Disaster Risk Assessment of Cultural Heritage Sites in Berat, Albania

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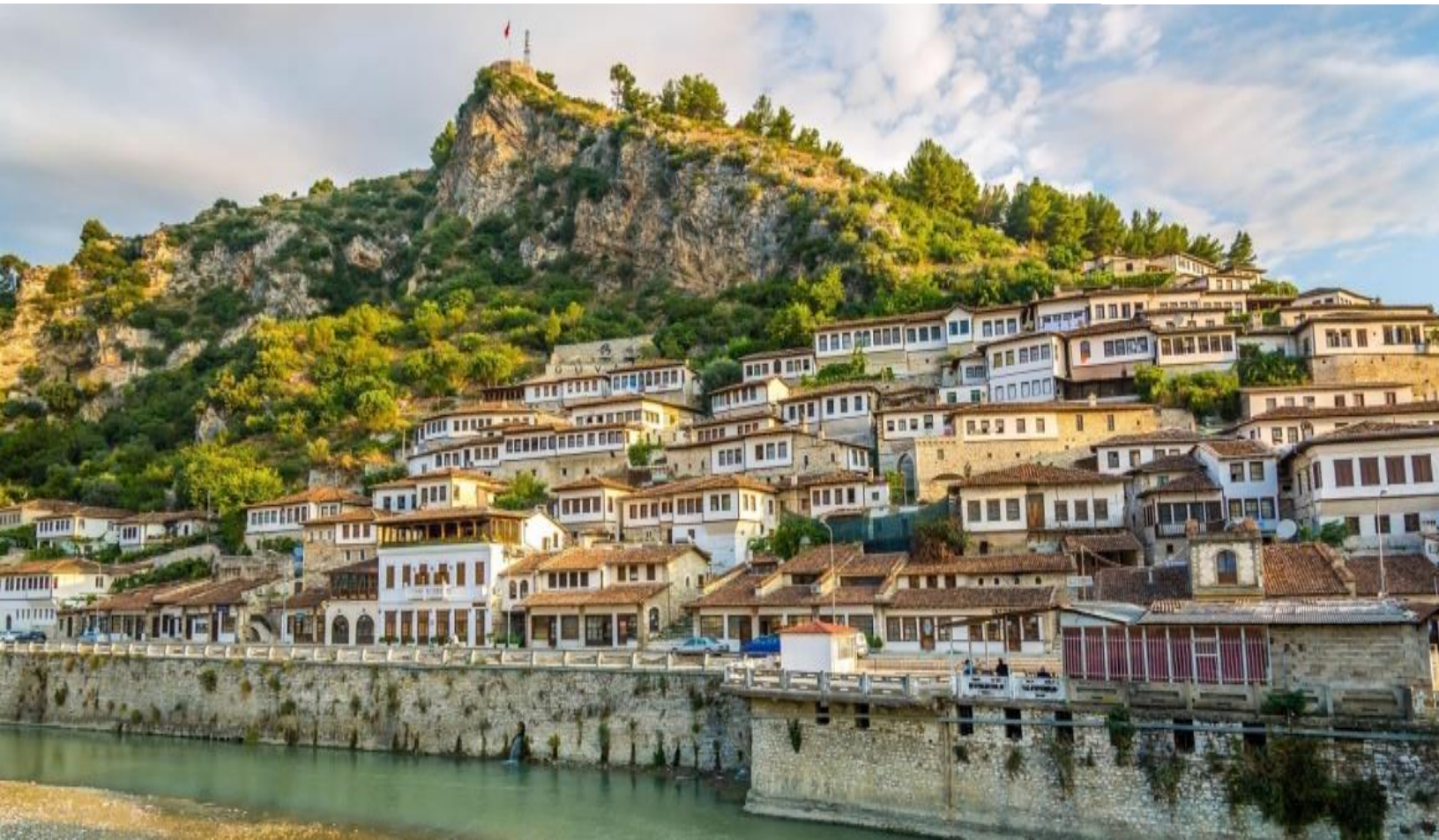

Disaster Risk Assessment of Cultural Heritage Sites in Berat, Albania

An Interactive Qualifying Project submitted to the
Faculty of WORCESTER POLYTECHNIC
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requirements for the Degree of Bachelor of Science

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Abstract

As the monuments at the world heritage site in Berat, Albania continue to fall into disrepair, there is little data available to help preserve them. In collaboration with Cultural Heritage without Borders we set forth to help planners in Berat better preserve cultural monuments and protect them from natural and human-induced hazards. We achieved this by assessing the monuments, creating a database, and interviewing residents and key informants. The database we created will be forwarded to the Albanian government and other organizations to help them make well-informed decisions. The assessments of each monument evidenced that Berat has a large problem with vacant homes in disrepair. We also concluded that preservation is extremely limited due to a lack of financial resources.

Acknowledgements

We would like to thank the following organizations, people, and groups for their collaboration, cooperation, support of our project:

- Everyone at Cultural Heritage without Borders: Albania, especially Lejla Hadžić, Ana Pekmezi, Jonathan Eaton, Anisa Mano, and Hajredin (Dini) Baushi who gave up their time and resources so we could complete a successful project
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- The Guva Mangalem Hotel for their incredible hospitality during the three weeks we spent in Berat, for cooking us breakfast every day, and also doing our laundry
- The residents of Berat for welcoming us into their homes, offering us food and beverage, and answering any questions we asked. We will forever be grateful
- Professors Robert Hersh and Leslie Dodson, for keeping us on the right path, and helping us complete this project and report

Executive Summary

Cultural heritage is comprised of physical structures and artefacts, as well as intangible traditions, songs, and religions that provide definition to a people's identity (Barillet, Joffroy, & Longuet, 2006). The importance of cultural heritage in Albania stems from a long and varied history. The different inhabitants of the region spanned thousands of years and include the Illyrians, Romans, Byzantines, and Ottomans; each bringing their own unique cultures. They have contributed to the current way of life in Albania and provide insight into the past, which is why the preservation of monuments that represent cultural heritage needs to be a top priority. Preservation consists of keeping monuments well-maintained, as well as protecting them from hazards that could inflict damage. Heritage sites continue to be destroyed by natural and human-induced hazards. As natural disasters such as earthquakes and fires continue to strike at alarming rates, humans are also damaging cultural monuments. Culture heritage is being affected by the need of societies to urbanize and develop. To improve upon preservation, municipalities need to be provided with more data in order to allocate resources and make more educated decisions. In response to the destruction, or potential destruction, of monuments, organizations from around the world such as United Nations Educational, Scientific, and Cultural Organization (UNESCO) and Cultural Heritage without Borders (CHwB) have mobilized to preserve cultural heritage sites, including those in Albania. Most notably CHwB: Albania has done a large study in Gjirokastra, which is grouped with Berat as a UNESCO world heritage site (World Heritage Centres of Gjirokastra and Berat), because of their Ottoman and Byzantine style architecture. Now, they aim to provide the Albanian government and other international organizations with specific data on Berat's 400-plus cultural monuments.

The goal of our IQP project is to help planners in Berat better preserve cultural monuments and protect them from natural and human-induced hazards. This project also aims to understand the residents' opinions on living in a historical monument. We collaborated with staff from Cultural Heritage without Borders (CHwB) to identify four objectives:

- Understand and assess current approaches to disaster risk management of cultural monuments at the national, regional, and local levels pertaining to Berat.
- Assess the physical conditions, historical context, occupancy, usage, and hazards of cultural monuments in Berat and associated risks.
- Create a database to help local authorities prioritize interventions.
- Assess the views of monument owners and their respective stake in cultural heritage in Berat.

To complete these objectives we first assessed current approaches to disaster risk management and preservation at the local level in Berat, Albania by interviewing key informants using a semi-structured interview. These informants were associated with the Regional Directorate for National Culture, Cultural Heritage without Borders, and a member of the Peace Corps stationed in Berat. Next, we assessed the hazards, risks, structural stability (roof, walls, floors/ceilings), historical content, and occupancy of the 429 monuments in the historical quarter of the city by completing a survey designed in collaboration with CHwB. The team then created a database using a statistical system (SPSS) and a Geographical Information System (GIS) to help stakeholders prioritize monuments for preservation. Lastly, we interviewed six monument owners in an effort to grasp their opinions on the benefits and burdens of living in Berat and owning a monument. After completing these methods we were able to conclude a number of findings which are bulleted below.

- Tourism is strongly linked to Berat's economy through restaurants, hotels, and other forms of catering towards tourists. Tourism has doubled in the last three years, so preservation of monuments will be essential to tourism as a base for Berat's economy.
- Condition of Monuments
    - 60% of the monuments with a high level of historical content are in immediate danger of structural damage from hazards. That translates to approximately one-third of the total monuments surveyed (33.1%).
    - More than half of all monuments in the historic districts are in poor to very bad condition.
    - Vacant homes in Berat are a substantial problem with almost one-fourth of the monuments left unattended.
- There was a limitation with the site assessment. The assessments, combined with the matrix used to find the priority category ranking, were assigning higher priority to vacant homes over occupied homes, even if the structures had the same amount of damage.
- Disaster risk management and preparedness is hindered by a lack of funding from the government. This lack of funding also impedes many residents who own monuments from restoring and maintaining their homes.
- All cultural monuments are at risk of fire due to several factors including the predominant use of wood in the construction of buildings, the tight proximity of buildings in this district, and the inaccessibility of many of the monuments to fire-fighting equipment.
- Earthquakes are a threat to all monuments in Berat, and even small tremors can result in landslides and rockfalls, namely in Gorica and Mangalem. The risk of flooding is low, as many of these monuments are elevated far from the river and reside higher than most of the area.

After analyzing all the data and finding different themes throughout, we thought of a few recommendations for Cultural Heritage without Borders, the stakeholders in Berat, and for a future IQP project.

- CHwB might consider adjusting their matrix in order to allow for damaged occupied monuments to be the same priority as damaged vacant monuments.
- Stakeholders, including the Regional Directorate for National Culture, will use this data in their ongoing efforts to preserve the beautiful monuments in Berat.
- Further research to better understand the relationship between tourism, the economy, and cultural heritage in Berat could build upon our assessment of the 429 monuments and our research on cultural heritage preservation.

Authorship

The intro of the paper was written during both ID 2050 and on IQP in Albania with all group members working together at the same time to draft and edit. The acknowledgments, authorship page, and executive summary were completed by Alex while the team was finishing up final drafting and edits. The rest of the team then edited each of those sections. The basis of the background and method chapters were written during the ID 2050 class in A-term of 2017. The team was very effective in splitting up the drafting portion of the chapters and everyone participated in the revisions. Grammatical and formatting revisions were taken care of by David, Alex, and Ben, while Zach was the leader on citation edits. The following table shows the authorship of each chapter broken down by sections...

	2.1	2.2	2.3	2.4	2.5	3.1	3.2	3.3	3.4	3.5
Alex			✓			✓		✓		✓
Ben		✓		✓		✓			✓	
David	✓			✓		✓		✓		
Zach					✓	✓	✓			✓

The second half of the paper that was generated while in Albania had a different authorship set-up. It is hard to breakdown the sections of the findings into a definitive drafting table because after a first round of edits, the writing remained somewhat the same, many sections were combined. Alex and Zach took a lead in drafting, while David drafted but mainly took lead in editing. Zach and Alex also took a role in editing. Lastly Ben took the lead role in organizing all of our data and finding the specific numbers and percentages that came from it. Ben also dedicated time to drafting the findings section on the monument conditions and editing. The conclusion was split up by section between Alex, David and Zach while Ben was organizing and analyzing the data from the 429 monuments. The table below shows the authorship of each section from the findings and conclusion.

	4.1	4.2	4.3	4.4	4.5	4.6	5	5.1	5.2	5.3	5.4	5.5
Alex			✓		✓		✓			✓	✓	✓
Ben		✓										
David				✓		✓		✓			✓	
Zach	✓				✓	✓			✓		✓	

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1. Introduction

"People have always had the need to refer to their history in order to ensure the continuity of a common identity that evolves over time." (Barillet, Joffroy, & Lonquet, 2006, p. 26)

Cultural heritage is comprised of physical structures and artefacts, as well as intangible traditions, songs, and religions that provide definition to a people's identity (Barillet, Joffroy & Longuet, 2006). The importance of cultural heritage in Albania stems from a long and varied history. The different inhabitants of the region spanned over thousands of years and include the Illyrians, Romans, Byzantines, and Ottomans; each bringing their own unique cultures. These cultures are evident in the variety of religions, traditions, and different styles of architecture found in Albania today. They have contributed to the current way of life in Albania and provide insight into their past, which is why the preservation of monuments that represent cultural heritage needs to be a top priority. Preservation consists of keeping the monuments well-maintained, as well as protecting them from hazards that could inflict damage.

Preserving the monuments that remind Albanians of their ancestral heritage is not an easy task. Heritage sites are at risk and increasingly being destroyed by natural and human-induced hazards ("Preserving our Cultural Heritage," n.d.). As natural disasters such as earthquakes and fires continue to strike at alarming rates, humans are also damaging cultural monuments. In some situations, the desire for urbanization and development overshadows the goals of cultural heritage preservation (Dollani, Lerario, & Maiellario, 2016). To combat these hazards, it is important that disasterrisk management plans be implemented. The Albanian government and local municipalities have a structural framework of plans and how they will be carried out. That being said, it is rare that

Figure 1 Gorica Bridge ("Berat," 2017)

Figure 2 Gjirokastra Monuments ("Historic Centres of Berat and Gjirokastra," 2017)

the local governments carry out the processes as planned. Other challenges for disaster risk management and preservation in Albania revolve around the lack of financial means, especially at the local levels of government ("IPA Beneficiary," 2011). To improve upon preservation, municipalities need to be provided with more data in order to allocate resources and make more educated decisions. In response to the destruction, or potential destruction, of monuments, organizations from around the world such as United Nations Educational, Scientific, and Cultural Organization (UNESCO) and Cultural Heritage without Borders (CHwB) have mobilized to preserve cultural heritage sites, including those in Albania.

Cultural Heritage without Borders (Appendix A), is a non-government organization that dedicates itself to preserving cultural heritage that is or could be damaged by "conflict, neglect or human and natural disasters" ("Who we are", n.d., para. 1). In recent years they have made an emergency intervention at the Church of St. Nicholas in Voskopoja in 2013 while also completing the recent restoration of the hamam in Kruja in 2015 ("History," n.d.). Most notably CHwB: Albania has done a large study in Gjirokastra, which is grouped with Berat as a UNESCO world heritage site because of their Ottoman and Byzantine style architecture ("Historic Centres of Berat and Gjirokastra," 2017). Now, they aim to provide the Albanian government and other international organizations with specific data on Berat's 400-plus cultural monuments.

The goal of this project is to help planners in Berat better preserve cultural monuments in the city from natural and human-induced hazards, and also learn the residents' opinions on living in a historical monument. To achieve this goal, it is necessary to first understand current approaches to disaster risk management in Berat by interviewing local stakeholders. Following that site data was collected from site assessments completed while stationed in Berat and will be

used as the basis of the database. In collaboration with staff from Cultural Heritage without Borders (CHwB), mapping software was used to analyze data on the condition of cultural monuments in the city in order to create a database. To grasp the social context with respect to cultural heritage in Berat, the team interviewed a select group of monument owners to understand their opinions on living in Berat. The previous CHwB study in Gjirokastra was used as a blueprint for the project in Berat. The data collected and deliverables created are intended to help stakeholders prioritize interventions to preserve and restore monuments in Berat.

2. Background

2.1 Cultural Heritage

UNESCO defines cultural heritage as "the legacy of physical artifacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations" ("Tangible Cultural Heritage," n.d., para. 1). Cultural heritage is the embodiment of the identity of a people, a connection to the past that allows people to look back on their history, allowing them to better understand who they are and where they came from. This is important because often people look to their cultural heritage for guidance and a sense of community. The stories, teachings, and artefacts of a culture can not only bring people closer together through a shared sense of values and history, but also provide answers for conflict resolution and reconciliation for the present through lessons learned from the past ("Preserving our Cultural Heritage," n.d, para. 2).

Cultural heritage presents itself in two ways. First, there is the material, tangible form: archaeology, art, movable objects, architecture and landscape. Tangible cultural heritage can be seen in the mosques, churches, and monuments, as well as artefacts and artworks that carry social and cultural significance to a society. The second form is the intangible attributes: the traditions, songs and other aspects that define the culture of a people (Barillet, Joffory, & Longuet, 2006). Although they are separate in their presentation, both aspects of cultural heritage are tied closely together. In a report by UNESCO on the significance of cultural heritage, they state that "All intangible aspects such as knowledge systems, the principles of action or the values and beliefs of man, cannot be considered as heritage if they cannot be shared, and given a sensible form – words, objects, gestures, representations and even behaviours" (Barillet, Joffory, & Longuet, 2006, p. 9). The tangible and intangible forms of cultural heritage work together to preserve and promote the identity of a group of people. In a region with as much history as the territory that now comprises Albania, many cultures have left behind their unique heritage that is still prevalent today.

Figure 3 Gate of Pasha Complex ("Berat," 2017)

Significance of Cultural Heritage in Albania

Albania has a deep and rich history, spanning thousands of years and the occupation of several ancient world empires. Illyrian, Byzantine, Ottoman; each of these civilizations left behind prominent influences on the religions, traditions, and architecture of the people who have lived in what is now known as Albania. It is CHwB's goal to preserve these tangible and intangible ancient cultural aspects within Albania in order to "strengthen peace building, sustainable socio-economic and democratic development and the realisation of human rights," ("Strategic Plan," n.d., para. 5).

