

Study Area

Ngāi Tahu, or Kāi Tahu, is the principal Māori iwi (tribe) of the South Island. Its takiwā (tribal area) is the largest in New Zealand. The takiwā comprises 18 rūnanga (governance areas) corresponding to traditional settlements.



Flood data

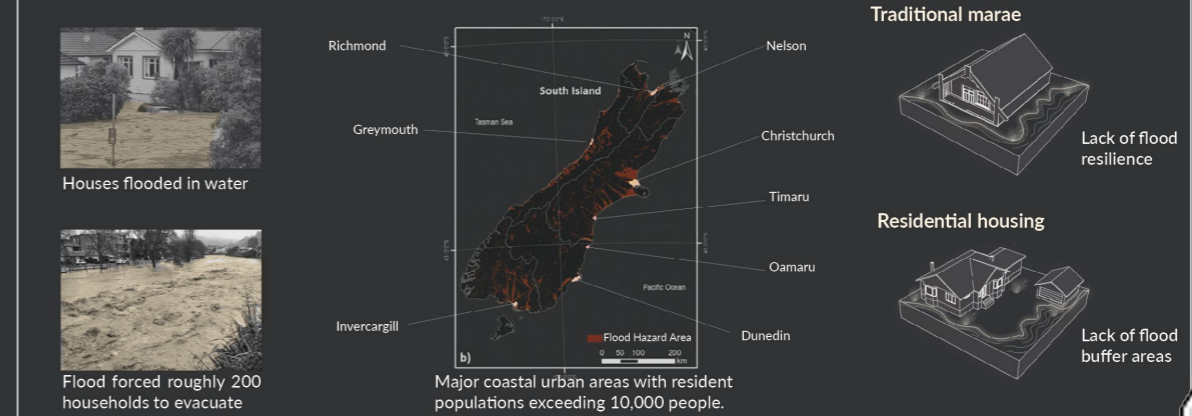


Settlers in New Zealand commonly chose to live next to rivers and lakes, as these were a source of fresh water, and the adjacent plains usually had fertile soil. Consequently, about two-thirds of New Zealanders now live in areas that are naturally prone to flooding. Nearly **70%** of towns and cities with populations of over 20,000 have river flood problems.

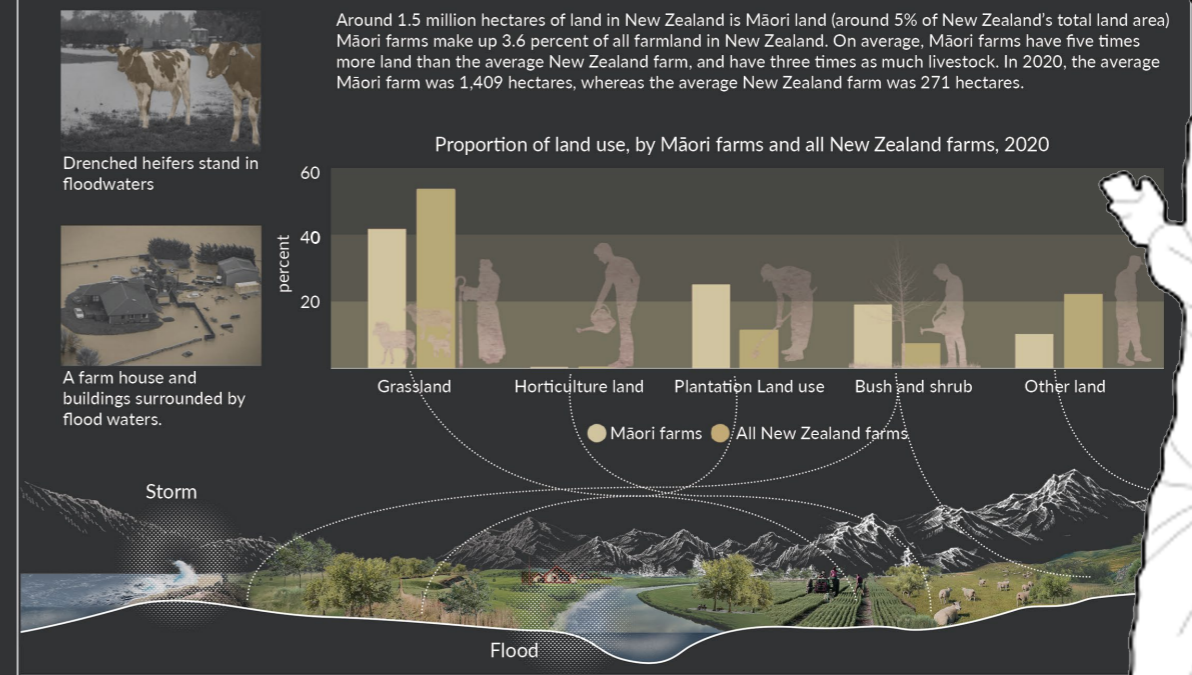
The rohe of Kai Tahu iwi covers a large part of Te Wai Pounamu (South Island of New Zealand) including many marae, urupā (burial sites), makiha kai (food gathering sites) and many other treasured places of traditional and economic significance in coastal and other locations threatened by climate change impacts.



