

**Dr Witiya Pittungnapoo, Associate Professor in Faculty of Architecture,  
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*Championing flood resilience for water-based communities*

Witiya has worked on water-based settlements in Northern Thailand for over a decade. She has seen firsthand the damage that local water-based communities have suffered, caused by increased flooding resulting from climate change. Taking a natural-based design approach to flood management, Witiya hopes to boost community resilience to climate change in Thailand and across Southeast Asia.

**The challenge**

Water-based communities in Thailand have always been prone to natural flooding, but climate change has made floods more frequent, severe, and unpredictable. Many people have moved away from the country's traditional water-adjacent dwellings as a result. Increased flooding has also affected UNESCO World Heritage sites. Despite these consequences, implementing climate change-centric interventions remains a significant challenge for local regions.

The failure of conventional methods to protect communities and cultural heritage from flooding has encouraged Thailand to consider alternative approaches to managing floods and improving local resilience.

**The ambition**

Witiya aims to tackle this problem by building an interdisciplinary team to develop a new framework enabling water-based communities to adapt to climate change. Her project will engage experts across architecture, culture and heritage, engineering and sustainable management, geography, and climate science. Together they will address some of the most significant technology, flooding, and cultural heritage challenges faced by Thailand and other Southeast Asian countries.

Witiya and her team of experts will host seminars and workshops on nature-based design for climate change adaptation, integrating local wisdom from water-based communities and using affordable technology to improve resilience. Partnering with the University of Lincoln in the UK, Witiya will research cultural heritage preservation in light of climate change, exchanging knowledge and technologies for sustainable design. In addition to examining the long-term impacts of climate change, Witiya will also identify immediate actions that can be taken to deliver wider societal benefits.

**Relevant Sustainable Development Goals**

- Sustainable cities and communities (SDG 11)
- Climate action (SDG 13)

### **Involvement with the Royal Academy of Engineering**

Witiya was first invited to join a Frontiers Symposium in Brazil in 2018, working on coastal communities and flooding.

To those considering applying for Frontiers Champions, Witiya says, "It's a great opportunity for research about different countries to share practice about SDGs. The Academy has encouraged research around every region to keep going during the pandemic.

You cannot work just within your discipline alone to deal with these issues - you need collaboration with multiple disciplines to get different perspectives."