In order to understand the importance of cultural heritage to Albania, it is important to 1st look at Albania's recent history. Forty-seven years of communist totalitarian rule between 1944-1991 has left its mark: distrust of institutions, unequal regional development, a lack of transparency in government, and a large amount of emigration particularly among the youth in search of a better life elsewhere. These issues left over after the fall of the communist regime, in which a sense of identity and cultural heritage were harshly oppressed, have largely overshadowed the matters of ancient cultural heritage and its preservation. For this reason, several institutions, including Cultural Heritage without Borders, have recently been making a large effort to make the preservation of ancient culture a priority.

Figure 4 Skanderbeg Statue in Kruja, Albania ("Albania", 2015)

Building and promoting cultural heritage can have many positive effects on a country. According to Arta Dollani, an expert on Albanian heritage, cultural heritage can be used as "an engine for the reconciliation, democratic development, and socio-economic growth of communities" (Dollani, Lerario & Maillario, 2016, p. 1). While under communist rule, Albania's communication and cultural expression was largely cut off from the rest of Europe and the world, leaving the country in an isolated state. The promotion and preservation of Albania's cultural heritage can help cultural "reconciliation" to occur with the greater parts of Europe. The goal of this is to promote peace and understanding between nations and cultures through the preservation and sharing of cultural values and ideas. This reconciliation will allow Albania to progress in its integration and relations with other European countries and the rest of the world (Turkoz-Cosslett, 2008).

This reconciliation between nations would also be helpful for the communities within Albania and Albanians within the surrounding countries. Macedonia, Kosovo, Greece and Albania share long and complicated histories. In the past many conflicts have surrounded ownership of territories between these countries and the Turkish and Serbians, and in some cases these tensions are still felt to this day. Many of these countries have large populations of Albanians within them, which is currently seen as potential factor for tension within the countries (Balalovska, 2002). However it also presents an opportunity for peace through strong interconnectedness. Rather than be a source of tension, cultural heritage preservation and promotion could help these diverse ethnic communities, through their shared history, bond and reconcile.

Heritage conservation has also demonstrated a significant role in sustaining local communities, not only by reinforcing local identity, traditions, and practices, but also by bringing economic benefits through well-managed tourism (Dollani, Lerario & Maiellario, 2016). UNESCO has named several sites in the country as prominent world heritage sites, which, with the proper management of tourism, could create many opportunities for both cultural and economic development. Cultural heritage preservation may also provide Albania with opportunities for democratic, economic, and cultural growth, and can be used as a strong foundation for progress.

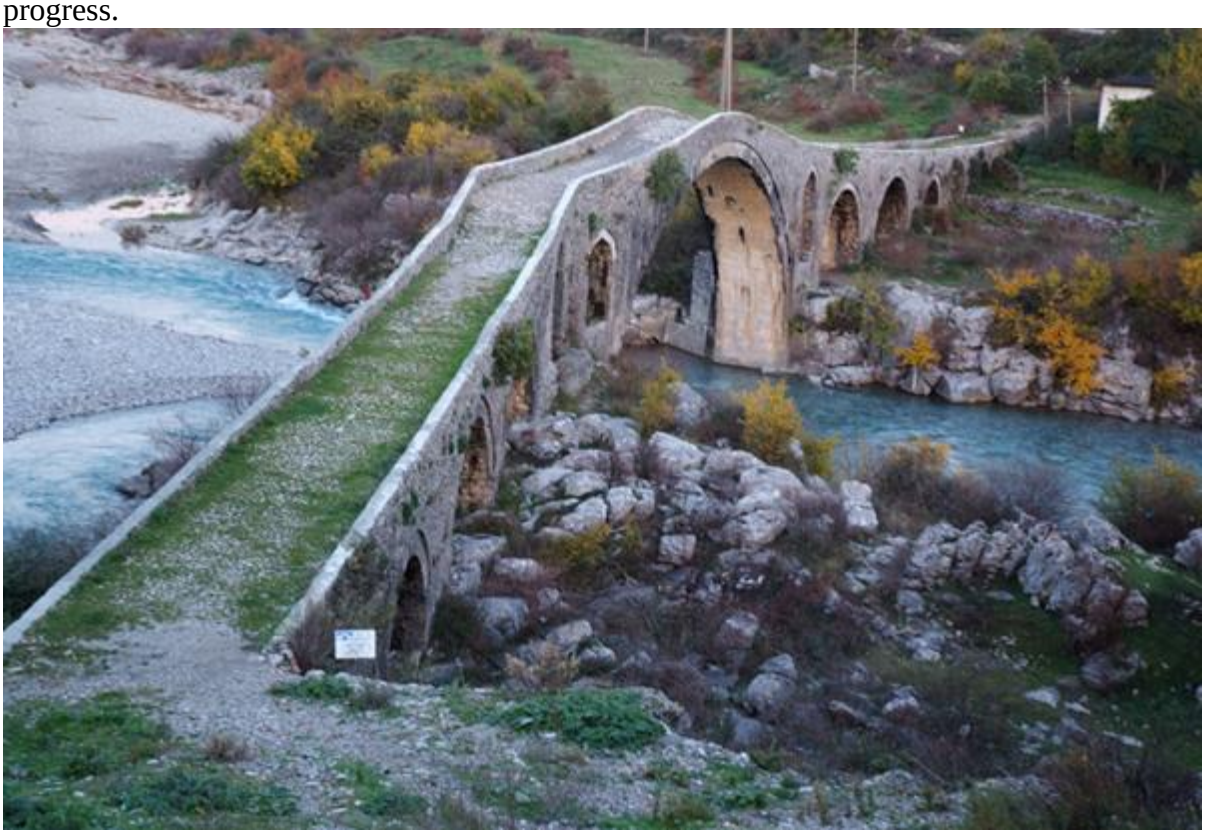


Figure 5 The Mesi Bridge, near Shkodra, Albania ("Essay and Photo Contest". 2008).

The Impact of Cultural Heritage on Countries and Communities

Recent studies from the European Union show the positive impact that cultural preservation and development has on countries and communities. Prioritizing cultural heritage stimulates job growth, economic development on a macro and micro level, increases the

Figure 6 Tate Modern in London, England (Mitchell Robert, 2017, May 5)

attractiveness of countries and cities, reinforces cultural identity and brings communities together (Giraud-Labalte et al., 2015). According to a World Bank study in 2001, for every 1 million USD spent on building, 31.3 jobs were created, versus only 21.3 jobs in the car manufacturing industry (as rehabilitation cited in Giraud-Labalte et al., 2015, p. 21). Furthermore, cultural heritage is an expansive field that directly and indirectly stimulates economies on a local, regional, and national level. In Europe, an estimated 300,000 jobs are directly linked to cultural heritage, along with an additional 26.7 indirect jobs. This equates to approximately 8 million jobs directly and indirectly created by cultural heritage preservation and promotion (Giraud-Labalte et al., 2015). A primary example of this is the Tate Modern in London, UK. Within 1 year of its development, the Tate Modern became the third most visited tourist attraction in the UK, bringing in many tourists to a previously underdeveloped area. Between 2,100 and 3,900 jobs were created between the construction, hotels, catering, and management. The site generated approximately 70-140 million euros (Giraud-Labalte et al., 2015).

Cultural heritage has been proven to both increase the quality of life of residents and create "social capital." The preservation of cultural heritage provides benefits to a community's architecture and building style, which can play a much greater role in communities than just serving as structures. Historical districts and other areas of a city can become centers for social and creative development, such as the Creative Industries Quarter in Shefield, UK and the Temple Bar in Dublin, Ireland. The unique and eye-catching qualities of cultural heritage sites and their architectural features increase the attractiveness of a city, which can help stimulate creativity and culture. This subsequently attracts people and may increase the prosperity of the cities that preserve and celebrate their cultural heritage sites (Giraud-Labalte et al., 2015). The regeneration of cultural heritage has been shown to increase the appeal of cities and towns, and create a more positive atmosphere that both visitors and residents enjoy. For example the restoration of the Pszczyna Castle in Poland had a positive impact on the town and boosted residents' pride (Giraud-Labalte et al., 2015). The restoration also managed to intensify the residents' participation in their culture (Giraud-Labalte et al., 2015).

In May of 2017, the UNDP released a report on a project in which the organization sought "to strengthen inter-community trust and respect for cultural identity and heritage...by

Figure 7 Alleyway in the historic neighborhood of Mangalem, Berat, Albania ("Berat," 2017)

heritage" ("Confidence Building," 2017). This project was two-fold. The first part of the project was to restore, rehabilitate and "beautify" 19 religious and cultural heritage sites within Kosovo. The second part was to engage the youth community. They had 100 young professionals from many ethnic backgrounds work together with UNDP on the protection and promotion of cultural heritage sites within the country, and implemented cultural heritage into 20 school systems in Kosovo. In the report released in May of 2017, they had found "It was clear from interviews that efforts that support confidence building between communities are welcome and fruitful, as well as needed in many cases." (Bugnion de Moreta, 2017). The large majority of all stakeholders agreed that the measures taken in "confidence boosting" through the preservation of cultural heritage created strong environments for the cohabitation of communities (Bugnion de Moreta, 2017). The results from this project demonstrate the potential impacts cultural heritage preservation and promotion can have on communities. By engaging the community to work together on projects involving their shared heritage, people of many different backgrounds can bond and reconcile. This is important to Albania due to its tensions with its neighboring countries and interior ethnic communities. Macedonia, Kosovo, Greece and Albania share long and complicated histories and there are tensions left between them to this day. At the same time, many of these countries have large populations of Albanians within them, furthering the strong interconnectedness of these countries. Cultural heritage preservation and promotion could use this shared history and interconnectedness to bring these people together, potentially bonding and reconciling them through their shared heritage. The economic, social, and cultural benefits that cultural heritage preservation brings demonstrates its significance and stresses the need to develop and implement effective disaster risk management plans to protect these valuable sites.

2.2 Disaster Risk Management Planning for Cultural Monuments

In order to protect these cultural heritage sites, it is imperative that Disaster Risk Management plans be further developed in Albania. According to Andoni, "From 1997 to 2006 the Albanian Institute of Monuments estimates that 17 percent of the country's 2,564 listed monuments were totally destroyed and another 37 percent damaged or ruined," (Andoni, 2008, para. 10). Albania's approach to dealing with risks associated with hazards largely focuses on being prepared to respond to natural disasters, rather than trying to mitigate the risk. Disaster prevention and mitigation is dealt with in legal documents, but is rarely practiced in Albania (Jigyasu et al., 2014). Disaster risk reduction in the smaller municipalities of Albania is a new concept (2010), but there have been examples of effective plans and methodologies at the UNESCO World Heritage site of Gjirokastra, others within Albania, and around the world.

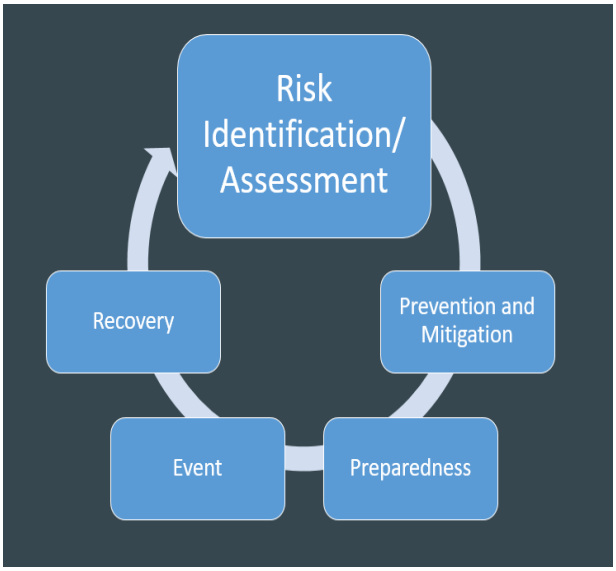


Figure 8 Disaster Risk Management Cycle Graphic

Assessing and Developing a Procedure for Disaster Risk Management

As stated in a manual by UNESCO on managing disaster risks, "a plan is based on identifying and assessing the main disaster risks that might result in negative impacts to the heritage values of the property," (Vujicic-Lugassy & Frank, 2010, p. 15). The development of a disaster risk management plan starts with risk assessment and identifying the most likely hazards that may cause damage to specifically cultural heritage sites in this case. The rest of the steps of disaster risk management planning can be seen in figure 8. In a training guide on disaster risk management of cultural heritage sites, it is mentioned that, "Comprehensive disaster risk management plans need to be formulated based on the specific characteristics of cultural heritage and nature of hazards within a regional context," (Jigyasu & Arora., 2013, p. 12). As mentioned before, Albania focuses on being prepared to respond instead of being able to prevent damage in the first place, but in reality, it should be a balance between both. This balance will greatly increase Albania's ability to protect its many cultural heritage monuments by allowing it to both prepare and prevent damage, and respond quickly and appropriately.

2.3 Cultural Heritage in Berat

History of Berat

Berat is located approximately 120 km south of Tirana and has stood for more than 2,400 years. According to the Municipality of Berat, it is considered to be the second most beautiful city in Europe ("History of Berat," 2017). With its location in central Albania, Berat has a unique history in that it bears witness to the

Figure 9 Map of Albania (Albania, 2017, April 7).

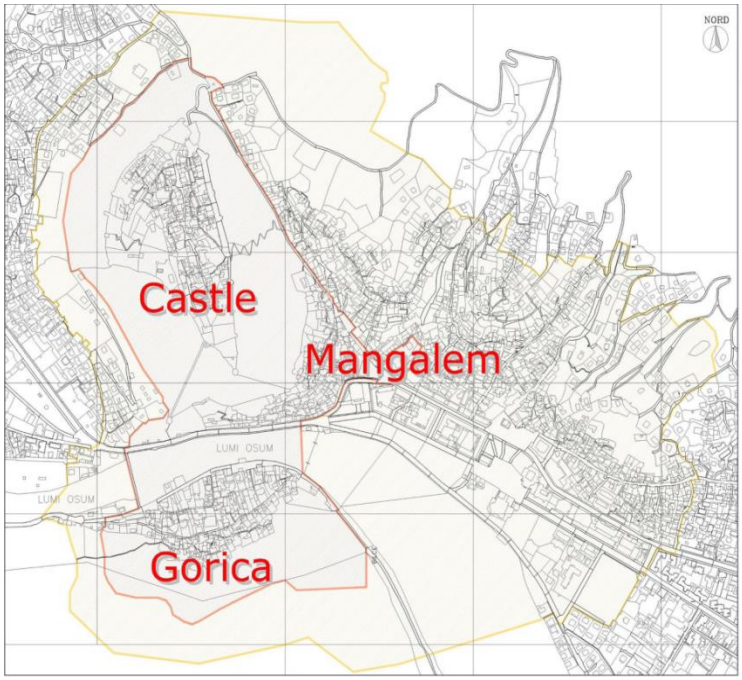


Figure 10 Old Sectors of Berat Berat, Buffer zone and Historical Centre. (2008).

peaceful cohabitation to several different religious and cultural communities.

Berat was formally founded in 314 B.C. by the Macedonian King Cassander but excavations have revealed that the city may have been built on top of an already existing Illyrian (ancestors of modern-day Albanians) settlement from the 6th century B.C. (Jigyasu et al., 2014). The city is located in the central Balkan Peninsula and was taken under Roman control in 200 B.C. The Romans nicknamed Berat the castle city or "Anitpatrea", referring to the castle on top of the mountain overlooking the two old sectors of the city. The oldest sectors of Berat are Gorica, Mangalemi, and the castle or "Kala", where many people still live. Mangalemi is located right below the castle on the hillside, while Gorica is across the Osum River facing the old sector of Mangalemi ("Berat," 2017, para. 2-3).

The Romans viewed Berat as a strong city, with many fortifications and positioned in between large mountains that acted as natural barriers. During the middle ages, Berat was able to stay relatively unscathed due to these natural and human built defenses. The city walls were also built during this medieval period, tracing the outlines of the hills surrounding the city, they formed a triangular shape. From the 9th to 11th centuries, Berat was invaded and conquered twice by the Bulgarians but would be taken back by the Roman Byzantine Empire and controlled by the Muzaka family ("History of Berat," 2017). The city was refortified and the main castle seen today was rebuilt in the 13th century by the Romans. The Turks would take over occupation

Figure 11 Gorica Bridge at night ("Berat," 2017)

Figure 12 View of the Osum River spilling into Gorica and Mangalem ("Berat," 2017)

of Berat in 1417 to the dismay of Albanian national hero Skanderbeg. He surrounded the city after Turkish occupation but a large force of Ottoman soldiers resulted in a swift defeat of Skanderbeg and his troops. In the 15th century until the year 1912 Berat thrived under Ottoman control, many mosques and living quarters were built, expanding the city limits down towards the river and creating a downtown area. Today, Berat is referred to as Albania's Museum City because of the beautiful architecture, historic paintings, and various cultures that continue to thrive there ("Berat," 2017, para. 2).

Berat as a Cultural Heritage Site

In 2008 the city of Berat was named a world heritage site by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) after an international meeting in Canada. It was grouped in with another Albanian city, Gjirokastra, and they are referred to as the "Historic Centres of Berat and Gjirokastra". There are 10 total criteria for a place to be named a world cultural heritage site. Berat was given the honor based on criterion three and four of the UNESCO system but also for other reasons. Criterion III states that the city has seen a variety of different urban societies and also brings to light that it has been mostly inhabited by merchants and craftsmen, giving the city an independent feel ("Historic Centres of Berat and Gjirokastra," 2017). Berat also encompasses a traditional housing system unique to the Balkans. Criterion IV states the city has many monuments and houses that are connected to the Ottoman era, as well as monuments from the Medieval and Byzantine eras. The demonstration of peaceful coexistence of Muslim and Christian peoples is also a reason for Berat's designation under Criterion IV.

