

Inconvenient Scales

Landscape Approach Development under Planning Scale Shift in Pearl River Delta, China

Liang Xiong, Delft University of Technology, the Netherlands

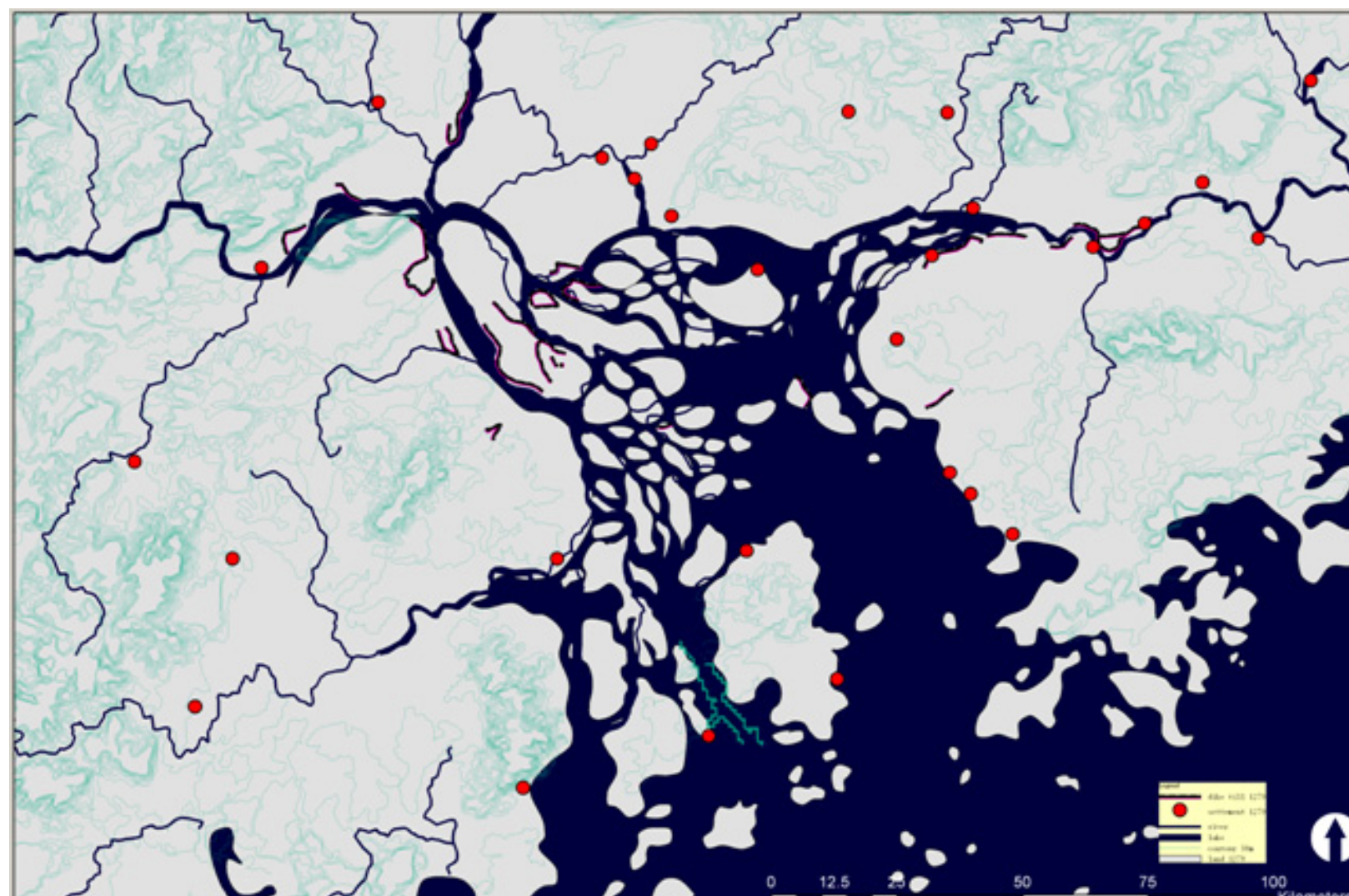
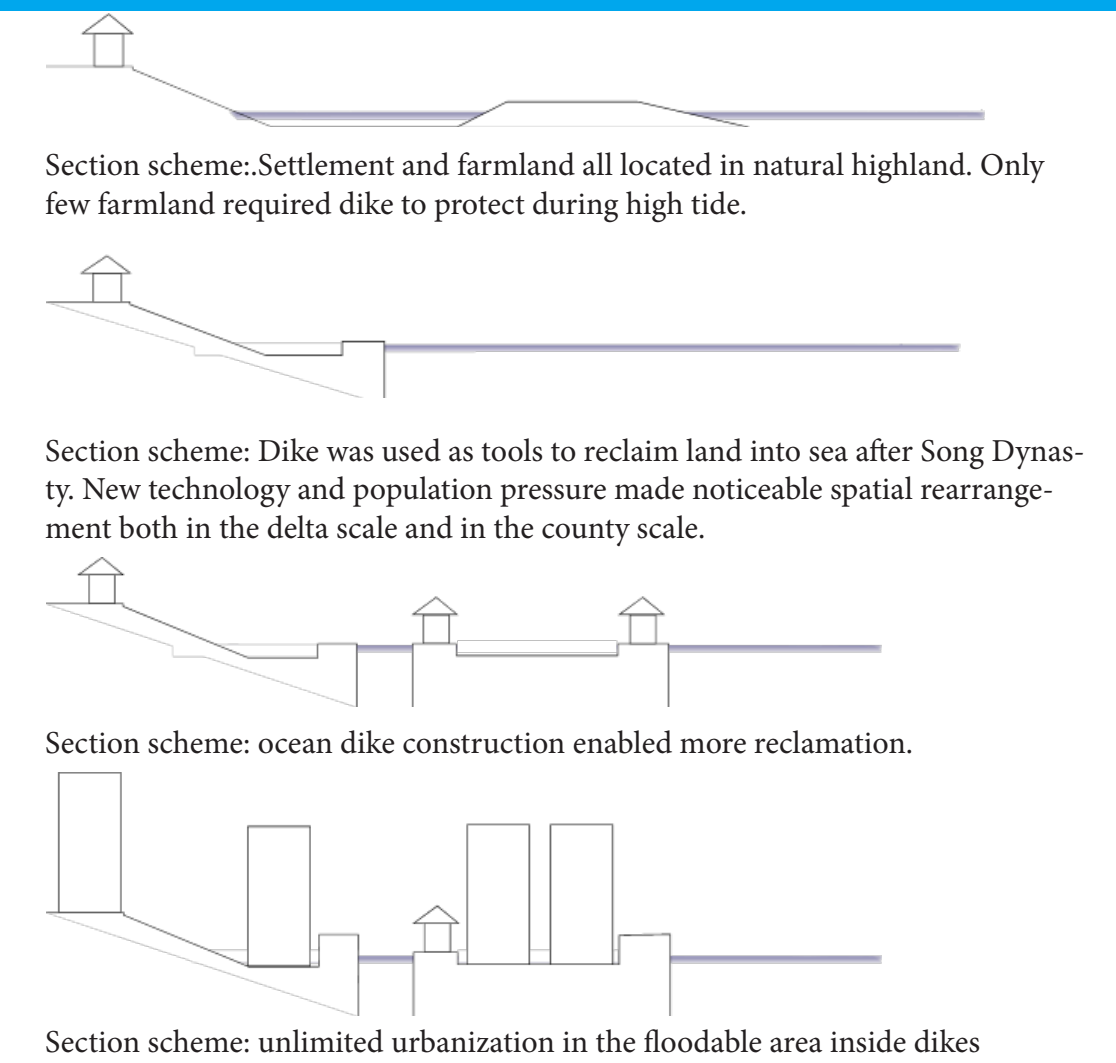
Introduction