Coastal settlements at risk



Local livelihoods at risk



Country /City China/ Chengdu, Sichuan
 University / School Sichuan Agricultural University
 Academic year 2021-2022
 Title of the project Land and Water — Lo-tek from Māori
 Authors Shengtao Shen

TECHNICAL DOSSIER

Title of the project Land and Water — Lo-tek from Māori
Authors Shengtao Shen
Title of the course Landscape Planning and Design
Academic year 2021-2022
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Written statement, short description of the project in English, no more than 250 words

Floods are the most frequent and costly natural disasters in New Zealand. The capacity of Indigenous communities to respond collectively to crises consistently shows the importance of shared traditions values and practices and genealogical ties.

Learning from Māori, we can find solutions that may both mitigate the effects of climate change through increased community resilience as well as create benefits with flow-on effects throughout te ao Māori.

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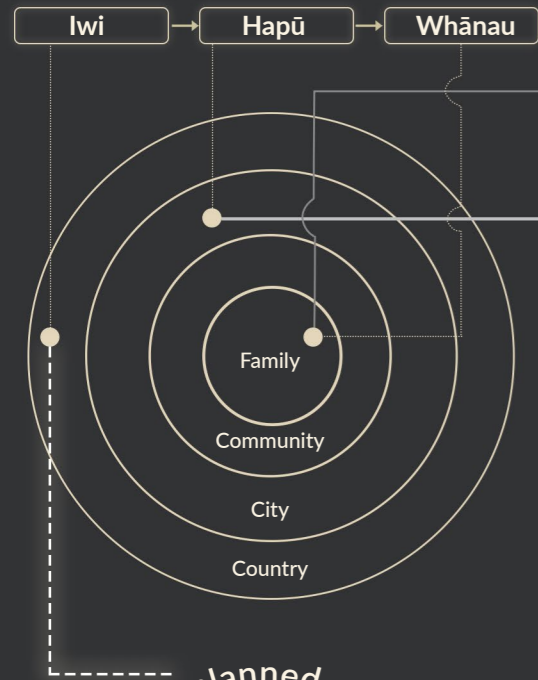
SCHOOL PRIZE

Learn From Māori

CO-PRODUCTION from the bottom up

The Māori social institutions of Whānau (extended family), Hapū (sub-tribe) and Iwi (tribe) represent the nested hierarchy of collective relationships. Together with the marae, they constitute the ecosystem that provides the scaffolding of Māori social life. Social institutions of Māori life form an adaptive ecosystem of interrelationships, interactions and influence located in both place and history. The Māori social structure is bottom-up and has developed a degree of Co-production. The design emphasizes on enhancing this co-production cycle.