Monuments in Berat

The history and culture of Berat is unique because mosques and churches can be seen on the same street in an ancient city, something that is a very rare occurrence. An Ottoman traveler named Mehmed Zili Ibn Derviş, a respected member of the Ottoman royal court, had notes from 1670 stating that the city was organized into 30 different quarters, a majority of which were Muslim

Figure 13 Holy Trinity Church ("Berat," 2017)

and Christian, and one was Hebrew (Kokoli, 2015). The peaceful existence of different religions and cultures resulted in many churches and mosques throughout the city, however most of the monuments are in the form of family homes. This coexistence, the rich traditions, and architecture that have been built and preserved there for thousands of years is a true testimony to the cultural heritage that is in Berat.

Family Homes

Along with religious monuments and the castle, the Ottoman housing style on the slanted slopes of the mountainous landscape of Berat are a major reason for its designation as a cultural heritage site. The structure of these homes is only found in the Balkans and their well-preserved nature can only be found in a handful of places. The houses are tiered on the hill, and make use of the entering daylight with their multitude of windows. This is why the city of Berat is nicknamed "The City of Floating Windows" and "The City of a Thousand Window's". According to the Directorate of National Culture some of the homes can be dated back to an original date of 800-900 A.D., however all of the homes built at that time have been either restored or reconstructed numerous times. A large number of homes, especially in Gorica, were also constructed during the Ottoman era of rule in the 15th century. Mostly all of the homes had to be reconstructed after the devastating earthquake of 1851 structurally damaged upper-level floors throughout the city of Berat ("Architecture," n.d.). These reconstructions coupled with many restorations are what can be seen in the present day.

After the massive damage caused by the earthquake due to the lack of resistance provided by the stone walls, a large effort was put forth to use wood when rebuilding. Wood can better withstand an earthquake due to its ability to be somewhat flexible before cracking, unlike stones.

Figure 14 View of Gorica from the Castle

Large stones, usually the original stones used, can be found still intact at the base of most walls. As the walls get higher, smaller, lighter stones are used, with a wood plank inserted every 60 centimeters to 1 meter for better protection against earthquakes ("Architecture," n.d.). The upper-level floors were framed using wood to help avoid the massive damage inflicted in the aftermath of the earthquake. Each house is complete with a stone entrance gate and a large semi-oval door made of wood. The roof of each house is built with specific tile that is of Greek origin, pasted together on top of wood planks nailed to thick wood joists (beams). Many homes in Berat included water cisterns built into the homes. The cisterns are usually cylindrical, but can also be in a rectangular form. These cisterns were the family's source of water and function naturally off of rainwater. The rainwater is collected from the roof of the home, using pipes built into the walls to funnel the water into the cistern (Martin, 2014).

The Castle

On the top of the hill that Berat is located on, there is a castle, called the "Kala" or Berat Castle dating back to 4th century BC. It was originally built by the Illyrian Desarete tribe, but the Romans destroyed it in 200 B.C. It was rebuilt by Byzantine Emperor Theodosius II in 400 A.D. and then in 500 A.D. Emperor Justinian added an addition to the castle. Inside the castle walls, a large amount of citizens continue to live in homes created during a rebuild and expansion in the 1200s.

Figure 15 Walls of the Castle with Constantine Statue ("Berat," 2017)

The castle is 187 meters high on the hill overlooking the city, with Mangalem right below it on the hillside, and Gorica across the river at the base of an adjacent hill. The castle is composed of 24 different towers built over a long range of time, and it encompasses an area of 9.6 hectares. Although many of the monuments inside the castle are homes, there are also 15 religious monuments, including 12 churches and 3 mosques.

Figure 16 Overhead view of the Castle (LeDron Production. 2017, April 8).

Christian (Roman/Medieval eras)

During Roman occupation in the 13th and 14th centuries, many churches were built to convince the Illyrians to convert to Christianity and join the Roman Catholic Church. An estimated 15 churches were known to be constructed within the castle walls on top of the mountain. Thirteen of the churches are still standing today, while two lay in ruins. According to the local Berat government webpage, three churches from the Byzantine Roman occupation stand out; Saint Mary Blachernae (Cathedral), The Holy Trinity, and Saint Michael ("History of Berat," 2017). UNESCO has stated that St. George, St. Michael and the Holy Trinity churches are preserved the best. Saint Michael, a primary example of Byzantine architecture was erected in front of the castle walls while the other churches are inside (Jigyasu et al., 2014). The Saint Mary Cathedral also lies within the castle walls and was the largest church in Berat at the time of its construction in the 17th century. The cathedral is home to the work of the renowned iconographer Onufri, and his famous son Nikolla, while more than 100 more celebrated pieces of artwork can be seen inside ("Berat," 2017, para. 5). Outside the castle walls and off the mountain, the Saint Spyridon Church lies in the old sector if Gorica. Not much is known about the church's origins except that an inscription at the entrance shows it was reconstructed in 1864.

Figure 17 Saint Mary Cathedral ("Berat," 2017)

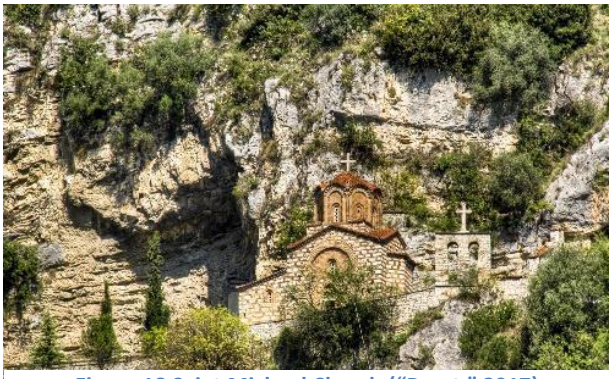


Figure 18 Saint Michael Church ("Berat," 2017)

Figure 19 Front of Helveti Tekke ("Berat," 2017)

Figure 20 Ceiling of the King Mosque ("Berat," 2017)

Islamic (Ottoman Rule)

When the Ottomans gained control of the city Berat prospered, and much of the modern-day old sectors of Berat can be attributed to the Ottoman Empire. The center of the town is filled with 17th and 18th century Ottoman style architecture, a large reason to why it has been named a UNESCO Cultural Heritage Site (Jigyasu et al., 2014). The Ottoman Empire was primarily one of Islamic faith and three mosques stand out from other Ottoman architecture. Sultan's Mosque (King Mosque) and the Leaded Mosque are from early Ottoman rule and were built within the city limits dating back to the 15th century, while the Mosque of Bachelors was constructed during the 1800's (Jigyasu et al., 2014). Sultan's Mosque, otherwise known as the King's Mosque was built in the Medieval Center

of Berat, which was comprised of mostly Byzantine Architecture at that time. The Mosque of Bachelors and Leaded Mosque are located in the old sector of Mangalemi while another mosque named the Red Mosque lay in ruins inside the castle walls. The Red Mosque is accompanied by the White Mosque inside within the walls of "Kala", however the White Mosque also is no longer standing. Berat also used to be home to three "tekke", a home for Muslim spiritual leaders, however only one is left standing, the Halveti Tekke ("Berat," 2017, para. 6).

2.4 Hazards and Risks in Berat

Natural Hazards

In order to protect these historical sites, it is crucial to understand what hazards they could potentially be exposed to. Located in the southern Central Albania, Berat is exposed to a large amount of natural hazards. According to reports done by UNESCO, the Institute of Environmental Geology and Geoengineering Rome, and the World Meteorological Organization, Berat and its surrounding region are exposed to several disasters such as seismic threats, fires, floods, landslides, and rock falls. Between the years 1974 and 2006, Albania has spent an average of 68.67 million USD a year on the economic losses due to hazards, making up 2.49% of their total GDP. Within this time frame the biggest hazard economically was drought, costing 2.238 billion USD, with flooding coming in 2nd at 24.673 million USD and earthquakes at 2-5 million USD. Since that time, there was another large earthquake in 2009 that affected the country, hitting 5.1 on the Richter scale and caused significant damage to the country. ("IPA Beneficiary," 2011)

One of the most common and damaging hazards in Berat is fire. These fires can be started within households, whether it's a fireplace or a wood-burning stove. They can also be a result of a wildfire spreading into the city. In 2012, there were numerous fires that broke out within the city of Berat in the Museum district and around the city, damaging several buildings such as the Saint Thomas Church ("25 Fires," 2017). According to a report from an Albanian news source, "Berat has had 111 fires from January to July, 66 of which were within the city" ("25 Fires," 2017). With many of the homes built with wood, the fires can easily spread. These fires are a serious threat to the cultural heritage sites within the city, and should be considered when each site is assessed.

Figure 21 Wildfire outside of Berat, Albania ("25 Fires," 2017)

On the opposite side of the spectrum, over the last 100 years the Osum River, which flows through Berat, has flooded several times. This also leads to another hazard. Berat's placement around the base of a large hill puts it at an increased risk of landslides. Large amounts of rainfall on unstable earth or high flood waters permeating the soil, especially on slanted surfaces such as the sides of the large hill that Berat is built on, make landslides a hazard that should be accounted for (De Waal, 2012, p. X). Along with landslides, rock falls are also a hazard due to the mountainous rocky terrain where Berat is located. Both the old sectors of Berat, Mangalem, and Gorica, are located on the sides of mountains and could fall victim to rock falls due to a number of reasons, mainly seismic tremors. These rock falls are a danger to both pedestrians and buildings, specifically having a devastating effect on many roofs throughout the Mangalem quarter.

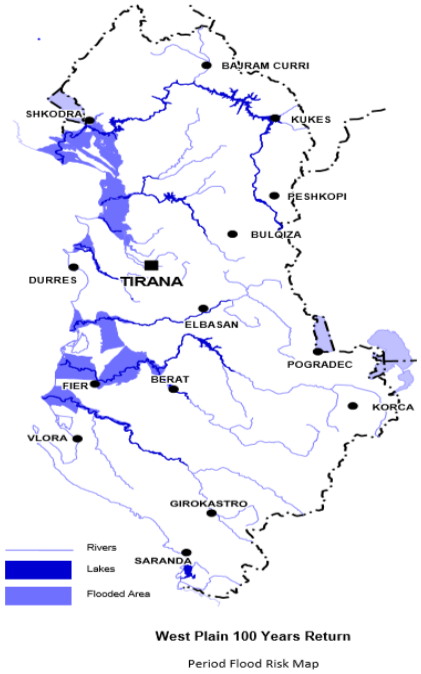


Figure 22 Flood Risk Map of Albania ("IPA Beneficiary," 2011)

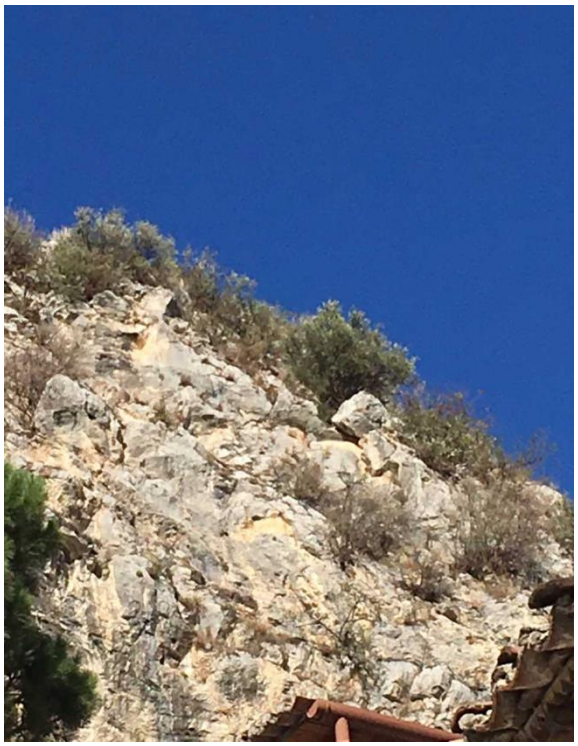


Figure 23 Potential Rock fall in Berat, Albania

Albania is exposed to a large threat of damaging seismological activity. Within the last century, the country has experienced five earthquakes reaching over six on the Richter scale, most of which being closer to a seven. This includes the Shkoder earthquake (Ms = 6.6); the lake Ohrid earthquake (Ms = 6.7); and the Durres earthquake (Ms = 6.2) (Pazzi et al, 2015). As stated earlier, Berat itself experienced a large earthquake in 1851, causing more than 400 fatalities and massive amounts of damage to buildings and infrastructure ("Historic Earthquakes in Albania," n.d.). Not only did this earthquake do damage through severe shaking, it also caused large surface fractures, triggered landslides and rock falls, and caused soil liquefaction, which is when vibrations cause soil to act less dense and allow objects to sink into it. This history of large scale seismic activity demonstrates the very real threat of earthquakes and their associated hazards to cultural heritage sites in Berat.

Human Induced Threats

Albanian Cultural Heritage sites are becoming more and more exposed to human interaction because of a drastic migratory shift of Albanians from rural areas to urban areas. In

fact, “experts warn that pressure to develop the historic town centers is generating rapid change and too little is being done to conserve the country’s architectural heritage” (Andoni, 2008, para. 4). The three main hazards that humans can impose upon Cultural Heritage sites are that the owners have made renovations to the site with no regard to the integrity of the original architecture or they have abandoned the house or site entirely. Lastly, human development near the site could tarnish the historic appeal of the site. In 2004, a proposition of a new high-rise development almost intruded upon the house in Vlora where Albanian independence was declared. Many of Berat’s listed Cultural Heritage sites have been renovated with new materials, or left vacant to eventually lay in ruins.

Risks

Hazards, such as floods, fires, and earthquakes, can significantly damage cultural heritage sites, but factors that can exacerbate the consequences of hazards are called risks. The level of risk is influenced by the effectiveness, or lack thereof, of the management systems in place. Within Albania, there are several issues on a municipal level that can cause these hazards to cause an extra amount of damage. For example, Albania’s obsolete and deteriorating water infrastructure, including dyke systems, drainage channels, high water collection or flood-control facilities and pumping stations worsen the consequences from river flooding (Jigyasu et al., 2014). This issue is further exacerbated by another factor. After the fall of communism, the illegal cutting of forest for wood became unregulated. This led to a large amount of deforestation, exposing Berat to even more risks for flooding. Without these forests to soak up rainwater, a large amount of excess water builds up and can lead to worse flooding.

Albania has been exposed to an increasing frequency of long droughts that not only cost the country a lot of money, but also expose regions to increased vulnerability to fires. Drought specifically in Berat has led to an increase in wildfires. This problem is further aggravated by, a “lack of adequate fire suppression facilities and arrangements”, a risk that was specifically stated in the assessment of Berat (Jigyasu et al., 2014, p. 37). Although recent and extensive legislation has been passed to increase Albania’s fire suppression capabilities, Berat still suffers from a lack of functioning, modern fire safety vehicles, has limited aerial fire suppression capability, and has limited fire hydrants.

2.5 Disaster Risk Management in Gjirokastra and Berat

CHwB: Gjirokastra

CHwB began their work in Albania by aiding the city of Gjirokastra in the protection and restoration of cultural heritage monuments. In order to properly address each monument, they designed a site assessment survey. Using the survey, assessors determined a building’s level of risk based on structural integrity and occupancy, level of historical content, and priority category. This assessment form is explained further

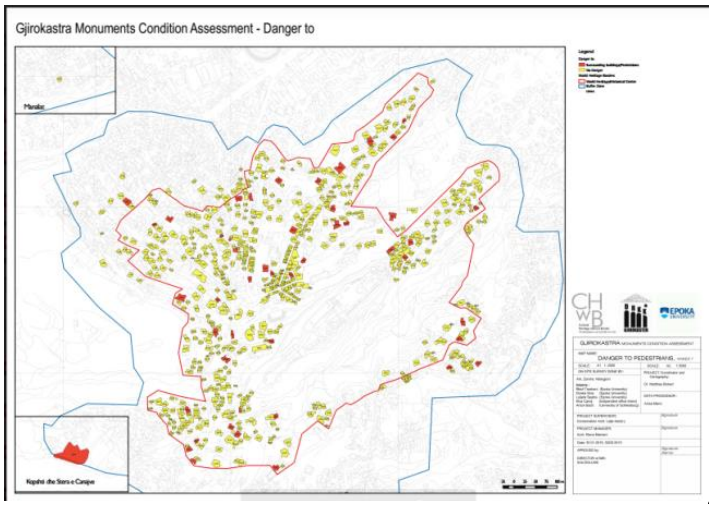


Figure 24 Map of Dangerous Monuments in Gjirokastra, Albania. (CHwB, 2015 Jan, 30)

in the methods chapter of this report. CHwB was then able to compile these forms into data systems which allowed CHwB to analyze the data, and present it in the form of maps and charts. They were able to send these deliverables to regional and national stakeholders to help prioritize interventions. CHwB was even able to start restoring some monuments in Gjirokastra, with work currently still being done. In an effort to reduce the risks associated with fire hazards, CHwB also began implementing a hydration system by repurposing old water cisterns. Given the number of cisterns in Gjirokastra, CHwB decided it would be feasible to add pumps to these cisterns (powered by a gasoline generator), allowing both citizens and the fire brigade to use them to put out fires.

