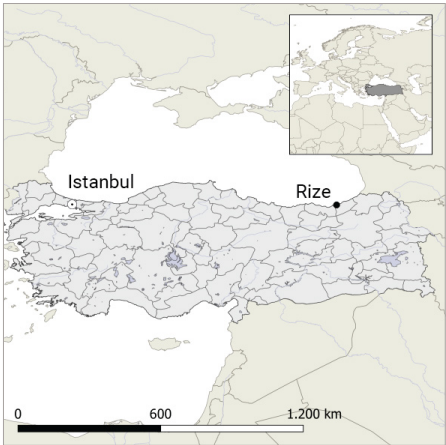
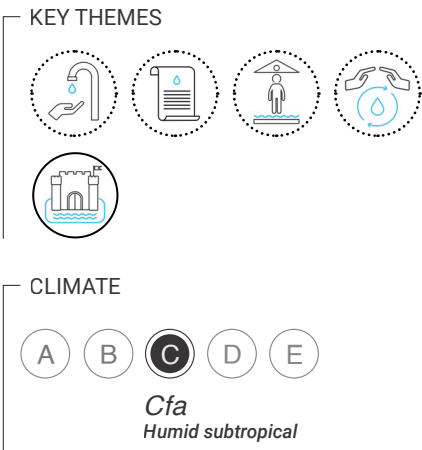




How a Rainy Climate has Shaped the Artifacts and Communities of Fındıklı and Rize in Türkiye

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Steep slopes, rivers, a rainy climate, and rich vegetation: the region of Fındıklı and the city of Rize (Türkiye) have been shaped by humans living with water. To understand the region’s traditional settlements, vernacular buildings and local culture, it is crucial to analyze its geomorphological setting. Yet, despite the importance of climate and geomorphology for understanding how living with water has shaped everyday artifacts, water-related heritage in this region is not well documented. This article makes a case for seeing cultural and natural heritage as connected and to protect already sustainable practices and use them for future development.



< Fig.1 Harvesting tea leaves (Source: Gürsoy Tokgöz, Creative Commons Attribution 3.0 Unported).

Introduction

The geography of the area and its water management have shaped architecture for centuries. The city of Rize is located in the Eastern Black Sea region of the Kaçkar mountains, where the highest elevation is 3,937 meters. The high mountains and hills lose elevation south of Fındıklı. The total annual mean rainfall in Rize amounts to 650 mm, which is close to four times the average amount in the country. High levels of humidity and precipitation year round are underlying causes of recurrent floods and landslides. The river plains and valleys were formed by three main rivers: Arılı, Çağlayan, and Sümer. Local communities built settlements compatible with the natural environment. Most of these settlements are concentrated along the Çağlayan and Arılı valleys. Crops include tea, hazelnut, fruit and corn; people also tend beehives and fisheries.

Adaptation to rainwater played an important role in the past. Some 250 years ago, local builders set up houses, bridges, kilns and mills that were adapted to the particularities of the landscape. Local builders carefully selected appropriate locations for the buildings in response to water requirements. They located their houses on the higher end of the slopes to control the water flow on their lands, but also so that rainwater would fertilize the land by carrying animal scat downslope. Locals determined construction sites by hanging meat at the desired location. If the meat or a side of the meat became rotten, it was determined that the building's facade facing the rotten side would decay faster due to the prevailing winds carrying precipitation.

The builders chose local materials that could withstand the rainfall and extreme humidity. They collected stones from nearby rivers and chestnut timber from local forests for the ex-

terior and interior walls and furniture; chestnut wood is particularly resilient to water. Over time, they also developed appropriate structures (fig. 2), notably 150 cm wide roof overhangs to prevent water from permeating building facades.

Current Approaches to Preserving and Managing Water Heritage

Heritage protection for these sites is hampered today by particular national heritage policies. In Türkiye, the conservation of cultural heritage is based on the Cultural and Natural Heritage Protection Act. But the conservation of natural heritage is no longer the responsibility of the Ministry of Culture and Tourism. Since 2013, it is the responsibility of the Ministry of Environment, Urban Planning, and Climate Change, a combination which has led to many issues involved in preserving cultural and natural heritage sites together. However, the protection of natural sites is separated from those of cultural ones. The three local rivers – the Çağlayan, Arılı, and Sümer – for example, are listed as natural heritage because of their ecosystem and biodiversity.