Bottom-up planning based on Māori social structures



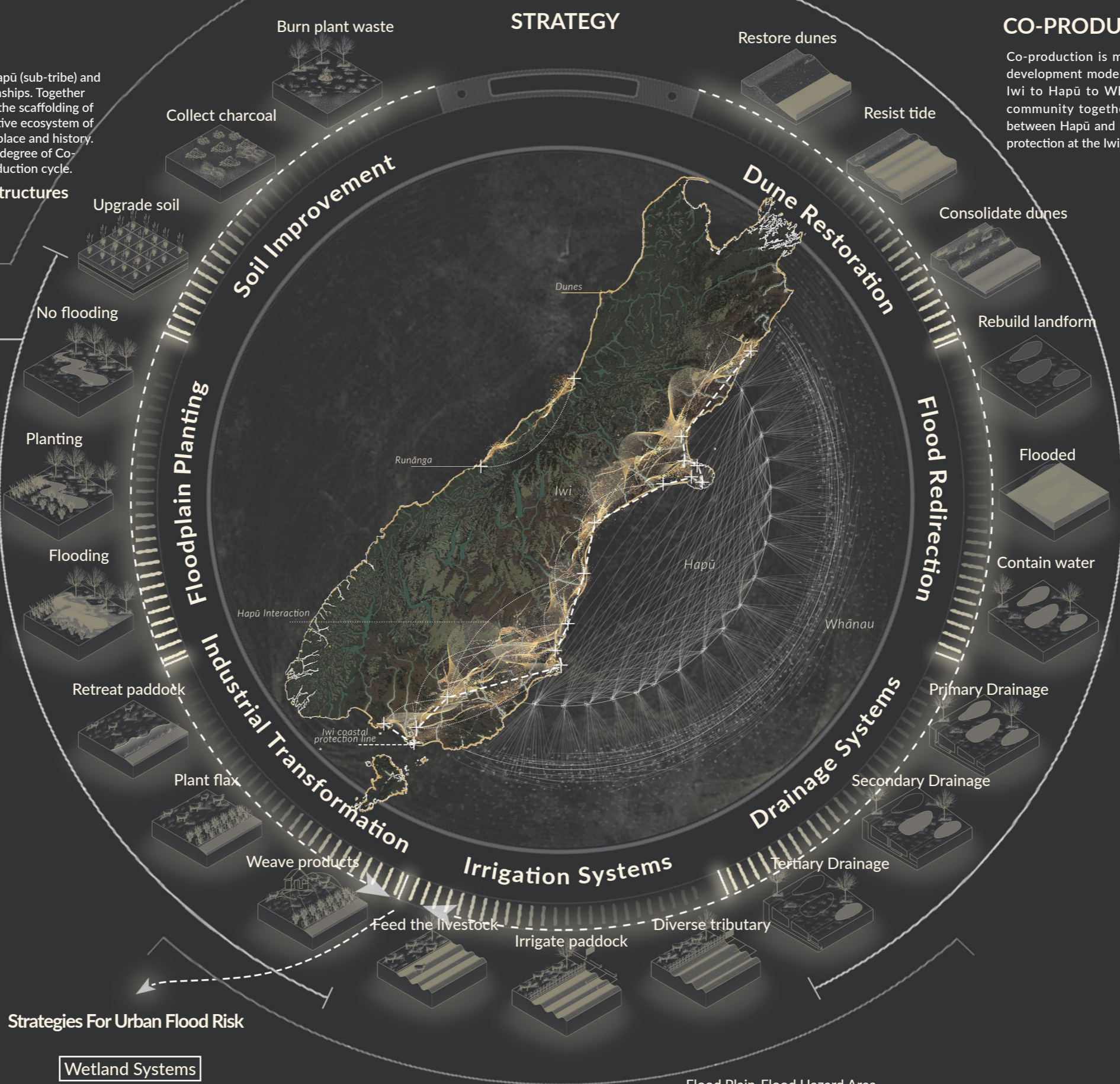
LAND—From ecology to Iwi
Floodplain farming to industrial transformation

WATER—From sea to Iwi
Flood response and drainage systems

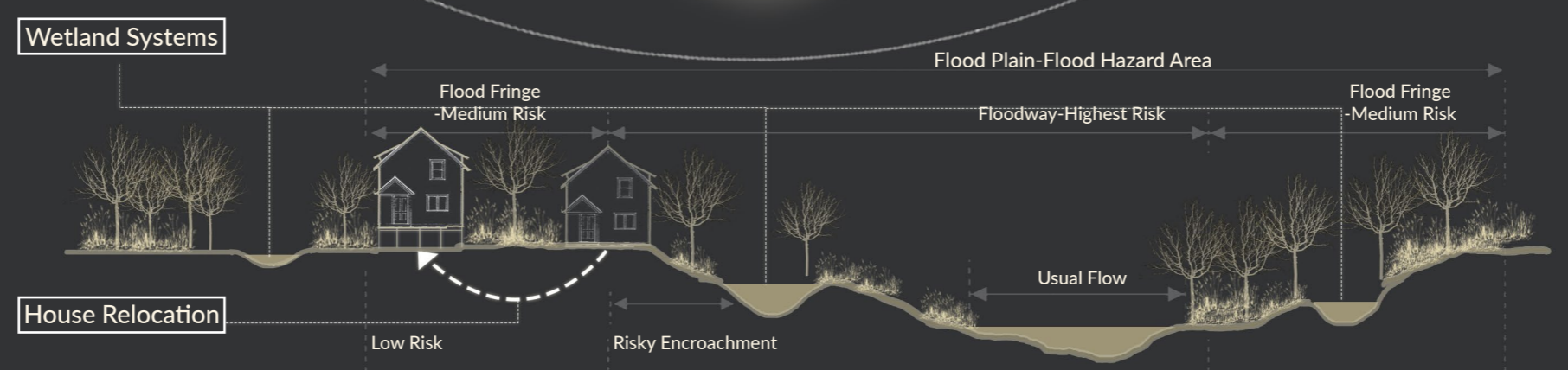
*Toitū te whenua,
whatungarongaro te tangata.*