This study aims to find relation between different scale of spatial planning and its influence towards flood defence and urban sprawl in delta region. It takes Pearl River Delta as the case to find out if there is a conflict between each scale in spatial planning, and how the conflict influenced the flood defence and urbanization and urbanization process of the delta region.

Method

I use three scales of the region in four time stages to illustrate the living pattern and spatial development in the area: local, county and delta scale. Dike administration, settlement strategy and spatial development are illustrated in each scale. I focused

on the settlement strategy with elevation and water in section scheme. In county scale, I choose a county named Tan Zhou with both historical settlement and recent urbanization. The insight of settlement strategy reflects in the urbanization and land use change in maps. I also explain the scaled up dike system administration in this scale. The delta scale shows urban development in larger scale as an overall reference of the consequences in county scale. By presenting the historical development among different scales, I use the scale change in dike administration to explain the spatial development mechanism.

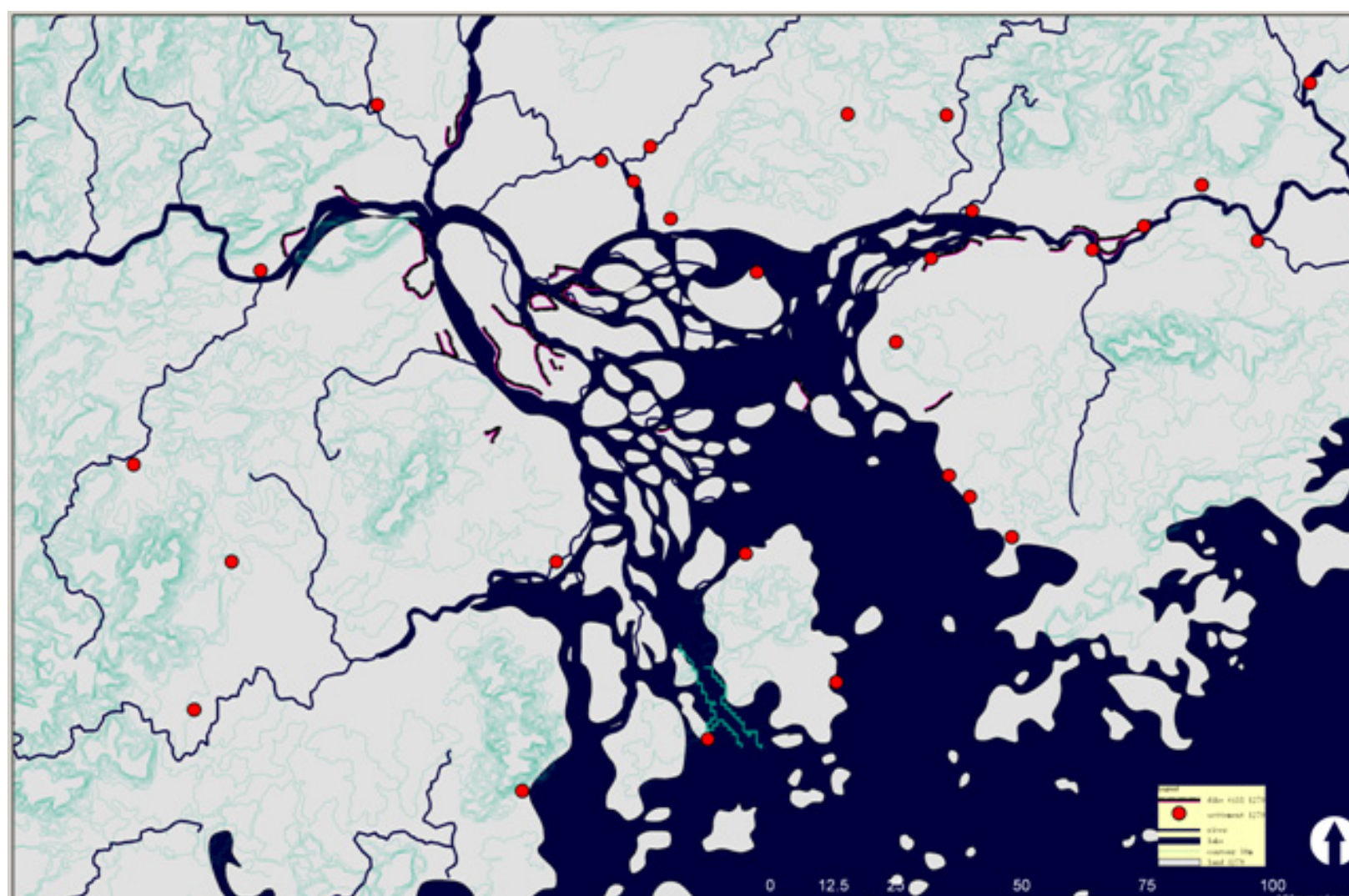
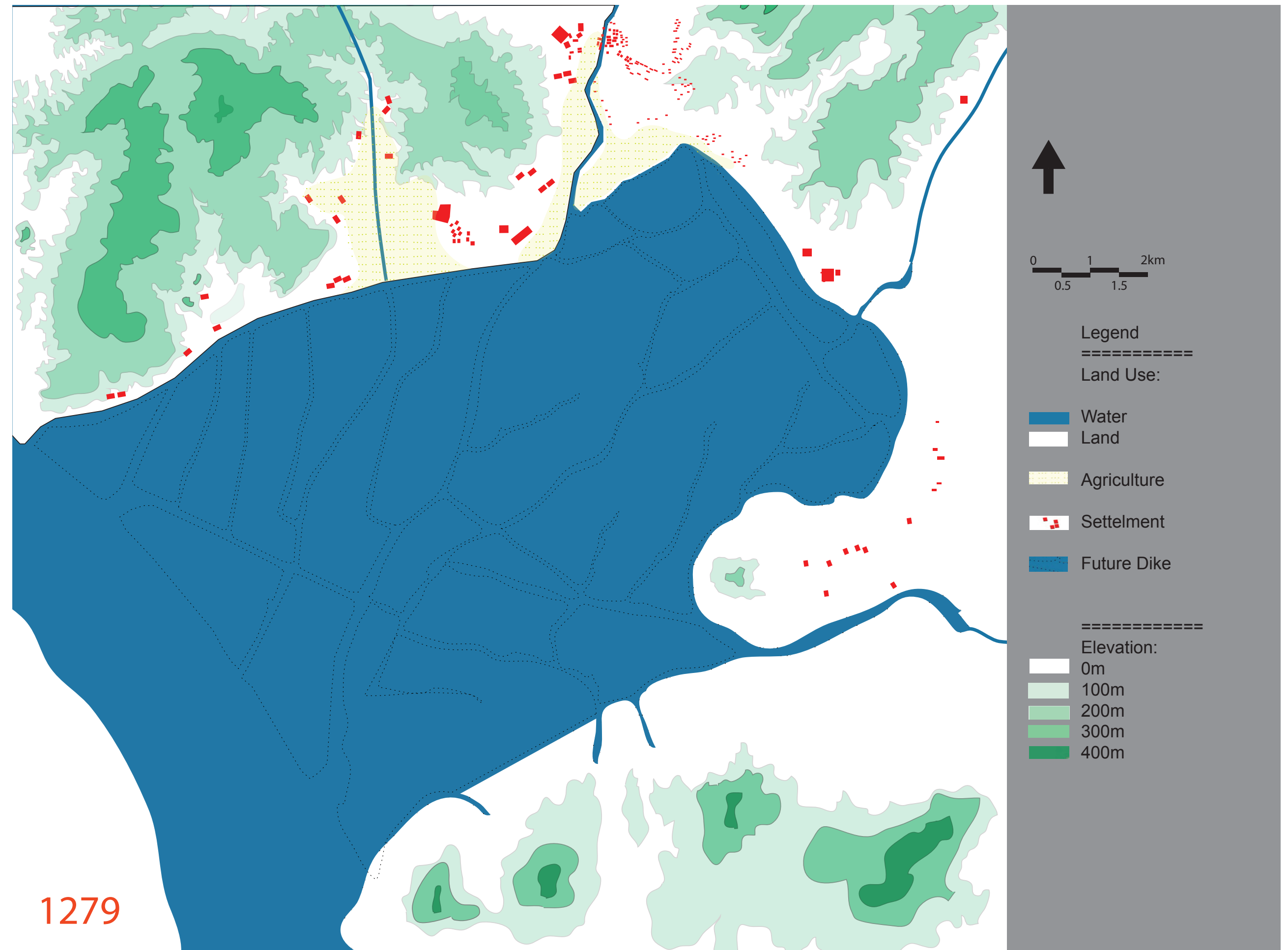


1. Landscape dominated (-1279)

Delta scale (above): Cities located in strategic river cross and coast. No settlements in islands.

