a result of the assessment, a score has been assigned to determine the institution's current level of compliance with the standard.

4.3.3.1. Safety Considerations: Safety of Personnel, Security of Site

Disaster response personnel are equipped with essential personal protective equipment (PPE) to ensure their safety and well-being while working in hazardous environments. This PPE includes rakes, shovels, crowbars, brooms, and wheelbarrows to assist in clearing debris.

In the content of site security, all affected foundation monumental structures were enclosed with protective panels to prevent illegal access to historic monuments. Signaling, labeling, and marking studies were carried out at worksites affected by disaster (Figures 52, 53).



Great Mosque, Antakya

Protestant Church, Antakya

Figure 52. Informative Boards Attached to the Affected Registered Buildings in *Hatay* Province



Figure 53. Protection Measures Applied for *Habibi Neccar* Mosque, *Hatay*

4.3.3.2. Debris Removal and Structural Stabilization

Following the 2023 Türkiye earthquakes, the Agency took necessary measures to ensure debris removal and structural stabilization. The primary focus was on clearing debris from the affected areas. Additionally, scattered architectural elements, mostly stones, bricks, and other structural components, were collected and secured within the building's parcel to prevent further loss or damage (Figure 54).



Figure 54. Collection of Scattered Construction Materials at *Sarımiye Mosque, Hatay* Following the Earthquakes

Once security measures were provided, DGF initiated stabilization efforts, ensuring structural integrity through shoring and simple support construction (Figure 55).



Figure 55. Structural Support Addition in *Enver-ül Hamit* Mosque in Osmaniye Province Following the Earthquake

4.3.3.3. On-site Documentation and On-Site Prioritization of Affected Materials

The agency did not take into account the need for on-site documentation prior to the evacuation and salvaging of architectural elements. DGF maintains its own database and inventory of immovable cultural heritage. Therefore, the prioritization of affected cultural heritage objects could be effectively carried out during disaster response efforts. However, the current software lacks a module specifically designed for emergency inventory and management of assets with valuable architectural components. Integrating such a module could significantly improve their capacity to prioritize and document cultural heritage during emergencies.

4.3.3.4. Operations: Salvage, Evacuation, Pre-maintenance, Packing and Relocation of Affected Architectural Heritage

After the 2023 Türkiye earthquakes, DGF successfully rescued, evacuated, and relocated and salvaged cultural heritage materials, including valuable electronic equipment that belonged to the Directorate's offices (Figure 56).



Figure 56. Operations for the Rescue of Movable Architectural Elements from Monumental Foundation Buildings

The Agency granted official permission for the relocation of objects after completing the search and rescue process. However, DGF did not establish principles for managing valuable heritage objects during the post-disaster phase. These principles usually address critical aspects such as emergency conservation, proper transfer procedures to relocation areas, and pre-conservation measures to mitigate further damage. As a result, the Agency **did not create formal protocols** for handling these valuable heritage objects. Such protocols would outline specific procedures for each stage, ensuring consistent and effective care of the cultural materials.

In the documentation and triage process, each salvaged group of objects was assigned a unique location code and a movement tracking number. This ensured efficient tracking based on their location. After evacuation, the salvaged materials were moved to a designated relocation area, where they were stored securely and properly for temporary safekeeping (Figure 57).



Figure 57. Evacuation of Electronic Devices and Folders from the Directorate's Office Building, *Hatay*

4.3.3.5. Demobilization and Post-Mission

DGF took several positive steps in disaster response following the earthquakes in 2023. However, the absence of a formal demobilization protocol resulted in missed opportunities for thorough evaluation and future improvement. Top management was briefed on the situation at the identified worksites, and the Agency prepared basic reports on operational periods and project completion. Despite this, the Agency has not established a standard demobilization protocol. Furthermore, comprehensive post-mission reports were not prepared, which should have included evaluations of the mission, self-assessments of operations, assessments of rescue teams and training, post-disaster demolition plans, and considerations regarding structural stability

4.3.3.6. Scoring of the Agency on Heritage Rescue Operations in the Aftermath of a Disaster

During the 2023 disasters, DGF took important steps by implementing necessary physical measures. However, there has been a noticeable lack of well-defined protocols for crucial phases such as evacuation, salvage, relocation, and the protection

of architectural elements. As a result, the current status of indicator 3.3 at DGF is considered to be at the Initial Level, with a score of 1. This indicates that significant improvements are needed in all areas of disaster rescue measures for cultural heritage (Table 28).

Table 28. Agency Compliance with the Standard: Rescue, Evacuation, Relocation, and Temporary Storage of Affected Heritage Objects

Case Category	DGF– General Directorate of Foundations 3 TECHNICAL IMPLEMENTATION LEVEL
Standard	3.3 Rescue, Evacuation, Relocation, and Temporary Storage of Affected Heritage Objects
Definition of Standard	The safety of personnel and the security of the site are ensured against looting and theft in the aftermath of a disaster. Structural stabilization is performed, and debris is removed to maintain structural integrity and prevent further damage or the risk of collapse. Salvage efforts, evacuation, pre-maintenance of affected heritage pieces, as well as relocation and storage of rescued architectural elements, are conducted following on-site documentation, packing, moving, and tracking protocols.
Current Situation	Following the 2023 Türkiye earthquakes, the Agency (DGF) took positive steps to rescue affected heritage properties. However, there are currently no protocols in place for the phases of salvage, evacuation, relocation, and protection of architectural elements. Additionally, comprehensive post-mission reports that include evaluations, self-assessments of operations, assessments of rescue teams and their training, post-disaster demolition plans, and concerns about structural stability have not been prepared.
Current Score	(1)
Current Level	Initial Level

4.3.4. Measures Taken in the Post-Disaster Period and Recovery

The institution has been evaluated according to the "Agency's Post-Disaster Period and Recovery Measures" standard, which is essential for the disaster management of cultural heritage. This evaluation used a grading scale described in the thesis. Based on the assessment, a score has been assigned to indicate the current level of compliance with the standard.

4.3.4.1. Immediate Recovery Efforts

After the 2023 Türkiye earthquakes, the Agency (DGF) launched immediate recovery efforts. These efforts included several key components: post-disaster reporting, surveying of affected cultural heritage, repair and restoration initiatives, recovery programs, and information exchange through expert meetings. These steps marked the beginning of the recovery process.

Post-disaster Report and Post-disaster Survey of Affected Structures

A post-mission report was prepared by the Agency's rescue and evacuation teams to inform senior management. This report addressed several key issues, including the number of structures examined, their functions and physical attributes, their overall condition, and any safety and security concerns. However, it lacked critical information regarding immediate financial resource needs, lessons learned from the operations, and the types of hazards faced by personnel. Post-disaster surveys of the affected structures were conducted and supported with detailed photographs. Nonetheless, the surveying process did not include hand-drawn sketches, and witness testimonies were not recorded.

At the conclusion of the documentation process, the affected heritage structures were assessed and categorized based on their condition: No Damage, Slight Damage, Severe Damage, and Ruined. Using these assessments, intervention priorities were established, classifying the structures as Safe, To be Suspended/ Reinforced, and Requires Demolition.

Repair, Restoration and Recovery of Affected Cultural Heritage

DGF commenced repair, recovery, and resilience efforts for heritage structures affected by the 2023 Türkiye earthquakes

Information Exchange and Expert Meetings

After the 2023 earthquakes, the Agency has not organized any expert meetings, conferences, or exhibitions. However, DGF experts have participated in scientific gatherings and joint projects organized by universities, delivering speeches and contributing to information exchange as part of fostering partnerships.

4.3.4.2. Detailed Post-disaster Recovery and Resilience Strategies

Detailed post-disaster recovery strategies involve several crucial initiatives including, the creation of comprehensive short-term and long-term recovery plans, the development of innovative conservation strategies, the publication of guidelines to inform stakeholders, and the nomination of affected monumental heritage structures for UNESCO's World Heritage List in Danger to seek international support.

Short-term and Long-term Plan Preparation

DGF publishes a strategic planning schedule every five years. These plans outline both long-term and short-term objectives, specify distinct goals, and evaluate results and outcomes.

New Conservation Plan Proposals

The Agency (DGF) currently lacks a design for preparing a new conservation plan for the post-emergency period, which is essential for safeguarding the city's foundation cultural heritage. It is crucial to emphasize the protection of monuments, historic sites, and open spaces, along with considerations for buffer zones surrounding these heritage assets. Furthermore, post-disaster planning has not adequately incorporated risk prevention strategies and loss estimation.

Publications and Guidelines

DGF publishes periodicals that share research and records of conservation activities. In addition, DGF released a technical guideline titled "Guideline for the Management of Earthquake Risks at Historic Structures" in 2017. This guideline aims to enhance the resilience of architectural heritage to disasters. It was developed through experimental, analytical, and comparative research that looked into various aspects, including the resistance of monumental buildings, construction materials, historic concepts, and methods to improve overall structural resilience.

Proposals for Inscribing Affected Monuments to 'World Heritage List in Danger'

The Agency has not yet proposed inscribing any cultural heritage property affected by the disaster on UNESCO's "World Heritage List in Danger."

Establishing Material Laboratories for Traditional Construction Materials

DGF's material laboratory in İstanbul conducts technical and chemical analyses of traditional building materials. However, traditional knowledge from historic structures has not been gathered following the 2023 Türkiye earthquakes. This information is crucial for the preservation of traditional buildings

4.3.4.3. Restoration Principles and Guidelines

The Agency is committed to following internationally accepted scientific principles for the restoration of cultural properties affected by the 2023 Türkiye earthquakes. The focus is on using appropriate materials, techniques, and methodologies to preserve the integrity and historical value of cultural heritage. As part of this process, scientific committees have been established to determine the intervention principles for rare cultural properties. Once these principles are established, restoration projects are submitted to the regional conservation boards for approval.

In accordance with the legal framework for the conservation of cultural heritage in Türkiye, any construction activity in buildings registered as cultural assets—or those that qualify for registration—must be conducted with the relevant regional conservation board's knowledge. DGF provides the necessary information to the regional conservation board before and after any physical or construction intervention on foundation-based heritage assets registered as cultural heritage.

4.3.4.4. Review of Operations and Continuous Improvement

Since the Agency lacked an operational plan, no review of the plan occurred after the completion of the heritage rescue. Consequently, the assessment of the plan's effectiveness and resource needs remained unidentified.

4.3.4.5. Scoring of the Agency on Recovery Measures in Post-disaster Period

Despite DGF's restoration and recovery initiatives for affected structures following the 2023 Türkiye earthquakes, some areas still require attention to develop a more comprehensive and effective recovery strategy. This includes the need for careful planning, thorough documentation, detailed investigations, and the establishment of

precise technical guidelines. These improvements are essential to create a resilient and integrated approach to post-disaster recovery.

Consequently, a score of 2 is assigned for Indicator 3.4, indicating that it is in a Progressing Phase (Table 29).

Table 29. Agency Compliance with the Standard: Post-Disaster Period and Recovery Measures

Case Category	DGF– General Directorate of Foundations
Standard	3 TECHNICAL IMPLEMENTATION LEVEL
Definition of Standard	3.4 Post-Disaster Period and Recovery Measures
Definition of Standard	In the post-disaster period, agencies prepare a post-mission report and implement recovery measures, which include repair, recovery, and resilience efforts. Expert meetings, conferences, exhibitions, and workshops are organized with the involvement of various stakeholders. As part of post-disaster documentation, both short-term and long-term plans are developed, and revisions to conservation plans are made.
Current Situation	Following a disaster, the DGF works to restore foundation cultural heritage and adopts a "building back" approach. Conservation plans are in place for nearly all historical centers across the country. However, there are critical areas that require improvement, such as meticulous planning, thorough post-disaster documentation, and the preparation of precise technical guidelines.
Current Score	(2)
Current Level	Progressing Phase

4.4. Summary of the Findings

The study offers an evaluation based on two analyses concerning the Agency. The first analysis details the scoring and assessments conducted according to established standards. The second analysis clarifies the roles and responsibilities of administrative units at both the central and local levels during disaster situations.

A. Assessment of the Agency’s Compliance with the Standards

The current organizational capacity of DGF, a leading entity dedicated to preserving monumental cultural heritage in Türkiye, has been evaluated through an initial analysis. This assessment examines the overall adequacy of various capacity components for disaster management related to cultural heritage. A total of twelve criteria were considered, resulting in the identification of three components at the Zero level, seven at the Initial level, and two at the Progressing level. The Agency has demonstrated **no compliance with the Sufficient level** (Table 30).

Table 30. Overall Scoring of the Agency Based on Compliance with Standards

POLICY LEVEL		ADMINISTRATIVE LEVEL		TECHNICAL IMPLEMENTATION LEVEL	
Standard	Current Level	Standard	Current Level	Standard	Current Level
1.1 Policy and Strategy Documents	(0) zero	2.1 Inventories, Analysis, Reports and Disaster Plan for Disaster Preparedness of Foundation Cultural Heritage of DGF	(1) initial	3.1 Pre-Disaster Period Measures for Disaster Preparedness	(1) initial
1.2 Authorization Policy of DGF	(2) progressing	2.2 Existence of DGF’s Rescue Team Requirements and Logistics	(0) zero	3.2. On-site Preparedness Measures	(1) initial
1.3 Policy for Institutional Capacity Building of DGF	(1) initial	2.3 Collaboration Between Related Authorities	(0) zero	3.3 Rescue, Evacuation, Salvage, Relocation and Protection of Rescued Architectural Heritage	(1) initial
1.4 DGF’s Policy for Financial Support and Insurance	(1) initial	2.4 Dissemination of Lessons Learned from the Experience	(1) initial	3.4 Post-Disaster Period and Recovery Measures	(2) progressing

Notably, the two components rated as progressing regarding Authorization and Post-Disaster Recovery Measures signifying the institution's capability to ensure the necessary protection, restoration, and maintenance of foundation cultural heritage. Conversely, components categorized as Initial level stem from existing capacity factors, including a robust financial structure, ample qualified personnel, sufficient technical equipment, and expertise in maintenance, repair, and restoration.

The evaluation of the Agency's compliance with pre-defined standards for disaster management of foundation cultural heritage reveals a mixed picture. While the Agency demonstrates some strengths in areas such as the adequate number of technical personnel, adequate financial resources, and effective post-disaster recovery efforts, significant gaps are seen in its overall preparedness as it **lacks a comprehensive and proactive approach** to disaster management.

Therefore, key findings include:

- **Policy and strategy:** The Agency lacks a clear framework for disaster management of foundation cultural heritage.
- **Institutional capacity:** The Agency requires restructuring its institutional capacity to effectively handle major disasters.
- **Financial resources:** The Agency is able to provide necessary funding for the post-disaster recovery of heritage structures; however, it lacks a dedicated annual budget for disaster management.
- **Documentation and planning:** The Agency has inventory and registration documents of foundation cultural heritage; however, detailed reports and analyses, as well as standard operating procedures, are lacking. Besides, the organization of special training programs for disaster response is not considered.
- **Heritage Rescue Operations:** The agency lacks formal documentation, established procedures, and standardized protocols for conducting evacuation and rescue operations related to cultural heritage in the post-disaster phase.
- **Collaboration:** The Agency has limited collaboration with other relevant stakeholders.

- **Knowledge Sharing:** The Agency needs to enhance its efforts in sharing knowledge and experiences.

The findings reveal that the Agency needs a more proactive and comprehensive approach to managing cultural heritage in the event of disasters. By addressing the identified gaps and implementing the recommended improvements, the Agency can strengthen its ability to protect and preserve cultural heritage during such crises

B. Roles and Responsibilities at Various Administrative Levels during Disaster Phases

The matrix presented below has been developed by synthesizing various inputs to clarify the responsibilities and duties of administrative units during a disaster. Initially, potential tasks associated with the twelve standards outlined in the thesis were identified. These tasks are color-coded to distinguish between central and local administrative units, facilitating easy identification of which unit will execute each task. The tasks are organized within the matrix according to three levels of institutional implementation: policy-making, administration, and technical execution on the left side, and the phases of before, during, and after a disaster on the right side. This structured layout illustrates the specific roles of administrative units at various levels during the different stages of a disaster.

The table clearly indicates that the activities and operations required during the pre-disaster preparedness phase are primarily the responsibility of central-level units, such as ministries and general directorates. In contrast, the actions and interventions necessary for disaster response and post-disaster recovery are mainly the responsibility of local-level units (Table 31).

Table 31. Matrix for Cultural Institutions Outlining Disaster Management Measures for Cultural Heritage Across Administrative Levels and Disaster Phases

	Phases		
	Before Disaster	During Disaster	After Disaster
Central Level -Headquarter of the Directorate General (VGM) -Ministry of Culture and Tourism -Ministry of Interior - Head of AFAD	Policy Making Establishing a Disaster Management Strategy within the Agency Defining goals and objectives Providing the DM Strategy with legal documents Seeking authorization for survey, maintenance and repair process Involving relevant departments within the Agency Developing and Strengthening institutional capacity of the Agency Seeking political support and allocation of financial resources for DM initiatives at the agency Insuring heritage assets against hazards		Reviewing the disaster management strategy, as well as goals, objectives, authorization, legal documents and effectiveness of relevant departments of the Agency Reviewing the institutional capacity of the agency
	Administrative Developing inventories, standard forms, region-specific and site-specific analysis, SOP's and operational plans Keeping documentation up-to-date Establishing relevant departments and teams within the Agency Providing the rescue team with expert staff Assigning leadership and other roles and encouraging personnel management techniques Organizing regular education and training programs Maintaining equipment, material, and logistics readiness Signing protocols to establish cooperation, coordination and partnerships with respective actors	Providing necessary equipment, material, and logistics. Providing cooperation, coordination among respective parties.	Gaining insights from local people and traditional practices. Disseminating lessons learned from experience. Organizing conferences, exhibitions, workshops and expert meetings. Producing documentaries and TV programmes. Publishing calendars and catalogues.
Central and Local Level -Headquarter of the Directorate General (VGM) - Regional Branch of the VGM -Reg Branch of AFAD -Municipalities -Governorships -Search&Rescue Teams in Provinces	Technical Implementation Conducting regular monitoring and maintenance of foundation cultural heritage. Implementing education and training programs Reviewing and completing existing documentation and reports	Conducting Situation Analysis and assessing risks before rescue operation Deploying teams and defining roles and responsibilities Establishing necessary service units (RDC, OSOCC, BoO) Reviewing pre-operation checks Considering safety of team members and security of site Removing debris and stabilizing existing structures Conducting on-site documentation and on-site prioritization Conducting heritage rescue operations Demobilizing teams upon completion the operations	Commencing recovery efforts Reviewing and reporting operations Conducting post-disaster surveying Commencing restoration, reconstruction and recovery initiatives for affected cultural heritage Meeting experts for post-disaster assessment and short-term and long-term projections Preparing short-term and long term plans Reviewing and updating current conservation plans Proposing the inscription of affected monumental heritage structures to the World Heritage List in Danger Publishing practical guidelines Establishing material laboratories

CHAPTER V

EVALUATION AND RECOMMENDATIONS FOR THE DIRECTORATE GENERAL OF FOUNDATIONS, TÜRKİYE BASED ON THE PROPOSED INSTITUTIONAL DISASTER MANAGEMENT OF CULTURAL HERITAGE FRAMEWORK

The previous chapters of the study thoroughly examined the key components necessary for protecting heritage assets during disasters, with a particular focus on the General Directorate of Foundations (DGF). Based on this analysis, this section offers detailed recommendations, emphasizing DGF's approach to disaster management for endangered monumental heritage buildings.

5.1. Recommended Institutional Measures at the Policy-Making Level

In the field of disaster management for cultural heritage, leading cultural institutions, particularly the DGF, must recognize the critical need for effective disaster management and work to raise awareness about it. The top management of these institutions should first acknowledge its importance, which will enable the establishment of strong institutional capacity within their agencies. At the same time, leaders of cultural institutions should actively seek political and financial support to strengthen their disaster management efforts.

This chapter highlights the essential elements and components required for cultural institutions to effectively manage disasters affecting cultural properties, as well as the tasks that the DGF needs to fulfill.

5.1.1. Agency's Policy and Strategy Documents

The existence of policy documents is essential for guiding an institution's response to potential events at all stages. Control activities for each phase are developed based on these written plans, programs, and procedures. This section evaluates the institution's

necessary policy documents for disaster management related to cultural heritage, considering the measures outlined in the previous chapter. Based on this assessment, recommendations have been formulated to meet the relevant criteria, and the necessary actions to be taken have been identified

5.1.1.1. Determination of Strategy and Definition of Goals and Objectives within the Agency

The following recommendations have been developed based on the measurements and scores regarding the institution's strategy for disaster management of cultural heritage and the alignment of its goals and objectives with this strategy:

- It is essential to obtain strong **political support** for disaster management in the context of cultural heritage.
- Increase **top management's awareness** of disaster management related to cultural heritage, emphasizing its integration into policy documents.
- Cultural heritage should be **integrated into existing** sustainable development goals, as well as in **disaster management policies** and mechanisms at international, national, and local levels.
- It is important to establish the principle that historic environments should not be viewed as deteriorating areas that need to be removed, but rather as valuable assets that should be preserved and protected for future generations. This **shift in perspective** must become part of the institutional culture

5.1.1.2. Legal Documents of the Agency

Based on the measurements and scores obtained regarding the necessary legal documents that the institution must produce for the disaster management of cultural heritage, the following recommendations have been developed.

- A disaster management **strategy** for safeguarding cultural heritage should be established, and clear goals and objectives should be defined. This issue should be **reflected in the agency's documents**, including codes, regulations, strategic plans, and implementation guidelines. Additionally, **specific provisions** on disaster

management should be included in Law No. 5737, such as the establishment of rescue teams, frameworks for cooperation, and accreditation systems.

- Relevant **laws**, including "The Law for the Protection of Cultural and Natural Heritage" (Law No. 2863) and "The Law of Foundations" (Law No. 5737), **should be** revised to include specific additions related to the disaster management of cultural property held by foundations.

5.1.2. Agency's Authorization Policy

It is vital for cultural institutions to have the necessary authority to protect cultural heritage in the face of events. This section evaluates the extent of authorization required by the institution for disaster management of cultural heritage, considering the measurements indicated in the previous chapter. Based on the evaluation, recommendations have been formulated to meet the relevant criteria, and necessary measures have been identified.