UNESCO's Workshop

In addition to CHwB's work, UNESCO held their own workshop in 2011. The workshop focused on natural disasters that Berat faces, such as flooding, fire, and earthquakes, and considered what risks they pose to both people and the historical sites. It went on to lay out guidelines on what can be done to respond to these risks, as well as how best to prevent them. For example, installing hydrants, alarms, and an evacuation plan all mitigate the risks involved with fires (Jigyasu et al., 2014). These plans and systems are an excellent starting point. However, considering their age, these may need to be evaluated, and possibly expanded upon in Berat.

Stakeholders Involved

When working in Albania, specifically Berat, it is important to consider the priorities and interests of several different organizations. The two most involved stakeholders are CHwB Albania and the Regional Directorate of National Culture that is based in Berat. Along with these two stakeholders, there are government divisions that would be concerned with the heritage sites themselves (Municipality of Berat, Directorate of Museums, ASHA, Institute of Culture Monuments, Ministry of Culture, and Ministry of Interior Affairs). These organizations will likely want to see these sites protected and, if needed, restored with the correct craftsmanship and materials.

In addition to these, UNESCO outlined several stakeholders in their 2011 Disaster Risk Management (DRM) plan (Jigyasu, et al., 2014). These organizations fall under a few different categories. First, there are emergency response groups (Military Division of Berat, Police Station, Police of Fire Protection and Rescue, and Prefecture of Berat (Emergency Unit). The second group includes environmentally focused government divisions (Directorate of Water Supply, Drainage Board, Directorate of Forests, and Agency of Environment). These groups will be more involved in long-term management plans, whereas this project is more focused on the initial assessments. However, these are definitely important stakeholders to consider in the long run.

The last stakeholder to consider would be the citizens themselves. Every aspect of the Disaster Risk Assessment and Management plans would affect them in some way. Many of the citizens' own homes are classified as heritage sites. Even those that don't own heritage sites would still be affected by the potential management plans, and even potential tourists. With this being said, our project further addresses their opinions in the methods chapter.

3. Methodology

3.1 Goal and List of Objectives

The goal of this project is to help planners in Berat better preserve cultural monuments in the city of from natural and human-induced hazards, and also learn the residents' opinions on living in a historical monument. We collaborated with staff from Cultural Heritage without Borders (CHwB) to identify four objectives:

- Understand and assess current approaches to disaster risk management of cultural monuments at the national, regional, and local levels pertaining to Berat.
- Assess the physical conditions of cultural monuments in Berat and associated risks.
- Create a database to help local authorities prioritize interventions.
- Assess the views of monument owners and their respective stake in cultural heritage in Berat.

3.2 Assessing current approaches to disaster risk management and preservation at the national, regional, and local levels

To obtain a regional perspective of disaster risk management, we interviewed stakeholders, such as representatives from Cultural Heritage without Borders: Albania, the Regional Directorate of National Culture, and a Peace Corps Volunteer working in the Municipality of Berat.

The interviews covered topics such as:

- The status of disaster risk management planning nationally and in Berat
- The current issues hindering progress in DRM plans
- The type and severity of hazards that are most common in Berat
- The effectiveness of the current programs for disaster risk management
- The threat of human-based hazards to cultural heritage sites in Berat
- The effects of tourism

List of Key Informants:

Name	Institution	Position	City
Lejla Hadžiç	Cultural Heritage without Borders: Albania	Executive Director	Tirana
Miguel Ramos	Municipality	Peace Corps Volunteer	Berat
Eugen Kallfani	Regional Directorate for Cultural heritage	Director	Berat
Informant #1	Regional Directorate for Cultural heritage	Specialist	Berat
Eriseld Zyka	Regional Directorate for Cultural heritage	Engineer	Berat

Figure 25 Table of Interviewees

Figure 26 CHwB in Action (The Hope that Rises with the Regional Restoration Camps, 2016).

Conducting semi-structured interviews with these key informants helped us assess what has worked well specifically in Berat, in terms of disaster risk management (DRM) planning at the national and regional level and what has hindered its implementation. A semi-structured interview format allowed the team to explore the more complicated research questions and to find out the *why*, rather than *how much* or *how many* (Fylan, 2005). The semi-structured interviews helped us ascertain why Berat DRM plans have not been enacted, the hardships of monument preservation, and the common hazards the city faces. We also sought to find out the stakeholders personal interest in preserving cultural heritage in Berat, if the interviewee had any personal suggestions to help DRM, and the effects of tourism.

These interviews were recorded (with permission) and notes were always taken. Unfortunately, a few of the key interviewees didn't accept the idea of being recorded. That being said, it is important to note that Miguel Ramos provided an interesting viewpoint having grown up in Chicago and now working with the Peace Corps in Berat. However his answers during the interview do not represent the Peace Corps in any way, only Miguel himself. The interview questions for Miguel can be found in Appendix E. After the interviews, the team listened to recordings, or looked at the notes if a recording was denied, to find the information best suited to answer our research questions. After analyzing all of the interviews, key themes were identified from the data and can be found in the findings chapter. The interview of Lejla Hadžiç can be found in Appendix B, while the interviews for the Directorate workers are in Appendix C.

3.3 Assessing the risks and vulnerabilities posed to cultural monuments in Berat

In Berat, we worked with a survey designed in collaboration with CHwB (See appendix A) to gather information on the hazards and subsequent risks to the 400+ monuments. The extent of the survey depended on the category of the monument. If the monument was a category one, it must be assessed for both its inside and outside historical value. A category two monument is to

only be judged on the outside historical value of the home. In either case, it was important to attempt to talk to the homeowners to get a personal assessment of their home. CHwB provided training to help us evaluate key parameters about building conditions, risks, and historical content.

The CHwB survey investigates the following:

- **Basic Details:** Location, name of monument, registration numbers.
- **Occupancy:** Vacant, not in use, part occupied or occupied.
- **Usage:** What type of building is it? A home, public building etc.
- **Owner Type:** Who owns the building? Is it private or public property?
- **Building Condition:** Condition of structural elements.
- **Historical Value:** What are the historically significant aspects of the building? What percentage of the site holds cultural or historical value?
- **Danger To:** Is the monument a danger to surrounding buildings, pedestrians, or neither?
- **Hazard Exposure:** Is the monument exposed to fire, landslide, earthquake, rockfalls, and flooding?
- **Risk Category:** Very high risk, at risk, vulnerable, and low risk.
- **Priority Category:** This ranges from an A, which states "immediate risk of further rapid deterioration or loss of fabric of building under threat of vacancy with high historical values" to G "Building in good or fair condition and end use or user identified; building with high or low historical values."
- **Additional Survey Notes:** Does the monument contain a cistern or well?

Figure 27 Taci, an employee of the Directorate, speaking with a resident of the Castle

CHwB requested that the team assess all monuments within the historical quarters of Mangalem and Gorica. The team worked with a group of professionals from Berat associated with the Regional Directorate and municipality. It was not expected of the team to assess all 429 sites, however the team finished the two neighborhoods within the first two weeks. With a third week scheduled in Berat the castle (Kala) area and its 160 monuments were also assessed. Coupled with the assessments, the team photographed each monument. This combination of photo documentation and data from the site assessments resulted in a pdf assessment book, similar to Gjirokastra, which documents each and every site in Berat.

The establishment of the risk category and priority category for each monument came from the matrix below (Figure 28), designed by CHwB.

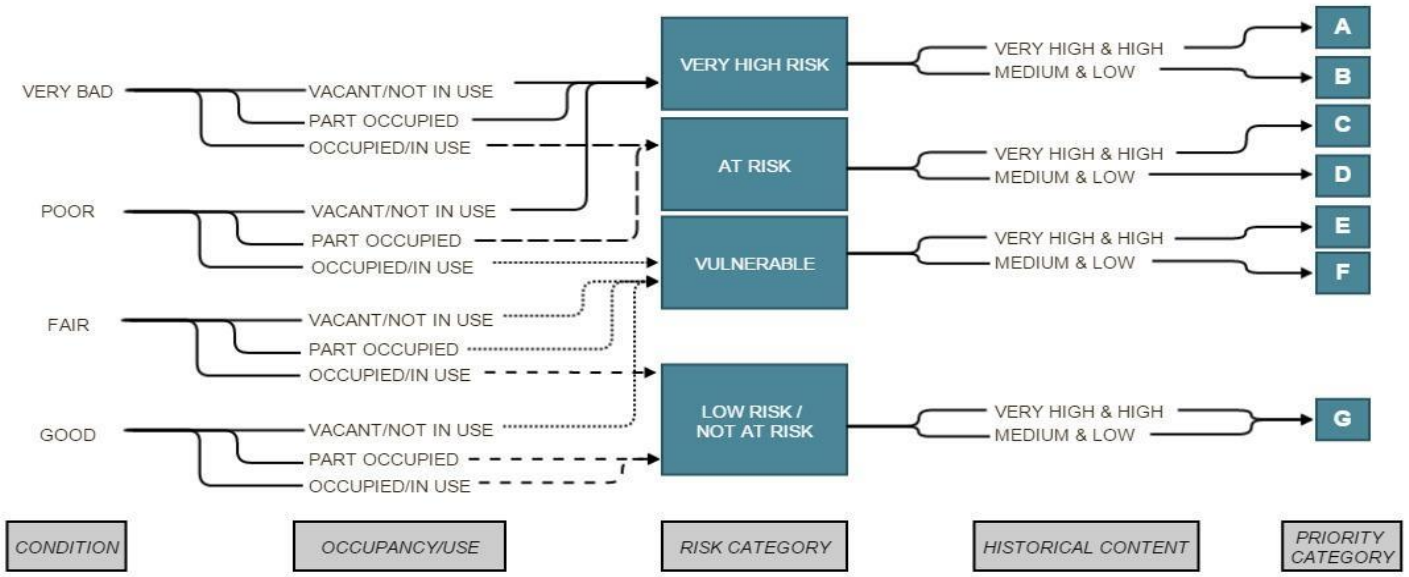


Figure 28 ChwB Matrix

In collaboration with CHwB, a new section to the site assessment was added in order to determine specific hazards to each cultural monument. This provides stakeholders with information on which hazards -- fires, earthquakes, rockfalls, landslides, floods and development -- potentially impact each site. The organization also updated the “danger to” section of the assessment, which identifies whether or not a monument is a danger to surrounding buildings and/or pedestrians. Initially the “danger to” section combined surrounding buildings and pedestrians, rather than having them separated. Unstable overhanging balconies and roofs, deep and elongated cracks in the walls, and foundational cracks are all examples of dangers to surrounding buildings or pedestrians. Lastly, CHwB added a section to check if any monuments contain an old cistern or well on the property, in order to gain information for a risk reduction project. All this new information added to the assessment provides CHwB and the Regional Directorate with more specific data in order to prioritize resources to certain areas of the city.

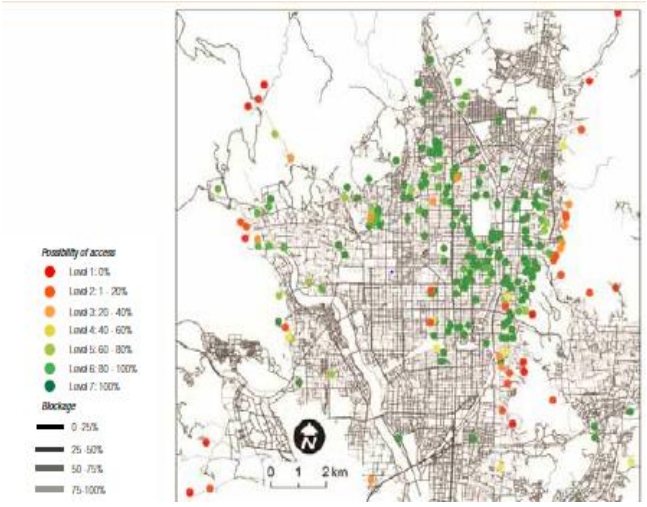


Figure 29 Kyoto, Japan GIS Simulation (Jigyasu & Arora., 2013)

3.4 Create a database to help local authorities prioritize interventions

The data collected by the team while in Berat was uploaded into a GIS system, known as QGIS, which is owned and operated by the Open Source Geospatial Foundation (OSGeo). The QGIS program is a geographical information system that can be used to create maps which incorporate different colors and symbols for better spatial analysis. The statistical system SPSS was used to input the data into the GIS. SPSS uses comma separated values (CSV) to organize and classify data into folders, which is then uploaded into the GIS.

CHwB and the team used the GIS mapping software to analyze data from the assessment forms in a spatial format and to create various visuals for reports that are used by the government and others to prioritize risk reduction and preservation. Reports and deliverables include maps, photos, and an assessment book (pdf). Using the GIS, we designed maps that display both the locations of the cultural heritage sites and the individual hazards they are susceptible to such as flooding, rock falls, and landslides. By overlapping the locations of monuments with the hazards, we were able to assess which monuments are exposed to different natural hazards. With this data, for example, if an earthquake were to occur, the GIS map could identify which buildings would be at risk of sustaining a high amount of damage. The visuals, including maps and the pdf assessment book created with the data from Berat, were delivered to stakeholders at local and national levels, including the Institute of Monuments of Culture, Regional Directorate of National Culture, the Institute of Monuments of Culture and their technical board, the Ministry of Culture, and municipalities on the local and national level.

Section 3.5 Assess the views of monument owners and their respective stake in cultural heritage in Berat.

After assessing each monument for its structural integrity and historical value, and also gathering data from key informants about cultural heritage in Berat, the team thought it best to determine the residents' perspectives on living in a monument. The residents that live in these monuments are the most important people in the preservation process because they are the owners of the homes, and live within the monuments. We wanted to explore the monument owners' opinions of their involvement in Berat, a UNESCO World Heritage Site. We sought to understand how multiple residents perceived the value of owning a monument and living in a world heritage city, paying particular attention to whether owners expressed a sense of pride or frustration, or whether they perceived that living in a monument was an asset or a burden. We also explored whether they felt if there was financial pressure to keep their homes looking historical, and how they view tourism in Berat. Also, the team explored family stories, family heritage, and how families acquired their monument homes.

The team interviewed several homeowners from each of the three different historic districts of Berat: Mangalem, Gorica, and the Castle. The semi-structured interview questions can be found in Appendix D. We used a snowball sampling technique to identify owners and residents to interview. Using our contacts from the Regional Directorate of National Culture in Berat, many of whom reside or grew up in the historic districts, the team easily found volunteers for the interviews. Translation and interpretation was provided by Jurgen Pushi, a contact from Directorate, and also Miguel Ramos, a Peace Corps worker from Chicago, who was also fluent in Albanian.

4. Findings

This project aims to contribute to the preservation and restoration of cultural heritage monuments at the UNESCO World Heritage site of Berat, Albania by providing stakeholders, including CHwB and the Regional Directorate for National Culture, with additional data and analysis to make decisions with respect to preserving monuments. To gain a better understanding of the disaster risk management planning in Berat, and a broader sense of cultural heritage preservation, the team interviewed six key informants. The team also surveyed each of the 429 monuments in the city as part of the disaster risk management process in Berat to gather information to build a database. We created a GIS database in collaboration with Cultural Heritage without Borders (CHwB) for use with stakeholders. This GIS database is a multi-layered map of all the monuments in the historical district based on their location, each with survey information regarding condition and historical content assigned to them. The underlying data will help CHwB and various officials and experts create maps that can display monuments categorically in any aspect of the surveys, such as by priority ranking or hazard exposure. These maps are explained and displayed throughout our findings. Lastly, the team interviewed monument homeowners in order to gain an understanding of residents' experiences related to residing in cultural monuments and the subsequent financial requirements, poor disaster response, and tourism exposure.

- Tourism is strongly linked to Berat's economy through restaurants, hotels, and other forms of catering towards tourists. Tourism has doubled in the last three years, so preservation of monuments will be essential to tourism as a base for Berat's economy.
- Condition of Monuments
    - 60% of the monuments with a high level of historical content are in immediate danger of structural damage from hazards. That translates to approximately one-third of the total monuments surveyed (33.1%).
    - More than half of all monuments in the historic districts are in poor to very bad condition.
    - Vacant homes in Berat are a substantial problem with almost one-fourth of the monuments left unattended.
- There was a limitation with the site assessment. The assessments, combined with the matrix used to find the priority category ranking, were assigning higher priority to vacant homes over occupied homes, even if the structures had the same amount of damage.
- Disaster risk management and preparedness is hindered by a lack of funding from the government. This lack of funding also impedes many residents who own monuments from restoring and maintaining their homes.
- All cultural monuments are at risk of fire due to several factors including the predominant use of wood in the construction of buildings, the tight proximity of buildings in this district, and the inaccessibility of many of the monuments to firefighting equipment.
- Earthquakes are a threat to all monuments in Berat, and even small tremors can result in landslides and rockfalls, namely in Gorica and Mangalem. The risk of flooding is low, as many of these monuments are elevated far from the river and reside higher than most of the area.

4.1 Tourism

Cultural heritage, tourism, and Berat's economy, are all inextricably linked. Businesses within the historical district of the city including coffee shops, hotels, and restaurants, predominantly cater to travelers. According to Eugen Kallfani, the Director of the Regional Directorate for Cultural heritage, since 2013, tourism has more than doubled in Berat, climbing from 30,000 visitors annually to 68,000 in 2017. This influx of tourists is concentrated in the monument district where a total of sixty-nine monuments in the historic quarter of Berat are open to the public (including businesses, hotels, and places of worship). Fifty of these are only public buildings, and 19 are both private and public monuments (hostels).