Vernacular buildings in the area are listed under the authority of the Ministry of Culture and Tourism and the Regional Board Directorate for Preservation of Cultural Assets in Trabzon, according to conservation status. A first degree conservation site largely retains the original form and design of its architectural elements, thus, the interior and exterior must be kept intact and cannot be modified. The first degree listed buildings are usually grand mansions and buildings; village houses are listed as second degree. Local residents of historic buildings can modify the interior of second degree sites, but not the exterior. The third degree sites are most flexible: here modifications are mostly allowed.



^ Fig. 2 Timber buildings elevated on stone in Hara village (Source: Gül Aktürk, Hannah Fluck, CC BY 4.0).



^ Fig. 3 Stone-infilled building in Çağlayan village (Source: Gül Aktürk, Hannah Fluck, CC BY 4.0).

The designation of houses as heritage depends largely on the initiative of individual homeowners. Individual buildings can be listed as a result of individual action. To receive money from the government to restore their houses, homeowners can apply for their houses to be listed. If the building is not designated, the owner is free to modify it. Only a couple of sites from various villages have been listed as heritage. Moreover, there is no conservation for rural areas that include vernacular settlements with their kilns, mills and other practical elements. The intangible heritage of lifestyles and practices surrounding water is not officially valued and has mostly been abandoned. So far the region has failed to develop a comprehensive approach of valuing and protecting the landscape.

Current and Future Challenges to this Water System

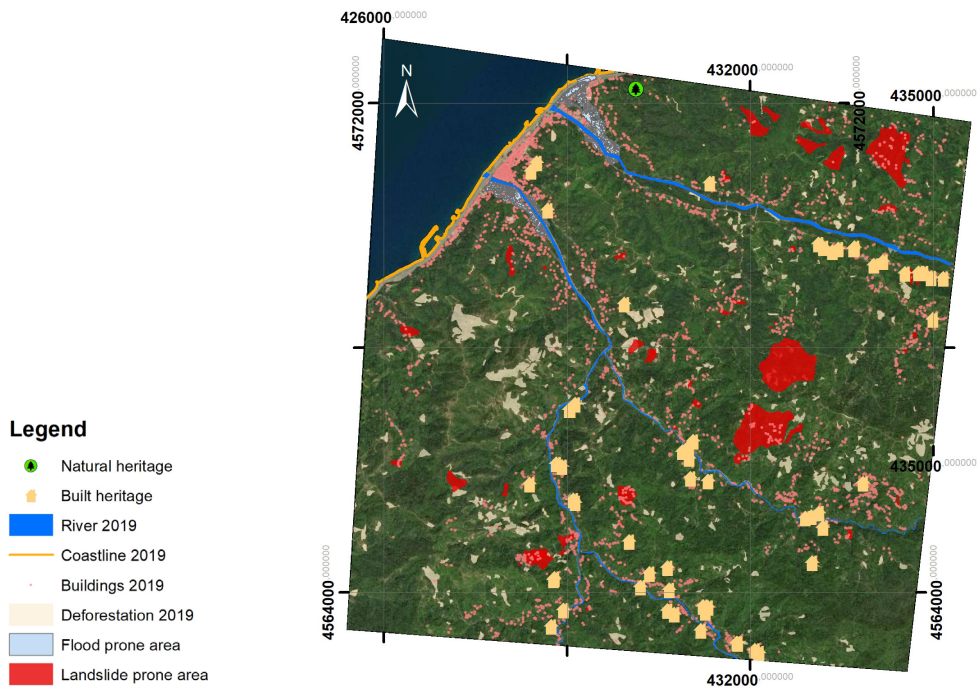
Water patterns in Rize have changed over the last decade, with an increase in precipitation, rainfall and humidity. As a result, disasters such as river flooding and landslides occur more frequently and severely. Murat Kurum (Turkish Minister of Environment, Urban Planning, and Climate Change) announced the Regional Climate Action Plan for the Black Sea region on 12 July 2019. He explained the active role of NGOs and universities in mitigating the effects of climate change. The 15 actions to be taken include several practices in the building sector (Aktürk and Fluck 2022). The 13th article encourages the use of locally available materials in the construction of new settlements to aid climate resiliency, creating an exemption from any type of fees or taxes in the construction of houses. Despite the decision to protect these areas, local authorities allowed urbanization in these areas. There have been recent building developments along the rivers of Çağlayan and

