

## CLIMATE CHANGE AND HERITAGE: WHAT EXISTS IN CIVILISATION THEASURUS OF THE DANUBIAN REGION?

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**Abstract** The World Heritage Committee requested from the World Heritage Centre of UNESCO, in collaboration with other similar bodies, to assemble a broad working group for climate change impacts on world heritage. The Committee took this decision noting "that the impacts of climate change are affecting many and are likely to affect many more world heritage properties, both natural and cultural in the years to come". This paper gives a retrospective of climate changes and impact on the Danubian region that thesaurus invaluable civilisation heritage in all segments of human activities.

### Introduction

The archaeological records show that societies flourished because climatic conditions were right for agriculture, which, without doubt implies that the inhabitants have to appreciate and take into consideration the importance of the link between civilisation and climate change. In many cases it was demonstrated that this link is delicate and that humans might be vulnerable to global climate change. When global population levels were low, and people moved across large territories in search for food there was both mobility and flexibility. If conditions changed, a group of people could move on to utilise resources in another area. Today, in our heavily populated world we are tethered to our towns and cities, and inherently we are exposed to much higher risks from climate change than our ancestors. Our human history is continuous change and adaptation. Let us hope that enough people begin to understand the urgent need to change the way we currently live. Deep changes are necessary to reduce our impacts on the climate and profound forecast for a climate that has been changing before our very eyes (Fagan, 2004).

The heritage is a pathway of civilisation going not only with the *time of memories*, coming from the past to the present, but also with the *time of temptation*, that comes from the future to the present. It is a footprint of the civilisation. The tectonic disturbances by climate change will also touch the heritage on different spatial scales. Therefore, the World Heritage Committee of the World Heritage Centre, UNESCO, noted "that the impacts of climate change are affecting many and are likely to affect many more world heritage properties, both natural and cultural in the years to come".

Heritage refers to something inherited from the past. The word has several different senses,

including: (1) *Natural heritage*, an inheritance of fauna and flora, geology, landscape and landforms, and other natural resources; (2) *Cultural heritage*, the legacy of physical artifacts and intangible attributes of a group or society (man-made heritage); (3) *Food heritage*; (4) *Industrial heritage*, monuments from industrial culture; (5) *Tradition*, customs and practices inherited from ancestors; (6) *Virtual Heritage*, an information and communication technologies dealing with cultural heritage; (7) *Inheritance* of physical goods after the death of an individual; of the physical or non-physical things inherited; (8) *Heredity*, biological inheritance of physical characteristics; (9) *Birthright*, something inherited due to the place, time, or circumstances of someone's *birth* and (10) *Kinship*, the relationship between entities that share a genealogical origin (Anderson et al., 2009). Apparently, all kind of heritages have a close ties with the environment and climate conditions, i.e. climate change. The environment is becoming increasingly endangered, especially as humans encroach and modify fragile environments, having also negative impact on the heritage footprint (Mihailović and Miloradov, 2009). The issue about climate change impact on heritage of the Danubian region is touched by Mihailović (2010) in the form of scientific literature. This paper is a continuation of that attempt to summarise some facts of the climate change that impact heritage of the Danubian region.



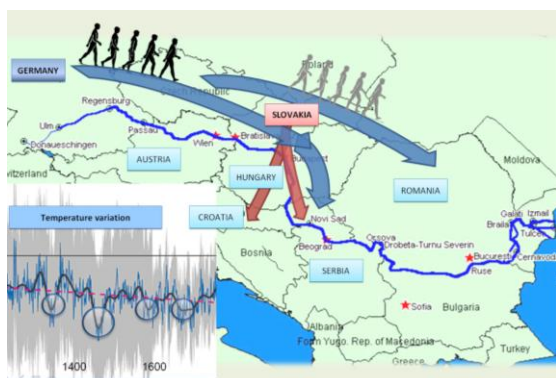
Figure 1. Map of the Danubian region

### Danubian region: A brief geographic, climate, demographic and heritage overview

The Danube is more than Europe's second longest river, extending 2,778 km from its source in Germany to its delta at the Black Sea. It is more

than a line on a map and a political boundary for 10 countries experiencing vastly different political, economic and historical contexts. It is even more than a cultural and romantic symbol of Central Europe's rich past and hopes for future integration. It is an immense basin that drains water from countries, much like a huge bowl. With over 80 million people, the Danube is the most international river basin in the world. Countless other European rivers drain from the basin into the Danube River (Inn River, Morava River, Tisza River, Sava River and Prut River). Compared to other river systems such as the Ganges river in south Asia, the Danube River Basin (DRB) is not likely to be dramatically affected by climate change. Nevertheless, some parts of the river basin will probably suffer from more droughts. Floods are already increasing in intensity and frequency. So it's high time for the nineteen countries of the Danube basin to start thinking about basic climate change adaptation and to adjust their policies accordingly.

*Population of the DRB countries.* According to the officially published or updated figures, the present population of the thirteen Danube River Basin (DRB) countries is about 223 million. The average share of urban population in the DRB countries is about 63%. The average population density of all the thirteen Danube countries is 119 people/km<sup>2</sup>. *Population of the DRB.* According to national estimates, the present population living in the DRB is about 83 million. The average share of urban population in the DRB is about 57%. The area of the DRB is about 817,000 km<sup>2</sup>, about 43% of the territory of the 13 DRB countries. The average population density in the DRB is 103 people/km<sup>2</sup>.



**Figure 2.** Migrations in the Danubian region in centuries

Heritage of the Danubian region is a civilisation thesaurus in all segments of human activities. Firstly, it always was the land area providing food for the whole region and partly for Europe as well. Secondly, through the centuries this space, from past to present, has been influenced culturally by Germanic, Slavic, Ugro-Finnic and Romanian nations. Historically, the Danubian landscapes in the last 10 centuries were in the focus of the

European history. These create its recognisable footprint in the world civilisation.

### **A view on climate change impact on Danubian region heritage**

The fact is that the Danube region, particularly in the last millennium, was an attracting point for many invasions and migrations having in the background land, water and climate. Many barbarian tribes and already formed nations tried to take advantages over others and keep this territory. However, regardless the turbulent history, all of them contributed to the heritage of this cultural and romantic symbol of Central Europe. I will count some of them: 55 universities among 500 top universities in the world, 118 (science) and 25 (literature) Nobel price winners, famous composers from 18-20 century, well known architecture as a mixture of different styles, etc.

The climate change impact on heritage on the first level we recognize through migrations, in this case, in the Danubian region (Fig. 2). There have been many theories postulating the reasons that tribes and nations began and continued to move. However, almost all of these theories have neglected the role of climate change and some have disputed it altogether. This is understandable because the tools necessary to reconstruct the climate during the past were not available to the early historians. However, new technologies offer the paleoclimatologists and historian a new tool for evaluating climate change and historical events and their impact on heritage. Figure 2. ilustratively depicts the close ties between migrations and air temperature variations during migrations in the period 1400-1650.

Passing across the Danube area – is not only the drift of miscellaneous landscapes and sites – but above all it is a pilgrimage through time, societies, cities and areas with different traditions and habits, different phases of industrialization and urbanization. A passage through the Danube area is actually a passage through the history of Europe. The historic landscape of the Danube upholds a remarkable temporal and regional diversity, incorporating an array of common cultural characteristics. This is a good enough reason why thesaurus and heritage of this part of the European civilisation must be preserved.

### **Conclusions**

In the form of the short overview on the brink of the literature we cautiously considered the climate change impact on the heritage, in its all segments, of the Danubian region. This story is supported by some climatological as well as historical facts indicating on their close ties.

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