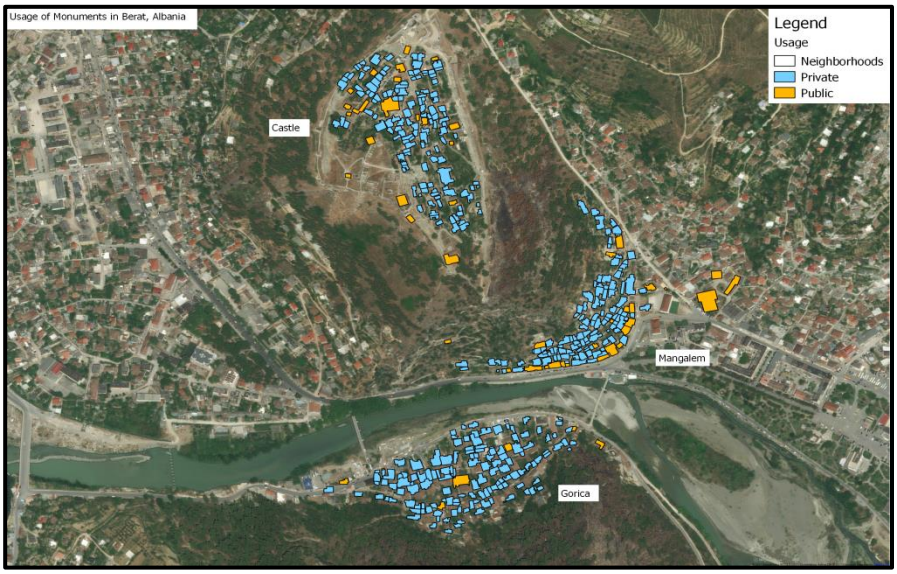


Figure 30 Public and Private Monuments in Berat, Albania

4.2 Condition of the Monuments

By completing 429 site assessments, we were able to gauge the current state of the monuments in Berat. We collected data related to priority category, historical content, building condition, dangerous monuments, occupancy, hazard exposure, and risk category. Establishing the relationship between historical content, building condition, and occupancy is worthwhile because often times it affects the priority category ranking of a monument, which can be seen in the matrix (Figure 28).

PRIORITY CATEGORIES:

A	Immediate risk of further rapid deterioration or loss of fabric of building under threat of vacancy with high historical values.
B	Immediate risk of further rapid deterioration or loss of fabric of building under threat of vacancy with lower historical values.
C	Slow decay of building with high historical values.
D	Slow decay of building with lower historical values.
E	No obvious decay but under threat of vacancy, or slow decay but occupied = vulnerable building with high historic values.
F	No obvious decay but under threat of vacancy, or slow decay but occupied = vulnerable building with lower historic values.
G	Building in good or fair condition and end use or user identified; building with high or low historical values.

Figure 31 Priority Category Definition Chart

Priority Categorization

As shown in Figure 33 and the map "Priority Categories of Monuments in Berat, Albania" (Figure 32), we assessed a total of 429 monuments, of which 57 are 1st category monuments and 372 are 2nd category monuments. Each assessment resulted in a priority categorization ranging from A-G. An "A" categorization mean the monument is in immediate risk of further deterioration, threatened by vacancy, and contains high levels of historical content. These monuments are the most in need of intervention from the CHwB, who would make appropriate restorations to the monument. These restorations would prevent further deterioration, while remaining historically accurate (to the best of their ability). On the other hand, a "G" categorization indicates the monument needs little to no intervention. These monuments are in good or fair condition, and are occupied. A more thorough definition of these categories can be found in Figure 31. As shown in Figure 33, 65 monuments were categorized as an A; 32 monuments are categorized as B's; 29 monuments fall in cat the C; 19 are category D; 64 are category E monuments; 43 are F's, and 177 monuments fall in category G.

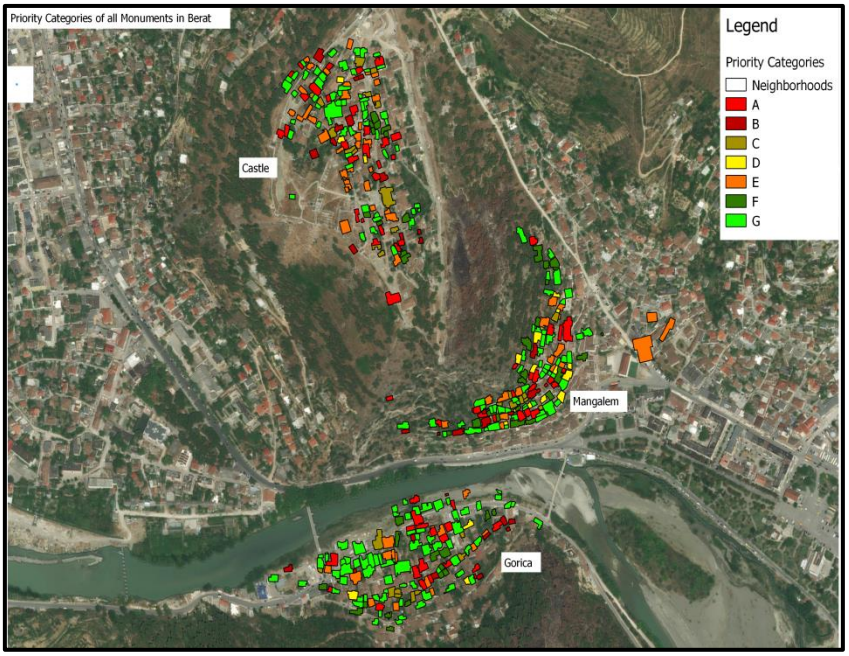


Figure 32 Priority Category GIS Map

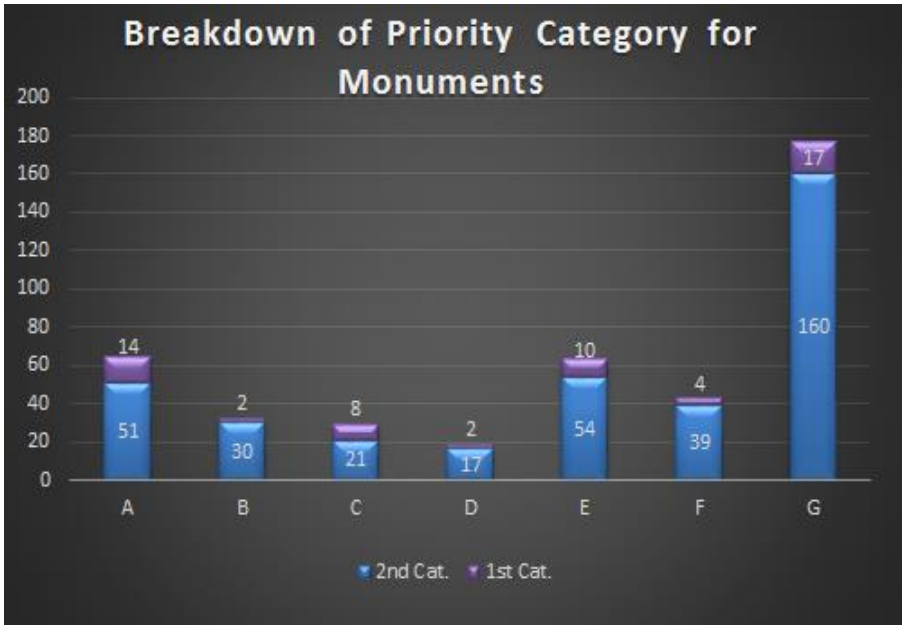


Figure 33 Breakdown of Priority Category for Monuments Chart

In addition to these totals, you can see differences between 1st and 2nd category monuments in Figure 33 the "Breakdown of Priority Category for Monuments." As you can see proportionally there are more

A's in the 1st category monuments than in the 2nd category, because typically they are in worst overall condition and have more historical content. A quarter (24.5%) of the 57 1st category monuments are ranked as A's, whereas only about 14% of the 2nd category monuments are ranked as A's. This relationship between overall condition and historical values effect on priority category is also shown with the proportion of G's in the 2nd category monuments, 43% compared to 30% for the 1st category monuments.

Historical Content

One of the major categories included on the site assessment was the level of historical content a monument contained. For a 2nd category monument, there are six criteria of historical content that are assessed on the exterior of a home which include the roof, outer walls, wall finish, doors, windows, and gateway. A 1st category monument includes those six criteria and then four additional conditions on the inside of the monument which are: floors/ceilings, inner walls, inner artwork/wooden craftsmanship, and inner artwork/paintings. Examples of these ten criteria with historic content can be seen in Figures 35 through 45. Figure 46 shows the percentage of 1st and 2nd category monuments with historic qualities for each criteria. Across the six criteria that 1st and 2nd category monuments share, 1st category monuments have more historical content. Of the 429 monuments surveyed,

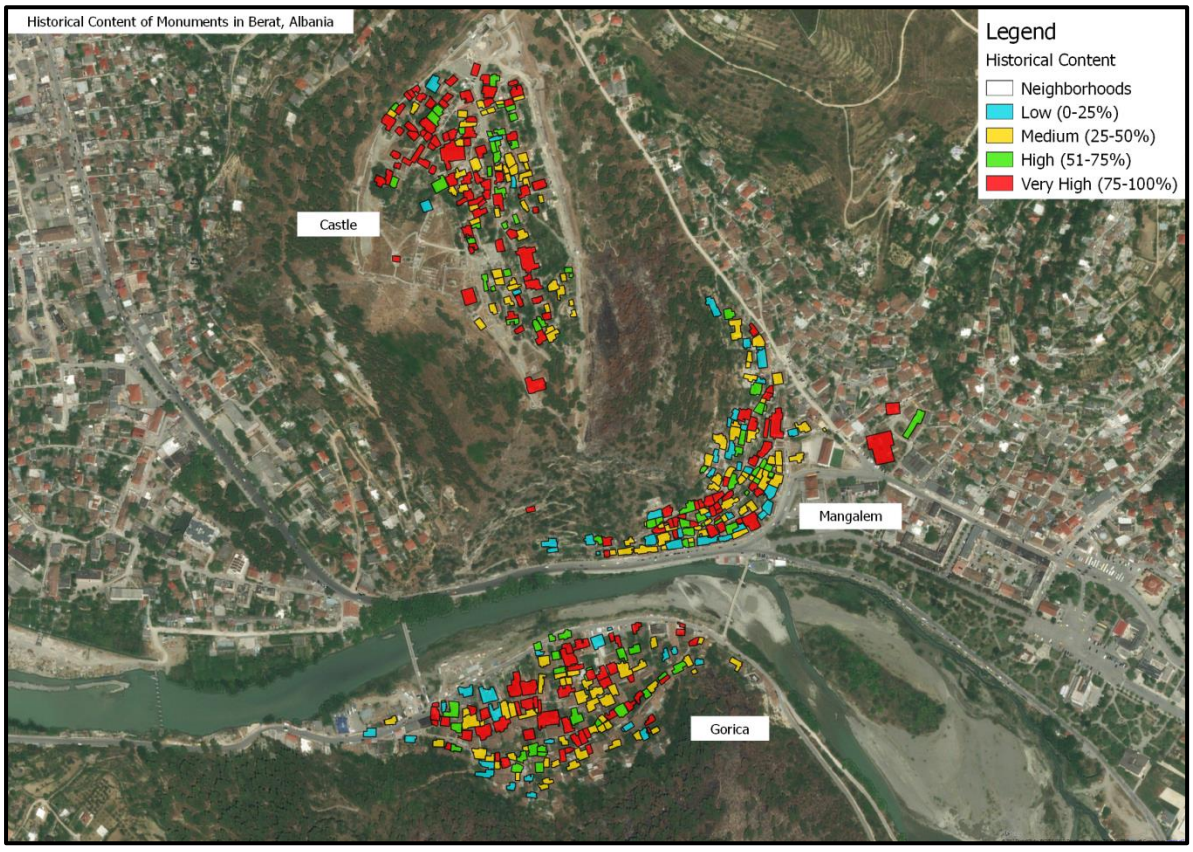


Figure 34 Historical Content GIS Map

Figure 35 Historical Content: Roof

Figure 36 Historical Content: Outer Walls

Figure 37 Historical Content: Wall Finish

Figure 38 Historical Content: Doors

Figure 39 Historical Content: Windows

Figure 40 Historical Content: Floors

Figure 41 Historical Content: Ceilings

Figure 42 Historical Content: Gates

Figure 43 Historical Content: Inner Walls

Figure 44 Historical Content: Wooden Craftsmanship

Figure 45 Historical Content: Artwork (Paintings)

237 of those monuments (64 monuments in Mangalem, 73 in Gorica, and 100 monuments in the Castle) have either a very high or high historical content, and therefore have a higher priority category because of the matrix (Figure 28). In order to receive a high or very high categorization for historical content, the monuments need 51% - 100% of their criteria to be historic. For a 2nd category monument, this means having more than three historic criteria out of the total six. From our assessments, we found that 52% of the 2nd category monuments received a high or very high categorization. In the case of 1st category monuments, high historical content means having more than five historic criteria out of the total ten. We found that 77% of these monuments had high or very high historical content. It is worth mentioning that of these 237 monuments with high or very high historical content, 142 of them were in very bad or poor structural condition. This shows that about 60% of the monuments with a high level of historical content are in immediate danger of structural damage from hazards. This is very concerning from the perspective of cultural preservation because this combination of high historical content and immediate danger of structural damage from hazards applies to approximately one-third of the total monuments assessed (33.1%).

Percentage of 1st and 2nd Category Monuments with Historic Criteria		
	1st Category	2nd Category
Roof	88%	82%
Outer Walls	95%	79%
Wall Finish	58%	23%
Doors	75%	45%
Windows	81%	53%
Gate	88%	62%
Floors/Ceilings	78%	N/A
Inner Walls	80%	N/A
Wooden Craftsmanship	69%	N/A
Paintings/Artwork	37%	N/A

Figure 46 Percentage of 1st and 2nd Category Monuments with Historic Criteria

Physical Condition

The overall condition of monuments is judged on three criteria: the structural integrity of the roof, walls, and the floors/ceilings. Our considerations for assessing these were to see if there were any holes, cracks or water damage to any of the three criteria and group them into a category of very bad, poor, fair, or good condition. For example if a monuments roof had holes and tiles were missing then it would be considered to be in very bad shape, or if a monument has just a surface crack in the façade, it's walls would be considered to be in fair condition.

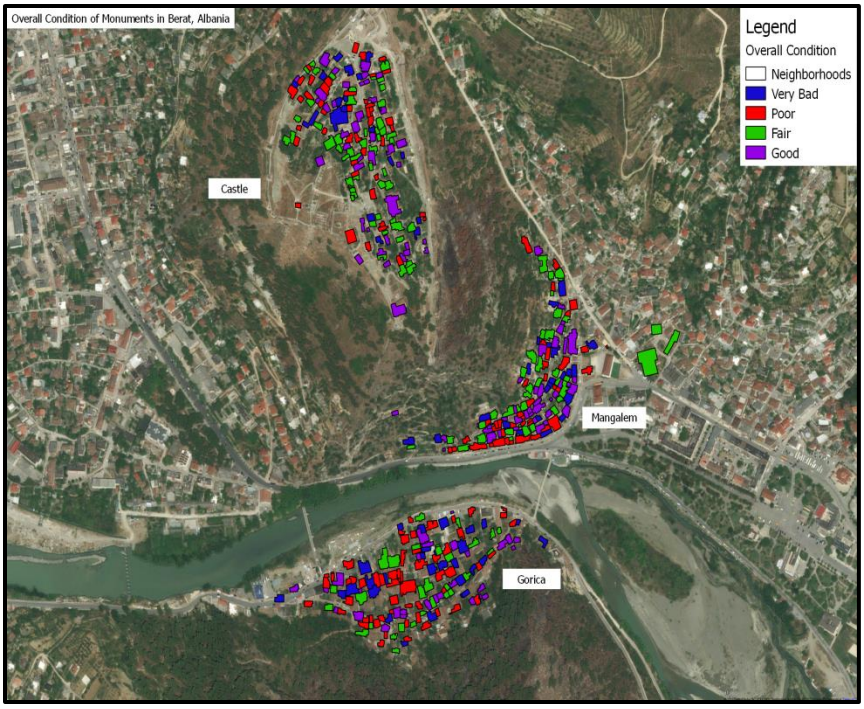


Figure 47 Overall Condition GIS Map

It is important to understand that a monuments' overall condition is determined by the lowest rating of the roof, walls, or floors/ceiling. For example, even if the roof and floors/ceilings are in good condition but the walls are assessed to be poor, the entire monument will receive an overall condition rating of poor. We found the following numbers for overall condition (Figures 49-52): 105 monuments are categorized as very bad, 117 are poor, 138 are fair, and only 69 are in good condition. Their percentages are shown in Figure 48. There are 222 monuments that are in at least a poor overall condition and 207 monuments that are in fair or good overall condition, meaning there are more monuments that are structurally compromised than not.