County scale (right): few dike built to protect lowland in high tide.

Dike to prevent high tide. Dike administration in personal scale because of the low demand on the flood defence.

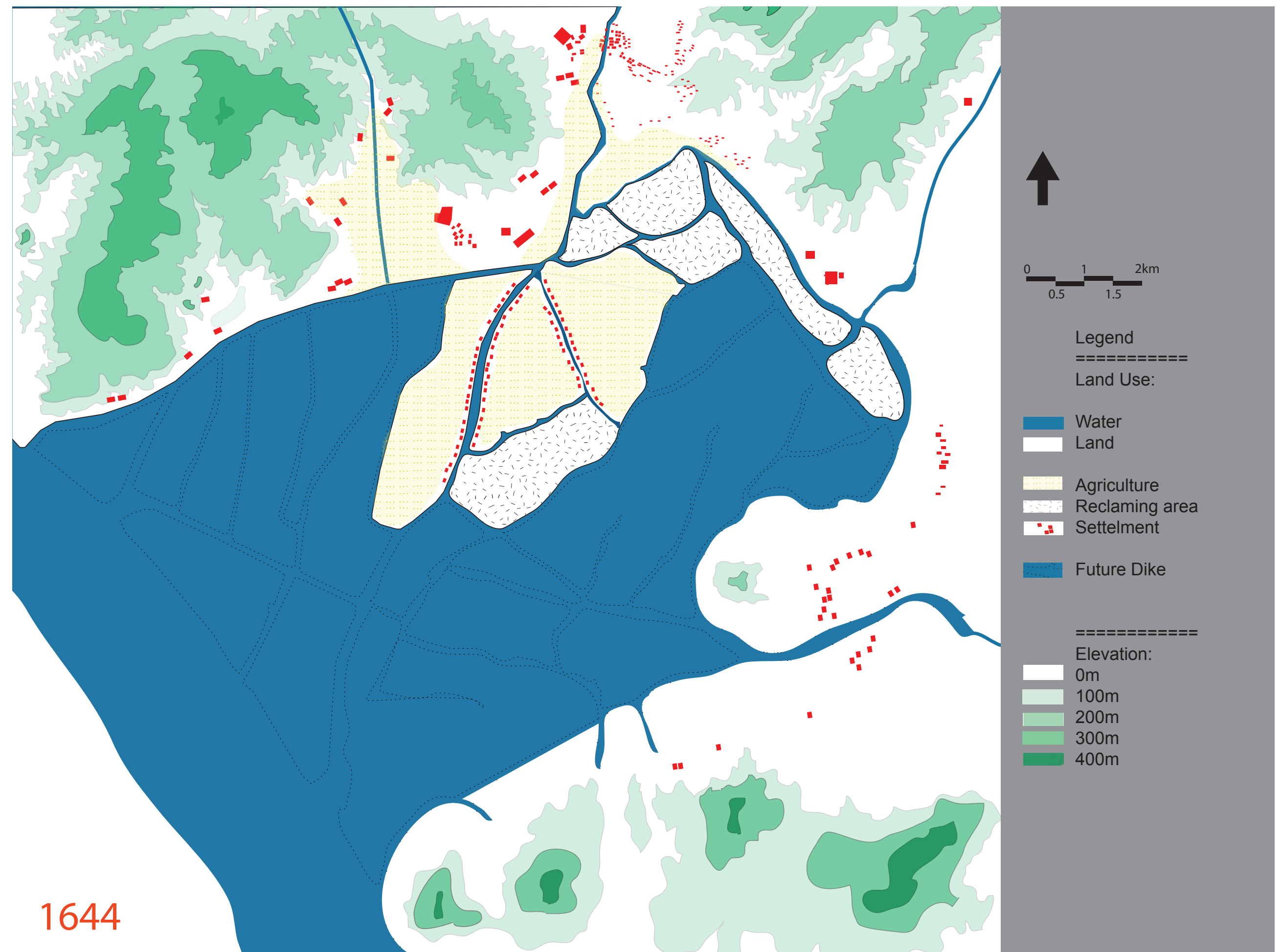


2. Landscape adapted (1279-1644)

Delta scale (above): settlements grew in more strategic regional positions.