Arılı (natural heritage sites), which made them vulnerable to floods. In addition, land reclamation in the coastal area of Rize and the narrowing of the river channels increased the pressure of the water flow. The pressure of water flows further increased when construction materials were released into the river waters, blocking them. Plans for a hydroelectric power plant in the area, moreover, increased concerns about access to clean water and about the risk of flooding. The regional climate action plan conflicts with the development plans.

There is an ongoing disagreement between public institutions, locals and NGOs regarding the implementation of large-scale projects. On the one hand, public institutions impose national and regional projects, including the construction of a hydroelectric power plant and the Green Road. The latter is a project connecting the highlands in the region to improve highland and nature tourism. On the other hand, with the support of NGOs locals object to any intervention that could interfere with the river ecosystems. In addition, locals are requesting new roads and housing developments. These contradictory stances affect heritage sites. Because the rivers are listed as natural heritage sites, the collection of stones from the rivers that are needed for traditional housing is prohibited. Also, to protect against deforestation local communities can no longer collect chestnut timber from the forests (paradoxically, large-scale deforestation is caused by the auctioning off of forests to private companies, who have depleted the area for economic development). Both spatial decisions and local level actions have played a role in the deterioration of these heritage sites. Therefore, the protection of natural heritage sites such as rivers and forests sometimes hinders the preservation of cultural heritage as it can prevent the use of local materials in the maintenance of cultural heritage.



^ Fig. 4 Mixed construction on a building in Hara village (Source: Gül Aktürk, 2019, CC BY 4.0).



^ Fig. 5 The flood- and landslide-prone and deforested areas in the selected area of Fındıklı in 2019 (Source: Gül Aktürk, Stephan J.Hauser, CC BY 4.0)

Conclusion and Future Approaches

Dilemmas regarding the protection of heritage and the development of a region have to be resolved in integral ways. Identifying heritage as part of a living past and present, and acknowledging the interconnection between natural and cultural heritage is crucial. To do this, more analysis and data is needed including geographical locations, historical background, specific descriptions of materials, techniques, and uses, and even visuals of the past and present that explain what water systems are now lacking.

Creating a shared language

Finding relevant data often requires studies beyond traditional archives. Oral traditions, for example, can provide a better insight into the

use of techniques and materials in vernacular buildings. Moreover, combining data on flooding and erosion (often available from public institutions) with data on the location of vernacular and natural heritage, and aerial images in ArcGIS can reveal heritage sites threatened by natural disaster (fig. 3). Such integral data analyses can help stakeholders value cultural and natural heritage at risk by viewing them as an interrelated system, and uncover the historical layering of vernacular landscapes and translate it into heritage values. This approach allows us to further clarify the importance of historic water systems for vernacular settlements like those in Fındıklı.

Bringing together relevant stakeholders

Different levels of stakeholders should be in-

volved. Not only formal institutions at the national and local levels, but also institutions dealing with disaster and water, and NGOs dealing with local communities should discuss values and interests at various scales to integrate heritage in development policies and practices.

Raise awareness and engage communities

Community engagement tools (as proposed by UNESCO's Historic Urban Landscape approach) can bring stakeholders together for a fair dialogue that aims to both preserve cultural and natural resources and allow for local development. For example, in Findıklı, workshops such as the EU-funded project "Training Masters for Rural Built Heritage in the Eastern Black Sea Region" have provided education in carpentry to local artisans (Aktürk 2020). Local historical knowledge and artisanship are crucial for sustainable development: techniques and materials that have long withstood disasters can inspire future construction. As a result, the promotion of heritage has become an additional source of income for locals. It has also led to an increase in the number of skilled artisans, who have worked to construct similar buildings in other regions of the country. Raising awareness of the preservation of these sites is only possible through collaboration. In this case, bringing together the university and local communities have led them to reevaluate the importance of both tangible and intangible practices in present-day developments.

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