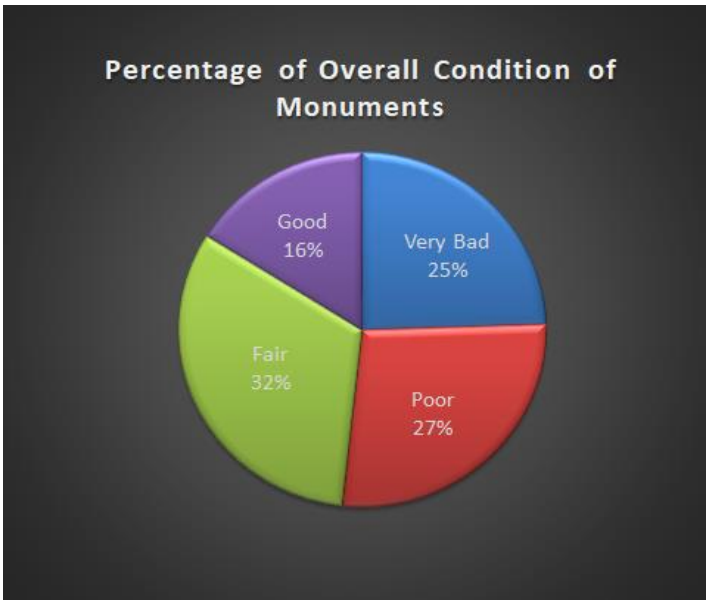


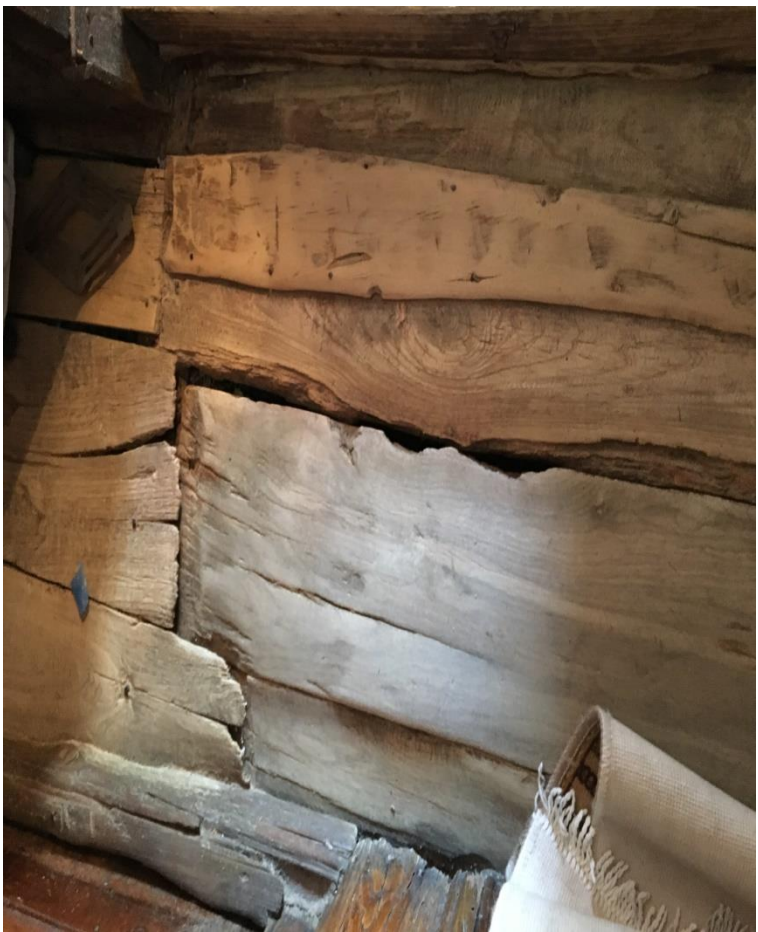
Figure 48 Percentage of Overall Condition of Monuments

Figure 49 Example of Very Bad Roof

Figure 50 Example of a Very Bad Ceiling

Figure 51 Example of a Very Bad Wall

Figure 52 Example of a Very Bad Floor



As previously mentioned, the structural components assessed are the conditions of the roof, walls and ceilings/floor which then determines the overall condition of the monument. For the roof conditions, 64 monuments are in very bad condition, and because of that 46 of them are either a priority category A or B. Regarding the wall conditions, 49 of 429 monuments have very bad walls, 35 of which are then ranked as priority category A's or B's. Fifteen monuments already had a very bad roof, which means that 20 of the A's and B's are directly related to very bad walls. As for the ceiling/floor conditions of the monuments, 57 are in very bad condition, of which 42 are ranked as A's or B's, 36 of them already had a very bad roof or walls. This means that six of the A's or B's are directly linked to having very bad ceilings or floors. These structurally compromised features of the buildings have the potential to breakdown or collapse at any moment, which could prove to be dangerous to other monuments or people.

Condition	Walls	Roofs	Floors/Ceiling
Good	158	105	127
Fair	141	152	133
Poor	81	92	84
Very Bad	49	64	57

Figure 53 Percentage of Overall Condition of Monuments

Danger

Depending upon whether a monument is in close proximity to another monument or a walkway used by pedestrians, it can be considered dangerous. It is worth noticing that on the map in Figure 54 there are 95 monuments overall that are considered to be dangerous. As you can see in Mangalem there are significantly more monuments categorized as dangerous because of their tight proximity to each other, public buildings and walkways. Of the 95 total monuments considered

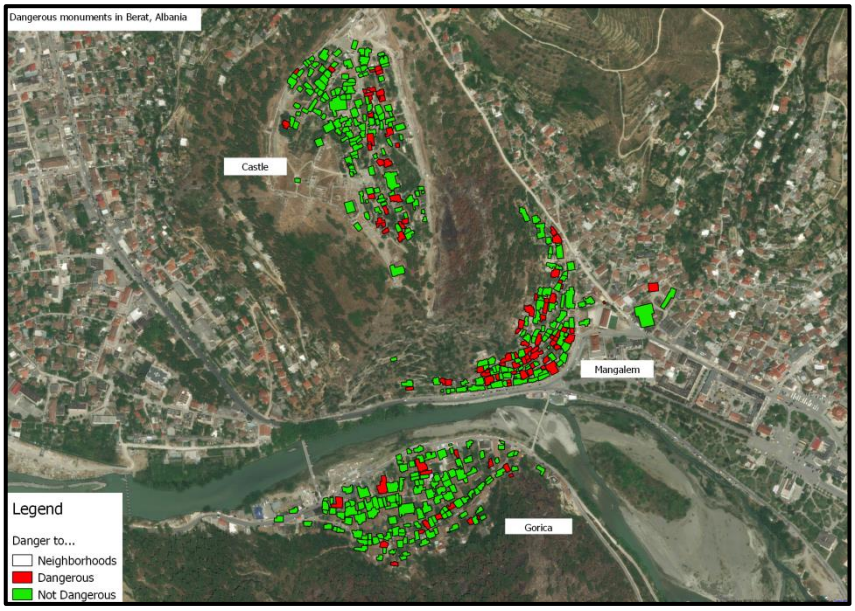


Figure 54 Dangerous Monuments GIS Map

to be dangerous, 47 are vacant or under part time occupation. This lack of occupancy amplifies the potential that the monument will fall into disrepair and increases the likelihood of something happening to another monument nearby or to pedestrians in the vicinity.

Occupancy

There is a substantial problem with vacant homes in Berat's monument district. Many of the homes are very old and fragile, having fallen into disrepair because no one is taking care of them. A vacant home immediately raises the priority category given to any individual monument. As shown in Figures 56, 23% of all monuments in Berat are currently vacant, including both 1st and 2nd category monuments. Of the 98 monuments that are vacant, 82 of the them are in very bad condition according to the assessments, whether it be the roof, walls, floors and ceilings, or a combination of these areas having issues.

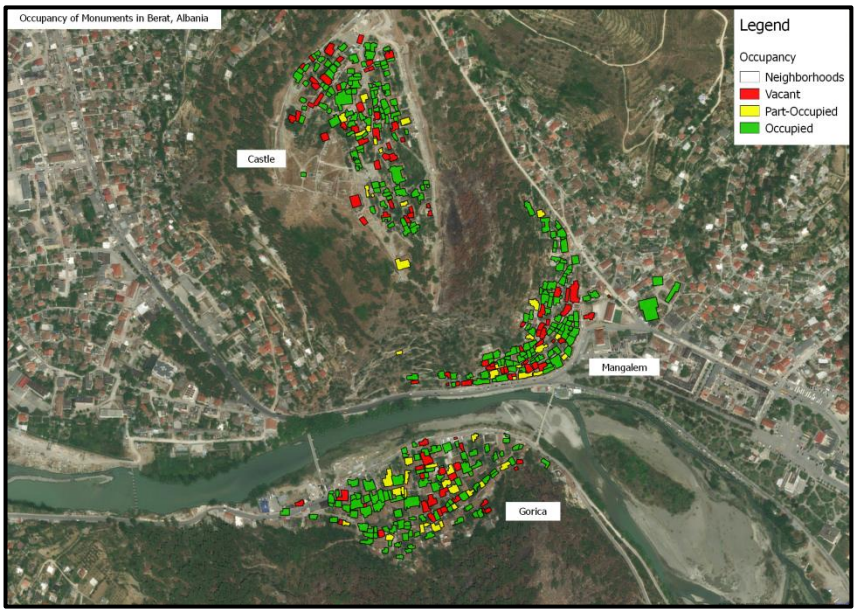


Figure 55 Occupancy GIS Map of Berat

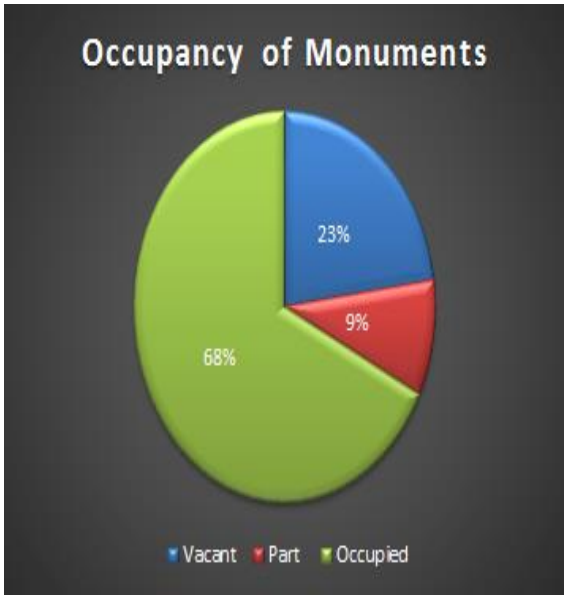


Figure 56 Occupancy of Monuments Chart

According to remaining family members or neighbors, many of the families that once occupied these vacant homes are emigrants, and have moved to either Greece or the United States. Some of these owners lock their old homes and take the keys with them, making it very hard for the government to intervene due to the private ownership of the properties. This is likely to become an increasingly large problem in the near future. In many cases homes have been handed down through generations of family, and current owners are reluctant to sell. With younger family members moving away and homes not being sold to new owners, many more monuments are likely to end up empty.

4.3 Limitations of the Assessment

It was very common for us to find vacant homes that will need to be repaired before serious damage occurs, but not many occupied homes had this problem. However, there are some homes that residents of Berat are living in which could be considered dangerous. Of the 289 occupied homes in Berat, 38 of them received a high priority designation due to poor structural integrity. For example a 1st category monument in Mangalem, M044, is home to Llambi Goxhomani, whose family has been living in Berat for centuries. His home is on the verge of collapse because of a large structural crack in the basement, shown in Figure 57. For example, because this monument is occupied, it is automatically designated to a lower priority than a vacant home which has a bad roof.

Figure 57 Foundational Crack in Monument M044

Unfortunately, a shortcoming in the site-assessment was that vacant homes are always given a higher priority than occupied homes, no matter the condition of the monument. This is because for buildings in very bad and poor conditions, an occupied home currently receives an “at risk” or “vulnerable” categorization respectively. This results in an occupied monument in disrepair being given a C or D priority. Contrary to this, vacant buildings in very bad and poor conditions receive a “very high risk” categorization, which in turn prioritizes the monuments in the A and B category.

4.4 Challenges of Monument Ownership

Owning a cultural heritage monument in Berat brings many benefits, but it also comes with challenges. Although many owners of cultural heritage monuments take great pride in the historical value of their homes, they sometimes struggle with the costs of maintenance and retention of the historical qualities. Depending on the category of the monument, there are limits to what changes are allowed to be made. For example, if the resident lives in a 2nd category monument, the requirements to maintain historical qualities are limited to the outside of the

building. However, in the case of 1st category monuments, owners are required by law to maintain historical qualities both on the exterior and interior of their homes. While conducting surveys of the condition of the sites, we observed several cases in which homes were in poor condition, but owners reported that they could not make updates because they could not afford the price of restoration. The cost of restoration varies depending on the square footage and condition of the monument, but a full restoration can be very expensive. From our site assessments it became evident most owners chose to partially restore their homes and even these can cost a large amount of money. According to Lejla Hadžić, the Babameto house, a large monument in Gjirokastra restored by CHwB, which is approximately 2152 square feet per floor, a full restoration cost $202,600. In comparison, the roof alone cost $98,940. In comparison, for a monument that is about 500 square feet per floor, a full restoration would be approximately $50,000.

In some cases, some homeowners decide to make the changes themselves or hire workers other than the mandated master craftsmen to make repairs and updates to their homes. Private companies with certified architects are also allowed to restore monuments. If illegal changes are made to the homes, depending on how significant the change is, the fines can range from 30,000 to 500,000 Lek ($265-$4420). However, if the construction is necessary, such as a water tank, the state will often overlook it and no fine will be given. That being said, there are very few master craftsmen in Berat. For the past 12 years there were only four master craftsmen in Berat trained in restoring monuments with the correct historical content; however CHwB and the current master craftsmen trained and certified 80 more craftsmen in November 2017. The craftsmen are trying to pass a by-law stating that the private companies also restoring monuments need to hire a minimum of 5 certified craftsmen along with an architect. Previously, there were 15 master craftsmen per neighborhood during the communist era, totaling 45 workers in Berat. However, according to Lejla Hadžić, "in 2005 the former heritage ateliers (employing all the craftspersons) were dissolved and the work was to be undertaken by private licensed conservation that are not conditioned to employ experienced/trained craftspersons." These ateliers disappeared because after the transition to an open-market, cultural heritage preservation was to be completed by private companies, making heritage ateliers redundant. Without a solution to these financial and manpower issues, cultural heritage preservation and disaster risk management plans will continue to be impeded.

The government has claimed that if an owner wishes to restore their home, they will provide some financial aid. In the case of a 2nd category monument, the government would pay for 30% of the repair and restoration costs. For 1st category monuments, the government has agreed to provide 40% of the cost. (Figure 58)

	1st Category	2nd Category
Government	60%	30%
Owner	40%	70%

Figure 58 Government Aid to Monument Owners

The process to get this funding from the government can be difficult, especially for 2nd category monument owners. The owners need to bring their case to the Directorate, who then assesses their homes and builds a case for it. The Directorate then presents this case to the Institute of Culture for approval, and if they receive approval, members from the Directorate then need to go on and justify the case with the Ministry of Culture. It is only after this that funds may be allocated for the restoration of that monument, though often approval is not given due to the fact that the government still does not consider cultural heritage preservation to be a high priority. Even if funding is given for restoration, many homeowners such as Matteo, a resident of the castle, believe these contributions are not enough. When asked about the government providing aid for restoring his home, Koli, a homeowner in the castle stated "Government?! Who cares about government? They only come every 4 years when it's time for election. They say that are going to do that, going to do this… that's why I don't like the government". Lejla Hadžić, executive director of CHwB: Albania, is also very dissatisfied with the government's role, saying they don't seem interested and the process of finding and allocating money for these owners is incredibly difficult.

According to Eugen Kallfani, the director of the Regional Directorate for National Culture in Berat, the Directorate has plans to help with the upkeep, restoration and safety of the historic district, but many of these plans cannot be implemented due to a chronic lack of funding at all levels of government. This upkeep and restoration includes keeping the monuments structurally sound, historically accurate and in otherwise good condition in order to preserve their cultural heritage. The transition of Albanian society from a communist system to a democratic capitalist open-market in 1992 has left little funding to be dedicated to cultural heritage, which is seen as a non-necessity. According to Lejla Hadžić, the country has recently decided to invest in tourism, but the importance of preserving cultural heritage as a profitable tourist attraction has not been realized. As of 2017, only 0.33% of the Albanian state budget is set aside for culture. Only 37% of that initial 0.33% is put towards cultural heritage. This 37% includes all funds for administration, which leaves very little money for restorations. For example, the site of Gjirokastra, which is home to more than 600 monuments (200 more than Berat), receives only €10,000 a year (approximately $11,775) for investments on maintenance and restorations. All of the key informants we spoke with stated it is impossible to keep up with restorations and disaster risk management without the necessary funds.

Figure 59 Berat Fire Truck

Fire Hazard

A key informant from the Regional Directorate for National Culture in Berat stated that more than 50% of the homes in Berat are composed of only wood. Even if the main structure of the building is not wood, roof supports are almost exclusively wood, making the homes extremely susceptible to fire. In Gorica and the Castle, fires can cause extensive damage to multiple monuments because of the extended route the fire brigade must take. In the event of a fire in Mangalem the fire brigade can easily reach the outskirts of the historic district due to its location bordering the main road “Rruga Antipatrea.” However, the tight proximity of monuments interferes with the capability of fire trucks to reach the homes in time. The streets of Mangalem are extremely narrow and consist of many unmarked alleyways, which prohibit fire trucks from actually getting close enough to a burning monument. A lack of fire hydrants in the historic quarter also makes it difficult to fight fires. CHwB, in collaboration with the Regional Directorate for National Culture in Berat have devised an idea to convert old cisterns into makeshift fire hydrants that could be used by homeowners, neighbors, and the fire brigade in the event of a fire. On average, these cisterns can hold approximately 120 cubic meters of water, well over ten times the amount of water the biggest fire truck currently working in Berat can haul, which is between 3 to 9 cubic meters of water.

