Forum: Environment Commission 1 - Conference of the Parties on Climate Change

Issue: Impacts of natural disasters on cultural landmarks and traditional settlements

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Introduction

Cultural landmarks and traditional settlements are vital for communities due to the unique identity these provide. This unique identity brings with it historical knowledge, educational value and drives economic growth. It is, therefore, imperative that cultural landmarks and traditional settlements are protected from natural disasters, due to their ability to destroy the structures that define their identity.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) has established a framework to recognize and protect these landmarks and settlements so that their unique identity may be preserved for future generations. The Convention Concerning the Protection of the World Cultural and Natural Heritage, adopted by UNESCO in 1972, established the categories of Cultural and Natural World Heritage (UNESCO World Heritage Centre “World Heritage.”). Cultural landmarks and traditional settlements are specifically recognized as Cultural World Heritage (WH); therefore, by examining the impacts of natural disasters on Cultural WH, impacts of natural disasters on cultural landmarks and traditional settlements are also inherently addressed.

The number of natural disasters reported has increased by a factor of five over the past fifty years. Although this increase can be attributed partially to improved reporting, it is driven mostly by climate change, which causes more extreme and more frequent weather events.[1] This increase is notable in

Figure 1, with a clear increase in frequency of natural disasters over time.

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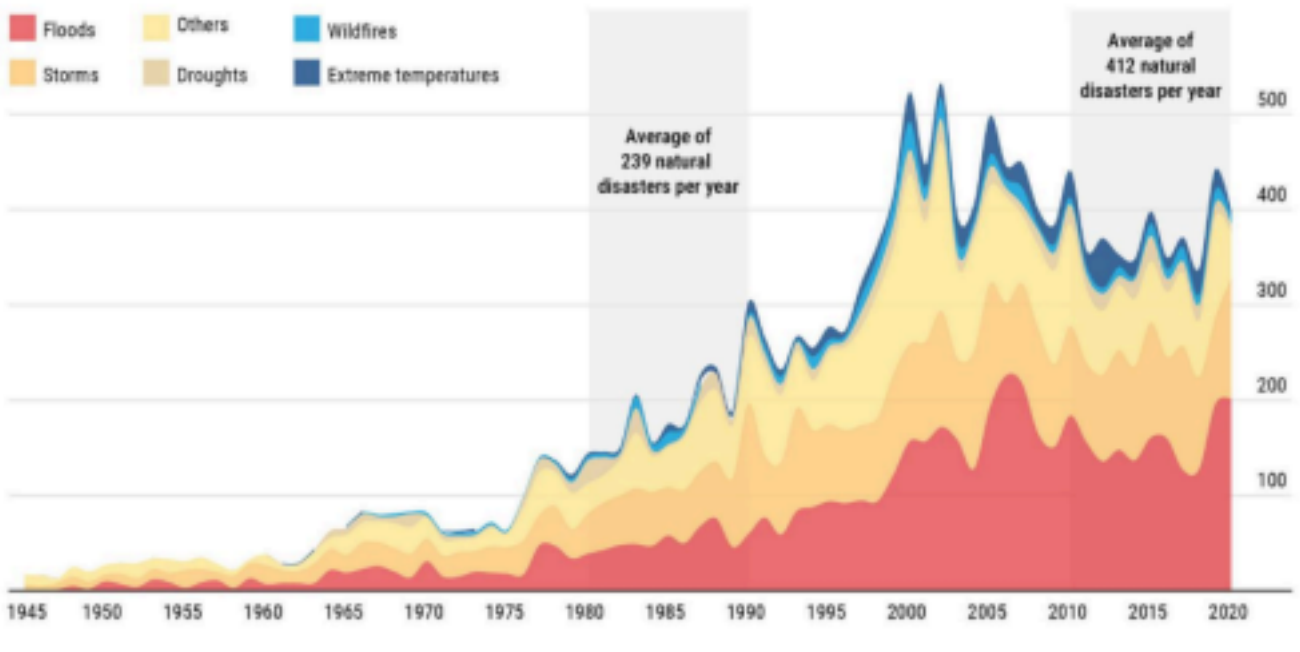

Figure 1. Number of natural disasters by type each year, showing an increasing average.[2]

Definition of Key Terms

Natural Disaster

Natural disasters are destructive events caused by natural phenomena. These can be geological events, such as earthquakes, volcanic eruptions, landslides or tsunamis; or they may be climate-induced events, such as heatwaves, droughts, floods, hurricanes or typhoons. Geological events are typically natural and are not influenced by human activity while climate-induced events are exacerbated by human-caused climate change (Metych).