5.1.2.1. Extent of the Agency's Authorization

The following recommendations have been developed based on the measurements and scores regarding the presence, scope, and extent of the institution's authority in the disaster management of cultural heritage:

- The **current authorization status** of the Agency, which covers activities such as surveying, maintenance, and repair, **should be maintained**,
- A **new administrative unit** called 'Disaster Management of Cultural Heritage' **should be established** within the Agency,
- The Directorate General **must have exclusive authority** to organize tabletop exercises, drills, and reassessment processes related to the disaster management of cultural heritage. These activities should involve participation from relevant institutions. All participating institutions must respond to meeting invitations and fulfill their responsibilities. The Directorate General should also hold sole authority to impose sanctions for any violations by other institutions. Additionally, any recommendations resulting from the Directorate General's reassessments should be binding concerning the identified requirements.

5.1.3. Agency's Institutional Capacity Building Policy

Institutional capacity is essential for cultural institutions to protect cultural heritage in the face of events. This section evaluates the necessary institutional capacity for the institution's disaster management of cultural heritage, considering the measurements indicated in the previous chapter. Based on this assessment, recommendations have been developed to complete the relevant criteria, and necessary measures have been specified.

Adopting an institutional capacity-building policy for disaster management of cultural heritage is recommended for the Agency. In addition, the current institutional capacity of the Agency **should be reorganized** to fulfill specific tasks in times of disasters,

5.1.3.1. Agency's Personnel Organization Policy

The institution's human resources policy, which is the first component of the necessary institutional capacity for cultural heritage disaster management, has been evaluated based on the measurements and scores obtained. As a result, the following recommendations have been developed.

- **Adequate number of personnel** should be employed to manage the disaster management process for cultural heritage. The personnel should be comprised mostly of technical staff, including architects, civil engineers, art historians, city planners, workers specialized in civil defense,
- Establishment of executive and technical **committees** as well as specialized rescue **teams** within the Agency should be considered,

5.1.3.2. Agency's Education and Training Policy

Based on the measurements and scores obtained, the institution's education and training policy, which is the second component of the necessary institutional capacity for cultural heritage disaster management, has been evaluated. As a result, the following recommendations have been developed.

- The agency’s current institutional capacity should be strengthened by providing in-service **trainings, workshops, and regular exercises** for staff to raise awareness of cultural heritage disaster management. In addition, education and regular training programs should be organized to provide rescue teams with **specialized knowledge, expertise, and skills** in various areas, including management, search and rescue, maintenance and storage, and logistics, to ensure a high level of preparedness. In accordance, the personnel should be equipped with **special skills** encompassing rigging, lifting, moving of structural elements, and stabilization techniques in order to use in rescue operations,

- The Agency provides consultancy and auditing services for more than five thousand foundations throughout the country. Therefore, current institutional capacity could be expanded by providing **education to volunteers** working in foundations affiliated to the Agency. Besides, at least one **custodian** gives service at each religious building, which is under the supervision of the Agency. Providing basic training to the mentioned personnel in the field of “disaster management of cultural heritage” can contribute to the institutional capacity in times of a disaster,

5.1.3.3. Financial Resources, Equipment and Supplies of the Agency

Based on the measurements and scores obtained, the evaluation of the institution’s financial resources, equipment, and supplies, which are the third and fourth components of the necessary institutional capacity for disaster management of cultural heritage, has been carried out. As a result, the following recommendations have been developed.

- The agency should secure **financial resources** specifically for cultural heritage disaster management. Additionally, it should provide the necessary materials, equipment, and supplies to establish the organization and implement essential actions for effective disaster management of cultural heritage.

5.1.4. Agency’s Policy for Financial Support and Insurance

For cultural institutions, providing adequate financial support and insuring heritage properties is essential for protecting cultural heritage in the face of events. This section evaluates the necessary financial support and insurance policies for the institution’s

disaster management of cultural heritage, considering the measurements indicated in the previous chapter. Based on this evaluation, recommendations have been developed to meet the relevant criteria, and specific measures have been identified.

- A designated portion **should be allocated** from the Agency's annual budget for disaster management of cultural property,
- **Access to** additional national and local **funds** should be provided. Funds should be adequate and quickly accessible,
- Monumental cultural heritage buildings **should be insured** against all risks, including losses, damages, theft, and arson. Besides, **regular inspections** should be provided by experts and insurers on the monumental foundation heritage structures. Thus, terms and warranties can be updated as needed,

5.2. Recommended Institutional Measures at the Administrative Level

This section explores detailed disaster management measures and recommendations for the Directorate General (DGF) to protect cultural heritage at the administrative level.

5.2.1. Inventories, Risk Analysis, and Reports for Disaster Preparedness within the Agency

To improve disaster preparedness, cultural institutions should maintain comprehensive documentation that includes inventories, detailed regional and site-level analyses, standard operating procedures (SOPs), and a well-structured, up-to-date operational disaster plan.

The current level of disaster management at DGF has been assessed by evaluating its performance against a predefined standard through testing and scoring, as discussed in the previous chapter. Based on this evaluation, the following recommendations and necessary measures are proposed to help DGF meet the desired standards for effective cultural heritage disaster management

5.2.1.1. Inventories and Standard Forms at the Agency

The following recommendations have been developed based on the measurements and scores obtained from the inventories and standard forms produced by the Agency in the disaster management of cultural heritage.

- The Agency should create a comprehensive **inventory** that evaluates the current conditions of monumental heritage buildings. The prioritization of disaster protection for these heritage assets will be based on this evaluation.
- A foundation-based **database** for monumental cultural heritage should be established and updated regularly to maintain accurate information.
- The Agency should develop **a set of standard forms** that detail the planning process for all phases of disaster management.
- In response to the unique needs of cultural heritage in times of disaster, the Agency should advocate for the development of a dedicated **software module** within the existing software (*EVOS*). This module should specifically focus on disaster management to enhance the overall efficiency of the Agency's operations.
- The Agency should explore and implement innovative methods for documentation.

5.2.1.2. Region-Specific and Site-Specific Risk Analysis within the Agency

The following recommendations have been developed based on the measurements and scores obtained regarding the region-specific and site-specific analyses produced by the Agency in disaster management of cultural heritage.

- **Region-specific analyses** should be prepared to determine well-predicted disaster management strategies. Analysis should cover a wide spectrum of topics encompassing the historical frequency of disasters, land use patterns, and geological, hydrological, and meteorological characteristics. All analyses studied should be presented in **map format**,

- **Site-specific analyses** should be prepared to determine conditions for maintenance, emergency and disaster response, and recovery measures for monumental heritage. Site-specific studies should contain specific information, including physical location, settlement properties, historical disaster data, physical properties of the structure, potential hazards and vulnerabilities,

- **Risk levels** should be assessed and presented in risk map format,

5.2.1.3. Standard Operating Procedures and Operational Plan within the Agency

The following recommendations have been developed based on the measurements and scores obtained regarding the standard operating procedures (SOPs) and operational plan produced by the Agency in disaster management of cultural heritage.

- To ensure effective disaster management, a set of **Standard Operating Procedures (SOPs)** should be established. These SOPs should provide a well-structured approach to managing cultural heritage assets, including practical information about policies, planning, administrative tasks, and technical procedures for rescue and evacuation operations. Additionally, the SOPs should outline protocols for rescue operations, covering aspects such as rescue, evacuation, relocation, storage, and emergency conservation of cultural heritage. They should also specify the composition of specialized rescue teams, which should include professionals such as architects, engineers, surveyors, archaeologists, and historians. Collaboration among team members, as well as the requirements for equipment, supplies, and logistics organization, must also be addressed.

- The **official approval process** encompasses various implementations, including departures from headquarters, rescue operations, and coordination among teams. The **Approval Document** should contain essential information, including the current situation, contact details of designated mission team members, and information on local authorities.

- An operational **disaster plan** must be created as a comprehensive document that covers all phases from the disaster alert to rescue operations for cultural heritage, and concludes with the demobilization of teams and post-mission measures. This plan

should also include sub-plans outlining strategies for site evacuation, media management and communications, and transportation.

- The Agency should publish Regular Maintenance Implementation **Guidelines** for Monumental Cultural Heritage.
- Since disaster preparedness is dynamic, the Agency should regularly **update** all documents produced to ensure their relevance and effectiveness in disaster management strategy.

5.2.2. The Agency's Structural Organization for the Heritage Rescue Operations Department

For cultural institutions, it is essential to establish a qualified personnel organization and to systematically manage rescue teams in order to protect cultural heritage during emergencies. This section evaluates the institution's personnel organization and the management of rescue teams in relation to disaster management for cultural heritage, taking into account the measurements outlined in the previous chapter. Based on this assessment, recommendations have been developed to enhance the relevant criteria, and necessary measures have been identified.

5.2.2.1. Necessary Department and Team Establishment within the Agency

Based on the assessments and scores regarding the establishment of necessary departments and teams within the Agency for the disaster management of cultural heritage, the following recommendations have been formulated.

- **An administrative unit** named Disaster Management of Cultural Heritage **should be established** within the Agency. The unit's status, the extent of the unit's authorization, the roles and responsibilities of the personnel assigned, and conditions for cooperation and coordination of internal and external stakeholders should be defined and specified in respective legislation. The established unit should implement the institutional policy at the central level and equip the dedicated personnel at central and local levels with necessary information from the Headquarters,
- Within the Agency, **teams should be strategically organized** to operate in two distinct yet interrelated phases: the Preparation Phase and the Operational Phase. The

multifunctional teams should take on roles such as “Heritage Rescue and Evacuation Teams” and “Assessment and Documentation Teams.”

5.2.2.2. Team Composition, Leadership and Personnel Management Approach within the Agency

The following recommendations have been developed based on the measurements and scores regarding the team composition, leadership, and personnel management approach adopted by the Agency for Disaster Management of Cultural Heritage.

- Heritage rescue **team composition** should reflect a diverse range of **specialized expertise**, including leadership (team leader), planning (planning officer), operations (rescue team officer), stabilization (structural engineer), and logistics (logistics manager). In addition, leadership roles should be assigned based on some **personnel management skills**, including communication, motivation, negotiation, conflict resolution, personnel coordination, and staff welfare. For effective personnel management, crucial factors like rest planning, fatigue management, staff rotation, and sanitation and hygiene should be considered to maintain team members’ commitment.

5.2.2.3. Education and Training Program Organization within the Agency

The Agency’s efforts to organize education and training programs for cultural heritage disaster management have been assessed. Based on the assessments, several recommendations have emerged:

- The Agency should establish **regular education and training programs** for personnel to enhance their understanding of key concepts. These include the universal values of cultural heritage, disaster management, civil defense, safety and stabilization measures, emergency maintenance of heritage objects, secondary hazard assessment, delicate and fragile materials handling, evacuation and rescue of cultural heritage, and documentation and recording techniques. This will help bridge the gap in risk perception between the civil defense and cultural heritage communities,

- Personnel should be provided with **skills** to prepare lists of affected historic monuments and draw evacuation route plans. Additionally, they should develop the flexibility to work with various building materials, such as structural wood, steel,

concrete beams, and brick walls, using appropriate equipment, including cutting and breaking tools, ropes, and protective gear,

- Education and training programs should be organized **annually** with the involvement of relevant stakeholders and actors,
- Technical education and practical training programs should be designed to simulate **real-world scenarios**, ensuring that personnel are well-equipped to handle actual emergencies,
- The Agency should consider the necessary technical needs and materials required for the regular implementation of education and training programs.
- It should be ensured that multidisciplinary courses are **incorporated into the curriculum** at an academic level. For this, partnerships should be established with respective ministries and emergency services, and the exchange of teaching staff at an international level should be encouraged,

5.2.2.4. Equipment and Logistics Availabilities of the Agency

The Agency's materials, equipment, and logistics for cultural heritage disaster management have been evaluated. Based on the assessment findings, the following recommendation has been made:

The Agency should ensure that the **equipment requirements of rescue teams are met**, and adequate logistics support should be provided.

5.2.3. The Agency's Collaboration and Coordination with Relevant Authorities in the Disaster Management of Cultural Heritage

For cultural institutions, it is crucial to establish collaboration and coordination with relevant disaster-related organizations for the effective rescue of cultural heritage during emergencies. This section assesses the institution's partnerships and cooperation with these organizations as part of disaster management for cultural heritage, using the criteria outlined in the previous chapter. Based on the findings from that chapter, this section offers recommendations and necessary measures to support

the DGF in meeting the standards for effective disaster management of cultural heritage.

5.2.3.1. The Agency's Collaboration, Coordination, Protocols and Partnerships with Related Authorities

The Agency's efforts regarding collaboration, coordination, protocols, and partnerships for cultural heritage disaster management have been evaluated. Based on the assessment and scores, the following recommendations have been made:

- It is essential to foster **collaboration and coordination** between cultural heritage agencies and relevant parties. This includes central and local authorities, civil protection departments, security forces, NGOs, local communities, as well as experts and volunteers involved in the disaster risk management process. This collaboration aims to overcome institutional barriers caused by separate government bodies managing civil defense and heritage conservation,

- The **participation** of various stakeholders, including trained rescuers and spontaneous responders, in cultural heritage rescue operations should be provided. Effective coordination among search and rescue teams, experts, local individuals, and custodians is critical to address challenges in stakeholder management,

- In order to expand the current institutional capacity, the **contribution of external teams** should be requested by the Agency from respective authorities for complex operations,

- In order to leverage multidisciplinary expertise, it is crucial to establish **protocols and partnerships:**

- Between DGF and MoCT (Ministry of Culture and Tourism) to enforce laws and enhance authorization regarding disaster management of cultural heritage,
- Between DGF, MoCT and Municipalities to share cultural heritage databases,

- Between DGF, MoCT, *AFAD*, central, regional and local public authorities and universities to form teams for endangered cultural heritage rescue operations,
 - Between DGF, MoCT, Ministry of Environment and Urbanisation, municipalities, universities and Chamber of Architects and Chamber of Civil Engineers to document heritage structures and conduct assessments on damages, vulnerabilities, and risks,
 - Between DGF, *AFAD* and ICORP Türkiye for labelling and marking buildings,
 - Between DGF, MoCT, *AFAD*, and ICORP Türkiye to prioritize rescue operations, emergency maintenance of architectural elements, and evacuation, relocation, and temporary storage of disaster-affected cultural heritage,
 - Between DGF, MoCT, *AFAD* and ICORP Türkiye to organize education, regular training programs, and simulation exercises based on realistic scenarios,
 - Between DGF, ICORP Türkiye, the Ministry of Health and the Ministry of Family and Social Policies to develop skills dealing with stress, anxiety, fatigue, and personnel,
 - Between DGF, MoCT, universities and the Ministry of Education to publish manuals and establish media tools to raise awareness in disaster management of endangered cultural heritage,
 - Between DGF, MoCT, universities and private organizations for setting up material laboratories.
- Specialists from civil defense authorities should be encouraged to **develop awareness** of cultural heritage and its universal value.

- The Agency should promote **the establishment of new foundations** focused on "disaster management of cultural heritage" nationwide, particularly in disaster-prone provinces, to strengthen existing institutional capacity.

5.2.3.2. The Agency's Community-Centered Disaster Management Approach and Use of Traditional Knowledge

The Agency's adoption of a community-centered approach and utilization of traditional knowledge in cultural heritage disaster management have been evaluated. Based on the measurements and scores, the assessment has resulted in the following recommendations.

- The Agency **should adopt a community-centered disaster management approach** to enhance information exchange, promote knowledge sharing, and strengthen local capacity,

- **Insights** from local communities regarding traditional construction techniques should be collected in a systematic manner, and efforts should be made to integrate these insights into disaster risk management planning,

- Residents, particularly the elderly, hold invaluable knowledge about local history and the cultural significance of heritage sites. Therefore, it is essential to ensure the active **involvement of local people** in planning conservation activities.

5.2.4. Approaches Adopted by the Agency for Disseminating Lessons Learned from Past Experiences

Cultural institutions must share the lessons learned from their experiences with the public and the scientific community to rescue cultural heritage in the face of events. This section evaluates the institution's efforts to disseminate lessons learned from cultural heritage disaster management to relevant stakeholders, considering the measurements indicated in the previous chapter. Based on the examination conducted in the previous chapter, this chapter offers recommendations and necessary actions to help the Agency achieve the desired standards for effective management of cultural heritage in times of disaster.

Sharing Lessons Learned through Media Tools

The Agency's efforts to share lessons learned from disaster management in cultural heritage with both the public and the scientific community have been evaluated. Based on the assessment results, several recommendations have emerged.

- Active encouragement of national and international information exchange is essential. This can be achieved through **various channels**, including exhibitions, congresses, conferences, expert meetings, documentary films, publications, and reports. Additionally, ongoing projects should be transformed into visual **media tools**, such as documentary films and television programs. It is also recommended to create **calendars** and **catalogs** that showcase the cultural heritage impacted by disasters.
- Practical **guidelines** should be published on key issues like disaster risk management, the preservation of cultural heritage, risks related to historical monuments, and the regular maintenance and repair of heritage buildings.

5.3. Recommended Institutional Measures at the Technical Implementation Level

This section examines detailed disaster management measures and recommendations proposed for the Directorate General (DGF) to protect foundation cultural heritage at the technical implementation level.

5.3.1. Disaster Preparedness Measures Adopted by the Agency Between Two Events

Cultural institutions should adopt a holistic approach to disaster preparedness in the period between two events. Regular monitoring and maintenance of foundation assets, preparation of necessary documents, and organization of regular training programs are essential components of this stage for the disaster management strategy.

5.3.1.1. Regular Monitoring and Maintenance Measures Adopted by the Agency

The Agency's regular monitoring and maintenance activities for heritage properties have been evaluated. Based on the findings and evaluations, the review has led to the following recommendations.

- The Agency should employ a **systematic approach** to disaster preparedness by regularly monitoring cultural heritage buildings. All registered monumental buildings should be **visited** regularly, and repair needs should be **identified** through meticulous inspection,

- **Maintenance** activities should be meticulously executed based on data acquired through the monitoring process. Effective maintenance is the most impactful strategy in mitigating potential damage or loss. Advocating for and identifying high-quality maintenance procedures conducted periodically through regular inspections is crucial, utilizing traditional and compatible techniques and materials.

5.3.1.2. The Agency's Education and Training Programs for Relevant Stakeholders

An evaluation of the Agency's education and training programs aimed at enhancing the skills of individuals involved in heritage rescue operations during the preparation period between two events has been conducted. This assessment led to several recommendations based on the measurements and scores obtained.

- In order to enhance disaster preparedness, the Agency should conduct **regular training programs** involving diverse stakeholders. The participation of disaster managers, managers of related authorities, national disaster response teams including military and police units, other first responders, and local media should also be ensured.

5.3.1.3. Agency's Approach to Reviewing and Completing Existing Documents

An evaluation has been conducted regarding the Agency's efforts to review and update the existing documents and inventory databases of heritage properties during the preparation period between disasters. This assessment has led to several recommendations based on the findings and scores obtained.

- The prioritization for **revising and completing existing documents** should be guided by a risk assessment, with a particular focus on monuments located in disaster-prone provinces. **Documents** related to disaster management for cultural heritage should be **reviewed** and **updated** to encompass the phases before, during, and after a

disaster. These updates should be informed by the experiences encountered, lessons learned, and the most current information available.

5.3.2. On-Site Preparedness Measures Adopted by the Agency Prior to Heritage Rescue Operations Following a Disaster

This section explores the on-site preparedness measures that the DGF should implement for disaster management concerning foundation cultural heritage after a disaster occurs. These measures include several steps, such as conducting initial on-site assessments, preparing rescue teams, and setting up operational centers. The emphasis is on operational planning, which clearly outlines roles, responsibilities, and coordination protocols to ensure an effective on-site response.

5.3.2.1. Agency's Approach to Situation Analysis, and Damage-Risk Assessment

An evaluation of the agency's assessment methods for on-site disaster preparedness has been carried out. This evaluation focused on the agency's procedures for initial site assessments of heritage properties affected by disasters. It included situation analysis, damage assessment, and risk assessment, all of which are carried out prior to heritage rescue operations. Based on the findings and scores obtained, the following recommendations have been made:

- Before initiating cultural heritage rescue operations after a disaster, a comprehensive **situation analysis** of the affected cultural heritage should be conducted. This involves collecting baseline information, removing hazardous materials, identifying types of damage, and assessing the presence of primary and secondary hazards, such as fire outbreaks, water damage, or gas leaks. It is essential to obtain specific location maps, floor plans, inventories, and databases of collections,
- **Standard forms**, including damage assessment forms and building analysis forms, should be utilized for each disaster-affected building to measure the extent of the damage. These forms should detail ownership information, as well as the historical, artistic, architectural, and structural features of the buildings.

5.3.2.2. Deployment of Heritage Rescue Teams and Definition of Team Members' Roles and Responsibilities within the Agency

The effectiveness of the Agency in deploying teams and defining roles and responsibilities for cultural heritage disaster management has been assessed. This evaluation focused on procedures initiated immediately following a disaster, prior to the commencement of heritage rescue operations. Based on the findings, the evaluation has resulted in several recommendations.

- Upon receiving a **disaster alert** from the affected regional directorate, the Agency should be prepared for prompt mobilization, and rescue teams should be deployed immediately.
- **Personnel** involved in disaster planning should participate in establishing plans and priorities for all aspects of response. They must be equipped with essential information about their tasks, including emergency planning and civil defense protocols. Additionally, personnel should actively engage in post-disaster demolition and emergency repair operations. The Agency should also brief local emergency management authorities on concerns regarding structural stability and the plans for post-disaster demolition.
- The Agency must clearly **assign roles** and responsibilities to all stakeholders involved in rescue operations. Ensuring that team members are present before, during, or immediately after the disaster is crucial to oversee salvage efforts and documentation.
- An accountability system for personnel should be established, including regular roll calls during operations and a “buddy system” to promote safety. Furthermore, a **command-and-control system** must be created, alongside coordinated efforts between teams, with specific assignments for each team. Team leaders and Operational Focal Points should be appointed to oversee operations. They are responsible for considering various factors, including the physical readiness of team members, safety and security measures, and the management of hazardous materials. Team leaders should adhere to established policies and maintain coordination with the Local Emergency Management Authority (LEMA).