4.5 Hazards

Along with fire, earthquakes are a hazard affecting all historical monuments in Berat. The entire city falls within a seismic zone, making earthquakes a danger throughout the city. In addition to this, landslides and rockfalls are influenced by earthquakes, as well as heavy rains. Berat faces an average of 39.37 inches annually ("Weather and Climate," 2016). For comparison, Seattle, WA faces an average of 37.49 inches annually ("Rain Stats," 2017). Due to all the rain in Berat, it only takes a minor seismic event to shake soil loose, leading to landslides that can seriously damage many more monuments than the earthquake itself. Rock-falls are primarily an issue in Mangalem due to the large rock wall behind the quarter, but follows a similar idea to the landslides, where a small earthquake could shake rocks loose. A total of 74 monuments are susceptible to landslides, and 37 are at risk of rockfall (Figure 60). To our surprise, while flooding is a large issue in most of Albania, it is not an issue that notably affects the monuments in Berat. Only a small number of monuments, 21 in total, could be affected due to their close proximity to the river, which can overflow during periods of heavy rain. While in Albania, a significant rainstorm hit during the first weekend in December 2017. According to Jurgen Pushi, there was some flooding in Berat, but there was no damage done to the cultural heritage monuments that were designated as flood risks.

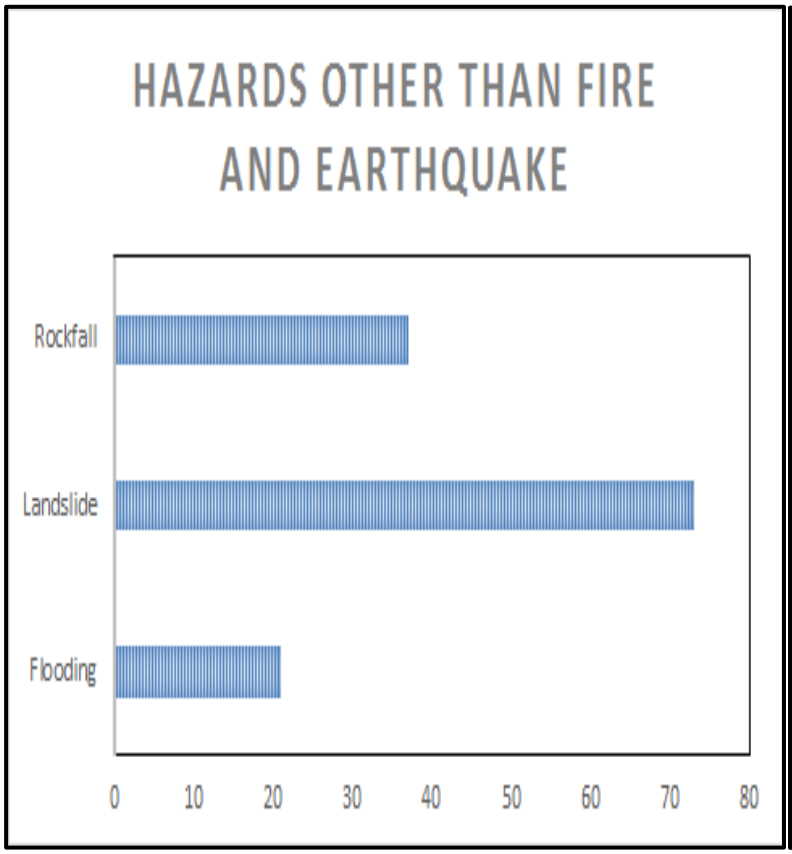


Figure 60 Hazards Other Than Fire and Earthquake Chart

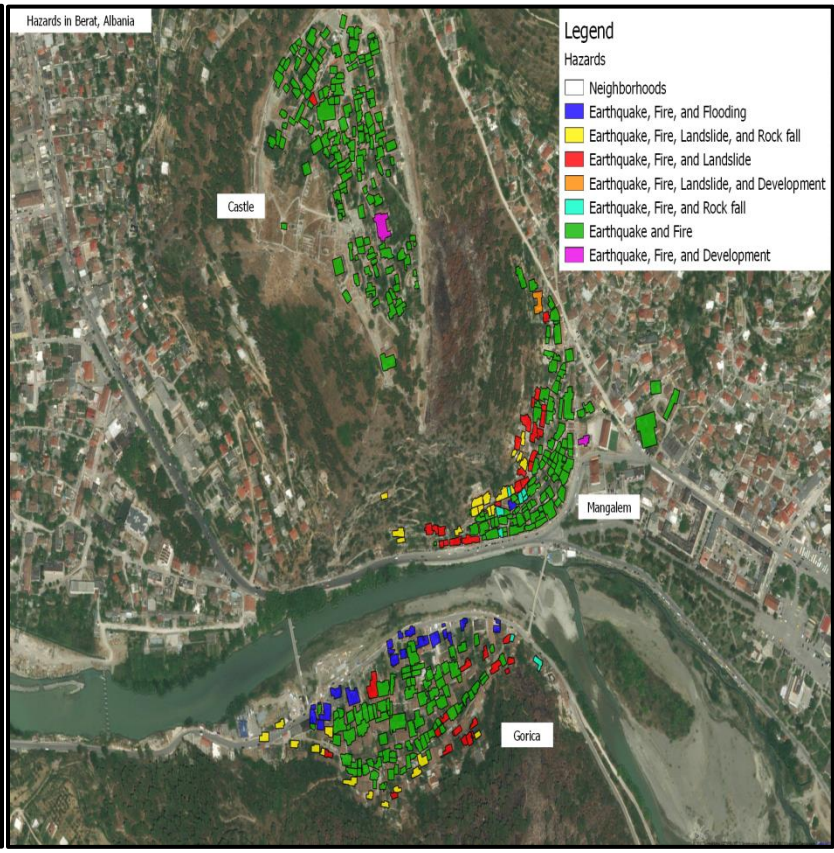


Figure 61 Hazard GIS Map

4.6 Additional Perspectives on Cultural Heritage

Tourism

With the city's immense focus on tourism, our team sought to understand the perspective of the residents of the historic districts, some of whom live in the monuments visited by tourists. Most residents we interviewed in the historic sector reported that they enjoy living in Berat and welcome the opportunity to meet travelers. For example Koli Koço, a homeowner in the Castle, mentioned that he likes the increase in tourists because it means more money is coming into Berat. With that extra money flowing into the city, Koli hopes to find more work. Mateo, a resident of the Castle for the last six years, disagreed with many residents who said they love Berat. He finds Berat to be extremely boring since there is little to do in the small city. He gave an example, saying, "I like to go to the kinema (movie theatre), but where is the kinema? No kinema." Therefore Mateo likes tourism, seeing it as an exciting chance to meet new people. He stated, "I like because I see new face, I speak new people." Llambi Goxhomani, who lives in Mangalem, views tourism as a way to learn about different cultures, while also having the opportunity to share his own.

Figure 62 Key Informant Jurgen Pushi

Each homeowner we spoke with told us that they are proud to be the owner of a cultural heritage site. Many homeowners come from families that have been in Berat for several generations, and feel a great sense of pride in their city and their homes. Jurgen Pushi, a Gorica homeowner, stated that Berat is one of the most beautiful cities in the world, and he wants people around the world to see his city. This sense of pride leads many monument owners to open their homes to show their cultural heritage monuments to tourists.

Conflicting Views of Ownership

Lejla's Hadžić, Executive Director of CHwB: Albania

Lejla Hadžić, the executive director of Cultural Heritage without Borders spoke about the hardships of being a homeowner in Berat. Historically, homeowners in Berat have been feudal lords, and many current homeowners come from these historic, feudal families. Therefore, the government tends to make certain assumptions about the homeowner's capabilities.

> ***"There is still this feeling of 'oh come on, you are the owner, you are the feudal lord, you have money.' There is this mentality, and there is also this***

> ***mentality that people are asked to do something, and it's taken for granted that they would understand the value of where they live. And just because of the beauty of where they live, of course they will give everything of their lives to upkeep it. So I think it's very hard to be a monument owner in Berat."***

However, she also pointed out that the government is not the only group affected by this mentality. She stated,

> ***"I also have to be a little bit critical of the owners, because just as the government has these conceptions about feudal lords, the owners have the same… Them being from these big, feudal families, they are waiting to be served. Especially from government."***

Lejla Hadžić's believes that on smaller projects, homeowners likely have the means to make the appropriate fixes themselves. She believes that homeowners need to take some initiative, and the government needs to do more to help.

Current State of Disaster Risk Management and Preparedness

She also talked about the current state of disaster risk management and preparedness in Berat. CHwB has done some work in this regard, specifically with their cistern project (repurposing old water cisterns as fire hydrants). However, little has been done besides this.

> ***"Besides the cistern project (being done by CHwB), the municipality of Berat was discussing with the European Commission to stabilize the hillside of the upper part of Mangalem, but nothing has really been done there yet."***

In general, disaster risk preparedness is given little serious consideration. She discussed the current fire-fighting protocol, which involved calling the water supply company to provide water to the specific area of Berat where a fire breaks out. By the time the water has been properly routed, much of the damage has already been done. In summary, she stated,

> ***"It's like a joke, it's just such a loose attitude towards emergency preparedness."***

Conflicting Views of Ownership Funding for Maintenance

Matteo, Castle Homeowner

According to Matteo, a monument owner in the Castle, he believes that Berat, and especially the Castle, could be very important and prominent sites, but the city and country are not making a serious investment in it. He says that

> ***"The castle of Berat is the best one in Europe, but also the bad [worst] one in Europe."***

He believes that the castle is very impressive and is on the same level as the ruins in Athens and Rome, but they are not taken care of and promoted and so remain as minor attractions when compared to these other places.

> ***"The Acropolis in Athens, they put a lot of money to restore it…they clean the walls, but here the walls are falling down".***

According to him, more money needs to be dedicated towards the upkeep of the castle and other cultural heritage monuments. This money should be coming from the government, as well as from the city. Currently, the money generated by the Castle from tourism does not go towards the upkeep of the castle, and he believes that this is wrong. If more money can go into making these sites, he and others believe that more people will come to see them and more money will come into the city.

5. Conclusion

Spending time in Albania, and Berat specifically, was an eye-opening experience for the whole team. After arriving in Berat and navigating past the language barrier, the team was able to get a solid understanding of cultural heritage monuments in Berat from completing site assessments for each monument. We were also able to learn about the residents and their families by interviewing monument owners from each section of the historical quarter. Many of the residents of Berat's historical quarter have had family living in the city for generations, and their homes have been handed down to them. They take tremendous pride in their homes being named cultural monuments. However, for a lot of residents, money is a big obstacle when trying to preserve their homes in a historical manner. Funding is also an issue for the Regional Directorate of National Heritage. Many of their employees mentioned great ideas to help with risk reduction and preservation; however a lack of finances is impeding the actualization of these ideas. Tourism, stimulated by the preservation of cultural heritage, can help bring more money into the economy of Berat. The number of tourists visiting the city has doubled in the last three years, and as long as the cultural heritage is well-maintained, that number is expected to continue climbing. With 69 monuments in the historical quarters dedicated to public usage, including restaurants, hostels, and hotels, increased tourism could help residents earn money. The residents of Berat also displayed interest beyond just money from tourism. They take great pride in their homes and heritage, and expressed a strong desire to share their culture with travelers. They also want to experience the cultures of tourists as well, seeing tourism as an opportunity to share stories and experiences with new people.

Even with the recent increase in tourism, it was evident many families and younger citizens have left their homes to pursue better financial opportunities elsewhere. A majority of the homes that have been left unoccupied are in complete disrepair. Unfortunately, there are some residents currently living in structures that are just as dangerous as the vacant homes. While this is a small percentage of monuments, 13.1%, they need to be addressed first before the vacant homes. This is where the team found a discrepancy in the site assessment and matrix used during the data collection. The matrix used in combination with the site assessment automatically lifted vacant structures to a higher priority category. This is unfair to the families living in dangerous homes that don't have the financial means to restore their property with the correct historical craftsmanship. Both vacant and occupied structures could be at risk of destruction due to hazards that are common to Berat. All the homes in Berat are at risk of fire for many different reasons, and there are risk factors that amplify the hazard of fire. Along with fire, earthquakes also present a significant danger to all monuments in Berat. Even a small tremor after heavy rains could set off a landslide or rock fall. These hazards don't affect all monuments in Berat but they can cause significant damage. Lastly, floods are a significant problem throughout Albania, however they only affect 21 monuments in Berat. After speaking with members of the Directorate, it was determined that flooding was a minimal hazard in the city.

Upon analysis of our data from the site assessments it became clear that many historic monuments and potentially people were in danger. Close to two thirds of the monuments with a high level of historical content are in at least poor overall condition. That is very concerning in terms of cultural preservation because it translates to about a third of the total monuments assessed. For overall condition, over half of the total monuments are assessed to be in at least

poor structural condition. Poor overall condition directly correlates to a dangerous situation, especially if those monuments are in close proximity to occupied homes, businesses or walkways. We concluded that 95 monuments were dangerous to surrounding buildings or pedestrians. The collection of all the data that enabled the team to make these conclusions did not come without limitations.

5.1 Limitations

While completing a project such as this one, it is important to note the ways in which the project can be limited in its accuracy and ability to draw conclusions. For this project, there were a few factors that may have had an impact on our data. First and most notably was the language barrier. Being in Albania, where English is not the primary language, the team faced several challenges while working. For most interviews, a member from the Regional Directorate for National Culture had to be present to translate back and forth between team members and the interviewee. The translators were very good; however there is always the potential for information to be misconstrued during translation, either in the questions asked or in the answers received. While doing assessments, the team was split up individually and then each member was paired with a partner from the Directorate to aid in navigation and translation. This was very helpful for our project; however there was occasionally confusion between partners due to the fact that several of them did not speak English very well. Usually this confusion did not last long and a understanding could be reached, however it is possible that during these miscommunications data could have been misinterpreted.

The streets of the historical districts in Berat were often very narrow and winding, weaving through the neighborhood between, around, and over buildings while traversing up and down large hills. With only our associates from the Directorate and a road-less AutoCAD map, there were times while working in which there was confusion pertaining to location and which monument was being assessed. There were also times in which either multiple monuments were part of the same structure, or our Albanian partners wanted to designate parts of the same monument as separate assessments. For the most part these issues were settled quickly, however there were a few times in which there were discrepancies within the data, such as monument appearing to be done twice and another appearing to have been skipped. After comparing our data with databases from the Directorate, these few discrepancies were sorted out. Another limitation faced in the field was the access to monuments, which was mostly due to the fact that the owners of the buildings we needed access to were not available. Often, the owners had emigrated, locking their homes or buildings and taking the keys with them. This was not always a problem when assessing second category monuments because our assessments of those were limited to the exterior of the building. However this was a problem when the buildings were of the first category, because these assessments required an internal inspection as well. In these cases, team members assessed the monuments as best they could from the outside, and put in the notes section that they could not access the interior of the building so the assessment was not complete. These were rare instances in which this occurred, but still a factor that could have an impact on our data.

There were times when the data we collected or observed did not entirely match up to the databases or beliefs of the members associated with the Directorate. At times, our partners from the Directorate told us that a few of their maps and databases for the historical neighborhoods

had not been recently updated, causing a few discrepancies with information. When information was missing from our assessment, such as a missing name because the owner was not available to provide information, the Directorate's database was used. It is believed that the data the team collected was as accurate as possible, however in these occasional instances, some of the information on assessments could be out of date. That being said, the data gathered in the field was used when acquired because it is the most accurate and up to date information.

Lastly, as we did our project, there were some times in which we may have been caught up in everything and neglected to see everything from everyone's point of view. For example, our interviews may have been limited because they were too focused on gathering facts and less on the opinions of the interviewees. We spent most of our time working on completing assessments and compiling data, and therefore do not have a large number of interviews with residents from Berat. Because of this, there may be points of view within the city that we did not obtain. An area this could have affected is our interviews with people regarding how they felt about tourism. Many of the people we interviewed attested to how they enjoyed tourism, however it is likely there are people who do not as well. Our questions may not have delved deep enough into the subject, and because of this nearly the same responses were given by all interviewees. Even with these limitations, the team collected good data and have brainstormed a few recommendations.

5.2 Recommendations

In light of our findings, the team has a few recommendations for the stakeholders, our sponsor, and for potential future IQP teams. Foremost, we would like to recommend to the stakeholders to take the data gathered during the completion of the project and use it to preserve the monuments in Berat. The data here may be able to provide specifics in an effort to gain financial support. It also outlines the overall condition and historical content of all monuments in the city which can be used to prioritize intervention. Unfortunately, after the paper is finalized there is not much we can do for the monuments in Berat, but the data we provide can.

Secondly, we believe the residents of Berat should take priority over the vacant homes and there should be adjustments made to the current site assessment forms and matrix. The matrix currently prioritizes abandoned buildings for intervention. While this makes sense, seeing as most occupied homes are in fair or good condition, it is not always the case. Some homeowners do not have the financial means to make repairs on their home, and as a result they live in poor or even dangerous conditions. However, due to the occupied status, these homes can never reach a priority category higher than C. Despite the homeowner's needs, an abandoned building in disrepair can receive an A or B ranking, which means no matter the historical content present it is already considered a high priority. In order to fix this, we believe some slight adjustments should be made to the matrix. In the matrix, a combination of condition and occupancy determines the risk category (and ultimately the priority category). For buildings in very bad and poor conditions, an occupied home currently receives an "at risk" or "vulnerable" categorization respectively. Shifting this so that an occupied home in disrepair receives a "very high risk" categorization would ensure that they are in the same priority as vacant homes. Currently, vacant monuments are the only structures in which a "very high risk" categorization can be given. The "very high risk" category leads directly to an A or B prioritization ranking.