County scale (right): reclamation started in estuary and people begin to settle along dikes.

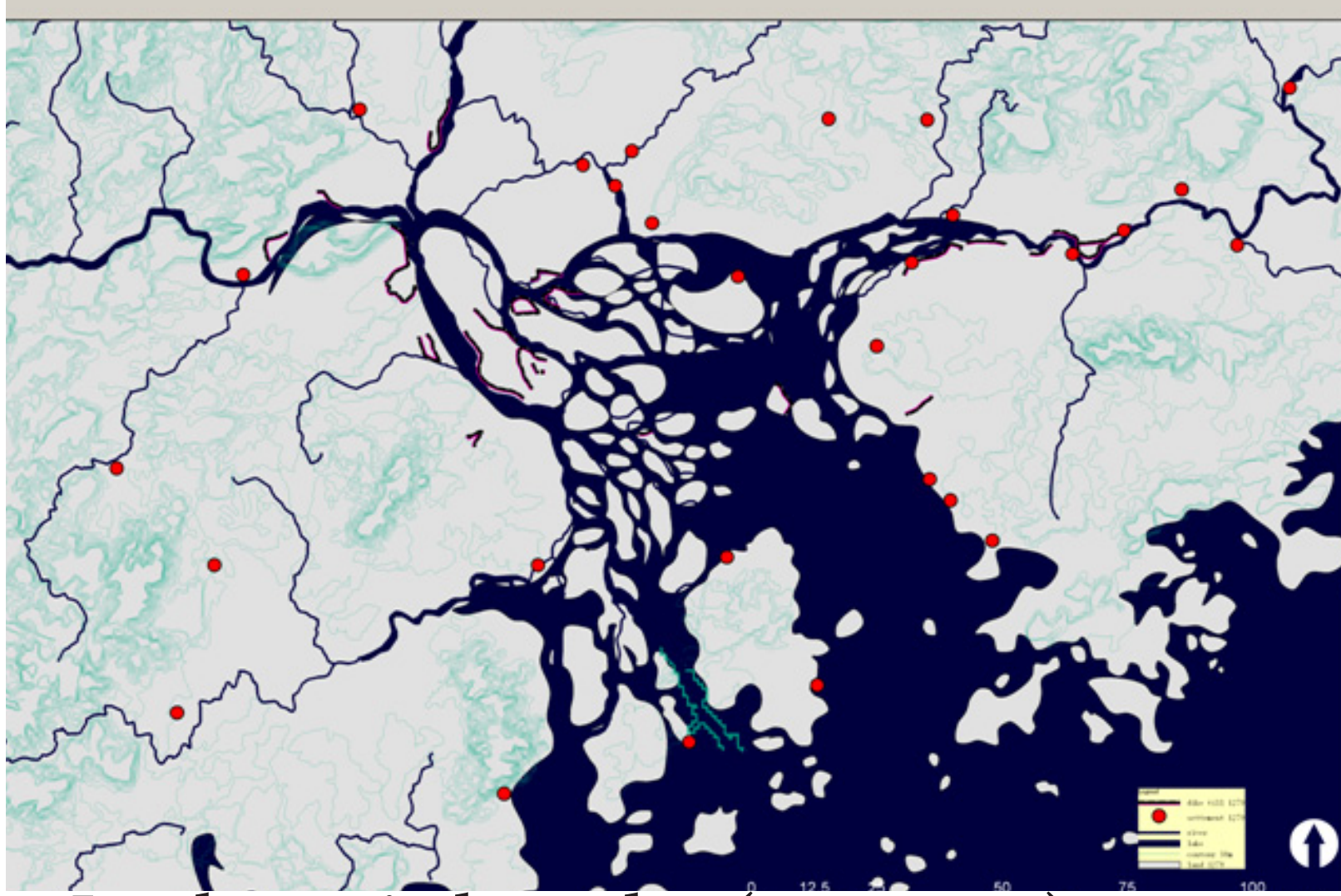
Dike to reclaim farmland, settlement in natural high land. Dike administration in village scale because of the increasing difficulty of reclamation along river.