5.3.2.3. The Agency's Approach to Establishing Necessary Service Units: Reception and Departure Center (RDC), and Base of Operations (BoO)

The Agency's preparedness for establishing essential service units for cultural heritage rescue operations has been evaluated. This assessment focused on the Agency's procedures for setting up these units immediately following a disaster, prior to the commencement of rescue efforts. Based on the measurements and scores obtained from the evaluation, the following recommendations have been made:

- **A Reception and Departure Center (RDC)** should be established upon the arrival of rescue teams at the disaster site. This unit needs to be located at the arrival point of the rescue teams and should remain operational until responsible personnel arrive. The RDC should facilitate various services, including registering teams, delivering briefings, and providing information to the Base of Operations (BoO),
- The Agency should conduct a search among foundation parcels to identify a suitable location for the **Base of Operations (BoO)**, which should be set up by the first arriving teams. After the initial investigation, a final decision should be made regarding the location of the BoO. Criteria for selecting the Base of Operations should include safety, accessibility, and proximity to the work sites.
- The BoO area should be **organized to include** the following: equipment stock and maintenance, personnel lodging, management and briefing facilities, a communications center, food preparation and sanitation areas, medical treatment, vehicle parking, and transportation access points. If possible, large courtyards of monumental cultural assets can serve as suitable spaces for establishing these service units. Additionally, areas suitable for relocation should also be explored.

5.3.2.4. Pre-operation Checks Conducted by the Agency: Liaison, Communication, Coordination and Briefing Protocols, Coordination of Local Support, Operational Plan Review

An assessment of the Agency's effectiveness in conducting pre-operation checks following disasters—specifically before the initiation of cultural heritage rescue operations—has been completed. This assessment has led to the following recommendations based on the measurements and scores obtained.

- Before starting any on-site operation, rescue teams must complete a comprehensive **Operational Approval Document**. This document is critical as it authorizes the operation and ensures accountability. It should typically include the following vital information: the current situation, team composition, and local authority contact details,

- **Pre-operation checks** must be conducted by the operational teams to plan rescue and evacuation processes effectively. This involves determining operational objectives, ensuring liaison, communication, and coordination, managing briefings, requesting necessary resources from responsible authorities, and disseminating and reviewing plans,

- The Agency should ensure readiness checks for rescue teams, facilitate internal communication, and provide passenger and equipment lists upon request. Coordination between assessment/documentation and rescue/evacuation teams should also be established,

- **Pre-maintenance** conditions for affected heritage structures should be defined, and procedures for evacuation, salvage, relocation, and protection of rescued architectural elements must be outlined,

- **The launch of rescue and evacuation operation** should be decided by the Agency upon completion of preparedness measures,

- **Safety of personnel** and **security of the site** should be provided and reviewed by the Agency. The protection of sites should be ensured especially until comprehensive solutions are found. In order to safeguard the affected foundation cultural property, outside access should be restricted,

- **Signalling, labeling, and marking** should be placed at worksites. Besides, affected properties should be labeled with emblems containing codes and colors,

- In certain scenarios, **temporary shelters** should be established to protect damaged buildings, ensuring the safety and security of evacuated objects in the relocation area. Given the increased visitor density during the post-disaster period, additional measures must be taken to prevent rescued materials from adverse weather

conditions, land and water flows, and potential criminal activities such as looting and theft.

Liaison, Communication, Coordination and Briefing Protocols

- Before operations, rescue teams should receive a thorough **briefing** on the operational plan. An immediate **meeting** should be convened with the Local Emergency Management Authority (LEMA) or National Disaster Management Authority (NDMA),

- Effective **communication** should be provided between teams and Agency's top management during on-site operations. The agency's top management should be briefed about the current situation. Critical aspects of operations should be discussed, including safety and security considerations, selection of Base of Operation, the readiness of local teams, and requests from suppliers. **Briefings** should detail the total number of identified worksites, categorized as currently active, pending, and completed worksites during the operation period.

- The Agency must **collaborate** closely with LEMA to coordinate incoming supporting teams on several issues, including information management, administration, liaison, safety and security, operations, support and logistics, and media relations.

- The Agency should prepare **media statements** and disseminate progress updates through appropriate channels. Current situation reports should communicate assessments of the operational plan.

Updating of Disaster Plan

- Each phase and sub-phase of the operation should be evaluated and planned meticulously. The plan should then be executed, monitored, and updated as necessary,

- The Agency should regularly monitor and evaluate disaster plans and current documentation. Continuous updates and evaluations should be documented in manuals and implementation guidelines, creating a well-documented and adaptive disaster management framework.

5.3.3. The Agency's Operation Protocols for the Rescue, Evacuation, Relocation and Temporary Storage of Affected Heritage Objects

The following recommendations are based on the measurements and scores obtained from the standard that describes the Agency's post-disaster cultural heritage rescue operations. These operations encompass various aspects, including safety and security, on-site documentation, emergency prioritization, pre-maintenance and stabilization of salvaged materials, evacuation, relocation, and storage of affected heritage items, packing and tracking protocols, and demobilization during emergencies.

5.3.3.1. Safety Measures Implemented by the Agency: Safety of Personnel and Security of Site

An evaluation of the Agency's effectiveness in prioritizing and implementing safety measures for personnel and security measures for affected sites during cultural heritage rescue operations in the aftermath of disasters has been conducted. Based on the measurements and scores obtained, the evaluation has resulted in the following recommendations.

Before initiating the rescue of heritage objects, the Agency should prioritize the safety of personnel and the security of site to eliminate potential hazards. Outside access should be restricted and additional measures should be taken until a comprehensive solution is applied to safeguard the buildings. All **utilities**, including gas, electricity, and water, must be shut off to safeguard rescue team members from potential secondary hazards before entering the disaster zone.

5.3.3.2. The Agency's Debris Removal and Structural Stabilization Measures

An evaluation of the Agency's effectiveness in managing debris removal and stabilizing structures during cultural heritage rescue operations following disasters has been conducted. This assessment has led to the following recommendations based on the findings and scores obtained.

Debris should be removed as necessary, and **shoring and stabilization** measures should be implemented to maintain structural integrity and prevent further damage caused by collapses and aftershocks.

5.3.3.3. The Agency's Approach to On-Site Documentation and On-site Prioritization of Affected Materials

An assessment has been conducted to evaluate the Agency's effectiveness in performing on-site documentation, prioritizing, and providing emergency protection for affected objects during cultural heritage rescue operations following disasters. This assessment has led to several recommendations based on the findings.

- Before any evacuation, initial **on-site documentation** of the remaining architectural elements should be conducted. As part of the on-site documentation process, the floor areas should be organized into grids, and materials deemed worth salvaging should be marked on these grids, indicating their exact locations on a plan.
- Evacuation and rescue operations should be carried out according to a **prioritization** process established by the Agency. This prioritization should be pre-determined and stored in the Agency's database (EVOS).
- A comprehensive **emergency evacuation inventory** should be created for foundation heritage objects. The Agency should utilize the data from this inventory to determine which items should not be salvaged during an evacuation.
- A prioritized **list of valuable objects** within the affected monument should be established to streamline the emergency response. The selection of appropriate emergency conservation measures for heritage objects should be based on this prioritized list.

5.3.3.4. The Agency's Protocols for Operations: Salvage, Evacuation, Pre-maintenance, Packing and Relocation of Affected Architectural Heritage

An assessment has been conducted to evaluate the Agency's effectiveness in executing heritage rescue operations, which include salvage, evacuation, pre-maintenance, packing, and relocation of affected architectural heritage in the aftermath of disasters. Based on the findings, the following recommendations are made to improve the Agency's cultural heritage rescue operations:

- Cultural objects should be salvaged by taking into consideration documentation, risk management, and effective communication and coordination,

- An official responsible for emergency response within the Agency **should be authorized** to approve administrative documents and the movement of objects,

- Each object determined for rescue **should receive a unique label** that includes its name, description, condition based on damages identified, and the location where it was found. The detailed labeling facilitates proper identification, handling, and storage during the triage process,

- Objects **should be evacuated carefully** to a designated safe area outside the damaged structure,

- **On-site stabilization and pre-maintenance** of heritage pieces should be conducted for portable, displaced, or fragile objects. Interventions may include cleaning, pre-maintenance, and temporary stabilization to mitigate further damage and preserve the objects' integrity.

- Rescued objects should be transferred with care to designated relocation areas, where pre-conservation of portable, displaced, or fragile items will take place.

- Upon rescue, each architectural element should be assigned a **unique identification number and a location code** to facilitate identification and management,

- A detailed **registration form** should accompany each container of rescued objects. This form should include information such as the type and quantity of objects, their condition, and their original location code,

- Following the completion of on-site search, rescue, documentation, and packaging activities, formal **permission for relocation** should be obtained from the Agency Headquarters,

- A **location code system** should be established for relocated objects. Additionally, team members should complete a movement tracking form to document the placement of each relocated object.

5.3.3.5. Demobilization and Post-mission Measures of the Agency

The Agency's effectiveness in conducting demobilization and post-mission protocols following heritage rescue operations in the aftermath of disasters has been assessed. Based on the evaluation and the scores obtained, several recommendations have been made to improve the Agency's demobilization and post-mission protocols.

- Upon completion of the rescue operation, Local Emergency Management Authority (LEMA) should be notified, the Base of Operation (BoO) should be **disestablished**, and the site used should be **restored to its original state** before the teams depart.

- The rescue and evacuation teams should prepare a **post-mission report** to ensure its completion. The operation period should be reported to the headquarters, indicating the start and end dates. The post-mission report should include essential information such as the number of objects rescued, resources/materials and equipment left or donated, location of objects, and the names of personnel filling the form.

- A comprehensive **self-assessment** should be prepared, detailing the storage information and conditions of the rescued movable and immovable cultural properties. This assessment should evaluate the operation, training, any gaps identified, and personnel issues, and it must be shared with the Agency Headquarters.

5.3.4. Post Disaster Period and Recovery Measures of the Agency

The following recommendations have been developed based on the measurements and scores obtained from the standard describing the Agency's post-disaster period recovery measures after a disaster. These measures include immediate recovery efforts, comprehensive recovery and resilience strategies, principles and guidelines for restoration, and an evaluation of operations during the post-disaster period.

5.3.4.1. Immediate Recovery Efforts of the Agency

An assessment of the Agency's effectiveness in conducting immediate recovery efforts after completing heritage rescue operations during the post-disaster recovery period has been conducted. Based on the measurements and scores obtained, the assessment

has resulted in several recommendations for improving the Agency's immediate recovery efforts.

Post-Disaster Report and Post-Disaster Survey of Affected Structures

- Following a disaster, the Rescue and Evacuation Team should prepare a comprehensive set of post-disaster documentation to be submitted to Agency Headquarters for review and dissemination. This documentation is crucial for informing future response efforts and enhancing the Agency's approach to cultural heritage conservation. The documentation should include two key components: **a post-disaster report** and a **survey of affected structures**. The post-disaster report should cover several important aspects, including safety and security challenges, lessons learned, additional financial resource needs, options for accessing funds, and the condition of rescued cultural properties. Additionally, a thorough survey of the affected cultural heritage should be conducted. This survey should feature detailed assessments, photographs, documentation of the physical state, and testimonies from witnesses.

Repair, Restoration, and Recovery of Affected Cultural Heritage

- In the aftermath of a disaster, the Agency should initiate **repair, recovery, and resilience** initiatives for damaged cultural heritage sites. The Agency must implement ongoing maintenance and repair works for affected properties while also preparing for future disasters.

Information Exchange and Expert Meetings

- The Agency should actively be engaging the academic community through expert meetings, conferences, and exhibitions. **Traveling of international experts** and fostering of collaboration with cultural heritage organizations should be encouraged by the Agency for knowledge exchange and joint projects.

5.3.4.2. Detailed Post-disaster Recovery and Resilience Strategies of the Agency

The effectiveness of the Agency in developing and implementing detailed post-disaster recovery and resilience strategies has been evaluated. Based on this assessment, the following recommendations have been made.

Short-term and Long-term Plan Preparation

- Following the initial disaster response, the Agency should develop detailed **short- and long-term plans** for recovery and resilience. The plans should address issues including the establishment of workshops, identification of further resource needs, and commencement of basic scientific studies in geology, archaeology, and anthropology. Additionally, long-term financial planning should support a "build-back-better" approach, informed by the results of damage assessment studies.

New Conservation Plan Proposals

National conservation plans in Türkiye lack detailed content on disaster risk management (DRM) for cultural heritage. This underscores the need for an integrated approach to conservation planning that incorporates DRM considerations.

- The Agency should propose a comprehensive **new conservation plan** specifically designed to address the city's cultural heritage. This plan should focus on two key areas: protecting cultural assets and preserving historical character. Initially, it should emphasize the safeguarding of monuments, historic sites, open spaces, and buffer zones surrounding heritage buildings. Furthermore, the plan should prioritize the maintenance of pre-disaster land-use patterns, if feasible, as these patterns significantly contribute to the affected area's cultural integrity and historic character. A careful balance must be aimed between developmental needs and the importance of preserving the area's unique heritage.

- The concept of Disaster Risk Management (DRM) for cultural heritage **should be integrated into conservation plan proposals**. This can help enhancement in the overall resilience of cultural assets.

Publications and Guidelines

- In the context of lessons learned from the disaster, the Agency **should record and publish all activities and research** undertaken to help improve disaster resistance of architectural heritage. Publications should be made based on critical issues, including the behavior of different structures and materials in disasters, the effects of building defects, evaluation of past practices, and assessment of different disaster intensities and frequencies. The findings should also be **shared** on the Agency’s website.

- Comprehensive technical **guidelines** should be developed by the Agency based on research into various aspects of disaster resistance. Guidelines should be crafted through experimental, analytical, and comparative research covering monumental buildings, construction materials, historic concepts, and disaster evaluations.

Proposals for Inscribing Affected Monuments to ‘World Heritage List in Danger’

- The Agency should initiate preparations for the possible **inscription** of disaster-affected cultural heritage on the “World Heritage List in Danger” maintained by UNESCO.

Establishing Material Laboratories for Traditional Construction Materials

- A **Material Laboratory** should be established for the continuation of traditional construction materials. Traditional building approach should be incorporated with broader initiatives, including studies in fields like geology, archaeology, and anthropology.

5.3.4.3. Restoration Principles and Guidelines Adopted by the Agency

The Agency’s effectiveness in adopting internationally acknowledged restoration principles and guidelines in the post-disaster recovery period has been assessed. Based on the measurements and scores obtained, the assessment has resulted in the following recommendations for improvement in the Agency’s adoption of internationally acknowledged restoration principles and guidelines.

Adoption of Internationally Acknowledged Restoration Principles

- Following a disaster, the Agency should prioritize the adoption of **scientific restoration principles** and adherence to international conservation principles during the repair and restoration of foundation cultural properties. Appropriate materials, techniques, and methodologies are encouraged to preserve the cultural heritage object's integrity and historical value. Furthermore, the remaining structures should be protected by preserving their original integrity and respecting the cultural significance of the heritage site.

5.3.4.4. The Agency's Approach to Reviewing the Operations and Continuous Improvement

The Agency's operational plan for post-disaster cultural heritage recovery must undergo a **continuous cycle of review**, development, and evaluation. This ongoing process is essential for assessing the plan's effectiveness in achieving its goals, identifying evolving resource needs, and adapting to changing circumstances. By thoroughly analyzing past rescue and evacuation efforts, pinpointing areas for improvement, and examining evidence-based strategies, agencies can better prepare to respond to future disasters. This approach helps minimize damage to cultural heritage and ensures the safety of both personnel and cultural properties.

A culture of **continuous evaluation** and improvement should be built within agencies to provide effective disaster response. Therefore, continuous monitoring, evaluation and improvement of rescue and evacuation strategies are sustained for effective response in future disasters. Agencies can ensure long-term resilience and optimal effectiveness in future disaster recovery efforts by maintaining a **flexible and adaptive** approach.

CHAPTER VI

CRITICAL ASSESSMENT FOR THE WAY FORWARD AND CONCLUDING REMARKS

The world has faced disasters and their consequences for thousands of years. Recently, however, there has been an increase in the frequency and severity of these disastrous events, including extreme weather conditions, earthquakes, floods, and fires. These events lead to significant economic, social, and cultural disruptions, compounded by rapid and unplanned urbanization and a lack of awareness about disaster preparedness. This situation poses threats not only to human lives but also to the built environment and cultural heritage.

The conservation of cultural heritage during destructive disasters and the recovery efforts that follow are crucial for societies aiming to restore their cultural and moral values in the aftermath of such events. Protecting these legacies not only helps to rebuild community identity but also promotes unity and resilience after a disaster. Therefore, it is essential to implement effective strategies for the protection and rehabilitation of cultural heritage, ensuring that these vital elements of societal cohesion are preserved even in challenging times.

The cultural and architectural heritage that comprises the built environment is constantly exposed to various hazards worldwide, including natural and human-induced disasters. Factors such as inadequate regular checks, maintenance, and monitoring, combined with dense and unplanned urban development around historical sites, as well as human conflict, increase the vulnerability of cultural properties. These risks heighten the likelihood of damage to structures during disasters.

In recent decades, cultural heritage properties have been significantly impacted by disasters occurring on a global scale. Numerous monumental buildings and historic sites have faced considerable challenges due to catastrophic events. For instance, the

southeastern region of Türkiye suffered severely from an earthquake sequence in Kahramanmaraş; the Prambanan Temple Compounds in Indonesia sustained damage from an earthquake in 2006; the ancient citadel of Bam in the Islamic Republic of Iran was struck by an earthquake in 2003; Edinburgh's Old Town in England experienced a devastating fire in 2002; the destruction of the Bamiyan Buddhas in Afghanistan resulted from armed conflict and vandalism in 2001; and the Temple of the Tooth in Kandy, Sri Lanka, was destroyed following a terrorist attack in 1998. These incidents are just a few notable examples of the challenges faced by cultural heritage sites (ICCROM, 2010), (Morini, 2014).

Historically, countries have primarily responded to disasters through post-event recovery efforts. However, in recent years, there has been a growing consensus on the need to protect not only human life and other living beings but also the built environment, cultural assets, and all factors that impact the economy, society, and culture. This agreement underscores the importance of adopting a holistic approach to disaster management.

Recent years demonstrated **a surge in research and awareness** regarding the vulnerability of cultural heritage to disasters. It has become evident that cultural heritage disaster management extends beyond civil defense alone.

The **increasing global awareness** of cultural heritage disaster management has led many countries to develop systematic strategies to enhance the resilience of their cultural assets against both natural and human-made hazards. In response, these nations have launched programs and improved their emergency management capabilities in a structured way. This is particularly crucial for countries that frequently face disasters, as they prioritize disaster management initiatives and conduct comprehensive studies to strengthen the resilience of cultural heritage on local, regional, national, and international levels. In recent years, the management of cultural heritage disasters has gained prominence

In **Türkiye**, the management of cultural heritage in relation to disasters has gained significant attention in recent years. As a nation vulnerable to various disasters, Türkiye has historically experienced considerable damage to its cultural heritage.

Following the devastating earthquake of 1999, there has been a notable shift towards a more integrated approach to disaster preparedness and response.

Specialized **models**, cycles, schemes, and workflows have been developed for managing cultural heritage during disasters. These include the disaster risk management cycle, first aid for cultural heritage after a disaster, on-site documentation, pre-maintenance and recovery of architectural elements, relocation, temporary storage conditions, and protocols for packing and tracking.

The damage and loss of cultural heritage resulting from disasters have prompted initiatives focused on managing cultural heritage during crises. These initiatives are crucial in providing effective support throughout the pre-disaster, disaster, and post-disaster phases. Various **international organizations**, such as ICOMOS, ICCROM, ICBS, INSARAG, and ICORP, have played a vital role in advocating for this issue, promoting measures, and organizing education and training programs to enhance the resilience of cultural heritage to disasters.

The integration of cultural heritage conservation into disaster management represents a significant and positive advancement. However, this development is relatively recent, gaining prominence in academic and professional discussions only in the last 60 to 70 years. Despite the commendable advancements in this field from an institutional perspective, a detailed analysis presented in this dissertation indicates a **notable gap** in the global literature. Specifically, scientific publications, models, guidelines, implementation papers, and legal documents mostly focus on specific areas of expertise, often generalizing solutions that are applicable only within their own domains. As a result, there is a lack of comprehensive studies that address critical institutional components and capacities related to disaster management, as well as define the interconnections between these components in a holistic manner.

In Türkiye, the region of Anatolia is a historical cradle for many civilizations, representing a rich tapestry of cultural heritage that showcases the diversity of past societies. A significant portion of Türkiye's monumental cultural heritage is **foundation-based**, with around one-fifth of the nation's monumental cultural properties classified in this category.

The foundation civilization, which began during the Seljuk period and peaked in the Ottoman Empire, is regarded as a manifestation of the altruistic sentiment of doing good without expecting anything in return. During the pre-Republic era, particularly throughout the Ottoman Empire, public services were primarily provided through foundations. These foundations were responsible for the construction of various structures, including places of worship (mosques and churches), transportation infrastructures (roads and bridges), educational institutions (libraries, madrasahs, and schools), healthcare facilities (hospitals and baths), accommodation services (inns), trade infrastructures (caravanserais), multifunctional complexes, and public utilities (fountains and aqueducts). These approximately nine thousand structures, recognized today as registered historical monuments, represent a significant portion of the cultural heritage associated with foundations.

Since the establishment of the Republic, the oversight of foundations has been systematically managed by **the General Directorate of Foundations**, which operates as an autonomous institution. The Directorate operates as an autonomous entity, financing its activities through its own revenue streams, independent from the general budget. With a robust institutional framework, the Directorate is organized into Regional Directorates across 25 provinces in Türkiye, staffed by a range of technical and administrative personnel. The General Directorate's core activities encompass providing continuous free meals to low-income citizens, offering scholarships to students, disbursing monthly salary assistance, and maintaining and repairing cultural assets associated with foundations.

In contemporary contexts, various **hazards** pose significant risks to cultural heritage. The responsibility for managing these disaster risks falls to the General Directorate of Foundations. However, the implementation of measures before, during, and after disasters is the responsibility of disaster and emergency management agencies. Traditionally, disaster management in Türkiye has been overseen by civil defense institutions.

As a key agency tasked with the conservation of substantial monumental cultural properties, the Directorate possesses the capacity to address disasters and protect cultural heritage. Nevertheless, existing studies indicate that the legislative framework

concerning disaster management for cultural heritage is inadequately developed, often **lacking** comprehensive provisions in laws, planning documents, programs, and manuals. This inadequacy renders the General Directorate vulnerable during disasters, underscoring an **urgent need** for a more detailed and proactive approach to disaster management in relation to cultural heritage.

6.1. The Proposed Framework and Results of Tests Conducted on the Agency

The thesis introduces a novel approach called the Institutional Framework Model for Disaster Management of Cultural Heritage. The aim is to establish a comprehensive institutional structure that meets the disaster management needs of cultural heritage assets under the protection of institutions like the General Directorate of Foundations (DGF).