As for future projects, a suggestion is for a team to do more research on tourism, the economy, and cultural heritage in Berat, and how the three are interconnected. During our interviews, it became clear that Berat's economy heavily relies on tourism, which is brought in by the cultural heritage of Berat. Tourism can be highly beneficial to communities both economically and socially. The exploration of the current state of tourism in Berat and its potential for expansion could make a very interesting project that would also be highly beneficial for the city. That being said, whenever a project of this magnitude is being completed, one must seriously consider the ethical implications involved.

5.3 Ethics

A project such as the one that has just been completed must consider all the ethical aspects involved, especially one that combines so much technical data with social components. One of the interesting ethical implications about this project is that the team, as foreigners, were entering residents' homes to judge structural integrity and historical value. Anyone with the correct knowledge can judge structural elements such as a roof, ceiling, or wall; however a foreign student entering someone's home to judge its historical value could be seen as unethical. To avoid this situation, the team members attempted to talk to the owner of each monument and get as much information about the house and its past restorations. Also, our local partners from the Regional Directorate for National Culture were well-versed in the history of Berat and what types of clues suggest historical value. Unfortunately, being residents of the United States and entering a home with a member from a government organization gave some owners a false sense of hope that we were going to be able to fix their homes. Our project consisted of gathering the data in order to present it to the stakeholders that could help. When a resident inquired about our appearance in their home as a sign of future help, the team member and their partner would regrettably have to remind them that we will not be the ones to initiate restorations or financial help, but hopefully our work will lead to that happening.

After completing the site assessments and analyzing the data, it came to the attention of the group that occupied homes were getting put into a lower prioritization category than vacant homes. When looking into the categorization it was decided that it was unethical to be prioritizing vacant monuments when families are living in deteriorating, dangerous structures. This resulted in the team addressing this in the findings section, and again in the above recommendations section. Lastly, at the beginning of the project there was a concern of the project becoming too technical with no social components. It did appear as though it would be unethical to be gathering all the technical data concerning the monuments without taking into account the owners' opinions. To avoid this, the team decided to interview a few residents from each historical section to gain their input on living in a monument. The only downfall is that we were not able to interview more residents. As a team we tried to be as ethically responsible as possible and we sincerely hope that our project will help the residents of Berat and the cultural heritage there.

5.4 Curiosity, Connection, and Creating Value

Curiosity

When first hearing about this project all team members were curious with the thought of surveying historical monuments in a country on the Balkan Peninsula. All of us had this project as our first choice when ranking the six projects presented during the summer of 2017. Once

learning that each of us had been chosen to complete this project in Albania, the curiosity only grew. We learned more and more about the history in Albania and in Berat specifically. The idea of being able to enter religious monuments and homes that were hundreds of years old was very exciting and only made the interest in the project grow. After arriving in Berat, the group fell in love with the beauty of the city and became deeply immersed in the project. Spending so much time around the monuments and their unique architecture only encouraged the team to want to help preserve them. However, becoming so immersed in the project, and visiting all the homes in Berat, led the team to become interested in the residents of Berat. Our curiosity with the residents grew as we became aware of their friendliness and willingness to help with the project. This curiosity is the reason we were able to figure out the shortcoming within the site assessment and matrix we had been using to complete the surveys.

Connection

There is only so much that one can learn within the environment of a college campus. The curriculum at WPI has taught us a lot about the technical side of engineering: how to build things, keep things safe, and develop new technology. However, IQP has allowed us to not only utilize our skills in a large scale project, but also has exposed us to examining the many other factors that affect project development and the effects the project can have on a community. Factors such as the social, economic, and cultural impact of project implementation can greatly determine what course the project takes. Projects need to be designed to best meet the needs of the community in order to be successful, so the feelings and input of that community need to be taken into account over the course of project development. This information is crucial for our future work, as it is a direct insight into how things work in the "real world". WPI's motto is "theory and practice". The work done on campus has been both, in that we have studied in classes and developed projects, but that could also be called just "theory", as it is somewhat limited by being within an academic sphere. This project allows us to leave that academic sphere and do a project in the real world, truly experiencing the "practice" aspect of the WPI curriculum.

Creating Value

The goal in any interactive qualifying project is to create some type of value at the end. This project has hopefully accomplished that by creating cultural, financial, and community value. By assessing the cultural heritage monuments in Berat, we have created a database in hopes to help the government and other outside organizations correctly prioritize interventions. The cultural value that can result from the completion of this project is if intervention and preservation of Berat's unique cultural heritage actually happens. If it does, the preservation of the monuments adds cultural value to the city, not only as a tourist attraction, but for the residents to remember their past. Restoring and keeping the monuments well-maintained can also be beneficial for financial value. If this project can help allocate extra funding into Albanian cultural heritage and more specifically into Berat, preservation and restoration can be better implemented. Better maintained monuments should help increase tourism, and more tourist's result in more money being funneled into the cities economy. Lastly, preservation of the monuments in Berat can help add community value to the historical quarter. Although most residents are extremely proud of being from Berat, a restored historical quarter that is cleaner and better looking will keep the residents happy.

5.5 Concluding Paragraph

In summary, this project has been successful in multiple ways. The team was able to follow our methods and complete over 420 site assessments. Using that data, a database was created to help the government and other organizations prioritize interventions in Berat. After the visuals and data is handed over to CHwB to send, the subsequent actions of these organizations and the Albanian government is out of our control, but we truly hope action will be taken to help preserve this city's unique history. Alternatively, the team was able to gather more than just the technical data provided by the site assessment. We were able to immerse ourselves in the beautiful city of Berat and all it had to offer, which included the brilliant residents. Getting to hear a few of their opinions on living in Berat and owning a historical monument gave the project an important social component, and opened the team's eyes to some different ethical implications that resulted from the project. All the residents in Berat were willing to help with the project and throughout our stay in the city their unbelievable generosity was something that did not go unnoticed. Through this project we have learned how to gather and present technical and social data, however Berat, it's beauty, and the people that call the city home will be unforgettable.

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6. Appendix

Appendix A

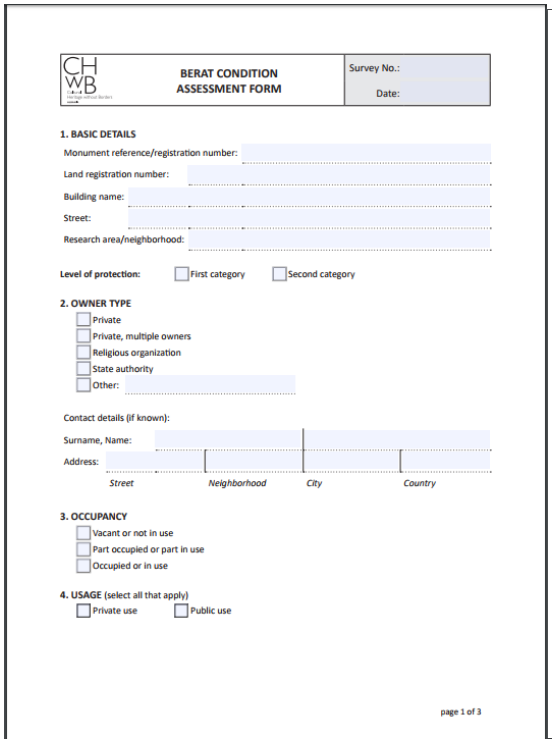
CHwB Description

Cultural Heritage without Borders is an organization that dedicates itself to preserving cultural heritage that is damaged by, "conflict, neglect or human and natural disasters" ("Strategic Plan", n.d.). Through these efforts as stated in their mission statement, CHwB hopes to inspire peace and social and economic development. According to their website their vision is, "that everyone has the right to enjoy, have access to, and participate in cultural heritage" ("History", n.d.). By preserving and promoting these sites, CHwB hopes to inspire the Albanian people to bond through their shared cultural roots, create peace and promote democracy.

Birth of CHwB: Cultural Heritage without Borders, or CHwB in short, was founded in Bosnia and Herzegovina in 1995, but quickly expanded into Kosovo around 2001.

CHwB in Albania: In December 2006, CHwB made contact for the 1st time with its Albanian partners at the Southeast European Heritage meeting. Moving fast, in 2007 a restoration camp was set up and after its success Albanian authorities wanted CHwB to have a larger role in the responsibilities of protecting cultural sites in Albania specifically. Soon after, they received funding from the Swedish International Development Cooperation Agency, and established their 1st office in Tirana, Albania in 2009. Several other organizations and nations have donated funds toward CHwB including the Albanian-American Development Foundation, the German Embassy, and many more. Although at 1st most of the work was being completed at the world heritage site in Gjirokastra, Tirana offered a better advantage to hold meetings with business partners. However a smaller office was set up in Gjirokastra thanks to GCDO (Gjirokastra Conservation and Development Organization) to be closer to the action. The office in Gjirokastra was essential to helping get boots on the ground, holding training sessions, and restoring the Babameto sites. Eventually, CHwB was able to move into its own office in Gjirokastra, and has continued to work with the head office in Tirana on more cultural heritage sites. In recent years they have made an emergency intervention at the Church of St. Nicholas in Voskopoja (2013) while also completing the recent restoration of the hamam in Kruja in 2015. Through their hard work, they officially became a registered independent NGO, CHwB Albania, in 2015.

Appendix B



CHWB

BERAT CONDITION ASSESSMENT FORM

Survey No.:

Date:

1. BASIC DETAILS

Monument reference/registration number:

Land registration number:

Building name:

Street:

Research area/neighborhood:

Level of protection: ☐ First category ☐ Second category

2. OWNER TYPE

☐ Private
☐ Private, multiple owners
☐ Religious organization
☐ State authority
☐ Other:

Contact details (if known):

Surname, Name:

Address:

Street *Neighborhood* *City* *Country*

3. OCCUPANCY

☐ Vacant or not in use
☐ Part occupied or part in use
☐ Occupied or in use

4. USAGE (select all that apply)

☐ Private use ☐ Public use

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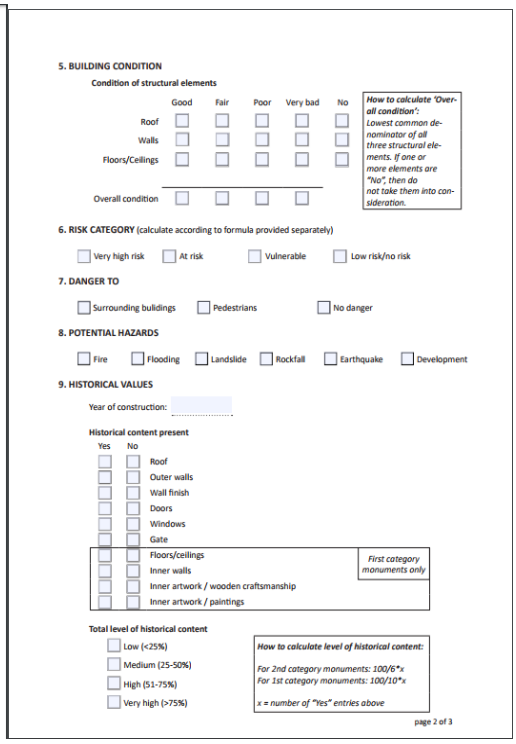

5. BUILDING CONDITION

Condition of structural elements

	Good	Fair	Poor	Very bad	No
Roof	☐	☐	☐	☐	☐
Walls	☐	☐	☐	☐	☐
Floors/Ceilings	☐	☐	☐	☐	☐
Overall condition	☐	☐	☐	☐	

How to calculate 'Overall condition': *Lowest common denominator of all three structural elements. If one or more elements are "No", then do not take them into consideration.*

6. RISK CATEGORY (calculate according to formula provided separately)

☐ Very high risk ☐ At risk ☐ Vulnerable ☐ Low risk/no risk

7. DANGER TO

☐ Surrounding buildings ☐ Pedestrians ☐ No danger

8. POTENTIAL HAZARDS

☐ Fire ☐ Flooding ☐ Landslide ☐ Rockfall ☐ Earthquake ☐ Development

9. HISTORICAL VALUES

Year of construction:

Historical content present

Yes	No	
☐	☐	Roof
☐	☐	Outer walls
☐	☐	Wall finish
☐	☐	Doors
☐	☐	Windows
☐	☐	Gate
☐	☐	Floors/ceilings
☐	☐	Inner walls
☐	☐	Inner artwork / wooden craftsmanship
☐	☐	Inner artwork / paintings

First category monuments only

Total level of historical content

☐ Low (<25%)
☐ Medium (25-50%)
☐ High (51-75%)
☐ Very high (>75%)

How to calculate level of historical content:

*For 2nd category monuments: 100/6*x*
*For 1st category monuments: 100/10*x*

x = number of "Yes" entries above

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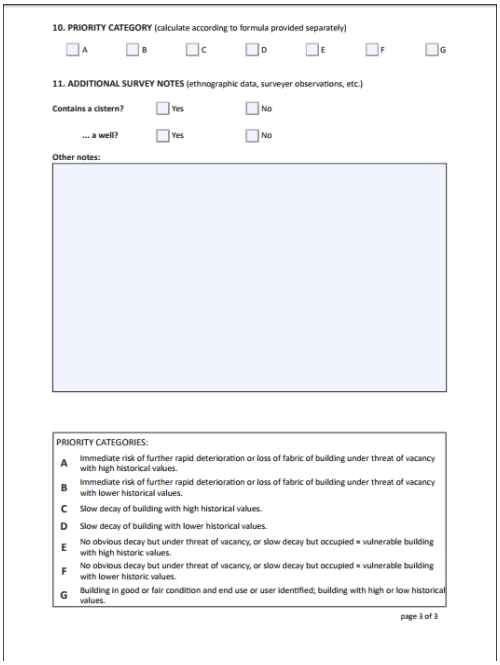

10. PRIORITY CATEGORY (calculate according to formula provided separately)

☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

11. ADDITIONAL SURVEY NOTES (ethnographic data, surveyer observations, etc.)

Contains a cistern? ☐ Yes ☐ No

... a well? ☐ Yes ☐ No

Other notes:

PRIORITY CATEGORIES:

A	Immediate risk of further rapid deterioration or loss of fabric of building under threat of vacancy with high historical values.
B	Immediate risk of further rapid deterioration or loss of fabric of building under threat of vacancy with lower historical values.
C	Slow decay of building with high historical values.
D	Slow decay of building with lower historical values.
E	No obvious decay but under threat of vacancy, or slow decay but occupied = vulnerable building with high historic values.
F	No obvious decay but under threat of vacancy, or slow decay but occupied = vulnerable building with lower historic values.
G	Building in good or fair condition and end use or user identified; building with high or low historical values.

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Appendix C

Disaster Risk Management throughout Albania - Interview with Lejla Hadžić, the executive director of CHwB in Tirana

Consent Script:

We are a group of students from Worcester Polytechnic Institute in Massachusetts. On behalf of CHwB, we are conducting interviews with volunteers on disaster risk planning for cultural heritage site in Berat. We believe this kind of research will ultimately lead to more effective strategies to reduce risk to these monuments. Your participation in this interview is completely voluntary and you may withdraw at any time. This interview will take approximately 15- 20 minutes. Please remember that your answers will remain confidential. No names or identifying information will appear in any of the project reports or publications unless consent is given. Your participation is greatly appreciated. If interested, a copy of our results can be provided at the conclusion of the study. We can be contacted by email at a17risk@wpi.edu. On a final note, do you mind if this interview is recorded?

1. Why is preserving cultural heritage sites in Berat important to you?
2. How does preserving these sites affect tourism?
3. How might their preservation impact local economic development?
4. What are the ethical issues involved with cultural heritage preservation?
5. How does the preservation and restoration process work in Berat?
6. Other than the water cisterns, have any other DRM plans been implemented in Berat?

Appendix D

Historical Sites in Berat - Interviews with culturally and historically knowledgeable people from the Regional Directorate for National Culturein Berat including, Eugen Kallfani (the director), Erisald Zyka (an engineer), and Informant #1 (a specialist).

1. Why is preserving cultural heritage sites in Berat important to you?

2. Why are cultural heritage monuments important to the people of Berat?

3. How does preserving these sites affect tourism?

4. How might their preservation impact local economic development?

5. Which hazards do you see as the most threatening to sites within Berat?

6. What contributes most to the amplification of these hazards?

7. What challenges are hindering DRM implementation in Berat?

8. What would you personally suggest to improve these plans?

9. What kind of financial resources are offered to help with DRM plans in Berat?

Appendix E

Historical Sites in Berat - Interviews with cultural heritage monument owners from Mangalem, Gorica, and the castle.

1. Can you please explain a little about your family history in Berat?
    a. How did you come to own this house?
    b. What do you enjoy about living in Berat?
2. Do you feel any sense of pride being the owner of a cultural heritage monument inside a UNESCO World Heritage Site?

. In what ways is owning the home beneficial to you?

a. In what ways is owning the home a burden?

3. Do you feel any pressure to maintain the historical appearance of your home as cultural monument?

    . What are the requirements asked of you in respect to owning a monument?

    a. Has the government ever spoken to you about having to restore any part of your home, and if so what have they said?

4. Tourism has doubled in the past two years, how do you feel about tourists in Berat?

. Do you have any concerns with the rising tourism?

Appendix F

Historical Sites in Berat - Interview with Miguel Ramos, a Peace Corps worker from Chicago stationed in Berat to work with the local government.

1. Personally, what is your favorite aspect of Berat?
2. From the eyes of an outsider, what do you see that holds up the DRM process, or just the general planning process in Berat?
3. Are there disaster response plans that have been written for Berat?
4. What is the current state of the fire brigade?
5. What are the biggest hazard risks you've seen with cultural heritage?
6. What effects does tourism have on Berat?