Cultural Landmark

A highly recognizable building, place or structure that holds significant cultural value to the community it belongs to (“Landmarks”).

Traditional Settlement

Residential area with strong sense of traditional character and residents that preserve traditional practices. Residents typically possess Traditional/Indigenous Knowledge, which is experience that traditional communities accumulate due to their close relationship to their environment (Harun and Jaffar).

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Disaster Risk Reduction (DRR)

Policy objective to reduce existing disaster risk and prevent new disaster risk, along with managing residual risk (United Nations Office for Disaster Risk Reduction). Methods to achieve DRR may include preventive measures, response measures, management measures and structural measures.

Background Information

Importance of cultural landmarks and traditional settlements

Cultural landmarks and traditional settlements are pivotal for many communities globally. Communities depend largely on these not only for the economic benefits they bring, but also from the unique identity they provide. This identity carries with it communities' histories, preserves their culture and provides social unity. The importance of cultural landmarks and traditional settlements have can be split into three main categories: historic importance, cultural importance and economic importance. Cultural Heritage provides cultural and historic importance through the tangible connection they give to previous inhabitants and the unified culture this gives to current inhabitants. It is also of paramount economic importance due to both the tourism cultural landmarks and traditional settlements attract and the funding provided to protect Cultural Heritage Sites.

Historic and cultural importance

Cultural landmarks and traditional settlements are, ultimately, the legacy of communities and societies that previously inhabited the area. These are, therefore, important instruments to understand how our ancestors lived. Cultural landmarks and traditional settlements serve as tangible links to the past; they show architectural styles, technologies and organization of previous inhabitants. These serve as a

testament to how societies evolved over time, allowing us to better understand current societies. Furthermore, cultural landmarks and traditional settlements embody the culture of the communities that created them. They function as repositories of cultural knowledge, maintaining cultural practices that would otherwise have become extinct. Moreover, these provide communities with unity, due to the shared identity and culture these provide.

Economic importance

Cultural landmarks and traditional settlements are paramount for many local economies. This is

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primarily due to the tourism they attract, but also due to the increased funding given to protect Cultural Heritage Sites. The influx of visitors and need for protection of sites strengthens the local economy by creating employment and investment opportunities. Cultural Heritage serves as a long term driver of investment in local economies (UNESCO World Heritage Centre “World Heritage Sites”). One example of this is the investment in the Colonial City of Santo Domingo, which was recognised as a UNESCO World Heritage Site in 1990. Figure 2 shows the growth of tourist expenditure in the city in the following years. The Colonial City of Santo Domingo serves as an example of how investment in Cultural Heritage can result in profit for communities when well managed.

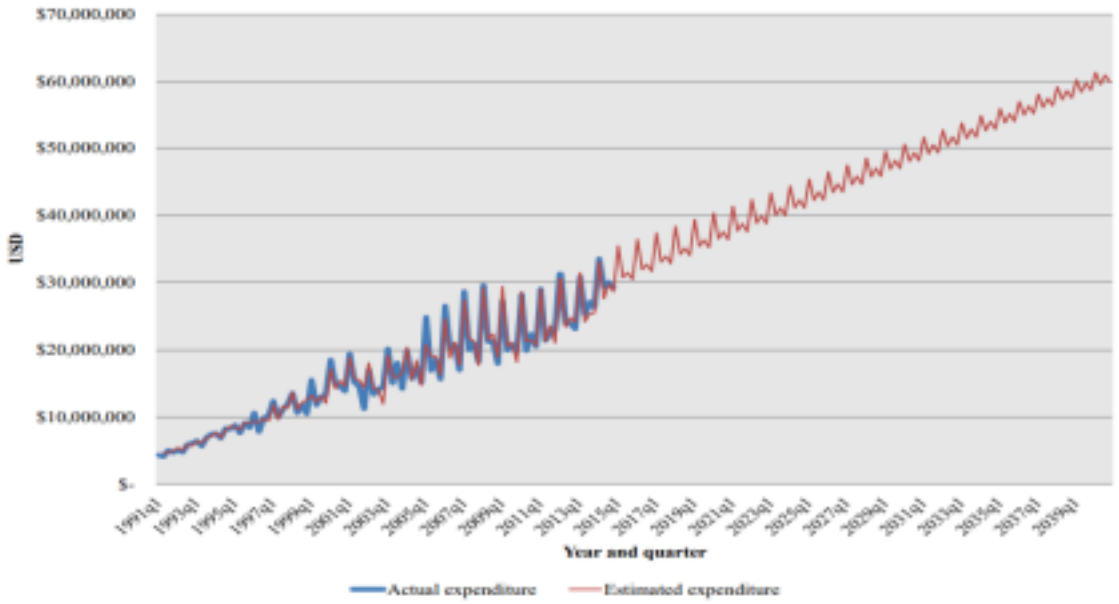

Figure 2. Actual and estimated non-resident foreign expenditure in the Colonial City of Santo Domingo.[3]