To develop this framework, the thesis identifies essential institutional components and their interrelationships, resulting in a comprehensive model that includes institutional capacity and addresses the phases of pre-disaster preparedness, disaster response, and post-disaster recovery. By organizing these elements into coherent groups, the proposed framework enables heritage institutions to build a structured capacity for disaster management at national, regional, and local levels.

The components of the proposed framework are categorized into three levels: policy, administrative, and technical implementation. Each level consists of specific subcomponents defined according to established standards. These standards have been evaluated using a four-tier scoring system (ranging from 0 to 3) to assess their adequacy.

Using the developed evaluation framework, the institutional capacity of the General Directorate of Foundations in cultural heritage disaster management was tested. Data collected from the institution were examined against the defined standards, yielding scores for each standard. These scores were then used to assess the overall level of the institution's capacity for managing disasters affecting cultural heritage.

The final section of the study presents specific recommendations for improvement related to each of the identified standards. These recommendations aim to address existing gaps and enhance the institutional capacity of the General Directorate of Foundations (DGF) and similar cultural institutions in effectively managing disaster risks to the cultural heritage assets they protect. By implementing these suggestions, the DGF can strengthen its disaster preparedness, response, and recovery capabilities, ultimately safeguarding cultural heritage from the adverse impacts of disasters.

The institutional capacity of the General Directorate of Foundations in managing cultural heritage during disasters has been assessed based on **12 established standards** across three evaluation levels: policy, administration, and technical implementation. The findings indicate that the institution meets three standards at the Zero level, seven at the Initial level, and two at the Progressing level. Notably, the Agency has demonstrated no compliance with the Sufficient level.

Key findings are delineated as follows:

- The institution met the requirements of only **three standards at the zero level**. These standards relate to the existence of policy documents, rescue teams' requirements and collaboration with relevant stakeholders. This reflects a deficiency in policies, procedures, strategies, and goals concerning cultural heritage disaster management within the General Directorate of Foundations and an absence of plans for team establishment and mechanisms for collaboration with pertinent authorities.
- **Seven standards were met at the initial level**, suggesting that the institution has the necessary financial resources, technical personnel, and equipment to address disaster risks. However, the absence of a comprehensive policy framework limits the effectiveness of these implementations in fully protecting cultural heritage assets.
- Lastly, **two standards** named 'authorization' and 'post-disaster period recovery measures' were **met at the progressing level**. These findings are attributed to the institution's legal mandate, strong financial standing, and advanced restoration expertise.

As an overall assessment, the General Directorate of Foundations has the essential financial resources, technical expertise, and adequate personnel to manage cultural

heritage disasters. However, the lack of a comprehensive policy framework and collaboration mechanisms with relevant stakeholders hinders the effective utilization of these resources and limits the institution's overall capacity for managing cultural heritage during disasters.

6.2. General Recommendations for Cultural Institutions in Safeguarding Cultural Properties Against Disasters

The first level of the proposed framework for cultural institutions emphasizes the importance of **recognition and support** from political leaders and top management. When managers at the policy level adequately recognize the necessity of cultural heritage disaster management, the institutions incorporate the necessary implementation content into their strategy documents, legal texts, and target and mission statements. The institution's legal powers, roles, and responsibilities related to the issue are defined, and the necessary administrative structure is established within the institution.

Capacity building should be prioritized, with support sourced from within the institution or external partners. It is crucial to allocate a sufficient portion of the budget for the implementation of necessary administrative, educational, technical, and material resources.

The second level of the proposed framework focuses on administrative measures for cultural heritage disaster management. During the pre-disaster period, cultural heritage assets under the institute's protection should be prioritized based on their vulnerability to potential hazards. A comprehensive inventory of these assets needs to be prepared, which should include detailed technical reports, region-specific analyses, and thorough assessments of their susceptibility to damage.

Well-defined Standard Operating Procedures (SOPs) and operational plans must be developed and maintained to outline cultural heritage disaster management standards, workflows, and procedures. These SOPs will serve as implementation guides and provide practical handbooks for key processes. A secure digital database should also be established to store inventory data and relevant information about the cultural heritage assets under protection. This database should be readily accessible to

authorized personnel to facilitate efficient data management, analysis, and decision-making.

Dedicated **emergency response teams** should be established to manage specific tasks during the phases of pre-disaster preparation, disaster response, and post-disaster recovery. These teams should consist of specialized personnel with the necessary expertise, including "heritage rescue and evacuation teams" and "assessment and documentation teams." Clear team structures must be defined, outlining the roles and responsibilities of each member. To ensure the teams are effective, it is crucial to provide them with the necessary materials, equipment, logistical support, and training.

A comprehensive **cooperation and coordination** plan should be developed to engage effectively with relevant actors and stakeholders, including public and private authorities, civil society organizations, experts, academics, and international partners. Collaboration can facilitate knowledge exchange, foster innovative solutions, and strengthen national and international networks for cultural heritage disaster management. This collaborative approach ensures a thorough understanding of safeguarding foundational cultural heritage against potential disasters.

Institutions should create an environment where post-disaster cultural heritage recovery operations are effectively communicated to **stakeholders**, including the public, media outlets, scientific communities, and related organizations. This may involve organizing meetings, publishing scientific papers, and utilizing various media channels.

The third level of the proposed framework for cultural heritage disaster management by cultural institutions focuses on technical implementation.

Initially, **between two events**, routine inspections and maintenance of cultural assets should be conducted to identify and address potential vulnerabilities. During this timeframe, all documents related to disaster management for cultural heritage should be reviewed for any necessary additions and updates. Gaps in training and exercises should be addressed to ensure up-to-date information.

In the second technical implementation stage, essential steps must be taken to **prepare for heritage rescue operations** following a disaster. Effective preparations for on-site documentation, rescue, evacuation, pre-maintenance, relocation, and temporary storage processes should be made based on the priorities established for the salvaged architectural elements. This step involves conducting a situation analysis, performing damage and risk assessments of the affected cultural heritage, determining roles and responsibilities before operations commence, establishing necessary temporary service units at locations where cultural heritage rescue operations will take place, and conducting final checks on communication, briefings, material procurement, logistics, and operational plans.

The third technical implementation stage involves executing **heritage rescue operations** in the post-disaster period. The operation begins with implementing security measures at the operation site to ensure the safety of personnel involved. Stabilization measures should be taken to prevent further collapses. On-site documentation prior to rescue operations should include sketches, drawings, and photographs. The original locations of architectural elements and heritage pieces to be rescued should be marked on these sketches. Priorities for rescue should be established, and architectural elements and objects should be packaged and moved to relocation areas during the operations. If necessary, pre-maintenance of objects should be conducted. Objects transported to relocation points with designated relocation codes should be transferred to temporary storage areas. At the conclusion of the operation, a post-mission report should be prepared.

The final stage of technical implementation occurs during the **post-disaster recovery** period. During this phase, a post-mission report should be produced, documenting the challenges, deficiencies, areas for improvement, and good implementations observed during the operations. Experts should convene to discuss the actions taken for affected cultural assets after the disaster. Post-disaster conservation projects should be developed for these assets, and restoration, rehabilitation, and resilience efforts should be carried out using scientifically recognized conservation methods while maintaining the original identity of the affected properties. Both short-term and long-term recovery plans should be formulated. Additionally, the Conservation Master Plan should be

reevaluated and updated in areas where disaster-affected registered cultural assets exist. Finally, material laboratories should be established to produce materials necessary for reconstructing traditional architecture.

6.3. Insights Gained from the Study

The components across policy-making, administrative, and technical implementation levels provides a structured foundation for quantifying the qualitative processes involved in building institutional disaster management capacity, especially within the Directorate General of Foundations (DGF) focused on cultural heritage conservation. The proposed framework allows for a comprehensive assessment and evaluation of cultural institutions' strengths, areas for improvement, and current levels of preparedness, tailored to various scales of cultural institutions.

This framework aims to address a gap in literature by offering a holistic approach to disaster management for cultural institutions. Cultural heritage properties within built environments should not merely be seen as debris to be cleared after disasters; they are valuable cultural and architectural assets that require conservation and protection. This recognition necessitates a shift in perspective among policymakers, moving beyond the traditional approach of solely assigning disaster management responsibilities to civil defense organizations. The 2023 earthquakes in Türkiye highlighted those gaps in expertise and institutional capacity in disaster management can lead to devastating consequences during major emergencies.

The growing recognition of cultural heritage disaster management has fostered a global collaborative effort to protect these irreplaceable treasures from the destruction caused by disasters. As the world faces increasing risks, collaborative efforts and proactive measures are essential to ensure the resilience of our shared heritage. The multidimensional nature of cultural heritage conservation during emergencies has been acknowledged, and responsibilities extend to civil defense teams, armed forces, search and rescue teams, experts, and local communities. By understanding the diverse approaches adopted by different countries, valuable insights can be gained into effective strategies for protecting cultural heritage against potential hazards.

The Agency (DGF) should not rely solely on reactive measures; instead, it should implement a **holistic framework** that includes risk assessment, preparedness, mitigation, response, and post-disaster recovery plans. This proactive approach can help minimize losses, safeguard cultural values, and ensure economic stability during crises.

Additionally, it is vital for the DGF to adapt its existing capacity in alignment with the topics outlined in the thesis. This adaptation will enable the Agency to effectively reduce the impact of potential disasters on cultural assets, thereby minimizing damage and losses.

In conclusion, the study emphasizes the potential for minimizing losses in foundation cultural heritage through enhanced disaster management capacities. Preserving cultural heritage requires a proactive and multifaceted approach. By adopting the recommendations presented in this study, the DGF and the broader cultural heritage community can build resilience, mitigate risks, and ensure the continued existence of these invaluable properties for future generations.

The proposed recommendations serve as a **call to action**, highlighting the global significance of preserving cultural heritage for both current and future generations. By prioritizing proactive disaster management, fostering collaboration, and investing in institutional capacity, cultural institutions can safeguard cultural properties, uphold their historical significance, and promote social cohesion, economic stability, and a vibrant future for generations to come.

6.4. Projection for Further Studies

This section outlines areas that were not addressed within the scope of the thesis due to various constraints but could be beneficial for further investigation.

The study was developed based on existing literature and the author's experience. Future research could incorporate a more participatory approach that includes contributions from experts in the Directorate General.

Due to the critical circumstances following the disaster, conducting in-depth interviews with the top management of the Directorate General was not feasible for the thesis. Future research could strengthen the framework by incorporating detailed interviews and inquiries with managers, experts, and local communities.

Time constraints limited the analysis of disaster response measures implemented after the earthquake to practices established by the *Hatay* Regional Directorate. Future studies could expand to include disaster response measures from all regions affected by the disaster.

Additionally, the study could not implement a pilot program to test the proposed framework in a real-world setting due to time limitations. Further studies could evaluate these components under a predetermined worst-case scenario to assess their resilience and identify areas for improvement.

The proposed institutional framework for the disaster management of cultural heritage has been evaluated in collaboration with the General Directorate of Foundations. Further research would enhance its implementation by involving additional institutions to measure its effectiveness.

This thesis examined the management of cultural heritage in relation to various disasters from an institutional perspective. Future research could investigate specific contexts that threaten heritage properties, such as the effects of climate change, unplanned urban development, air pollution, and the impact of tourism.

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APPENDICES

A. Disasters Affected Cultural Heritage Around the World¹³⁵

Earthquake	1997	Basilica of St. Francis	Assisi, Italy
	1995	Kobe City Museum, Museum of Modern Art	Kobe, Japan
	1989	Asian Art Museum	San Francisco, California
	1985	Cooper House, other historic buildings Museo de Arte Popular Americano	Santa Cruz, California Santiago, Chile
Terrorist Bombing	1994	Argentine Israeli Mutual Association, Archives	Buenos Aires, Argentina
	1993	Galleria degli Uffizi	Florence, Italy
Flood	1997	Numerous museums, libraries, archives, historic buildings	Southern Poland
	1995	Museu Nacional	Rio de Janeiro, Brazil
	1995	Santa Barbara Museum of Art	Santa Barbara, California
	1993	Casa de la Cultura	Portoviejo City, Ecuador
	1988	Carillo Gil Museum	Mexico City, Mexico
	1986	Museo Colchagua	Colchagua Province, Chile
Fire	1997	Thomas Wolfe Historic Site	Asheville, North Carolina
	1996	La Compañía de Jesús	Quito, Ecuador
	1993	Yuma Arizona Art Center	Yuma, Arizona
	1992	Windsor Castle	Berkshire, England
	1988	The Cabildo, Louisiana State Museum	New Orleans, Louisiana
	1988	Library of the Russian Academy of Sciences	Leningrad, USSR
	1986	Hampton Court Apartments	London, England
	1985	Huntington Library/Gallery	San Marino, California
	1985	York Minster	York, England
	1981	Stanford Library	Stanford, California
Hurricane	1989	City Hall, other historic buildings	Charleston, South Carolina
	1989	More than 200 historic buildings	Charlotte, North Carolina
War	1993	National Museum of Afghanistan	Kabul, Afghanistan
	1991–93	Zemaljski Muzej Numerous other historic buildings	Sarajevo, Bosnia Bosnia
	1991–93	Gradski Muzej Numerous other historic buildings	Vukovar, Croatia Croatia
	1990	Kuwait National Museum	Safat, Kuwait
Volcanic Eruption	1995	Montserrat National Trust Museum	Richmond Hill, Montserrat

Figure 58. Disasters Affected the Cultural Heritage Around the World

¹³⁵ (Dorge V. J., 1999)

B. Relevant Charters and Recommendations Regarding Disaster Management of Cultural Heritage

- Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict Protocol, UNESCO, 1954.
- Convention concerning the Protection of the World Cultural and Natural Heritage, UNESCO, 1972.
- Desirability of Adopting an International Instrument on the Protection of the Cultural Heritage Against Natural Disasters and Their Consequences: Report of the Director-General, UNESCO General Conference, 22nd Session, UNESCO, Paris, 1983.
- Final Recommendations of the International Course on Preventive Measures for the Protection of Cultural Property in Earthquake Prone Regions, Skopje, Yugoslavia, 1985.
- Resolution No: 44/236, International Decade for Natural Disaster Reduction, United Nations General Assembly, 1989.
- Recommendation No. R(93)9 of the Committee of Ministers to Member States on the Protection of the Architectural Heritage against Natural Disasters, Council of Europe, Committee of Ministers, 1993.
- Yokohama Strategy and Plan of Action for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation, World Conference on Natural Disaster Reduction, United Nations, Yokohama, 1994.
- Declaration of Quebec, 1st National Summit on Heritage and Risk Preparedness, Quebec City, Canada, 1996.

- Declaration on Risk Preparedness for Cultural Heritage, Kobe/Tokyo International Symposium on Risk Preparedness for Cultural Properties, Kobe-Tokyo, 1997.
- Radenci Declaration, Blue Shield Seminar on the Protection of Cultural Heritage in Emergencies and Exceptional Situations, Radenci, Slovenia, 12-16 November 1998.
- Adoption of the International Strategy for Disaster Reduction (ISDR), International Decade for Natural Disaster Reduction Forum, United Nations General Assembly, Geneva, 1999.
- Resolution No: 57/150, Strengthening the effectiveness and coordination of international urban search and rescue assistance, United Nations General Assembly, 2003.
- Torino Declaration. Resolutions of the First Blue Shield International Meeting, Torino, Italy, 2004.
- Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, World Conference on Disaster Reduction, United Nations, Kobe, Hyogo, 2005.
- Kyoto Declaration 2005 on the Protection of Cultural Properties, Historic Areas and their Settings from Loss in Disasters: Towards the Protection of Cultural Properties and Historic Urban Areas from Disaster, Kyoto International Symposium, Kyoto, 2005.
- Convention Concerning the Protection of the World Cultural and Natural Heritage, the 30th Session of the World Heritage Committee, Vilnius, Lithuania, 2006.
- Declaration on the Impact of Climate Change on Cultural Heritage, International Workshop on Impact of Climate Change on Cultural Heritage, New Delhi (India), 22 May 2007.
- Issues Related to the State of Conservation of World Heritage Properties: Strategy for Reducing Risks from Disasters at World Heritage Properties, Convention

concerning the Protection of the World Cultural and Natural Heritage. World Heritage Committee, Thirty-first Session, Christchurch, New Zealand, 2007.

- Conclusions and the Recommendations of the International Workshop on Disaster Risk Reduction at World Heritage Properties, Olympia, Greece, 2008.
- The Sendai Framework for Disaster Risk Reduction 2015-2030 for World Heritage, United Nations World Conference, Sendai, Japan, 2015.
- INSARAG Guidelines, Volume I: Policy, Volume II: Preparedness and Response, Volume III: Operational Field Guide., United Nations Office for the Coordination of Humanitarian Affairs, OCHA, 2015.

C. Decisions Adopted by The World Heritage Committee Relevant to Risks and Disasters¹³⁶

- 2006, Vilnius. 30 COM 7.2
Issues Related to the State of Conservation of World Heritage Properties:
Strategy for Reducing the Risks from Disasters at World Heritage Properties
- 2007, Christchurch. 31 COM 7.2
Issues Relative to the State of Conservation of World Heritage Properties:
Strategy for Risk Reduction at World Heritage Properties
- 2007, Christchurch. 31 COM 7.1
Issues Relative to the State of Conservation of World Heritage Properties: The
Impacts of Climate Change on World Heritage Properties
- 2009, Seville. 33 COM 7C
General Decision on the State of Conservation of World Heritage Properties
- 2010, Brasil. 34 COM 7.3
Progress Report on the Implementation of the Strategy for Disaster Risk
Reduction at World Heritage Properties
- 2010, Brasil. 34 COM 7C
Reflection on the Trends of the State of Conservation
- 2011, UNESCO. 35 COM 12E
Global State of Conservation Challenges of World Heritage Properties
- 2012, Saint-Petersburg. 36 COM 7C
Reflection on the Trends of the State of Conservation
- 2014, Doha. 38 COM 7
State of Conservation of World Heritage Properties

¹³⁶ (European Commission, 2018)

D. Foundations and Cultural Heritage

Foundation Civilization in General

The first known foundation in Anatolia was established in 1048. Foundations have served as a reflection of Turkish-Islamic culture and civilization. Initially, they emerged as a means of cooperation and solidarity during the Seljuk State. However, during the Ottoman Empire, foundations evolved into a well-structured system that was economically and socially rooted, backed by a solid legal framework. Throughout this period, foundations played a crucial role in various areas, including religion, education, science, culture, arts, health, environmental issues, urbanism, and social services (Öztürk, 1995).

According to Prof. Dr. Fuad Köprülü, foundations directly or indirectly influenced various aspects of society, including economic history, social history, urban history, topography, administration, and religious history. The records of foundations offer a valuable source of information about various social and environmental aspects of daily life during their time. These records can provide insights into urban settlement patterns, the formation of new neighborhoods, the distribution of residences among different artisans, the evolution of commercial activities, income disparities, tax structures, and the development of social and religious institutions (Köprülü, 1942) (Köprülü, 1969).

Foundations, on the other hand, had a unique role in legally transferring a substantial portion of social welfare from the wealthiest segments of society to the most disadvantaged, effectively shifting it from private to social property. In this perspective, Ottoman civilization was described as the “civilization of foundations” (Akgündüz, 1996).

Pious Foundations

In exploring the concept of pious foundations, it is imperative to explore their multifaceted definitions. The term “foundation” is derived from Arabic origins, and

carries nuanced meanings. It signifies actions such as “stopping,” “restraining from movement,” “standing up,” “imprisoning,” and “restraining” (Öztürk, 1983). Within the realm of pious foundations, it takes on a more specific connotation (Günay, 2012).

This allocation comes with a profound religious commitment, signifying the property’s cessation from sale or purchase. It is considered property possessed by God, devoted to the favor of the public and beyond the realm of commercial activities. Another interpretation characterizes a foundation as a legal procedure where an individual dedicates movable or immovable property to religious, charitable, and social purposes, driven by a desire to secure the divine consent of God. Simultaneously, this act signifies an enduring commitment to social and public service incorporating religious devotion and the welfare of society (Figure 59) (Yediyıldız, 1986) (Kunter, 1938).

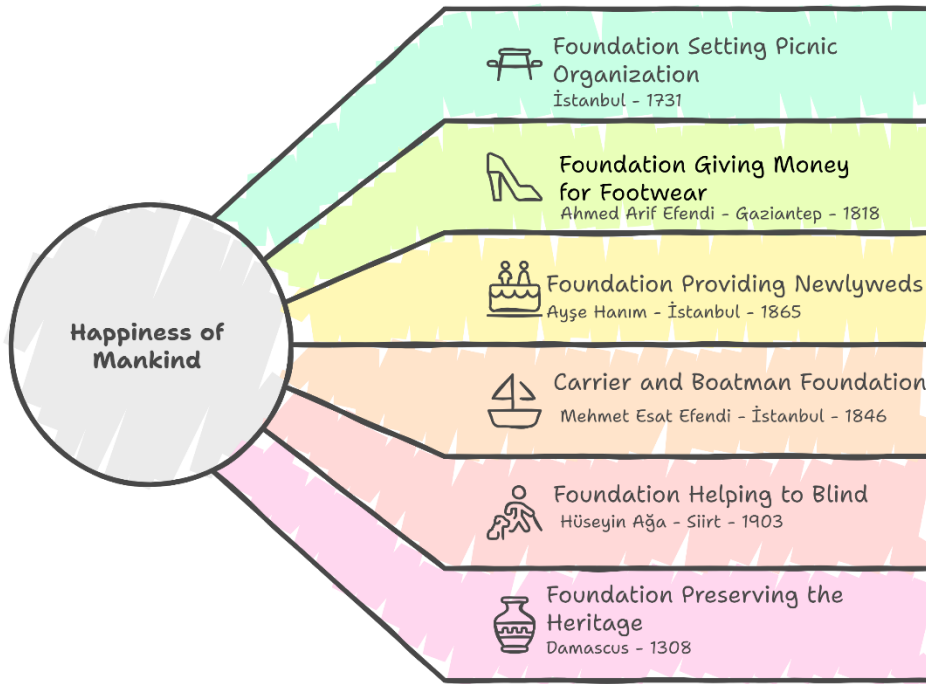


Figure 59. Selected Pious Foundations Dating Back to the Pre-Republican Era¹³⁷

¹³⁷ www.vgm.gov.tr

Foundation According to the Turkish Civil Code

Foundations are legally recognized entities formed when individuals or entities, whether natural or legal, donate their property for specific and enduring purposes. These enduring institutions can be seen as the institutional embodiment of a historical sense of solidarity, symbolizing a commitment to the favor of all of humanity.