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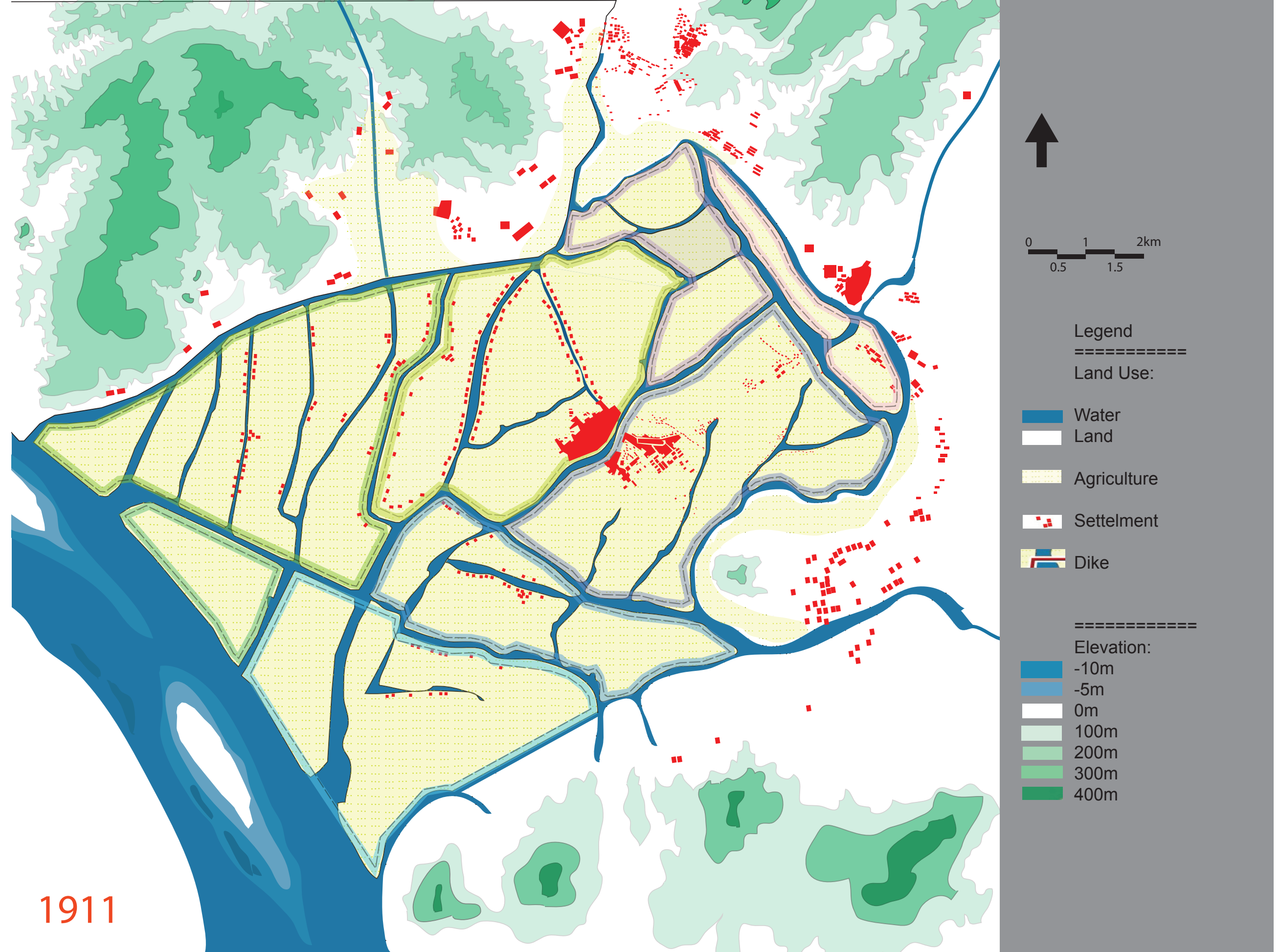


