

Designing with water for climate change adaptation and cultural heritage preservation

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Topic: Vernacular architecture: matter, culture and sustainability, Studies of traditional techniques and materials

Abstract

Climate change is a global challenge and one of its major impacts is on flooding, which has become more unpredictable and destructive in both the UK and Thailand since the beginning of the 21st century. Designing with water (DWW) and natural-based solutions are emerging as some of the most important approaches for dealing with climate change and adaptation for a resilient future. Flooding is a natural phenomenon and in the UK, and Thailand, as in many other parts of the world, local communities over millennia have learnt to live and co-exist with seasonal inundation, and their tangible and intangible heritage and lifeways celebrate their relationship with water. However, in part to the increase in the frequency and severity of floods but also exacerbated by rapid urbanization and floodplain encroachment, has resulted in many nationally and internationally important heritage sites in Thailand being at increasing risk because of longer inundation periods during the rainy season. In addition, climate change has made flooding in Thailand more unpredictable and widespread. Fragmented planning and management in the cultural sector, particularly the lack of integration between regulatory organisations responsible for flood protection, is also a major problem. The study investigates several successful DWW case studies from the built environment that highlights good practice and international expertise that will help scholars and practitioners designing in flood prone regions to develop their knowledge and strategies. These cases present integrative whole system approaches, which put DWW and more natural-based solutions at the heart of their design strategies for climate adaptation front and centre of cultural heritage management and preservation. The paper presents a series of recommendations to turn flood threat into an opportunity to improve water resources and community resilience at regional and community.

Keywords: *Designing with Water; Climate Change Adaptation; Sukhothai; Cultural Heritage*

5. Conclusions

This paper argues that designing with water is the future for adaptive design in flood-prone regions. The case study analysis presented in this study argues that Thais have learned to live with flooding from generation to generation through imperative wisdom and resilient approaches. However, increasing impacts from climate change have made indigenous knowledge no longer able to cope with flooding; therefore, a combination between local wisdom and affordable technology should be developed to preserve Sukhothai heritage sites and

to deal with flooding and climate change adaptation in a more resilient way. Learning from Sukhothai's historic town reminds Thai people to concern more about their own design with water approaches. It maintains that a comprehensive understanding between heritage, climate change, and scientific development is crucial for reaching resilience and sustainability as agreed by Allan, Richards and Fatoric, (2021). More specifically, DWW and its further applications should be implemented by a collaboration between public, private and community sectors. Therefore, it is important to encourage all to be engaged from the initial stages of the research.

The paper highlights the importance of DWW not only in heritage sites; but also in local implementations which should be widely promoted at the policy level. Importantly, DWW is a resilient approach for climate adaptation which should be simultaneously integrated into professional practise in related fields across design and planning disciplines (e.g. architecture, town planning, landscape and urban design) and cultural heritage management to preserve cultural heritage in broader perspectives. The findings and recommendations that emerged from this study are useful to introduce designing with water and climate change adaptation into design disciplines and cultural heritage management.

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