Foundations have been managed in various ways throughout their history. The formal establishment of foundations began in 1359, when Orhan Gazi created and endowed mosques, madrasahs, and other institutions in Bursa. This process gained momentum as the number of foundations increased alongside the political and economic growth of the Ottoman state. Consequently, a division of responsibilities for oversight became necessary, with some foundations falling under the authority of the Grand Vizier and others under the Sheikh al-Islam (*şeyhülislam*) in 1506 (Berki A. H., 1940).

Before establishing the Ministry of Foundations in 1826, the governance of foundations was based on the conditions set by their donors. The administrative structure of foundations underwent significant changes during the Ottoman period, and the establishment of the Ministry of Foundations in 1826 marked a new phase. On October 13, 1826, the Ministry of Foundations, initially known as the Ministry of Evkaf-I Hümayun, assumed centralized control over foundations (Hatemi, 1985) (Kahraman, 2006)¹³⁸.

Following the foundation of the Republic of Türkiye, various institutions and practices from the Ottoman era were inherited, including foundations. However, certain alterations in foundation administration were also implemented (Berki A. H., 1962). Initially, in 1920, the Ministry of Religious Affairs and Foundations was established to assume the roles of the Sheikh-ul-Islam and the Ministry of Foundations from the Ottoman period. The Ministry of Religious Affairs and Foundations operated until its abolition on March 3, 1924. Subsequently, the General Directorate of Foundations was established to continue the duties of the foundations, upholding the duties previously overseen by the abolished ministries (Çınar & Koyuncu Kaya, 2015).

¹³⁸ DGF Strategic Plan 2019-2023

Subsequently, on June 5, 1935, the Foundations Law No. 2762 was enacted, introducing pivotal alterations concerning the administration of foundations. The legislation aimed to modernize and streamline foundation governance. Then, on February 20, 2008, the principles outlining the structure and functions of the General Directorate of Foundations were redefined under the Foundations Law No. 5737.

The General Directorate of Foundations underwent further structural adjustments when, on July 15, 2018, it was affiliated with the Ministry of Culture and Tourism through a “Presidential Decree on the Organization of the Associated, Related Institutions and Organizations,” published in the Official Gazette No. 30479¹³⁹.

Directorate-General of Foundations

The administration and conservation of foundation cultural heritage in Türkiye are entrusted to the Directorate General (DGF), operating in accordance with the conditions specified in foundation charters.

Established on March 3, 1924, the Directorate-General of Foundations holds the significance of being Türkiye’s first General Directorate. Operating with self-administered budgetary control, it provides its services through a workforce of 2,397 specialized employees distributed across a central headquarters, two additional offices in Ankara, and 25 district offices. The organization functions independently with a dedicated budget and, unlike most of the public agencies, does not receive financial support from the state budget.

Its top executive body, the Supreme Court (*Vakıflar Meclisi*), guides its operations. The council, the highest decision-making body of the General Directorate, consists of fifteen members. Among them, five are from the top management of the Directorate General, including the General Manager, three Deputy General Managers, and the 1st Degree Legal Advisor (*1. Hukuk Müşaviri*). The next five members are appointed by the President from among higher education graduates with knowledge and experience in foundations. The last five members represent foundations, with three from new

¹³⁹ <https://www.resmigazete.gov.tr/eskiler/2018/07/20180715-1.pdf> - Last visit, 22.03.2021.

foundations, one from annexed foundations (*mülhak vakıf*), and one from non-Muslim foundations (*Cemaat vakfi*).

The Directorate General currently employs a total of 2,397 personnel. This includes 550 technical staff members and 683 workers. The Agency demonstrates strong financial, human, and technical capabilities in cultural heritage conservation, with annual restoration expenditures ranging from 60 to 70 million euros¹⁴⁰.

Categories of Foundations According to Foundations Law

The Directorate General conducts all its administrative activities in accordance with the “Foundations Law” numbered 5737. This law defines the types of foundations that the Directorate General administers and supervises (Figure 60).

No	Name	Number of Foundations
1	Fused Foundations (<i>Mazbut Vakıfları</i>)	41.720
2	Annexed (<i>Mülhak Vakıf</i>) and Tradesmen Foundations (<i>Esnaf Vakfi</i>)	248
3	Non-Muslim (Community) Foundations (<i>Cemaat Vakıfları</i>)	167
4	New Foundations (<i>Yeni Vakıflar</i>)	6.094

Figure 60. Type of Foundations According to the Foundations Law

Fused Foundations (*Mazbut Vakıflar*)

Fused foundations, despite having distinct legal personalities, are directly administered and represented by the Directorate General of Foundations since the early days of the Republic. The General Directorate serves as the sole representative of these foundations' legal personalities as a collective entity. In the Republican era, a foundation is classified as a "fused foundation" if it meets one of the conditions outlined in Figure 61 (Öztürk, 1983) (Berki Ş. , 1971).

¹⁴⁰ 2023 Activity Report of the Directorate General - <https://www.vgm.gov.tr/kurumsal/planprogram-ve-raporlar/faaliyet-raporlari> - Last visit, 22.03.2024

Conditions for declaring «Fused Foundation»
• Foundations proven to be Old Dynasty foundations
• Foundations whose trustees have been extinct
• Foundations whose administrative and supervisory bodies are not specified in the foundation deed
• Foundations built with a death-related disposition, but in which trustee is not appointed

Figure 61. Conditions for Registration as A Fused Foundation¹⁴¹

Annexed Foundations (*Mülhak Vakıflar*)

Annexed foundations are those managed by their trustees under the oversight of the General Directorate of Foundations. Unlike fused foundations, annexed foundations retain their distinct status, origin, and personality, and they are administered by their trustees. However, these foundations remain subject to periodic inspections by the state, as authorized by the law (Öztürk, 1983). Currently, 248 annexed foundations are under the management of their respective trustees in Türkiye.

Community Foundations (*Azınlık / Cemaat Vakıfları*)

Community foundations (*Azınlık / Cemaat Vakıfları*) are essentially charitable organizations founded by non-Muslim Turkish citizens in the pre-Republican period. In 1936, all non-Muslim charitable organizations were registered under the collective title of "community foundations" in the central registration records of the Directorate-General of Foundations. Presently, 167 community foundations are managed by their trustees in Türkiye ¹⁴².

¹⁴¹ www.vgm.gov.tr

¹⁴² <https://www.vgm.gov.tr/foundations-in-Türkiye/foundations-in-Türkiye/cemaat-community-foundations> - Last visit: December 21st, 2020.

New Foundations (*Yeni Vakıflar*)

New foundations were established during the Republican era and require independent court approval. The Directorate General of Foundations supervises and periodically audits their income and expenditures to ensure compliance with the foundation deed. This oversight ensures that the rules outlined in the foundation deed are adhered to and that foundation assets are used in alignment with their intended purpose. Currently, there are 6.094 new foundations managed by their executive boards in Türkiye¹⁴³.

Relation of Foundations with Foundation Cultural Heritage

From an economic perspective, foundations represent a legal framework based on the voluntary sharing of assets earned through individual labor and initiative. Within Islamic Law, the concept of continuity is integral to foundations. To fulfill their charitable services, foundations must possess a stable income source derived from movable and immovable properties. Movable assets are the items that can be readily transported, with money serving as a prime example. In contrast, real estate includes immovable properties like land, vineyards, gardens, houses, and commercial units. In the context of Islamic Law, the continuity of a foundation, considered a fundamental requirement, is best achieved when the endowed asset is real estate, ensuring a consistent income stream (*akar*)¹⁴⁴ (Öztürk, 1983).

Charitable foundations that directly provide public services are referred to as "*hayrat*" or charities in the context of foundation law. These charitable organizations can be divided into two main categories. The first category focuses on services that benefit the general welfare of society. This includes structures such as libraries, guest houses (*misafirhane*), public fountains, bridges, and cemeteries. The second category is

¹⁴³ December 2020

¹⁴⁴ Real estate (*Akâr*): *It is a property that cannot be transferred to another place such as buildings, land, vineyards and gardens. This kind of property is called real estate. A real estate is basically considered as landed property. The fact that buildings and trees are included to the property is because they are an integral part of the real estate. The word "akar" is used among people for real estate that generates rental income.*

<https://www.vgm.gov.tr/kurumsal/tarihce/vakif-deyimleri-ve-terimleri-sozlugu> - Last seen December 18th, 2020.

dedicated to services specifically aimed at helping those in need. This often involves facilities such as soup kitchens (*imaret*) and hospitals (Günay, 2012) (Berki Ş. , 1969).

These charitable institutions encompass an array of structures found throughout various parts of the Islamic world, including masjids, mosques, schools, madrasahs, imarets, dervish lodges, khankahs, libraries, guesthouses, hospitals, fountains, baths, cemeteries, roads, bridges, and caravanserais, often referred to as "*hayrat*" (charities) due to the services they offer (Yediyıldız, 1981-1982).

To ensure the continued services of charitable institutions, foundations often endow both movable and immovable properties that generate income. These income-generating properties have traditionally been the foundation for maintaining ongoing public service (Yediyıldız, 2012).

Cultural Heritage Conservation Approach in Türkiye

The cultural heritage conservation approach in Türkiye depends on a multi-layered system involving various government agencies, institutions, and legal frameworks. The conservation of cultural heritage in Türkiye adheres to internationally recognized scientific conservation principles. First, the Turkish Constitution mandates the state's responsibility for preserving cultural heritage in its 63rd Article. Furthermore, the Ministry of Culture and Tourism (MoCT) serves as the sole authorized body in Türkiye responsible for coordinating cultural heritage conservation activities, including protection, conservation, and restoration processes. The MoCT establishes the criteria for restoration efforts in the country. It also manages the identification and registration of immovable cultural properties and maintains comprehensive inventories.

The legal framework is primarily outlined in Law No. 2863, defining cultural heritage, establishing protection mechanisms, and assigning responsibilities to various entities. The definition of immovable cultural properties subject to protection is articulated in Article 6 of the Law. According to this Article, immovable cultural property includes an extensive array of historically significant elements, ranging from archaeological sites, castles, and historic structures like bridges and aqueducts to religious sites such as mosques, churches, and synagogues. The law encompasses a wide spectrum of cultural and historical assets that hold profound significance (Law No: 2863, 1983).

“Rock-cut tombs, stones with inscription, painting, and relief, cave paintings, mounds (höyük), tumuli, archaeological sites, acropolis and necropolis, castle, fortress, tower, wall, historic barrack, bastion and fortification with their fixed weaponry, ruins, caravanserai, khan, public bath and madrasah, cupola, tomb and tablets, bridges, aqueducts, waterways, cisterns and wells, ancient road ruins, stones indicating distance, stones with holes delineating ancient borders, obelisks, altars, shipyards, quays, ancient palaces, pavilions, dwellings, waterside residences and mansions, mosques, masjids, musallahs, namazgahs, fountains and sebils, imarethane (communal kitchen), mint, şifahane (hospital), muvakkithane (room for the mosque timekeeper), simkeşhane (silver shop), tekke (dervish lodge) and zaviyahs, cemeteries, hazire (graveyard), arasta, bedesten, bazaar, sarcophagi, stelae, synagogue, basilica, church, monasteries, külliye (complex of buildings adjacent to a mosque), ancient monuments and mural ruins, frescoes, reliefs, mosaics, chimney rocks a.s. are examples of immovable cultural property.”

Furthermore, the legislation outlines criteria for the establishment and advancement of museums, with an emphasis on maintaining their relevance. It addresses the documentation, registration, inventory, and storage of artifacts to be displayed in these museums, along with the qualifications of museum staff.

The law initially designates authorized bodies and organizations responsible for conducting conservation activities. Regardless of ownership or administrative control, the Ministry of Culture and Tourism (MoCT) holds the authority to implement necessary measures to protect immovable cultural and natural heritage. Moreover, a range of actors and entities, including the Presidency of the Turkish Grand National Assembly (*TBMM*), the Ministry of National Defense, the Directorate General of Foundations, municipalities, governorships, universities, public institutions, provincial administrations, various non-governmental organizations, international bodies, immovable cultural property owners, and sponsors are recognized as key stakeholders in the conservation efforts. The Law further defines the roles of various authorities affiliated to the MoCT, including the Superior Conservation Council, the Regional Conservation Boards, and the specialized bureaus like KUDEB (Figure 62).

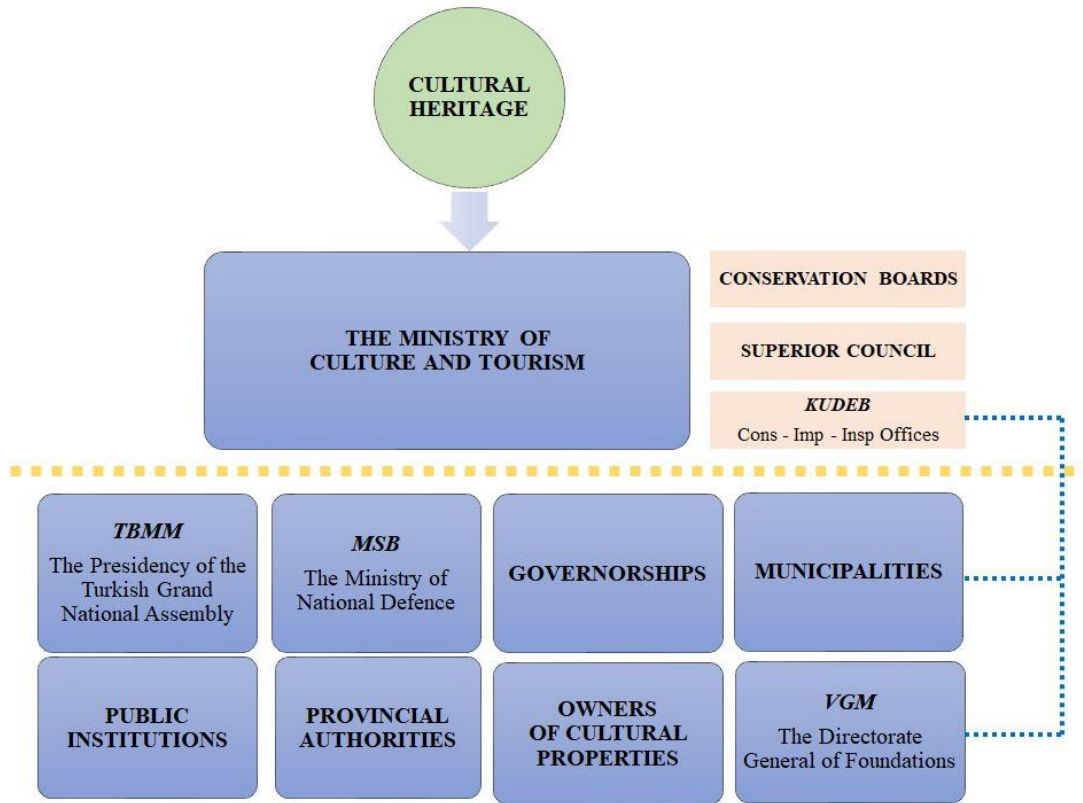


Figure 62. Actors in Cultural Heritage Conservation

Current Approach for Foundation Cultural Heritage Conservation

The identification, registration, survey, restitution, and restoration of foundation cultural properties in Türkiye are primarily governed by Law No. 2863, titled "The Protection of Cultural and Natural Assets" (Law No: 2863, 1983). Additionally, Law No. 5737, known as the 'Law of Foundations,' contains provisions related to the conservation of both movable and immovable foundation cultural properties, covering aspects of registration, conservation, and restoration efforts (Law No: 5737, 2008).

The provisions for safeguarding foundation cultural property are specified in the DGF's legislation titled "Procedures and Principles Regarding the Repairs, Restorations, and Environmental Designs of Foundation Cultural Property and Procurement of Goods and Services"¹⁴⁵. This legal framework outlines the specific procedures and principles governing the procurement of goods and services related to

¹⁴⁵ "Vakıf Kültür Varlıklarının Onarımları ve Restorasyonları ile Çevre Düzenlemesine İlişkin Mal ve Hizmet Alımlarına Dair Usul ve Esaslar" Date of President Decision: 30/10/2018 No: 263. Date of Official Gazette Published: 31/10/2018 Number: 30581

the restoration, conservation, and landscaping of foundation cultural property¹⁴⁶. These guidelines encompass a wide range of activities, including surveys, restitution, restoration, landscaping, and structural reinforcement projects, as well as their practical implementation. Moreover, they dictate the tendering processes for conservation, archaeological excavation, conservation, and procurement of associated goods and services¹⁴⁷.

Initially, conservation projects undergo a thorough examination by the General Directorate of Foundations (DGF), which owns the property, before being submitted to the Conservation Board for final authorization (Figure 63).

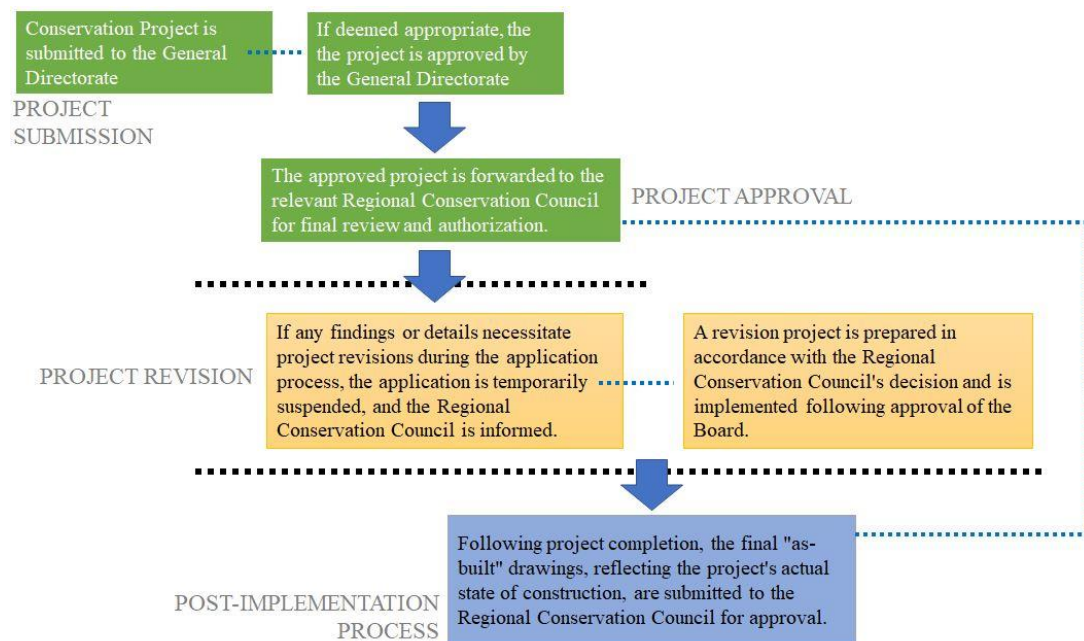


Figure 63. Conservation Project Preparation and Approval Phases in Turkish System

The conservation project must be prepared and presented to the Conservation Board for approval to initiate any intervention on a registered cultural property. Interventions are carried out in strict accordance with the approved project. In cases where new evidence emerges during on-site implementation, intervention is temporarily halted, and the project is modified as per the directive of the Conservation Board. Upon the

¹⁴⁶ Article 1 – (Procedures and Principles Regarding the Repairs, Restorations and Environmental Designs of Foundation Cultural Property and Procurement of Goods and Services)

¹⁴⁷ Article 2 – (Procedures and Principles Regarding the Repairs, Restorations and Environmental Designs of Foundation Cultural Property and Procurement of Goods and Services)

successful completion of all interventions, the final projects, commonly referred to as "as-built projects," are presented to the Conservation Board for review and acceptance.

E. Identification of Concepts and Issues Based on Sources

The thesis constructs the institutional components of disaster management based on terminology and concepts drawn from 26 fundamental sources. These sources are presented chronologically and summarized in tables corresponding to each source. It is important to note that the content detailed in the tables does not include all the concepts from the sources but only those that are directly relevant to the subject of the thesis.

The 22nd Session of the General Conference, which occurred in Paris in 1983, focused on cultural heritage conservation. Specifically, the session discussed the desirability of adopting an international instrument for protecting cultural heritage against natural disasters and their consequences. The session's final report addressed this issue by outlining three phases: long-term measures, emergency measures, and post-emergency measures (UNESCO, 1983). In the document, the content of long-term measures includes various aspects such as technical aspects, legal aspects, financial aspects, and administrative-organizational aspects. The document emphasizes the importance of developing disaster plans at different levels (national, regional, local, and institutional) to protect cultural property during a natural disaster. It also highlights the need to define the roles and responsibilities of different bodies involved in disaster management and stresses the significance of coordination with related parties as key components of the legal aspects. Furthermore, the significance of international cooperation is highlighted in different contexts, including establishing disaster warning systems and safeguarding cultural heritage. To summarize, the source discusses various concepts, including technical aspects, legal aspects, financial aspects, administrative and organizational aspects, long-term measures, emergency measures, post-emergency measures, and international cooperation (Table 32).

Table 32. Concepts, Terms and Issues Based on the Source (1) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(1)	(1983) Unesco General Conference, Paris	<ul style="list-style-type: none"> - long-term measures, - emergency measures - post-emergency measures - technical aspects, - legal aspects, - financial aspects, - administrative-organizational aspects - disaster plans - levels (national, regional, local, and institutional) - the need to define the roles and responsibilities - coordination with related parties - 'International cooperation'

Feilden's book, titled 'Between Two Earthquakes,' published in 1987, primarily focuses on the conservation of cultural property in earthquake-prone areas (Feilden, 1987). It covers a wide range of concepts that have been reconsidered in the thesis. The book emphasizes three phases: pre-disaster, emergency response, and post-earthquake. In the pre-disaster phase, two types of actions are proposed: administrative and technical. Administrative actions include documentation, such as inventories, photographs, and records of cultural heritage. It also emphasizes the importance of public awareness, education, and training on historic buildings and establishing a rescue team for cultural heritage protection. Technical actions involve vulnerability and hazard studies, introducing concepts like Disaster Plans, Emergency Plans, and Safety Plans. During a disaster, the book highlights the need for safety measures to prevent looting and protect cultural property. It also emphasizes the importance of damage assessment and recording studies. In the post-disaster phase, the book suggests the formation of multidisciplinary teams with specialized personnel and focuses on restoration, repairs, and maintenance. Overall, the source discusses the role of cultural institutions and the establishment of policies and concepts related to hazards, vulnerability, and risk (Table 33).

