

Environmental Situation in Historical Areas

Environment and Cultural Heritage- Bamyan, Afghanistan

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Abstract

Human activities have helped shape the environment for many years, which can be seen even in the most pristine areas of Bamyan. Environment is everything that surrounds us, affects us, and we influence it. Cultural heritage is an inseparable part of human life and environment. The Buddha Bamyan, Band-e- Amir, Shah Fooladi, etc., are examples of cultural heritage that can be seen in Bamyan, Afghanistan, each of which has its own landscape and the landscape have been changed by human activities. Human activities shape the landscape and are the main basis of regional and local identity. In addition to human activities, environmental factors have also influenced the transformation and change of shape of these areas. Climate change as an important factor in recent years has changed the landscape of cultural heritage.

Environmental and Culture Heritage

The relationship between cultural heritage and people is so close that this relationship also leads to names in the natural environment, which have a significant overlap. Determining areas with natural beauty requires proof in one of the aesthetic criteria. This beauty is in terms of landscape quality, natural quality (sciences), wildlife, relative peace, natural and cultural heritage features. Cultural heritage is aspects of the environment that make a region unique. For example, historical parks, archaeological remains. In Bamyan, the protected area of Shah Fooladi has been a place for hunting animals and a place for recreation. This area has green valleys and high mountains that have given Bamyan a beautiful landscape. In addition to being changed by people, cultural heritages in Bamyan are also transformed and changed by climate changes.

Local weather-related factors affect the destruction of buildings, structures and cultural heritage over time, which are affected by climate, that is, their destruction speed is low, and some of these changes are also fast. Bamyan has cold and short winters and hot, dry and long summers and rains that start in autumn and end in early spring. Potential climatic elements affect the environment of cultural heritage. These factors include drought, flood, wind and extreme rains. The effects related to the weather that affect the cultural heritage in Bamyan are: unstable soil, humidity, hydrology, vegetation, pests, and change of economic-social patterns of settlements.

Hot and humid weather causes damage to building materials. Extreme weather events cause more severe damage to cultural heritage. Due to climate changes, cultural heritage management is facing

new challenges. It is suggested to pay more attention to the identification, documentation and mapping of cultural heritage sites that are vulnerable in terms of climate. Due to its location in the middle latitudes, Afghanistan is under the influence of the STHP¹ in the warm season, and in the winter it is under the influence of the Polar Vortex and the Siberian cold system. Climate change has caused a change in the activities of these two high pressures. In summer, the activity of STHP becomes higher than its normal level and the activity of cold systems also decreases. The predominance of the Subtropical High-Pressure system during many days of the year causes heat and drought, which affects the way of life of the people, and the change in the way of life in a poor community like Bamyan, whose life depends on the land, causes a change in the landscape. The effects of weathering on cultural heritage in Bamyan are physical, that is, materials are broken into smaller pieces.



Fig. 1. Shah Fooladi, Bamyan, Afghanistan (Photo: Jawad Nazari, 2018)

This action happens due to frostbite. In this process, the temperature drops below zero degrees Celsius and then rises above zero again, causing most of the areas to be destroyed under the influence of heating and cooling. Climate changes appear very strongly in a region like Bamyan. In this province, people live hard and are poor. Their lives depend on the land. The decrease in rainfall and drought has caused the vegetation cover to decrease in recent years. Most of the people use vegetation for cooking and heat, which has caused the landscape of the areas to disappear. In the protected area of Shah Fooladi, which is considered as a natural landscape and cultural heritage, excessive livestock grazing, excessive cutting of vegetation are among the factors that, along with climate change, cause the loss of landscapes and perspectives.

Cultural heritages are legacies from the past that give local people a sense of place, identity and cognitive well-being. These cultural heritages are and will always be in conflict with the environment and are often referred to as weathering processes and will change. Climate change sometimes

¹ Subtropical High Pressure

shows itself in the form of massive floods in the region, which lack of vegetation and loose soil has caused many changes in the region. The observations of 2018 showed the effects of climate change in Shah Fooladi region. Climate change, changes the rate of erosion and weathering and contributes to the emergence of weathering phenomena. Decrease in rainfall, drought, floods, strong winds and melting of snow in the heights of Shah Fooladi are among the climatic factors that play a role in weathering and changing the landscape in this region. Shah Fooladi is an important as a source of water in central and surrounding provinces because of its natural glaciers throughout the year.



Fig. 2. Shah Fooladi, Bamyan, Afghanistan (Photo: Jawad Nazari, 2018).

Also, these snows, which are seen mostly throughout the year, have presented a beautiful landscape. Temperature changes during the seasons and hot and cold weather also cause weathering and changes in the landscape of the region. During freezing and during cold weather, the volume of water stored in the porous space increases and causes internal tension. Also, during the hot season, the expansion of surface minerals due to thermal changes caused by seasonal changes and changes in daily temperatures and direct radiation causes cracks and erosion of the building and soil granulation. Generally, changes in the landscape of natural heritage in Bamyan, in addition to human factors that are part of the environment and affect it, climatic factors with high and low intensities play an important role in changing the landscape in the region.



Fig. 3. Shah Fooladi, Bamyan, Afghanistan (Photo: Jawad Nazari, 2018).

An increase in rainfall under the influence of climate leads to soil saturation and an increase in runoff on the surface, which over time causes the destruction of the structure of buildings in cultural heritage. The reduction of vegetation, drought, flood and other factors caused by climate change in the region will change the landscape of natural heritage. Therefore, it can be said that climate change is a new challenge and a great risk in the management of cultural heritage. Therefore, it is suggested that the type of damage caused to the cultural heritage should be identified and classified at the local and regional level, and then the necessary measures should be implemented in the form of one or more models. Some options and solutions are suggested for planning and managing protected areas and cultural heritage in Bamyan:

- Creating buffer zones around cultural heritages
- Investigating rainfall regimes - Flood prediction
- Education to people
- The importance of cultural heritage for people
- Restoration of natural habitat
- Modeling, monitoring and sensitivity analysis
- Assessing the effects of climate change on cultural heritage

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Author Contributions

Methodology: Survey and Research