Possible impacts of natural disasters on Cultural Heritage

Natural disasters threaten the integrity, and therefore compromise the value and identity provided by Cultural Heritage. Natural disasters can damage parts of Cultural Heritage Sites or completely destroy them. Natural disasters can be geologic disasters, i.e. disasters induced by geologic processes, such as earthquakes, volcanic eruptions, landslides or tsunamis, or they can be climate-induced disasters, such as heatwaves, wildfires, floods, droughts or hurricanes. Geologic disasters are caused primarily by tectonic movement and therefore are harder to predict and less preventable, while climate-induced disasters are more predictable and are caused largely by human-induced climate change. Climate change, therefore, has the ability to increase frequency and severity of natural disasters, thus posing a serious threat to cultural landmarks and traditional settlements. Figure 3 shows the number of Heritage Sites at risk of different types of disasters from a sample of Heritage Sites. Fires, floods and storms are

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all largely dependent on climate changes, and they are some of the most common disasters affecting World Heritage Sites. Figure 4 shows how water poses a threat to many WH Sites worldwide.

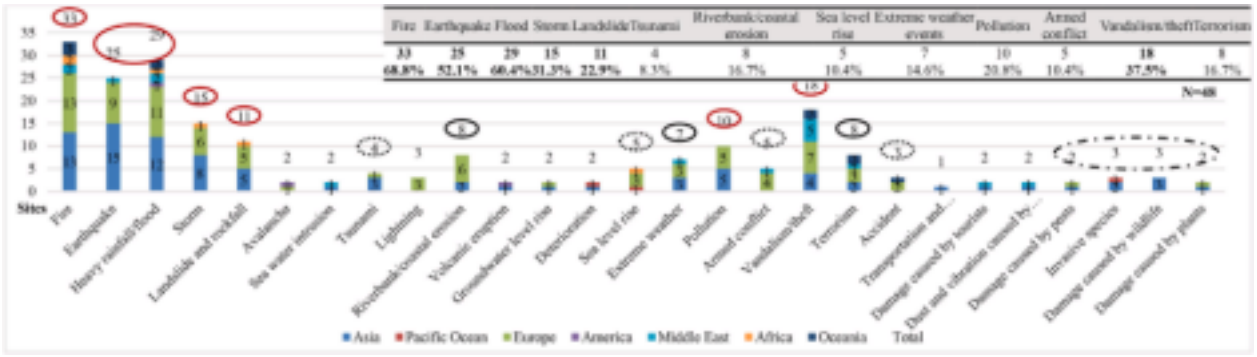

Figure 3. Number of hazards by hazard type for a sample of 48 World Heritage Sites.

Figure 4. Map of World Heritage Sites facing severe water risks.[4]

Natural disasters have also impacted traditional settlements. Traditional settlements are resilient to certain consequences of natural disasters because they possess Traditional/Indigenous Knowledge (TIK). TIK allows traditional settlements to be able to predict and manage natural disasters highly effectively. Since traditional settlements develop TIK, they develop DRR measures over time. TIK can be implemented in urban areas for innovative DRR methods. Nonetheless, it is necessary to introduce measures to allows traditional settlements to have access to technology to help cope with natural disasters.

Figures 5 and 6 show how countries are increasingly implementing frameworks to increase protection from natural disasters.