Table 33. Concepts, Terms and Issues Based on the Source (2) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(2)	(1987) Feilden; Between Two Earthquakes	<ul style="list-style-type: none"> - three phases: pre-disaster, emergency response, and post-earthquake - administrative and technical aspects - documentation, inventories, photographs, and records of cultural heritage - public awareness - education and training on historic buildings - establishment of a rescue team for cultural heritage protection (multidisciplinary teams) - Disaster Plan, Emergency Plan, and Safety Plan - safety measures to prevent looting and protect cultural property - damage assessment and recording - restoration, repairs, and maintenance - establishment of policies

The United Nations General Assembly's Session No. 44/236, titled "International Framework for Action for the International Decade for Natural Disaster Reduction," was adopted in 1989. This Resolution designated the ten-year period from 1990 to 1999 as the "International Decade for Natural Disaster Reduction." The Resolution encompasses several significant concepts and terms related to disaster reduction, emphasizing prevention and mitigation of the impacts of natural disasters (United Nations General Assembly, 1989). It highlights the importance of disaster relief, preparedness, and prevention measures, along with the need for public awareness regarding disaster risks. Political commitment and international cooperation are identified as crucial factors, stressing the coordination among respective parties involved in disaster management. The role of institutions in disaster reduction and capacity improvement is acknowledged in the Resolution. Emergency planning for natural disasters is emphasized, alongside the integration of Disaster Management into national development plans. The dissemination of knowledge and information exchange in the field is encouraged to foster better disaster preparedness and response. Insurance policies for disaster prevention are mentioned as essential, and establishing scientific and technical committees is proposed to enhance disaster resilience. The Resolution also considers short-term recovery activities and the provision of emergency supplies in disaster-prone areas. Moreover, it underlines the significance

of damage risk assessment in better understanding and addressing disaster impacts (Table 34).

Table 34. Concepts, Terms and Issues Based on the Source (3) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(3)	(1989) The United Nations General Assembly's Session No. 44/236	<ul style="list-style-type: none"> - preparedness, and prevention measures - public awareness - Political commitment - international cooperation - coordination among respective parties - capacity improvement - Emergency planning - dissemination of knowledge and information exchange - Insurance policies - the establishment of scientific and technical committees - short-term recovery - emergency supplies in disaster-prone areas - damage risk assessment - integration of Disaster Management into national development plans

Recommendation No. R (93) 9 of the Committee of Ministers to Member States on the Protection of the Architectural Heritage against Natural Disasters in 1993 addresses several key aspects of safeguarding architectural heritage from natural disasters (Council of Europe, 1993). These include establishing a legal and administrative framework for disaster protection, implementing financial and insurance measures, providing education and training, conducting risk assessments, developing disaster prevention and mitigation strategies, implementing organizational measures, adopting preventive measures, and implementing technical and practical measures (Table 35).

Table 35. Concepts, Terms and Issues Based on the Source (4) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(4)	(1993) Council of Europe, Recommendation no. R (93) 9	<ul style="list-style-type: none"> - a legal and administrative framework - organizational measures - financial and insurance measures - education and training - preventive measures - implementing technical and practical measures

The guideline titled "Yokohama Strategy and Plan of Action for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness, and Mitigation," presented at the World Conference on Natural Disaster Reduction and published in 1994, proposes a comprehensive approach to disaster management at different levels, including international, national, and regional-local (United Nations, 1994). The guideline identifies four key elements, disaster prevention, mitigation, preparedness, and relief, which are crucial for sustainable development. It emphasizes raising awareness about the benefits of disaster reduction and adopting integrated policies for prevention, preparedness, and response to natural disasters. Developing integrated disaster management and addressing complex emergencies are key points of focus. Cooperation and coordination among different levels, from regional to international, are underscored as essential for effective disaster management. The guideline promotes the transfer of technology, exchange of information, and dissemination of lessons learned among countries. It also encourages allocating and mobilizing financial resources to support disaster risk reduction efforts. The utilization of data and the education and training of personnel are highlighted as integral components in developing and strengthening institutional capacity building. The importance of creating a robust organizational framework is also emphasized. Encouragement is given to develop emergency and disaster risk management plans and to actively engage the community in disaster preparedness and response. The guideline stresses the significance of accurately perceiving and assessing risks and identifying vulnerabilities. Scientific studies, with contributions from universities, organizations, and institutions, are encouraged to support disaster risk reduction efforts. Moreover, effective legislation and administrative action in implementing disaster risk reduction policies and measures are mentioned, with recognition of traditional knowledge, practices, and values (Table 36).

Table 36. Concepts, Terms and Issues Based on the Source (5) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(5)	(1994) Yokohama Strategy and Plan of Action for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness, and Mitigation	<ul style="list-style-type: none"> - levels grading international, national, and regional-local - disaster prevention, mitigation, preparedness, and relief - awareness - adoption of policies - prevention, preparedness, and response - Cooperation and coordination - transfer of technology, - exchange of information, - dissemination of lessons learned - financial resources - education and training of personnel - strengthening institutional capacity - disaster risk management plans - risk assessment and vulnerability identification - recognition of traditional knowledge, practices, and values - community involvement - Scientific studies, with contributions from universities, organizations, and institutions

The Inter-Agency Task Force, established in 1996, includes organizations such as ICCROM, UNESCO, ICOMOS, ICOM, and others (ICBS, 2012)¹⁴⁸. The task force has directed its efforts towards five main areas of focus: funding, emergency response, training and guidelines, documentation, and awareness (Table 37).

Table 37. Concepts, Terms and Issues Based on the Source (6) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(6)	(1996) Inter-Agency Task Force	<ul style="list-style-type: none"> - funding, - emergency response, - training and guidelines, - documentation, - awareness

¹⁴⁸ Inter-Agency Task Force, 1996., Draft Heads of Agreement, International Committee of the Blue Shield (ices), Paris.

The First National Summit on Heritage and Risk Preparedness in Canada, which took place at the Musée de la Civilisation in Québec on September 16-17, 1996, established objectives in three key areas: increasing awareness, promoting collaboration, and enhancing local capacity (ICOMOS Canada, 1996) (Table 38).

Table 38. Concepts, Terms and Issues Based on the Source (7) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(7)	(1996) The First National Summit on Heritage and Risk Preparedness, Quebec, Canada	<ul style="list-style-type: none"> - increasing awareness, - promoting collaboration, - enhancing local capacity

The Blue Shield Seminar on the Protection of Cultural Heritage in Emergencies and Exceptional Situations, held in Radenci, Slovenia, from November 12 to 16, 1998, aimed to enhance the protection of cultural heritage during emergencies (ICBS, 1998). The seminar proposed measures to prevent loss or damage to cultural heritage by improving prevention, preparedness, response, and recovery efforts. The objective was pursued through the development, implementation, and monitoring of various stages, including risk assessment, enhancement of response capacity, and fostering cooperation among stakeholders (Table 39).

Table 39. Concepts, Terms and Issues Based on the Source (8) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(8)	(1998) The Blue Shield Seminar on the “Protection of Cultural Heritage in Emergencies and Exceptional Situations”, in Radenci, Slovenia.	<ul style="list-style-type: none"> - prevention, - preparedness, - response, - recovery - risk assessment, - response capacity, - cooperation among stakeholders

Stovel's book, written in 1998 and titled "Risk Preparedness: A Management Manual for World Cultural Heritage," is a practical and comprehensive guide for managing cultural heritage in the face of various threats (Stovel, 1998). It introduces the concept of risk preparedness and provides strategies for developing preparedness, response, and recovery measures to safeguard cultural heritage. The book emphasizes the importance of developing risk preparedness, disaster, and emergency response plans at the local, regional, and national levels. The content of the disaster planning section includes creating awareness, conducting risk assessment studies, analyzing risks, and undertaking documentation efforts such as inventories and survey drawings of properties. It also stresses the need to strengthen collaboration among heritage professionals, communicate with emergency agencies, and collaborate with relevant parties such as the Ministries of Culture, Defense, Planning, and Transport at each level. The book highlights the establishment of conservation and emergency teams, the capacity building of emergency officials, the training of professionals and staff, and the improvement of training materials and equipment. It covers concepts like relocation, storage, protection conditions, and emergency maintenance of evacuated objects. The book suggests organizing symposia at different levels, forming working groups, establishing information exchange networks, securing funding, and developing databases after a disaster. Lastly, the book introduces the "Emergency Response and Salvage Wheel" as a guiding tool for cultural institutions, providing step-by-step guidance in the first 48 hours following an emergency. The wheel encompasses documentation, retrieval, protection, damage assessment, salvage, safety and security, and stabilizing measures (Table 40).

Table 40. Concepts, Terms and Issues Based on the Source (9) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(9)	(1998) Stovel; "Risk Preparedness: A Management Manual for World Cultural Heritage"	<ul style="list-style-type: none"> - preparedness, response, and recovery measures - Risk Preparedness Plans, Disaster Plans, and Emergency Response Plans - levels grading local, regional, and national - awareness, - risk assessment, - damage assessment - analyzing risks, - documentation, - inventories and survey drawings - collaboration among heritage professionals, - communication with emergency agencies, - establishment of conservation and emergency teams, - capacity building, - training of professionals and staff, - materials and equipment - retrieval, salvage, relocation, storage, and protection - emergency maintenance of evacuated objects - organization of symposia at different levels, - establishment of working groups, - establishing information exchange networks, - funding, - development of databases after a disaster. - protection, safety and security, - stabilization measures

The International Strategy for Disaster Reduction (ISDR) was formally adopted during the 1999 IDNDR Programme Forum, which took place in July 1999 in Geneva (United Nations General Assembly, 1999). It was subsequently ratified by the United Nations' Economic and Social Council (ECOSOC) and General Assembly during the second meeting of its Commission on Sustainable Development. The resource primarily addresses crucial technical measures and traditional practices aimed at disaster prevention. Additionally, the paper discusses cultural heritage's hazards, risks, and vulnerabilities within the context of disaster prevention. It highlights the concept of resilience as a key factor in preserving cultural heritage in the face of disasters. The ISDR advocates for increasing public awareness and commitment to the issue, emphasizing involvement and funding allocation by public authorities. The strategy promotes partnerships and encourages public participation to enhance disaster resilience. Research stimulation and expanding knowledge are underscored to improve

disaster prevention strategies. The resource investigates various aspects, such as capacity building, risk assessment, integration with development plans, and monitoring of risks, including land-use planning and programs in hazard-prone environments. Furthermore, the ISDR focuses on developing comprehensive education and training programs involving all relevant stakeholders. It highlights the importance of establishing standards and methodologies for the analysis of disasters to better inform preparedness and response efforts (Table 41).

Table 41. Concepts, Terms and Issues Based on the Source (10) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(10)	(1999) The International Strategy for Disaster Reduction (ISDR), Geneva	<ul style="list-style-type: none"> - technical measures, - traditional practices aimed at disaster prevention - hazards, risks, and vulnerabilities of cultural heritage - resilience - public awareness and commitment - funding - partnerships - public participation - capacity building, - risk assessment, - integration of disaster management with development plans, - monitoring of risks, - land-use planning and programs in hazard-prone environments. - education and training programs

The book "Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions", written in 1999, primarily discusses the concepts of emergency preparedness and response from an organizational perspective (Dorge V. J., 1999). It provides a detailed explanation of the roles and responsibilities of personnel involved, with a specific focus on cultural heritage directors and heritage conservation teams across different departments. The book emphasizes the importance of setting policies and allocating budgets for emergency preparedness. It suggests the establishment of committees to implement emergency measures within the organization. The definitions of prevention, preparedness, response, and recovery, as well as discussions on hazards, vulnerabilities, and risks, are included. Additionally, the book covers the development of an emergency plan and response plan, as well as the necessary

components and requirements of these plans. It highlights identifying stakeholders and encourages networking with experts and local communities. Topics such as salvage, stabilization, evacuation, and relocation of objects and people are addressed. The book also includes sections on damage assessment, inventories, and priority setting for collections. Training of personnel and equipment needs and supplies are discussed, and standard forms such as relocation, special equipment, and hazardous materials forms are mentioned. Key maps, such as maps of collections, are also referenced (Table 42).

Table 42. Concepts, Terms and Issues Based on the Source (11) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(11)	(1999) Getty Conservation Institute; "Building an Emergency Plan: A Guide for Museums and Other Cultural Institutions"	<ul style="list-style-type: none"> - Emergency Preparedness and Response - heritage conservation teams - policy setting - budget allocation - establishment of committees - roles and responsibilities of personnel - prevention, preparedness, response, and recovery - hazards, vulnerabilities, and risks - development of an emergency plan, response plan - identification of stakeholders - local communities - salvage, stabilization, evacuation, and relocation of objects - damage assessment, - inventories, - priority setting, - training of personnel, - equipment needs and supplies, - standard forms, - Key maps (Map of valuable architectural elements)

The paper written by Moore in 2003 titled "The Public Value Scorecard: A Rejoinder and an Alternative to 'Strategic Performance Measurement and Management in Non-Profit Organizations'" introduces a tool called the Public Value Scorecard (Moore, 2003). This tool incorporates various measures that assess an organization's mission, the benefits it provides to clients, the outcomes it achieves, its legitimacy and support, non-financial value, and its productive capabilities for achieving results. The scorecard consists of three components: expanding support and authorization, creating public value, and building operational capacity (Table 43).

Table 43. Concepts, Terms and Issues Based on the Source (12) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(12)	(2003) Moore; The Public Value Scorecard: A Rejoinder and an Alternative to 'Strategic Performance Measurement and Management in Non-Profit Organizations	<ul style="list-style-type: none"> - Proposal of a tool called the Public Value Scorecard - legitimacy and support, - authorization, - operational capacity

One of the most recent and significant global policy text on risk reduction was adopted at the UN World Conference on Disaster Reduction (WCDR), held in Kobe, Hyogo, Japan in 2005 (United Nations, 2005). This conference commemorated the tenth anniversary of the devastating earthquake that struck the region in January 1995. The conference took place eleven years after the adoption of the seminal Yokohama Strategy in 1994 and five years after the conclusion of the UN International Decade for Natural Disaster Reduction (IDNDR) in 1999. As a result of the conference, a pivotal document known as the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (HFA) was approved. The HFA encompasses various concepts and terms related to disaster prevention. These concepts include establishing policies to increase public awareness, developing policy, legislative, and institutional frameworks, and creating disaster risk management policies, programs, laws, and regulations. The framework also emphasizes the importance of developing methodologies and standards for assessing and monitoring risks and hazards and implementing disaster prevention, mitigation, preparedness, and vulnerability reduction measures. Furthermore, the HFA emphasizes the identification, assessment, and monitoring of disaster risks and stresses governments' need for strong political determination. It advocates for reducing vulnerabilities and risks to hazards and building a culture of resilience through knowledge, innovation, and education. The framework highlights the significance of enhancing local and national capacities for building resilience, strengthening institutions, mechanisms, and capacities, and promoting education and training programs for disaster preparedness. In addition, the HFA emphasizes the implementation of emergency preparedness, response, and recovery programs to increase disaster response capacities. It underscores the importance of developing capacity building plans and integrating disaster risk

reduction efforts into policies, plans, and programs at various levels, including bilateral, regional, and international cooperation and partnerships. The framework emphasizes the need to strengthen networks among experts, managers, and planners and take systematic action to address disaster risks in sustainable development. Moreover, the HFA advocates for allocating budgets, disseminating research findings and lessons learned with best practice examples, and exchanging knowledge, technology, and expertise. It also underscores the importance of post-disaster relief, rehabilitation, and reconstruction to enhance community resilience. The framework promotes the decentralization of responsibilities from central authorities and encourages the strengthening of regional and local institutional capacity, with the active involvement of the community. Finally, the HFA promotes the development of inventories and user-friendly directories, along with creating a matrix of roles of initiatives and partners to facilitate better land-use planning (Table 44).

Table 44. Concepts, Terms and Issues Based on the Source (13) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(13)	(2005) UN World Conference on Disaster Reduction: Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (HFA)	<ul style="list-style-type: none"> - establishment of policies - public awareness, - policy, legislative, and institutional frameworks, - programs, laws, and regulations, - disaster prevention, mitigation, and preparedness, - vulnerability - identification, assessment, and monitoring of disaster risks, - political determination, - building a culture of resilience - local and national capacities, - education and training programs, - integrating disaster risk reduction efforts into policies, plans, and programs, - land-use planning - cooperation and partnerships, - networks among experts, - allocation of budgets, - dissemination of research findings and lessons learned with best practice examples, - exchange of knowledge, technology, and expertise, - post-disaster relief, rehabilitation, and reconstruction, - decentralization of responsibilities from central authorities, - community involvement, - roles of initiatives and partners

The Kyoto Declaration, adopted at the Kyoto International Symposium in 2005, focuses on protecting cultural properties, historic areas, and their settings from loss in disasters (Kyoto International Symposium, 2005). The declaration puts forward a policy for disaster prevention of cultural properties and emphasizes the importance of taking appropriate legislative, scientific, technical, administrative, and financial measures. It also stresses the integration of the protection of cultural heritage into national comprehensive planning programs. Furthermore, the declaration highlights the value of drawing on past wisdom and experiences in disaster prevention and emphasizes the need for coordinated action and collaboration among stakeholders (Jigyasu R. M., 2005) (Table 45).

Table 45. Concepts, Terms and Issues Based on the Source (14) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(14)	(2005) The Kyoto Declaration: Kyoto International Symposium	<ul style="list-style-type: none"> - policy for disaster prevention of cultural properties, - legislative, scientific, technical, administrative, and financial measures, - integration of the protection of cultural heritage into national planning programs, - incorporating past wisdom and experiences into disaster prevention, - coordinated action, - collaboration among stakeholders

The Thirtieth Session of the World Heritage Committee, held in Vilnius, Lithuania, in July 2006, focused on several important aspects related to the protection of cultural and natural heritage (UNESCO, 2006). These included the development of site management plans and training strategies to enhance risk preparedness, the preparation of operational guidelines, and being prepared for effective response and recovery in the face of disasters. Additionally, the session emphasized the significance of risk identification, assessment, monitoring, and early warning systems in safeguarding cultural and natural heritage sites. Furthermore, the discussions revolved around the governance aspects of heritage conservation, including establishing organizational, legal, and policy frameworks to ensure effective protection and management (Table 46).

Table 46. Concepts, Terms and Issues Based on the Source (15) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(15)	(2006) The 30 th Session of the World Heritage Committee, held in Vilnius, Lithuania	<ul style="list-style-type: none"> - site management plans, - training, - operational guidelines, - effective response and recovery - identification, assessment and monitoring of risks, - establishment of organizational, legal, and policy frameworks

The book "Heritage at Risk Special Edition, 2007" primarily focuses on risk management and its role in prevention (ICOMOS, 2008). Risk management is explored, along with the related concepts of risk assessment, risk policy, and insurance. The book provides a definition of the term "risk" and looks at natural disasters, emphasizing the application of technical protective measures and the post-disaster reconstruction of cultural heritage. The publication includes various successful projects as examples of best practices in the field. Several stages are outlined, including the implementation of technical measures such as debris removal, security and stabilization, as well as inventories and documentation, establishing material laboratories, collaborating with experts and universities, organizing conferences and workshops, creating documentary films, printing and publishing scientific papers and reports, promoting interdisciplinary cooperation, raising public awareness, developing short-term and long-term planning, ensuring funding, monitoring, establishing visitor pathways within affected sites, training response teams, procuring equipment and supplies, and potentially inscribing the city on the 'List of World Heritage in Danger' (Table 47).

Table 47. Concepts, Terms and Issues Based on the Source (16) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(16)	(2007) Heritage at Risk Special Edition, 2007	<ul style="list-style-type: none"> - risk policy, risk management and risk assessment, - insurance, - definition of "risk" - technical protective measures, - post-disaster reconstruction, - best practices, - debris removal, - security and stabilization, - inventories and documentation, - establishment of material laboratories, - collaboration with experts and universities, - conference and workshop organization, - creation of documentary films, publishing scientific papers and reports, - interdisciplinary cooperation, - public awareness, - short-term and long-term planning, - funding, - monitoring, - establishment of visitor pathways within affected sites, - response team training, - Procurement of equipment and supplies, - inscribing the city on the 'List of World Heritage in Danger

Letellier's book, "Recording, Documentation and Information Management for the Conservation of Heritage Places," written in 2007, explores heritage information with a specific focus on recording practices (Letellier, 2007). The author provides clear definitions for documentation and recording, distinguishing between the responsibilities of conservation experts and heritage recorders. It is mentioned that conservation experts employ technical approaches such as research inventories, conservation planning, project management, and maintenance and monitoring, while heritage recorders utilize various tools and technologies, including photography, photogrammetry, surveying, GPS, GIS, 3D-laser scanning, and 3D modeling. The book recognizes the complementary nature of the documentation and projects undertaken by heritage recorders and conservation professionals as they fulfill their respective roles. It emphasizes that heritage information encompasses the integrated activities of recording, documentation, and information management (Table 48).

Table 48. Concepts, Terms and Issues Based on the Source (17) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(17)	(2007) Letellier; Recording, Documentation and Information Management for the Conservation of Heritage Places	<ul style="list-style-type: none"> - heritage information, - documentation and recording, - conservation experts, - heritage recorders, - inventories, - conservation planning, - maintenance and monitoring, - photography, - photogrammetry, - surveying, - GPS, GIS, 3D-laser scanning, and 3D modelling

The Ph.D. dissertation titled "The Role of Vakıf Institution in the Conservation of Vakıf-Based Cultural Heritage," written by Akar in 2009, explores various aspects of pious foundations and their connection to foundation-based cultural heritage (Akar, 2009). The dissertation offers a comprehensive definition of pious foundations and sheds light on the significance of these foundations in preserving cultural heritage. It specifically addresses the legal, administrative, and financial dimensions of foundations, emphasizing their role in the conservation and protection of cultural heritage associated with these institutions (Table 49).