STRATEGY

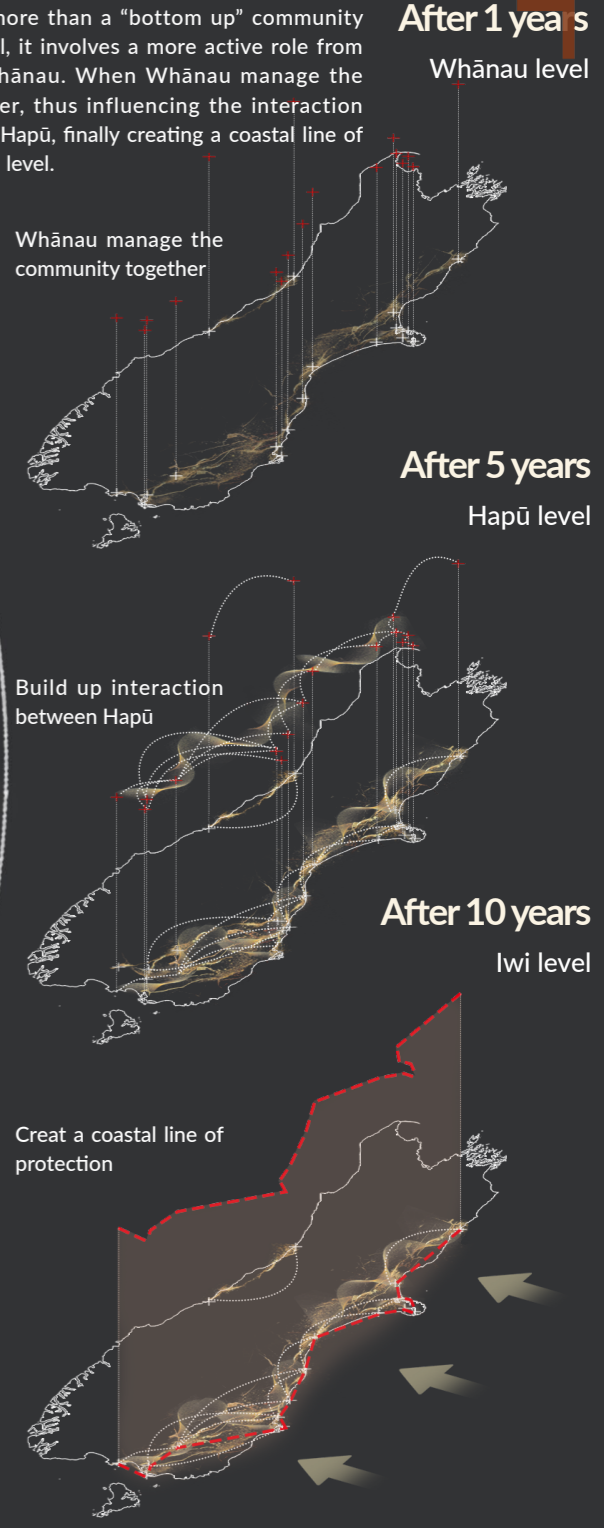


Strategies For Urban Flood Risk



CO-PRODUCTION SYSTEM BUILT OVER TIME

Co-production is more than a "bottom up" community development model, it involves a more active role from Iwi to Hapū to Whānau. When Whānau manage the community together, thus influencing the interaction between Hapū and Hapū, finally creating a coastal line of protection at the Iwi level.

