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Roundtable I: Water and Heritage

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Date: 27 November 2019, 11.00

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INTRODUCTION

The participants were scholars from different continents and with diverse academic and cultural backgrounds, including in areas such as hydraulic engineering, political studies, philosophy, economics, geography, architecture and urban planning, anthropology, and sociology. Since each participant had a different understanding of water and water heritage, the discussions and debates started by asking "what do we mean by water"? Taking the example of dams, participants mentioned the difficulty of striking a balance between protecting the natural water environment and preserving the cultural heritage of human beings. In this respect, it is essential to investigate the cosmology of water, which is regarded as one of the five primary elements.

The subsequent roundtable focused on the following three questions with the participants expressing opinions from multiple perspectives.

HOW HAS WATER SHAPED SPACE, SOCIETY, AND CULTURE AROUND THE GLOBE?

Water is of fundamental importance to the existence of human beings and a key element of many heritage sites and landscapes in the world. The presence and location of water has always determined patterns of human occupation and the movement and settlement of populations. Patterns of settlement and development in communities, regions, and countries have been shaped by water bodies and watercourses. Water cultural heritage can be of historical, aesthetic, social, and/or technological significance.

For example, a lot of outstanding industrial cultural heritage was constructed in Taiwan during the Japanese colonial period (1895 -945). One example is the Erfeng irrigation canal system (EICS), which was used for the irrigation of sugarcane farms in the Pingtung Plain area of southern Taiwan. Taito

Co. Ltd., a Japanese sugarcane manufacture, hired Shinpei Torri, a Japanese hydraulic engineer, to construct an underground storage reservoir below the riverbed in the upstream section of the Linbian River in 1923. This outstanding irrigation system captured the interflow water from the dry riverbed during dry seasons and used it to irrigate the sugarcane and rice paddy fields at Wanlong Farm in the Pingtung Plain. This underground storage gallery for interflow water is a prime example of the sustainable ecological engineering works constructed during the Japanese colonial period. In 2008, therefore, the EICS was registered as a "cultural landscape" in Pingtung, Taiwan. The Erfeng irrigation system shaped the way in which water was supplied by the underground storage gallery below the riverbed. The Erfeng irrigation system shaped sugarcane cultivation and the sugar industry in Taiwan, and became a significant symbol of Taiwan society and culture internationally.

WHAT GEOGRAPHICAL SPACES, METHODOLOGICAL APPROACHES, THEMES, AND CASE STUDIES OUGHT TO BE ADDED TO EXISTING RESEARCH?

A lot of water-related cultural heritage structures are in continuous use and face structural and equipment renewal issues. Renew and repair is consequently an important issue for maintaining the significance of water-related cultural heritage. However, when implementing renew and repair of that cultural heritage it is important to maintain a balance of authenticity between the original and new structures and facilities. This delicate balancing act will depend on good communication between the cultural conservator and the engineer.

For example, the EICS was constructed during the Japanese colonial period. In 2008, it was registered as a Cultural Landscape under the Cultural Heritage Preservation Act because it qualified as industrial heritage with scientific value. In light of the goals of preserving international cultural heritage and undertaking restoration work as per the Cultural Heritage Preservation Act of Taiwan, the 2017 EICS underground weir restoration was discussed, as well as the feasibility of its functional operation, including the preservation of water cultural heritage. To safeguard the heritage value of the EICS, the proposal to expand the EICS's cultural landscape and register it as a historic structure was recorded and verified in accordance with the procedures stipulated by the Cultural Heritage Preservation Act. All demolition and alteration project planning units should first understand the EICS's cultural heritage value, and the key goals of preservation and maintenance. All construction methods should be coordinated with the Pingtung County Cultural Heritage Protection Institute to ensure that the proposed methods meet international cultural heritage preservation standards.

Another important issue is to develop new functions for water cultural heritage structures that no longer perform their original functions. For example, a Taiwanese hydraulic engineering team tried to develop green micro-hydropower energy using obsolete channels in this ancient irrigation waterway where the water flow velocity and hydraulic gradient is sufficient for hydropower generation. The power could be supplied to local houses. This program has also developed Green Hydraulic Power learning material for the local primary school. This real-life case has been successfully demonstrated to the next generation.

HOW CAN WATER HERITAGE RESEARCH HELP SHAPE THE EMERGENCE OF MORE SUSTAINABLE SOCIETIES?

The experimental reuse of waterways or irrigation systems that are part of industrial cultural heritage can be regarded as the link between culture and nature, creating value by uniting conservation of water cultural heritage and environmental sustainability.

Several of the UN Habitat's17 Sustainable Development Goals (SDGs) can only be achieved through preservation of water cultural heritage. For example, the frequently quoted goal of SDG 11—"make cities and human settlements inclusive, safe, resilient and sustainable"—proposes a close relationship between cultural heritage and the living environment, while the benefits of heritage preservation, namely the promotion of tourism and economic activities, are implicit in SDG 8: "promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all". In addition, the heritage preservation work at the Erfeng Irrigation Canal System (EICS) in Taiwan meets SDG 6: "ensure availability and sustainable management of water and sanitation for all." The preservation of water cultural heritage in the future will play an instrumental role in realizing the 2030 Sustainable Development Goals.

CONCLUSION

Maintaining and using water as a resource has become a major focus of human activity. Systems of land reclamation, water supply, irrigation, subsidence, sewage, and hydro water help build, define, and sustain society. Water management has long been a strategic, social, and political consideration for communities. The discussion also referred to land use policy in different countries and water ownership problems when creating water-related landscapes in rural and urban areas. Given the time limitation, some crucial aspects are still missing from this discussion. In closing, Prof. Carola Hein pointed out that owing to the diversity of political geography, it is necessary to seek one overarching methodology to analyze cases from different perspectives. In addition, issues relating to migration and gender need to be elaborated in the further discussion.