Table 49. Concepts, Terms and Issues Based on the Source (18) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(18)	(2009) Akar; The Role of Vakıf Institution in the Conservation of Vakıf-Based Cultural Heritage	<ul style="list-style-type: none"> - pious foundations - establishment of foundation-based cultural heritage, - legal, administrative, and financial dimensions of foundations,

The guideline titled "Managing Disaster Risks for World Heritage," published by ICCROM in 2010, provides a comprehensive framework to address various aspects of disaster management in relation to cultural heritage (ICCROM, 2010). The publication covers a range of important concepts, including the definitions of hazards, vulnerabilities, and risks. It offers guidance on identifying, assessing, and mitigating disaster risks and developing emergency preparedness and response strategies specific

to cultural properties. The guideline also addresses post-disaster measures such as recovery, rehabilitation, and monitoring of affected cultural assets, emphasizing the importance of damage assessment. It outlines the key components of disaster risk management (DRM) plans and highlights the significance of engaging partners and stakeholders at every level. The publication further emphasizes the need for building capacity in terms of human, technical, and financial resources and provides recommendations for educational and awareness-raising initiatives for DRM of cultural heritage. Additionally, the guideline explores the roles and responsibilities of team members involved and suggests approaches for prioritizing risk reduction measures. Furthermore, it acknowledges the value of traditional knowledge systems in disaster mitigation and encourages their analysis and integration into DRM strategies (Table 50).

Table 50. Concepts, Terms and Issues Based on the Source (19) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(19)	(2010) ICCROM; Managing Disaster Risks for World Heritage	<ul style="list-style-type: none"> - disaster management of cultural heritage, - definitions of hazards, vulnerabilities, and risks, - identifying, assessing, and mitigating disaster risks, - developing emergency preparedness and response strategies specific to cultural properties - post-disaster measures, - recovery, rehabilitation, and monitoring of affected cultural assets, - damage assessment, - disaster risk management (DRM) plans, - engagement with partners and stakeholders, - capacity building in terms of human, technical, and financial resources, - educational and awareness-raising initiatives for DRM of cultural heritage, - roles and responsibilities of team members - prioritizing risk reduction measures, - integration of traditional knowledge systems into DRM strategies

The Sendai Framework for Disaster Risk Reduction 2015-2030, adopted at the Third UN World Conference in Sendai, Japan 2015, provides a comprehensive roadmap for addressing disaster risks (United Nations World Conference, 2015). The framework places emphasis on defining and understanding various aspects of disasters, including exposures, vulnerabilities, hazards, and risks. It emphasizes the importance of effectively managing and reducing disaster risks by strengthening disaster risk governance. The framework also highlights the significance of disaster preparedness and response and the concept of "building back better" to ensure post-disaster recovery and reconstruction that enhances resilience (UNISDR , 2015). The role of stakeholders and international cooperation is recognized as crucial in achieving effective disaster risk reduction. The framework aims to strengthen resilience and promote sustainable development by addressing the multidimensional aspects of disaster risk (Table 51).

Table 51. Concepts, Terms and Issues Based on the Source (20) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(20)	(2015) The Sendai Framework for Disaster Risk Reduction 2015-2030 for World Heritage	<ul style="list-style-type: none"> - exposures, vulnerabilities, hazards, and risks, - disaster risk governance, - disaster risk reduction, - disaster preparedness and response, - post-disaster recovery and reconstruction, - role of stakeholders, - international cooperation

The manual titled "A Guide to Risk Management of Cultural Heritage," published in 2016, primarily focuses on managing risks associated with cultural heritage objects (CCI, ICCROM, 2016). It provides a comprehensive analysis of risks that cultural heritage objects may face. Within the context of heritage conservation, the manual discusses essential elements such as political commitment, stakeholders, administrative and operational aspects, financial considerations, and legal aspects. Risk management is categorized into several stages: identification, analysis, evaluation, treatment, and monitoring. The manual also introduces terms such as risk reduction, prioritization, consultation, and communication processes, which are critical in the risk management process. Moreover, it looks at hazards and exposure while exploring the risk management framework. Additionally, the manual proposes a

matrix that illustrates overall risk scores, enabling a clearer understanding of risk levels and their significance in the conservation of cultural heritage objects. The guide aims to equip heritage professionals with effective risk management strategies to safeguard valuable cultural heritage assets (Table 52).

Table 52. Concepts, Terms and Issues Based on the Source (21) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(21)	(2016) A Guide to Risk Management of Cultural Heritage	<ul style="list-style-type: none"> - political commitment - administrative and operational aspects, - legal aspects, - financial considerations, - risk reduction, - risk management, - identification, analysis, evaluation, treatment, and monitoring of risk, - hazard, - exposure, - assessment of risk, - levels of risks and scoring of risks, - prioritization, - consultation and communication, - stakeholders

The manual titled "The ABC Method: A Risk Management Approach to the Preservation of Cultural Heritage," published in 2016, provides a comprehensive list of essential documentation required for effective risk management in cultural heritage conservation (CCI, ICCROM, 2016). These key documentations encompass policy papers and procedures, which include the organization's mission statement, goals, mandate, and purpose. Additionally, the manual emphasizes the significance of other policy and operational documents, such as the organizational chart, financial records, and building plans. Furthermore, the manual discusses the importance of understanding the institution's budget and financial situation as crucial elements in the risk management process. It also highlights the significance of identifying stakeholders and developing awareness of the values associated with cultural heritage. Moreover, the manual suggests conducting surveys and photographic documentation of heritage objects to enhance risk management strategies (Table 53).

Table 53. Concepts, Terms and Issues Based on the Source (22) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(22)	(2016) The ABC Method: A Risk Management Approach to the Preservation of Cultural Heritage	<ul style="list-style-type: none"> - policy papers and procedures, - organization's mission statement, goals, mandate, and purpose, - operational documents, - other documents such as organizational charts, financial records and building plans, - institution's budget and financial situation, - stakeholder identification, - surveys and photographic documentation.

The INSARAG Guidelines, published in 2016, constitute an extensive and comprehensive manual that addresses various aspects of emergency management, covering preparedness, search and rescue operations, logistics, medical response, and safety-security measures (OCHA, 2015). Additionally, these guidelines outline the phases of rescue operations, systematically covering mobilization, operation, demobilization, and post-mission activities. In addition to emergency response procedures, the document addresses the critical management of hazardous materials and emphasizes the significance of policy development. It highlights the importance of capacity building, including establishing rescue and evacuation plans, forming rescue teams, and training team members, with the determination of their roles and responsibilities. Furthermore, the guidelines stress the need to ensure the availability of necessary materials and supplies while also considering funding considerations to ensure the effective execution of rescue operations. Effective coordination among stakeholders and adept media management are also emphasized throughout the manual. Moreover, preparing standard forms, such as situation analysis, damage assessment, and documentation, is highlighted as an integral part of the guidelines, contributing to an organized and systematic approach to preserving cultural heritage during emergencies (Table 54).

Table 54. Concepts, Terms and Issues Based on the Source (23) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(23)	(2015) The INSARAG Guidelines	<ul style="list-style-type: none"> - emergency management, - preparedness, - search and rescue operations, - logistics, - safety-security measures, - mobilization, operation, demobilization, and post-mission, - hazardous materials, - policy development, - capacity building, - rescue and evacuation plans, - formation of rescue teams, - training of team members, - roles and responsibilities, - necessary materials and supplies, - funding, - coordination among stakeholders, - media management, - standard forms, - situation analysis, damage assessment, and documentation

The "Promoting Disaster Resilient Cultural Heritage" guideline, published by the World Bank Group in 2017, serves as a comprehensive resource that primarily focuses on raising awareness and understanding of disaster risks and their potential impacts on cultural heritage (World Bank Group, GFDRR, 2017). The guideline highlights the significance of establishing strong legal, policy, and institutional frameworks to safeguard cultural heritage assets. Additionally, it emphasizes key aspects of disaster preparedness, response, and recovery, including risk identification, preparedness measures, mitigation strategies, risk assessment, and continuous monitoring through multi-hazard risk and vulnerability assessments. The guideline also emphasizes the importance of early recovery and the "build back better" concept, aiming to enhance the resilience of cultural heritage in the face of disasters. Capacity building is thoroughly explored, encompassing factors such as technical expertise and the allocation of financial resources to strengthen disaster management capabilities. Furthermore, the guideline emphasizes the active participation of stakeholders, professionals, and experts in disaster management. Effective collaboration and coordination among rescue teams and engaging with local communities are vital to

ensure their involvement in protecting cultural heritage. The exchange of information and sharing of lessons learned across countries, recognition of best practices, and the establishment of standard operational guidelines contribute to the holistic approach proposed by the guideline. The responsibility of institutions in disaster risk management, the development of comprehensive DRM (Disaster Risk Management) plans, and the prioritization of actions are integral components outlined in the guideline. Additionally, it emphasizes the significance of damage assessment and post-disaster reconstruction to ensure the conservation and recovery of cultural heritage assets (Table 55).

Table 55. Concepts, Terms and Issues Based on the Source (24) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(24)	(2017) World Bank Group; Promoting Disaster Resilient Cultural Heritage.	<ul style="list-style-type: none"> - raising awareness, - understanding of disaster risks, - establishing strong legal, policy, and institutional frameworks, - disaster preparedness, response, and recovery, - risk identification, - preparedness measures, - mitigation strategies, - risk assessment, - continuous monitoring, - vulnerability assessments, - early recovery, - resilience of cultural heritage, - capacity building, - technical expertise, - allocation of financial resources, - participation of stakeholders, professionals, and experts in disaster management, - collaboration and coordination among rescue teams, - engaging with local communities, - exchange of information and sharing lessons learned, - recognition of best practices, - establishment of standard operational guidelines, - development of comprehensive DRM (Disaster Risk Management) plans, - damage assessment, - post-disaster reconstruction, - recovery of cultural heritage assets

The handbook and toolkit titled "First Aid to Cultural Heritage in Times of Crisis," published by ICCROM in 2018, presents a comprehensive methodology and practical implementation tools to safeguard cultural heritage affected by disasters (ICCROM, 2018), (ICCROM, 2018). The handbook covers a series of sequential steps, starting with situation analysis, on-site damage, risk assessment in the post-event phase, security and stabilization, and early recovery while considering essential aspects such as documentation, risk management, communication, and coordination. Within this resource, various crucial concepts and terms related to disaster response are explored, including risk, hazard, vulnerability, evacuation, and salvage, as well as the roles and responsibilities of teams and stakeholders. Furthermore, it examines the connection between cultural heritage conservation efforts and local communities, volunteers, and NGOs. The handbook emphasizes the significance of institutional capacity building, encompassing factors such as the provision of appropriate tools, equipment, materials, and supplies and logistics planning. Regarding safeguarding the affected cultural heritage, the publication outlines security measures to be undertaken at the site, emergency stabilization techniques for damaged structures, and handling hazardous materials. It also provides guidelines for pre-maintenance, retrieval, packing, moving, and relocating salvaged objects. The significance of post-mission reporting, inventories, data analyses, and standard forms is emphasized for effective record-keeping. The handbook also addresses tracking evacuated objects, basic shoring, temporary covering of structures, and in-situ protection of heritage pieces. Finally, the publication encourages post-disaster activities such as recovery, rehabilitation, and restoration, adopting the "build back better" approach to ensure the long-term resilience of cultural heritage (Table 56).

Table 56. Concepts, Terms and Issues Based on the Source (25) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(25)	(2018) ICCROM; First Aid to Cultural Heritage in Times of Crisis (Handbook and Toolkit)	<ul style="list-style-type: none"> - situation analysis, - on-site damage and risk assessment, - security and stabilization, - early recovery, - documentation, - risk management, - communication and coordination, - risk, hazard, vulnerability, - evacuation and salvage, - roles and responsibilities of teams and stakeholders, - local communities, volunteers, and local NGOs, - institutional capacity building, - provision of appropriate tools, equipment, materials, and supplies, - logistics, - emergency stabilization techniques for damaged structures, - hazardous materials, - pre-maintenance of rescued materials, - retrieval, packing, moving and relocating salvaged objects, - tracking of evacuated objects, - post-mission reporting, - inventories, - data analysis, - standard forms, - basic shoring, - temporary covering of structures, - in-situ protection of heritage pieces, - recovery, rehabilitation, and restoration

The paper titled "The Heritage Resilience Scorecard: Performance Measurement in Risk Governance of Cultural Heritage," authored by Yıldırım Esen and Bilgin Altınöz in 2021 presents a valuable resource encompassing various concepts relevant to cultural institutions (Yıldırım Esen, Bilgin Altınöz; 2021). The primary focus lies in disaster risk governance and resilience for cultural heritage. The paper examines critical concepts such as policy, legislative, and institutional frameworks, as well as the importance of increasing public awareness. Moreover, the paper emphasizes the importance of authorizing institutions with necessary policies, programs, procedures, and clear objectives and goals within agencies. It explores disaster risk prevention, mitigation, assessment, and monitoring while defining critical terms like hazard, exposure, and vulnerability. The various phases of the disaster management cycle,

including emergency preparedness, response, and recovery, are thoroughly addressed. The paper emphasizes the timing of actions before, during, and after disasters, underscoring the significance of operational capacity-building factors encompassing financial, human, and technical aspects alongside logistics. In-service training and education programs are highlighted to enhance preparedness and response capabilities. Effective engagement and cooperation with stakeholder groups and communication and coordination between departments and units are emphasized. Additionally, the paper highlights the value of cooperation with voluntary groups and the importance of clearly defining the roles and responsibilities of personnel and units involved in cultural heritage conservation. Utilizing local knowledge is encouraged to bolster disaster management efforts. The resource also sheds light on formulating risk management plans and programs, encompassing planning, implementation, and monitoring phases. It also touches upon disaster response plan preparation, addressing operational levels at the national and provincial scales. The significance of inventories and documentation is underscored for effective heritage conservation, along with the importance of damage assessment for affected structures. Post-disaster activities such as reinforcement, repair, restoration, and renewal are deemed crucial in restoring cultural heritage. Finally, the paper highlights the importance of setting indicators and a rating system to measure and assess resilience in cultural heritage conservation (Table 57).

Table 57. Concepts, Terms and Issues Based on the Source (26) and Used in the Thesis

No	Name of Source	Concepts Used in the Thesis
(26)	(2021) Yıldırım Esen; Bilgin Altunöz, A. G.: The Heritage Resilience Scorecard: Performance Measurement in Risk Governance of Cultural Heritage	<ul style="list-style-type: none"> - disaster risk governance and disaster resilience, - policy, legislative, and institutional frameworks, - public awareness, - authorizing institutions with policies, programs, and procedures, - definition of clear objectives and goals within agencies, - disaster risk prevention, mitigation, assessment, and monitoring, - hazard, exposure, and vulnerability, - emergency preparedness, response, and recovery, - phases as before, during, and after disasters, - operational capacity-building, - financial, human, and technical aspects, - logistics, - in-service training and education programs, - engagement and cooperation with stakeholders, - communication and coordination between departments and units, - cooperation with voluntary groups, - roles and responsibilities of personnel and units, - local knowledge, - risk management plans and programs, - disaster response plan, - planning, implementation, and monitoring, - operational levels as national and provincial, - inventories and documentation, - damage assessment, - reinforcement, repair, restoration and renewal, - setting of indicators and a rating system, - measurement and assessment of resilience.

Following a comprehensive literature review, the concepts and issues related to the institutional aspect of "Institutional Disaster Management of Cultural Heritage" have been identified and analyzed. Initially presented in separate tables based on their sources, all of the concepts and issues have been consolidated to form a comprehensive concept pool, as represented in Table 58.

Table 58. Concepts, Terms and Issues Derived from the Sources Utilized in the Thesis

Concepts Used in the Thesis
<p>LEVELS and PHASES</p> <ul style="list-style-type: none"> - international, national, regional and local levels, - policy, legislative, and institutional frameworks, - establishment of organizational, legal, and policy frameworks, - legal and administrative framework; - legislative, scientific, technical, administrative, and financial measures; - before, during, and after disasters, - pre-disaster, emergency response and post-earthquake - preparedness, response and recovery, - prevention, preparedness and response, <p>POLICY</p> <ul style="list-style-type: none"> - awareness, public awareness, awareness and commitment, - political commitment, political determination, - establishment of policies, policy setting, - adoption of policies, policy for disaster prevention of cultural properties, - policy development, - definition of clear objectives and goals within agencies; - authorization, - decentralization of responsibilities, - building a culture of resilience, - policy papers and procedures, - programs, laws, and regulations; - authorizing institutions with necessary policies, programs, and procedures, - integrating disaster management into policies, plans, and programs - integration of the protection of cultural heritage into comprehensive planning, - risk management plans and programs, - conservation planning, - organization's mission statement, goals, mandate, and purpose, - organizational chart, - institutional capacity building, - national and local capacities, - operational capacity, response capacity, preparedness and response capabilities, - capacity building in terms of human, technical, and financial - technical expertise, conservation experts; heritage recorders; - definitions of risk, hazard, vulnerability, exposure, - defining and understanding various aspects of disasters, - disaster management of cultural heritage - disaster risk governance, - understanding disaster risks, - Preparedness, emergency preparedness, disaster preparedness, - preparedness and relief, - prevention, mitigation, and response, - disaster risk reduction, - risk management, - resilience of cultural heritage, - financial aspects, financial resources, - funding, allocating budgets, allocation of financial resources, - insurance policies,

Table 58 (Cont'd)

ADMINISTRATIVE

- administrative aspects,
- organizational measures,
- administrative and technical aspects,
- identification, prevention, assessment, and monitoring of disaster risks,
- Safety Plan; Risk Preparedness Plan; Disaster Plan; Disaster Risk Management Plan; Emergency / Disaster Response Plan, Site Management Plan,
- establishment of scientific and technical committees,
- establishment of standard operational guidelines,
- standard forms,
- data analysis,
- setting of indicators and a rating system,
- measuring and assessment of resilience in cultural heritage preservation,
- heritage information including key maps, building plans and survey drawings,
- documentation and recording,
- inventories,
- photography, photogrammetry, GPS; GIS, 3D-laser scanning, and 3D modelling,
- materials and equipment,
- equipment needs and supplies, providing appropriate tools, equipment, materials, and supplies,
- logistics,
- education and training,
- education and training programs,
- educational and awareness-raising initiatives for DRM of cultural heritage,
- training of response teams, training of professionals and staff,
- establishment of conservation and emergency teams,
- roles and responsibilities of respective parties, roles and responsibilities of personnel involved, roles and responsibilities of team members,
- stakeholder identification,
- engaging with local communities, community involvement,
- collaboration, cooperation and coordination and partnerships,
- cooperation and coordination between respective parties,
- cooperation with voluntary groups, local communities, volunteers, and local NGOs,
- communication,
- participation; participation of stakeholders, professionals, and experts in disaster management,
- dissemination of lessons learned,
- knowledge sharing,
- exchange of information, knowledge, technology, and expertise,
- recognition of traditional knowledge,
- dissemination of best practices,
- studies with contributions from universities, organizations, and institutions,

TECHNICAL IMPLEMENTATION

- technical and practical measures,
- safety-security measures, security of site to prevent looting,
- security and stabilization,
- technical protective measures,
- emergency and post-emergency measures,
- (emergency / disaster) response,

Table 58 (Cont'd)

- situation analysis,
- hazard and vulnerability assessments;
- on-site damage assessment,
- on-site documentation and recording,
- priority setting,
- debris removal,
- stabilization measures, basic shoring,
- emergency stabilization for damaged structures,
- emergency protection, emergency maintenance of evacuated objects,
- hazardous materials,
- rescue and evacuation plans,
- search and rescue operations,
- mobilization, operation, demobilization, and post-mission,
- retrieval,
- packing,
- tracking of evacuated objects,
- evacuation and salvage,
- relocation and temporary storage,
- post-disaster recovery,
- reinforcement, restoration, reconstruction and renewal,
- rehabilitation,
- short-term recovery, early recovery, post-disaster recovery, post-disaster relief,
- maintenance and monitoring,
- post-disaster measures,
- post-mission reporting,
- temporary covering of structures,
- establishing visitor pathways within affected sites,
- traditional practices aimed at disaster prevention,
- forming working groups; establishing information exchange networks; networks among experts; organizing conferences and workshops;
- developing databases after a disaster,
- planning, implementation, and monitoring,
- regular maintenance and monitoring of affected cultural assets,
- short-term and long-term planning;
- land-use planning,
- establishing material laboratories,
- organizing symposia at different levels,
- creating documentary films, printing and publishing scientific papers and reports;
- inscribing the affected heritage on the 'List of World Heritage in Danger,

F. Checklists Developed for Damage Assessment of Disaster Affected Cultural Heritage^{149 150}

Inventory of Damage

Damage Assessment Form
Immovable Cultural Property

1. Name of Monument
Reference Number _____

	Century of Construction									
	12	13	14	15	16	17	18	19	20	
<input type="checkbox"/> Archaeological site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Urban group of buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Fortified urban area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Monastery/monasteries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Rural group of buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Isolated monument	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Religious monument	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Building serving an economic purpose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Military architecture (fortified)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ethnological structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Building serving a technical purpose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monument to the struggle for national liberation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Location
Community _____
Town _____
Place _____
Address _____
Land register no. _____
Owner _____

Overall Floor Space (m²)
Basement _____
Ground floor _____
1 _____
2 _____
3 _____
4 _____
Total _____

Condition Before Earthquake
 Good
 Medium
 Poor

Category of Monument

Protection Agency

4. Damage Caused by the Earthquake

Destroyed	Heavily Damaged	Damaged	Slightly Damaged	Intact	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chimney(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Covering
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Structure
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Dome(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vault(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ceiling(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Wooden floor structure(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other floor(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bearing wall(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Nonbearing wall(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Arch(es)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Column(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Staircase(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Foundations
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Belly/balustrade
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mosaic(s)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Architectural decoration
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Iconostase
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mural painting(s)

5. Degree of Danger
 Repair feasible
 Repair impossible

Status of the Monument
 Unchanged
 Changed
 Not retained

EMERGENCY ACTION

6. Outline Plan (at ground level) of the Monument and Principal Dimensions
Photographs and indication of damage (attach plans)

Figure 64. Checklist for Damage Assessment at Immovable Cultural Heritage

¹⁴⁹ (Feilden, 1987)

¹⁵⁰ (Stovel, 1998)

7. Structural Characteristics

Type and quality of building materials and bonding components

8. Description of Deformations and Structural Damage

9. Emergency Action Proposed

- Total demolition
- Partial demolition
- Temporary covering
- Shoring
- External scaffolding
- Internal scaffolding
- Protection of mural paintings
- Protection of architectural decoration
-

10. Repair Program Proposed

- Demolition(s)
- Chimney(s)
- Covering
- Timber Structure
- Dams(s)
- Vault(s)
- Ceiling(s)
- Wooden floor(s)
- Other floor(s)