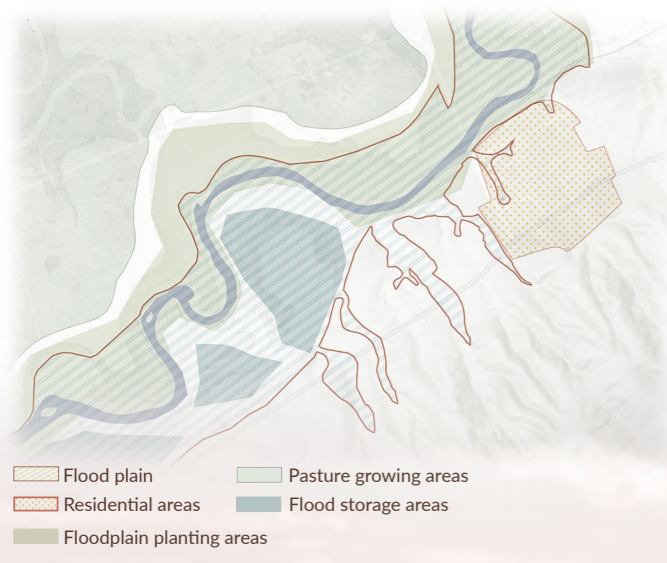
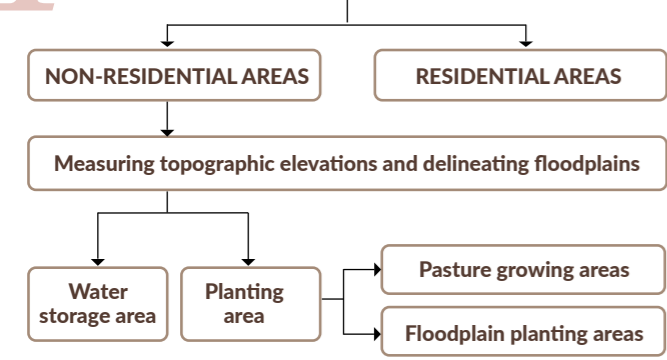


Ehara!



From Ecology To Iwi

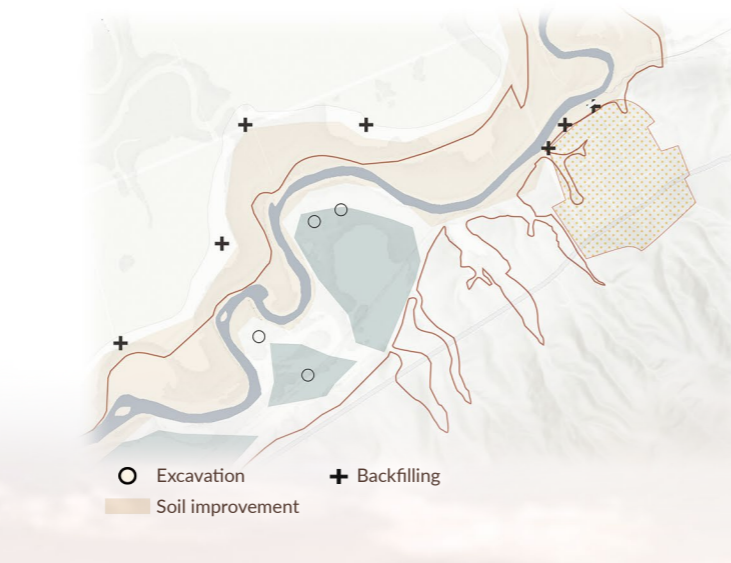
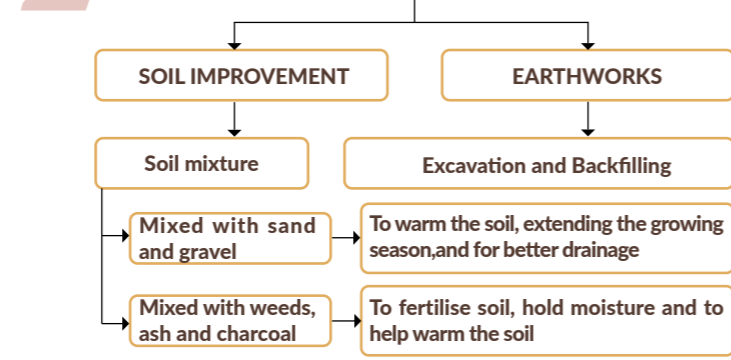
1 OVERALL PLAN To Take Advantage Of The Topographical Features