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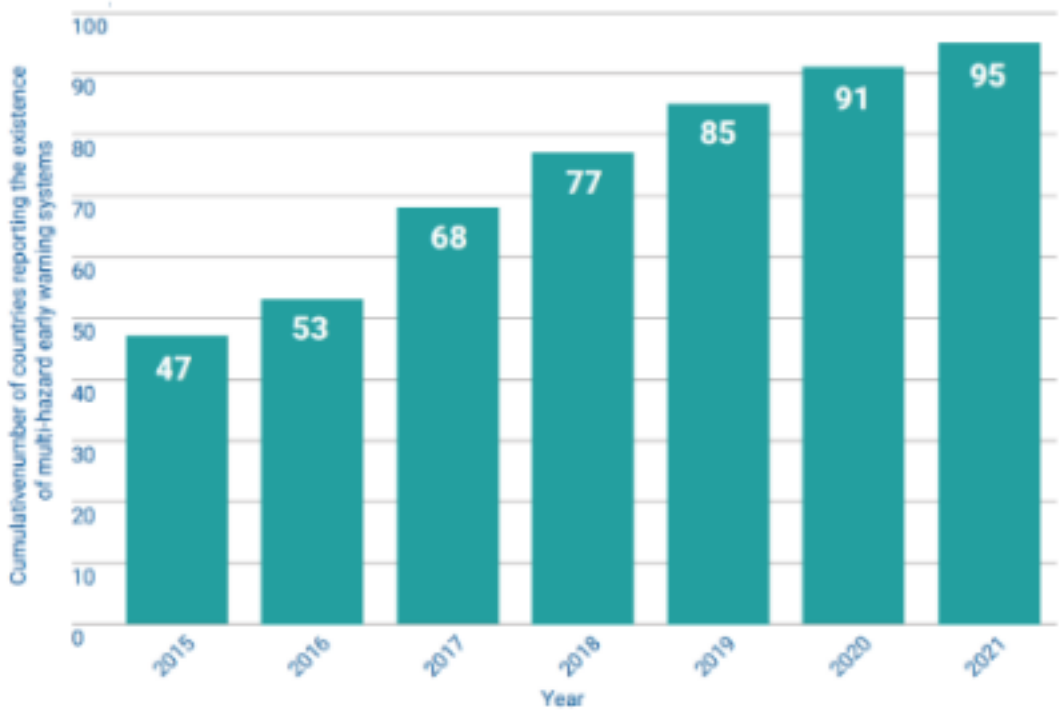

Figure 5. Number of countries with multi-hazard warning systems by year.

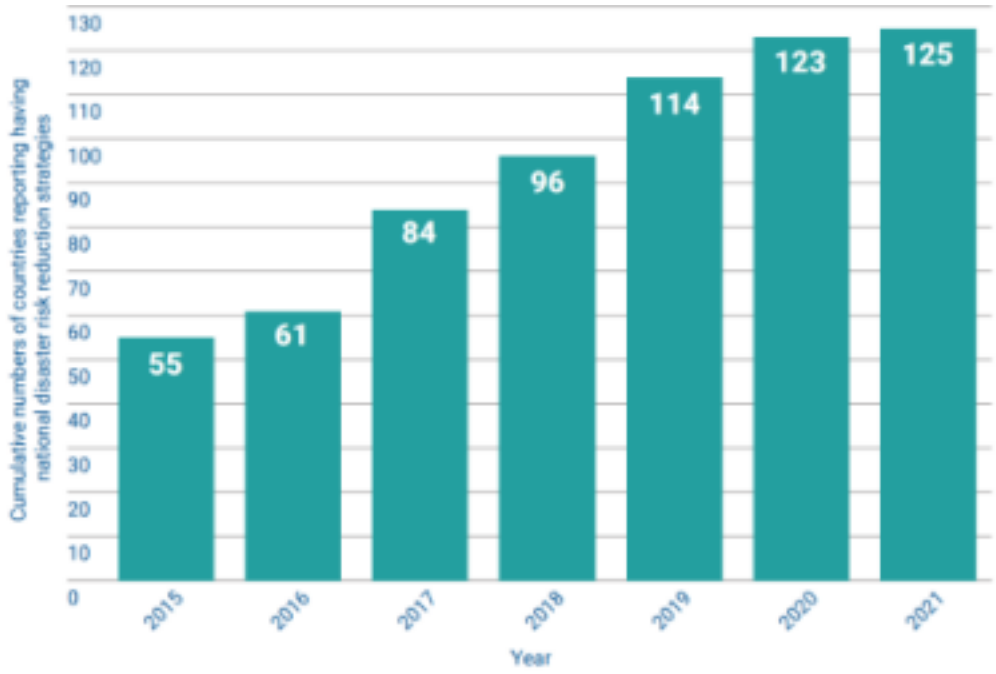

Figure 6. Number of countries with DRR strategies by year.[5]

Historical background

UNESCO, established in 1945, has played a critical role in the protection of cultural heritage through several affiliated bodies, including the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) established in 1959, the International Council on Monuments and Sites (ICOMOS) established in 1965 and the World Heritage Committee (WHC), created under the 1972 World Heritage Convention. Although site protection has been one of the WHC's priorities since its inception, it was only in the mid-2000s that natural disasters were formally recognized as a major threat

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to WH sites. Following a 2006 report, disaster risk reduction (DRR) became a major focus of the WHC. This aligns with the 1999 establishment of the United Nations Office for Disaster Risk Reduction (UNDRR), which oversees the Sendai Framework for Disaster Risk Reduction 2015-2030, the successor of Hyogo Framework for Action 2005-2015 (HFA). Despite increased attention from individual Member States, the growing frequency and severity of natural disasters continue to pose significant threats to WH Sites.