- Bearing wall(s)
- Nonbearing wall(s)
- Arch(es)
- Columns
- Piers
- Beam(s)
- Staircase(s)
- Geomechanical exploration
- Foundation(s)

- Bellry/belfries, mazzetta)
- External plastering
- Internal Plastering
- Preservation
- Restoration
-
-
-
-

11. Damage Classification and State of Usability of the Building

Defined by the Technical Commission for Damage Assessment in the Socialist Republic of Montenegro

- I. Usable (green)
 - IA – grade 1 – intact except superficial damage
 - IB – grade 2 – no structural damage
 - IC – grade 3 – light structural damage
- II. Temporarily unusable (yellow)
 - IIA – grade 1 – structural damage
 - IIB – grade 2 – heavy structural damage
- III. Unusable (red)
 - IIIA – grade 1 – very heavy structural damage
 - IIIB – grade 2 – partial destruction
 - IIIC – grade 3 – total collapse

12. Estimated Cost of Repair

- 1. Value of the building before the earthquake
_____ m² x _____ (cost) = _____ total cost
- 2. Cost of restoring the building to its pre-earthquake condition (structural repair)
_____ m² x _____ (cost) = _____ total cost
- 3. Total cost of repair (consolidation)
_____ m² x _____ (cost) = _____ total cost

13. Notes

Members of the Commission

Photographic Coverage

Number of Negatives

Photographer

Copyright Owner

Place

Date

Inventory of Damage

Damage Assessment Form
Movable Cultural Property

1. Name of Object _____
Reference Number _____

2. Nature of Object

	Century of Construction									
	12	13	14	15	16	17	18	19	20	
Religious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Profane	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ethnological	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Archaeological	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Literary/archives	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Object in the struggle for national liberation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Material

- Metal
- Wood
- Fabric/textile
- Leather
- Paper
- Pottery
- Glass
- Porcelain
- Stone
- Bone
- Horn
- Parchment
- Precious stones
- _____
- _____

4. Location

Community _____
Town _____
Place _____
Address _____
Owner _____

Condition Before Earthquake

- Good
- Medium
- Poor

Classification Category _____
Protection Agency _____

5. Damage Caused by the Earthquake

- Destroyed
- Heavily Damaged
- Damaged
- Slightly Damaged
- Intact

6. Degree of Danger

- Repair possible
- Repair impossible

Status of the Object

- Unchanged
- Changed
- Not retained

EMERGENCY ACTION

7. Drawing of the Object and Principal Dimensions
Photographs and indication of damage
[attach drawings and photographs]

8. Principal Characteristics of the Object

9. Description of Deformations and Damage

Figure 65. Checklist for Damage Assessment at Movable Cultural Heritage

10. Emergency Action Proposed

- | | |
|---------------------------------------|--------------------------------------|
| <input type="checkbox"/> Cleaning | <input type="checkbox"/> Storage |
| <input type="checkbox"/> Desmelling | <input type="checkbox"/> Drying |
| <input type="checkbox"/> Packing | <input type="checkbox"/> Inventory |
| <input type="checkbox"/> Transport | <input type="checkbox"/> Photographs |
| <input type="checkbox"/> Disinfection | <input type="checkbox"/> _____ |

11. Repair Program Proposed

- Total preservation
- Preservation with reconstruction
- Preservation with restoration
- _____
- _____

12. Damage Classification and State of Serviceability of the Object

- Serviceable
- Temporarily unserviceable
- Unserviceable

13. Estimated Cost of Repair

Cost of restoring the object to its previous condition _____

14. Notes

Members of the Commission

Photographic Coverage	Number of Negatives _____
_____	Photographer _____
_____	Copyright Owner _____
_____	Place _____
_____	Date _____

SUMMARY CHECKLIST FOR DAMAGE ASSESSMENT

- | | |
|--|---|
| <p>Property identification</p> <ul style="list-style-type: none"> — Form filled out by: — Name of building: — Address: — Construction date: — Use (residential, religious, civil, other):
 — Description (size, construction, materials, style if applicable, other):
 — Name of the owner: — Individual in charge: <p>Damage assessment</p> <ul style="list-style-type: none"> — Date of damage: — Type of damage — 1: External damage <ul style="list-style-type: none"> — Source: lack of maintenance, neglect, fire, smoke, flood, earthquake, armed conflict (small arms, mortars, rockets, explosives, other), collateral, other (specify) — Impact (be specific): — Light damage (roof, wall, decorative aspects) — structural damage — severe damage (unusable without reconstruction) — destroyed (only foundations left) — Type of damage — 2: Internal damage <ul style="list-style-type: none"> — Source: theft, vandalism, fire, earthquake, armed conflict, other (specify) — Impact (be specific): — interior of building affected <ul style="list-style-type: none"> (walls, decoration, ceilings) — contents stolen or damaged (paintings, lights, furniture, decoration) — storage facility (for salvaged objects) | <p>Responsibility for damage?</p> <p>Situation of surroundings?</p> <ul style="list-style-type: none"> — damaged — untouched <p>Sources of the information acquired:</p> <ul style="list-style-type: none"> — Direct observation
 — Documents (manuals, pictures, emergency measures)
 — Local authorities — Local people
 — Witnesses <ul style="list-style-type: none"> — name — address — prepared to testify? <p>Attention given to building after damage:</p> <ul style="list-style-type: none"> — Entrances limited or closed? — Danger notices posted on property? — Barriers to limit access? — Emergency works (covering of roofs, shoring of walls and structures, transportation of salvaged objects)? — Repairs and restoration works? — Legal status in armed conflict situations — Were the states concerned parties to the Hague Convention? If so, did they observe its provisions?
 — Was the Hague Convention emblem placed on buildings? |
|--|---|

Figure 66. Checklist for Damage Assessment at Monumental Heritage

G. Checklist for Measuring Agency's Preparedness Level for an Emergency ¹⁵¹

	YES	NO	UNSURE
Are up-to-date emergency telephone numbers and/or addresses posted in central locations?			
Is staff prepared to handle an emergency, including sounding an alarm and using fire extinguishers?			
Is there an emergency supply inventory, and is it up to date?			
Has the backup power supply been tested recently, and does it have adequate fuel? Are flashlights and batteries readily available?			
Have alarm and fire suppression systems been tested recently?			
Are emergency exits accessible? Do all locks have keys nearby?			
Are fire extinguishers fully charged and accessible?			
Is a nonsmoking policy enforced?			
Is electrical wiring in good condition?			
Does a general institutionwide cleanup take place on a semiannual basis, with the entire staff participating?			
Are floors clear of wood shavings, paper, cloth, packing, and other flammable materials?			
Are walkways clear of debris?			
Are drains and gutters clear?			
Are heating and electrical system motors free of dust and clutter?			
Are special precautions put in place during construction, renovation, and repair activities?			
Are up-to-date copies of important documents and records stored off-site?			
Is the insurance provider aware of the emergency plan and of the institution's probable maximum loss?			
Are important collections stored away from windows and pipes?			
Have elevators and automatic door closures been tested regularly in fire-response drills? Are doors clear of obstructions?			
Are pipes and plumbing regularly checked for leaks?			
Has the fire department visited the site lately (i.e., within the last six months)?			
Are your building and grounds up to local safety codes?			
Are you prepared to handle a medical emergency?			
Has staff been given any advice or training in home safety?			
Are overhanging trees cut away from the building?			
Do local police, fire, and security services have copies of your institution's site plan, indicating location of utility mains and various kinds of extinguishers?			
Have arrangements been made for use of off-site storage, deep-freeze facilities, dehumidifiers, and so on, if necessary during an emergency?			

Figure 67. Checklist for Measuring an Agency's Preparedness Level to an Emergency

¹⁵¹ (Dorge V. J., 1999)

H. Questionnaire for Disaster Risk Management of Cultural Heritage¹⁵²

Questionnaire - Disaster Risk Management of Cultural Heritage

Study on Safeguarding Cultural Heritage from Natural and Man-Made Disasters

The following questionnaire is seeking responses to a study being carried for the European Commission, DIRECTORATE-GENERAL FOR EDUCATION AND CULTURE, Culture and Creativity, Cultural Diversity and Innovation under Contract Number EAC-2016-0248.

The overall objective of the study is twofold. Firstly, it aims to support European cooperation on Risk Assessment and Prevention for Safeguarding Cultural Heritage from the effects of natural disasters and threats caused by human action. Secondly, it seeks to contribute to the integration of cultural heritage as a new focus area of the Sendai framework to consider the inclusion of disaster risk management.

Introduction

Fields marked with * are mandatory

Please do not skip questions. If there are questions that you do not feel comfortable responding to, please tick the "no opinion / not applicable" option. You can also pause completing the proforma at any time and continue later. Once you have submitted your answers, and uploaded a supporting and concluding written contribution, you will be able to download a copy of the completed questionnaire.

Note that, whatever option is chosen below, your answers may be subject to a request for public access to documents under Regulation EC 1049/2001

In reply please indicate which approval, as below, is acceptable to you:

I agree that the information I provide:

Can be published along with my personal information (I consent to the publication of any information in my contribution, in whole or in part, including my name or my organisation's name, and I declare that nothing within my response is unlawful or would infringe the rights of any third party in a manner that would prevent publication.)

Can be published provided that I remain anonymous (I consent to the publication of any information in my contribution, in whole or in part, - which may include quotes or opinions I express - provided that it is done anonymously. I declare that nothing within my response is unlawful or would infringe the rights of any third party in a manner that would prevent the publication.)

About you:

a) **Please provide your full name** (Open)

b) **Are you responding as a representative of a public authority, if so, which?** (Open)

c) **Please indicate your profession or job function in your business / organization** (Open)

d) **Please state what is your role, formal qualifications and entity affiliations are** (Open, 150 characters maximum)

e) **Please indicate the primary place(s) of your organizations' operations and/or the country(ies) that your organization represents, or works for** (Open)

f) **Date of completing the survey** DD MM YYYY

g) **Gender** F M

h) **Age** <40; 41-60; >61

Figure 68. Questionnaire for Disaster Risk Management of Cultural Heritage

¹⁵² (European Commission, 2018)

- i) How long have you been employed at your current job? <2y; 3<y<5; >6y
 j) What is your nationality? (Choose from the drop down menu: if "Other", please state)

k) Please give your email address in case we require additional information about your reply and need to seek any further clarifications _____@_____ (Your e-mail address will not be publicly released)

l) Please indicate which sector best describes your organisation:

- m) International administration
 n) National administration
 o) Regional authority
 p) Non-governmental organization
 q) Large business
 r) Small or micro enterprise
 s) Medium-sized enterprise
 t) Research institute/academia
 u) Higher education institution
 v) Vocational training organization
 w) Public business or innovation support body
 x) Private business or innovation support body
 y) Financial sector
 z) Other

Specific questions

1. Brief introduction

1a. In your opinion, how much is the cultural heritage of your member state/region exposed to each of these risks? (Please rank each topic from: 1 – 'least important' to 5 – 'most important')

NATURAL DISASTER	1	2	3	4	5
Volcanic eruption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Earthquake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landslide/Avalanches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tsunamis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sea Level Rise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Storm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coastal erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drought	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HUMAN ACTION	1	2	3	4	5
Pollution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Armed conflict / Terrorism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Illicit artefact trafficking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Over-exploitation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Touristic pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsustainable development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Climate change (fast/sudden)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you ticked "Other", please specify what you refer to:

200 characters maximum

1b. Based on the previous answers please select the priority risks, considered SUBJECTIVELY: (Please rank each topic from: 1 – 'least important' to 5 – 'most important')

	1	2	3	4	5
Volcanic eruptions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Earthquakes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1c. How important do you consider the recognition and acceptance by regions (and countries) of risk assessment research and innovation strategy priorities?

Answer: 1=not at all, 2=to a minor extent, 3=to some extent, 4=to a great extent, 5=no opinion

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1d. How important, in your opinion, is consultation with business, academic and public stakeholders in advance of deciding on the allocation of funding to achieve the answer to point 1c below?

Answer: 1=not at all, 2=to a minor extent, 3=to some extent, 4=to a great extent, 5=no opinion

1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1e. Do you know of any existing national strategies or practices (in your country) for safeguarding cultural heritage from the risks listed in 1a (above)? Yes No

Please indicate if your answer focuses on:

- Your region
- Your country
- Both, region and country

1f. If yes, please specify the type of strategy, and indicate which of the risks, listed in 1a above, apply:

i. Preparedness measures Yes No Related to which kinds of risk?

ii. Emergency plans Yes No Related to which kinds of risk?

iii. Recovery measures Yes No Related to which kinds of risk?

iv. [Other: Please state]...

1g. Do you know of any similar strategies in other countries? Yes No

If so, what are they, and to which countries do they apply?

Which kinds of risk are considered?

1h. Do you know examples of excellence in risk awareness governance at regional level in your country? (i.e. Regional strategies)

Yes No

If yes, please state what governance issues they are and in which Region they apply?

What kinds of risk are considered?

1i. Are you aware of the existence of any integration of cultural heritage needs in your national legislative platforms for Disaster Risk Reduction in your country?

Yes No

If yes, which legislative platforms are they. Please give their formal names and references?

Please state which kind of risks are covered?

1j. Are you aware of any other good practices/actions to encourage the integration of cultural heritage needs in the national legislative platforms for Disaster Risk Reduction? Yes No

If yes, in which country do they apply?

Please state which kind of risks are covered?

1k. Are you aware of any existing training centres and/or educational tools or facilities that provide the required competencies in dealing with Disaster Risk reduction?

Yes No

If yes, what are they, and where are they to be found? Please list:

Please state which kind of risks are addressed?

2. Effective Risk Management works as a result of a combination of public support and private initiatives. It crucially depends on interaction, openness and cooperation amongst different enterprises, citizens, educational, research, public bodies, etc..

Public policy and funding in the right circumstances can create a top-down risk management incentive that can increase the likelihood of improving the response approach to natural and man-made events.

Please provide answers to A) and B) in the table below:

A) If you personally implement the management in your enterprise or organization: in the past 3 years did you or your organization work in unison with any of the following listed bodies or enterprises to improve the risk assessment capacity, or implement resilience projects?

B) If you or your organization supported risk assessment in other enterprises or bodies: in the past 3 years did you observe MORE participation of the following type of enterprises or bodies in the risk assessment in your country or region?

*	Answer A			Answer B		
	Yes	No	Not relevant	Yes	No	Not relevant
Consultancy firm						
Multi-national firm						

Private investor (e.g. business angel)						
Public bodies (from your country / region)						
Public bodies (from abroad)						
European body						
Research service provider (from your country / region)						
Research service provider (from abroad)						
Higher Education Institution						
Research Public Entity						
Patent lawyer / advisor						
Civil society organization						
Other						

If you ticked "Other", please specify what you referred to:

400 characters maximum

3. Which other organizations should be more or better involved in supporting research for Risk Assessment in your country or region?

(Please choose several options from the table below, as applicable)

*			
Academic Research bodies			
Professional Bodies			
Vocational Craft Trade Bodies			
Suppliers and Manufactures			
Higher Education Institutions and/or vocational training establishments			
Civil Society			
Scientific Research and Technology Organizations			
Funding Enterprises			
SME intermediaries, such as cluster organizations			
Official associations for environment and heritage protection			
Private associations for environment and heritage protection			
Other			

If you ticked "other", please specify what you referred to:

Other

300 characters maximum

4. Can you identify and describe a significant research and/or specific project on the topic of **DISASTER RISK MANAGEMENT OF CULTURAL HERITAGE** that was undertaken during the last 3/5 years in your country or region?

Yes

No

***If yes: Noting the points below, please explain the success the project achieved in creating a link between the disaster risk reduction experience and Cultural Heritage protection, so that the case might inspire others to launch similar projects?**

Please consider mentioning, where relevant:

- The topic or type of research and innovation
- The partners and types of organisations involved
- The project budget and its funding sources
- Any public support received and/or public infrastructure that was used
- The achieved results considered against the original intentions
- Lesson learnt and any crucial issues that led to the project success
- Any web address where further information can be found

600 characters maximum

5. The EU can provide financial support for public research and innovation. The process works either:

i) Via Directly Managed Funds through which are apply for directly to the Commission (e.g. Horizon 2020, INTERREG, LIFE, JPI etc.);

ii) The European Investment Fund; or

iii) Via shared managed funds (e.g. European Regional Development Fund, European Social Fund) where the definition of the support conditions and selection of projects is done by national or regional bodies, or intermediaries.

In the following table:

A) Please indicate which programme you are personally aware of

B) Please indicate which programme you have personally been involved in (last 10 years)

*	Answer A)	Answer B)
Horizon 2020 – collaborative research and innovation project		
Horizon 2020 – SME instrument		
Horizon 2020 – ERC grant		
Horizon 2020 – Marie Skłodowska-Curie		
Horizon 2020 – other		
Other directly managed EU programmes - LIFE (environmental, nature conservation and climate action projects)		
JPI-CH		
Copernicus programme (ex GMES Global Monitoring for Environmental and Security)		

Interreg programme		
URBACT programme		
LEADER programme		
Other directly managed EU programmes		

Please indicate which related EU programme you referred to on indicating "Other"

200 characters maximum

6. It is recognised that Cultural Heritage still does not occupy a central position in current national and international policy documents on A) 'Climate Change' and B) 'Disaster Risk Reduction'.

Should be further interregional cooperation and action to include Cultural Heritage in these topics be encouraged?

A) Climate Change		B) Disaster Risk Reduction	
Yes	No	Yes	No

If yes, tick what you consider the three most important benefits in each topic A) and B)

A) B)

- New research partners from abroad
- Exchange of good practices for public administration and business models
- Increase cross-border cooperation with higher education institutions
- Improvement of mutual access to public research and infrastructures
- Use the existing research and facilities of another region/country

7. Please offer any further suggestions or comments regarding the development and implementation of Risk Management Plans for Cultural Heritage. This might include comment on the wider context of EU-policies on research, innovation, education, etc.

It would be particularly helpful for the study to have your views on how to reinforce political commitment, dissemination of good practice, and the facilitation of strategic interregional collaboration.

500 characters maximum

THANK YOU for taking the time to complete this questionnaire.

I. List of Legislations Cited in the Thesis

- Law for the Protection of Cultural and Natural Properties (*Kültür ve Tabiat Varlıklarını Koruma Kanunu*), Law no:2863, Ministry of Culture and Tourism, 1983.
- Regulation on the Identification and Registration of Immovable Cultural and Natural Assets (Korunması Gerekli Taşınmaz Kültür ve Tabiat Varlıklarının Tespit ve Tescili Hakkında Yönetmelik), Ministry of Culture and Tourism, 1987.
- Law on the Renovation, Protection, and Revitalization of Deteriorated Immovable Cultural Assets (Yıpranan Tarihi ve Kültürel Taşınmaz Varlıkların Yenilenerek Korunması ve Yaşatılarak Kullanılması Hakkında Kanun), Law no: 5366, 2005.
- Regulation on Conservation Master Plans and Landscaping Projects (Koruma Amaçlı İmar Planları ve Çevre Düzenleme Projelerinin Hazırlanması, Gösterimi, Uygulaması, Denetimi ve Müelliflerine İlişkin Usul Ve Esaslara Ait Yönetmelik), Ministry of Culture and Tourism, 2005.
- Regulation on the Establishment, Licensing, Operational Procedures and Principles of Conservation, Implementation and Monitoring Bureaus (Koruma, Uygulama ve Denetim Büroları, Proje Büroları ile Eğitim Birimlerinin Kuruluş, İzin, Çalışma Usul ve Esaslarına Dair Yönetmelik), Ministry of Culture and Tourism, 2005.
- Building Codes for Disaster-Affected Regions (Afet Bölgelerinde Yapılacak Yapılar Hakkında Yönetmelik), Ministry of Environment and Urbanization, 2007.
- The Regulation on the Protection of Buildings from Fire (Binaların Yangından Korunması Hakkında Yönetmelik), Ministry of Environment and Urbanization, 2007.
- Law of Foundations (Vakıflar Kanunu), Law no: 5737, Directorate General of Foundations, 2008.
- Act for the Transformation of Areas at Risk of Disasters (Afet Riski Altındaki Alanların Dönüştürülmesi Hakkında Kanun), Law no: 6306, Ministry of Environment and Urbanization, 2012.
- Regulation on the Preparation of Spatial Plans (*Mekânsal Planlar Yapım Yönetmeliği*), Ministry of Environment and Urbanization, 2014.

CURRICULUM VITAE

PERSONAL INFORMATION

Surname, Name: Çiçek, Ümit Gökhan

EDUCATION

Degree	Institution
M.Arch 2012	Middle East Technical University, Department of Architecture Graduate Program in Conservation of Cultural Heritage Thesis: “Vernacular Timber Houses of <i>Uzungöl</i> : Examining/Analyzing Them in Their Refunctioning Process”,
B.Arch 2003	Gazi University, Department of Architecture

PROFESSIONAL EXPERIENCE

Inspector (2024-...)	: DGF
Regional Director (2020 - 2024)	: DGF, <i>Hatay</i> Regional Directorate
Internal Auditor (2015-2020)	: DGF
Inspector (2010-2015)	: DGF
Culture&Tourism Specialist (2009-2010)	: Ministry of Culture and Tourism
Architect (2007-2009)	: Ministry of Environment and Forestry

ACADEMIC STUDIES AND INTERNATIONAL COURSES

Conference Presentation (Sept, 2023)	:Title: “Efforts for the Preservation of Cultural Heritage Immediately After The Earthquakes in the <i>Hatay</i> Province.” The SAHC2023, Special Session: The Impact of the 2023 Turkey Earthquake Sequence on the Historic Built Environment.
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- Conference Presentation (May 2022) : Presentation Title “Restoration of *Ala Cami*: The Witness of Three Civilizations.”, Heritage İstanbul 2022.
- Visiting PhD Student (2018-2019) : IMT School for Advanced Studies Lucca, Italy. Jean Monnet Scholarship.
- Trainee (August 2018) :“ICCROM’s First Aid to Cultural Heritage in Times of Crisis 2018”, Brabant, Netherlands.
- Conference Presentation (March 2017) :Title “Vernacular Timber Houses of Uzungöl: Examining/Analyzing Them in Their Refunctioning Process”, International Conference in Architecture and Urban Studies, “House and Home 2017”, DAKAM, İstanbul.
- Trainee (2010) :“International Summer School in Conservation of Historical, Monumental and Archaeological Sites, Rome, Italy.