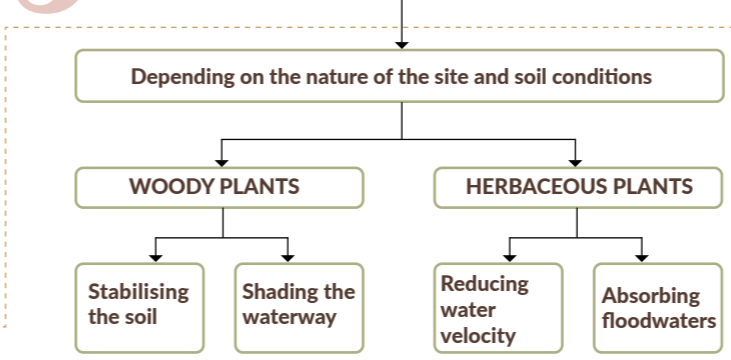
Location of Taieri River

The flooding on the Taieri Plain will always come and go but is taking longer to vanish. The very floods that help create a real depth of fertile soils also create havoc for those who live and work on this flood delta.

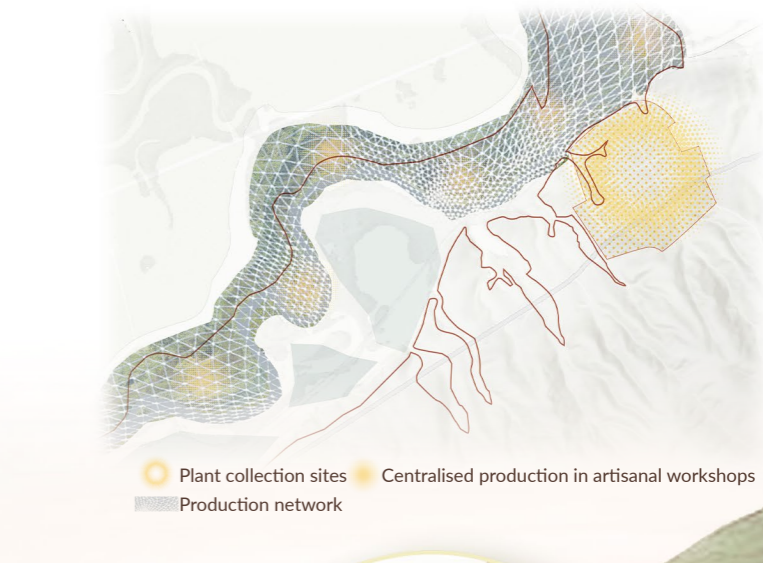
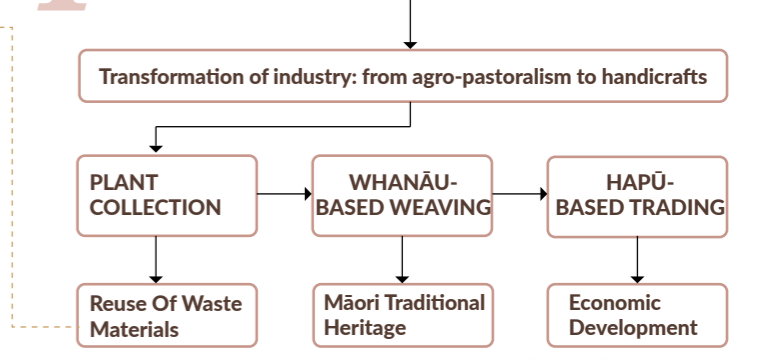
2 LAND IMPROVEMENT To Enable Better Water Collection, Drainage And Planting