Existing frameworks

Sendai Framework

The Sendai Framework is a framework designed to protect development gains from the risk of disaster. Its progress is overseen by the UNDRR, being this the UNDRR's primary role. The Sendai Framework addresses the issue of DRR in general, however, Priority 4 of the Sendai Framework includes many references to culture and heritage. The Sendai Framework, in general, advocates for a culturally-sensitive approach to DRR. The framework's midterm report found that only two of the seven objectives of the framework were on track to be met. This lack of success can be attributed largely to the COVID-19 pandemic; however, it is also caused by a lack of response from Member States (UNDRR "The Report").

WHC

Throughout the WHC's existence, it has adopted many measures designed to combat the issue of the threat natural disasters pose to WH Sites. The WHC's largest contribution in this issue, has, however, been the Strategy for Reducing Risks from Disasters at World Heritage Properties in 2007. To this day, this serves as the guiding principles for measures to address the impacts of natural disasters on World Heritage Sites.

Major areas of DRR

The main areas of DRR that can be applied in individual WH Sites are prevention and mitigation measures, preparedness and response measures, and management and institutional measures. Which of these should be applied depends largely on the location and vulnerabilities of Cultural Heritage Sites.

Major Countries and Organizations Involved

UN and International involvement

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The United Nations has had increasing involvement in this issue in the past decades, especially due to a rise in natural disasters. The United Nations has established UNESCO, which in turn established the WHC, and has also established the UNDRR. Both the WHC and the UNDRR have conducted efforts to address this issue, however, the WHC has conducted more efforts since this issue is more specific to them. These efforts have resulted in increased protection for WH Sites from natural disasters and

improved disaster response measures. Relevant decisions include:

● Strategy for Reducing Risks at World Heritage Properties, 2 July 2007 (WHC-07/31.COM/7.2)
● Reflection on the Trends of the State of Conservation, 3 August 2010 (WHC-10/34.COM/7C) ● Reflection on the Trends of the State of Conservation, 6 July 2012 (WHC-12/36.COM/7C) ● State of conservation of World Heritage properties, 25 June 2014 (WHC-14/38.COM/7) ● Sendai Framework for Disaster Risk Reduction 2015-2030, 3 June 2015 (A/RES/69/283)

These efforts have resulted in DRR in WH Sites through protective and preventative measures, nonetheless, there is a need for continued action.

International Council on Monuments and Sites (ICOMOS)

ICOMOS works for the conservation of monuments and sites all around the world, and therefore they have many initiatives to promote protection of cultural heritage. ICOMOS - International Scientific Committee on Risk Preparedness (ICORP) is a subcommittee of ICOMOS and oversees risk preparedness for sites globally. One of their recent initiatives is the ICOMOS Panel Series - Expect Unexpected, a panel on how to effectively respond to disasters in WH Sites.[6]

International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM)

ICCROM has planned and initiated many initiatives regarding DRR in Cultural WH Sites. ICCROM provides training courses on DRR in Cultural Heritage, targeted for professionals and policymakers. ICCROM was established in 1956, making it one of the first UN efforts to protect World Heritage (ICCROM).

Timeline of Events

Date	Description of event
November 16th, 1945	UNESCO established
1956	ICCROM established
June 22nd, 1965	ICOMOS established

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November 16th, 1972	Convention Concerning the Protection of the World Cultural and Natural Heritage adopted by UNESCO
December 1st, 1999	UNDRR established
December 26th, 2004	Indian Ocean earthquake and tsunami damage Cultural WH sites in Sri Lanka and Southeast Asia
January 22nd, 2005	Hyogo Framework for Action (HFA) 2005-2015 adopted by UNDRR
October 13th, 2005 July 2nd, 2007 March 18th, 2015 April 25th, 2015 2020	Convention on the Value of Cultural Heritage for Society (Faro Convention) adopted by Council of Europe Strategy for Reducing Risks from Disasters at World Heritage Properties adopted by the WHC Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) adopted by UNDRR Nepal earthquake damages many Cultural WH sites in Kathmandu Floods in China collapse Zhenhai Bridge and damage many other Cultural WH Sites
September 2022	Floods in Mohenjo-Daro (Pakistan) damage Cultural WH site

Previous Attempts to solve the Issue

UN Efforts

The successor of the HFA, the Sendai Framework, is still ongoing. The Sendai Framework will continue until 2030; however, a midterm review found that only two of the seven targets established by the framework in 2015 were on track in 2023. This was likely due to stagnation due to COVID-19, which made it harder to fund the Sendai Framework's efforts (UNDRR "The Report").

