

# Integrating Natural and Cultural Heritage in Urban Transitions:



## The Case of Gei Wais in Mai Po Wetland and San Tin Technopole, Hong Kong

### 1. Introduction

Urban development in the 21st century faces increasing pressure to reconcile growth with the conservation of natural and cultural heritage. Challenges such as climate change, tourism pressure, and urban sprawl demand more integrated approaches. Gei Wais—traditional tidal shrimp ponds in Mai Po Wetland—offer a unique case where ecological and cultural practices intersect. This research explores how their conservation can inform sustainable planning, particularly in the proposed San Tin Technopole (STT) development.

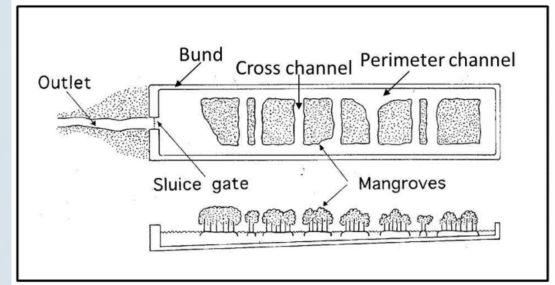
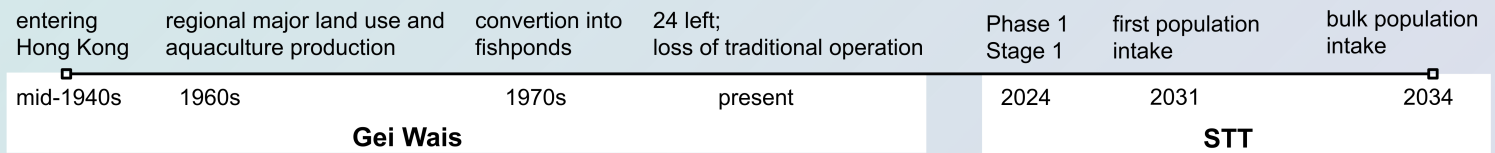


Figure 1: Structure of a gei wai  
Source: Lord Wilson Heritage Trust

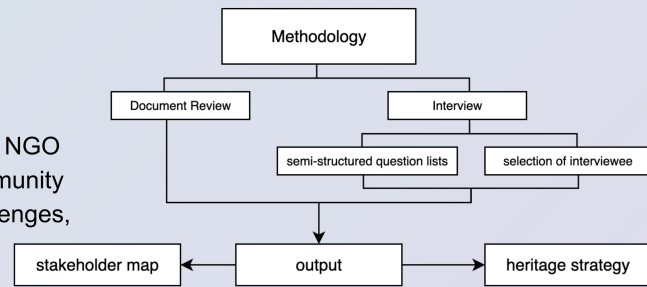


- To examine the ecological and cultural values of Gei Wais in Mai Po Wetland.
- To identify governance mechanisms and stakeholder perspectives on Gei Wai conservation.
- To propose strategies for integrating Gei Wais into urban design of STT as blue-green infrastructure.

### 2. Objectives

### 3. Methods

A qualitative approach was employed, combining document analysis and semi-structured interviews. Documents included policy papers, planning reports, and NGO publications. Interviews were conducted with government officials, NGOs, community representatives, and practitioners. Thematic analysis was used to capture challenges, opportunities, and stakeholder relationships.



**Ecological value**

Gei Wais sustain biodiversity within Mai Po Nature Reserve, providing critical habitats along the East Asian–Australasian Flyway. Active management, such as vegetation clearance and sluice gate operations, is vital under increasing climate variability.

**Cultural value**

Gei Wais embody traditional aquaculture practices recognized as intangible cultural heritage. However, declining transmission of knowledge, aging practitioners, and limited governmental attention place this heritage at risk.

**Integration into San Tin Technopole**

Flooding remains a major challenge in STT. Nature-based Solutions propose converting fishponds into retention ponds. This study suggests adapting Gei Wai principles—smart sluice gates, multifunctional water systems, and low-density aquaculture—to enhance flood resilience, restore wetland functions, and sustain cultural heritage.

**Stakeholder dynamics**

Government leadership is central, yet effective cooperation depends on NGOs' expertise, community engagement, and potential partnerships with private sectors such as tech companies. While conflicts may arise between residents and developers, alignment of shared interests through transparent mechanisms can create synergies.

### 4. Results

### 5. Conclusion

Gei Wais demonstrate the potential of heritage-informed, multifunctional infrastructure for sustainable urban futures. Integrating their principles into STT could simultaneously address flood risks, enrich biodiversity, and preserve intangible cultural traditions. The findings underscore the importance of multi-stakeholder collaboration and adaptive governance in heritage conservation. This report represents an initial phase of research. Future work will involve further interviews, on-site investigations, and detailed design exploration to refine practical strategies for integrating natural and cultural heritage into urban development.