3 FLOODPLAIN PLANTING To Withstand And Take Advantage Of Floods



4 INDUSTRIAL TRANSFORMATION To Make A More Proper Production Locally



Now

After 1 year

After 5 years

After 10 years

From Sea To Iwi

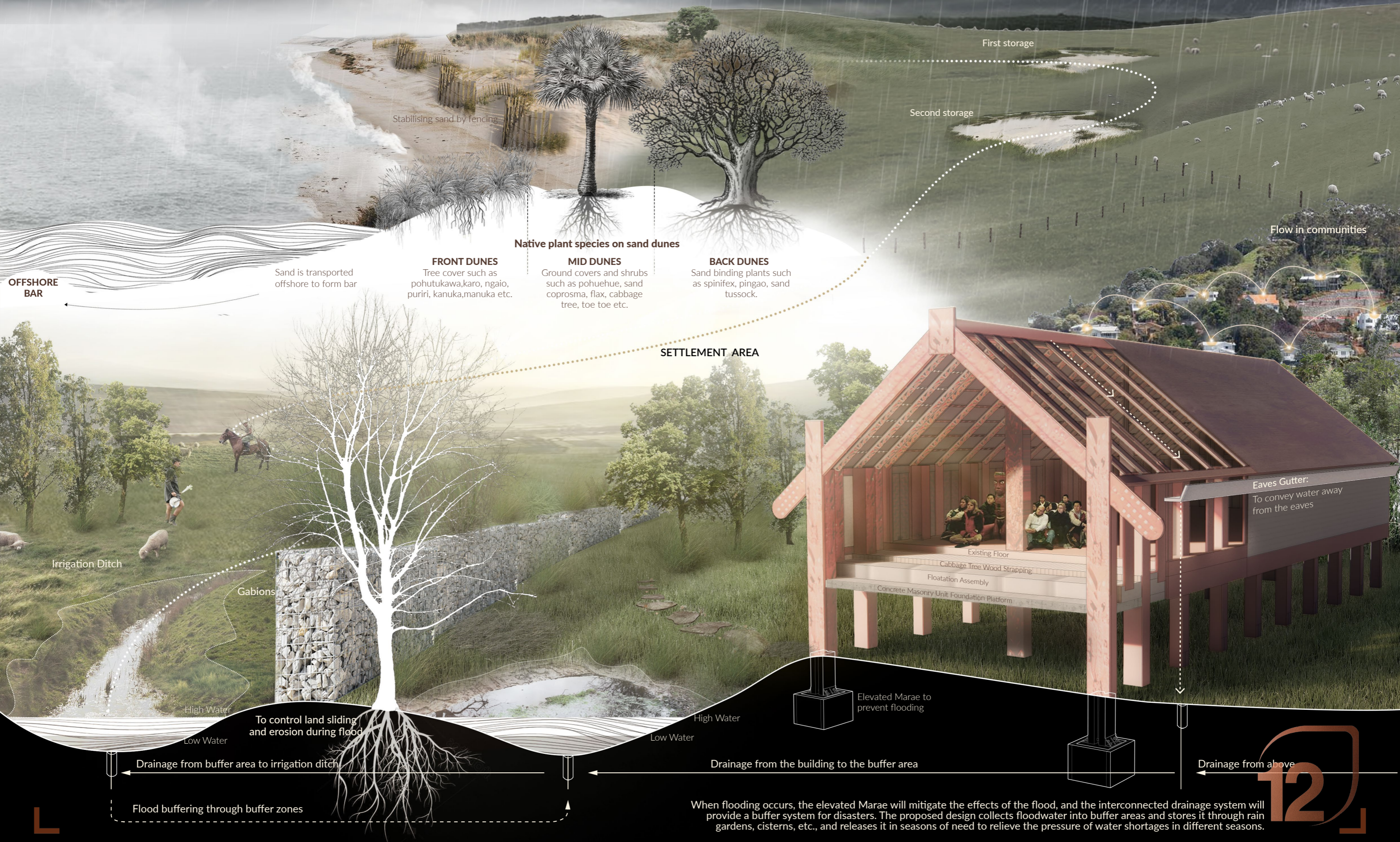
Many Māori farms and settlements are close to the sea and are vulnerable to flooding and storms, while traditional Marae lack drainage measures and do not have structures to cope with inundation. The route from the sea to the Iwi is a large scale planning direction that I have designed to construct flood resilient routes from the sea to coastal farms and pastures to tribal settlements, corresponding to drainage routes from settlements to farms and the sea.

SEA AREA

Dunes: The first line of defence

FARMING AREA

Graded flood storage areas



When flooding occurs, the elevated Marae will mitigate the effects of the flood, and the interconnected drainage system will provide a buffer system for disasters. The proposed design collects floodwater into buffer areas and stores it through rain gardens, cisterns, etc., and releases it in seasons of need to relieve the pressure of water shortages in different seasons.