The Strategy for Reducing Risks from Disasters at World Heritage Properties, adopted in 2007 by the WHC, along with many relevant WHC decisions, align with the Sendai Framework and are being applied in many World Heritage Sites globally. Despite their success, natural disasters continue to threaten Cultural WH Sites, and therefore it is imperative to continue seeking increased action (UNESCO World Heritage Centre "Reducing Disasters").

Global Efforts

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The Council of Europe adopted a Recommendation in 2009 encouraging Member States to work towards the protection of Cultural Heritage to Climate Change. The EUR-OPA Major Hazards Agreement and Faro Convention are also associated with the Council of Europe (Council of Europe).

ICCROM

ICCROM has created workshops and provides resources for professionals and policymakers to create DRR in World Heritage Sites (ICCROM). ICCROM provides an extensive framework for measures to address this issue, however, due to limited exposure and lack of international urgency surrounding DRR in Cultural Heritage, these resources have had limited application.

Possible Solutions

Specific measures

Possible measures for different types of natural disasters (Li)

Type of natural disaster	Prevention and mitigation	Preparedness and response	Institutional and management
Earthquakes	Measuring earthquake resistance of Cultural Heritage Sites, strengthening structures determined to be too weak, ascertaining emergency preparedness	Evacuations and first aid for injured people, emergency repair of architectural components if necessary	Implementation of nationwide earthquake warning systems, enforcement of building code laws, development of protocols to protect landmarks and settlements from damage
Landslides	Monitoring of landslides in the area, reinforcement of steep slopes	Evacuations and first aid for injured people, emergency repair of architectural components if	Regulation regarding vegetation and drainage in dangerous slopes to reduce risk while not

		necessary	compromising the value of Cultural Heritage Sites
Tsunamis	Tsunami observation systems, alerting systems	Evacuations and first aid for injured people, emergency repair of architectural components if necessary	Implementation of nationwide earthquake warning systems, enforcement of building code laws, development of protocols to protect landmarks and settlements from damage

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Fires	Patrols, management of electrical components, prohibition of common fire starters, community awareness campaigns, frequent monitoring of areas with high frequencies of fires	Fire detection systems, fire extinguishers, fire observation points, fire information transmission systems, fire hydrants, prepared water tanks	fire drills, staff training, formation of fire brigades, establishment of a clear chain of command for fire management
Heavy rainfall and flooding Storms	Watercourse monitoring, embankments, introduction of appropriate drainage systems Alerting systems, preparations for emergency	Emergency evacuation measures, availability of medical aid, emergency recovery measures for important artefacts Emergency evacuation measures, availability of medical aid, emergency recovery measures for important artefacts,	Flood control in the broad area, water drainage plans, construction of embankments, frequent inspection of facilities, water body checks, sewage system maintenance Staff training and competence development, management protocol

		prevention of secondary disasters	
Erosion and sea level rise	Addition of dikes, revetment systems	Temporarily move artefacts away if needed, protective infrastructure for architecture	Coastal zone management, documentation and frequent reporting

Other necessary changes

If the correct measures are implemented at Cultural World Heritage Sites, cultural landmarks and traditional settlements will be very effectively protected from natural disasters. It is, nevertheless, important that other measures be implemented so that the aforementioned measures may be implemented. One of these is increased awareness the impacts of natural disasters on cultural landmarks and traditional settlements in general. If people are not aware of these, they cannot act to address these, and thus regulatory bodies are not motivated to act in protection of Cultural WH Sites. Another of these is improved reporting. Without proper reporting of the impacts of natural disasters, proper action cannot be taken and correct predictions cannot be made. Finally, international cooperation is crucial to address this issue. Cultural landmarks and traditional settlements are not only important for just the communities that inhabit them; they are important for all of humanity. Shared financial resources, expertise and coordinated disaster response are crucial to protect all Cultural World Heritage.

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Endnotes

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