3. Landscape independent (1644-1911)

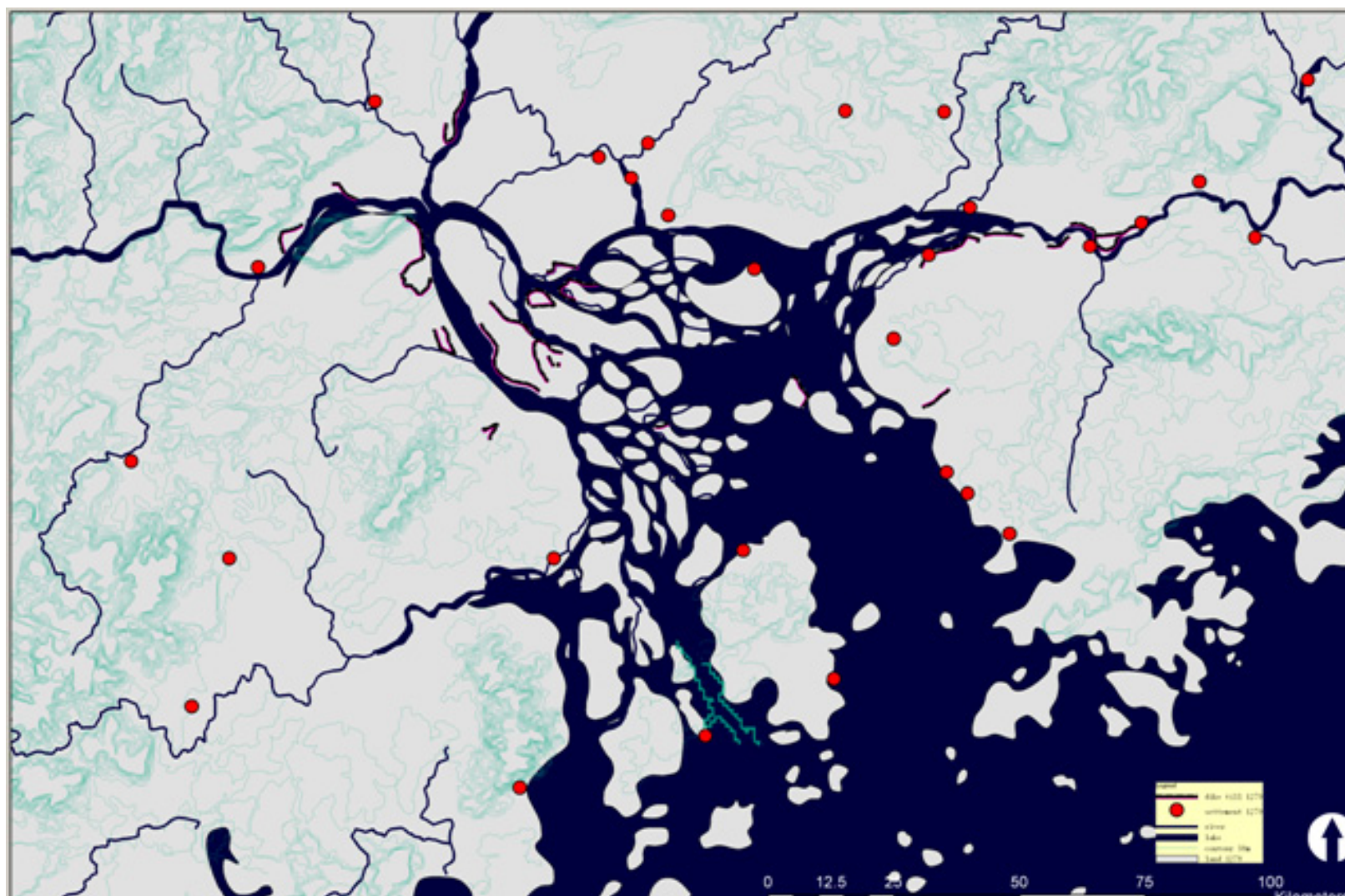
Delta scale (above): more towns merged because of population growth and immigration.

County scale (right): more settlement along the dike with noticeable farmland reclaimed.

Dike to guard cities and reclaim farmland. Dike administration in family scale because of the time and financial investment in sea reclamation. This highly organized administration successfully produced a self-sustainable agriculture system within its boundary. But the absence of larger scale administration leads to fierce regional flood issue.



1911

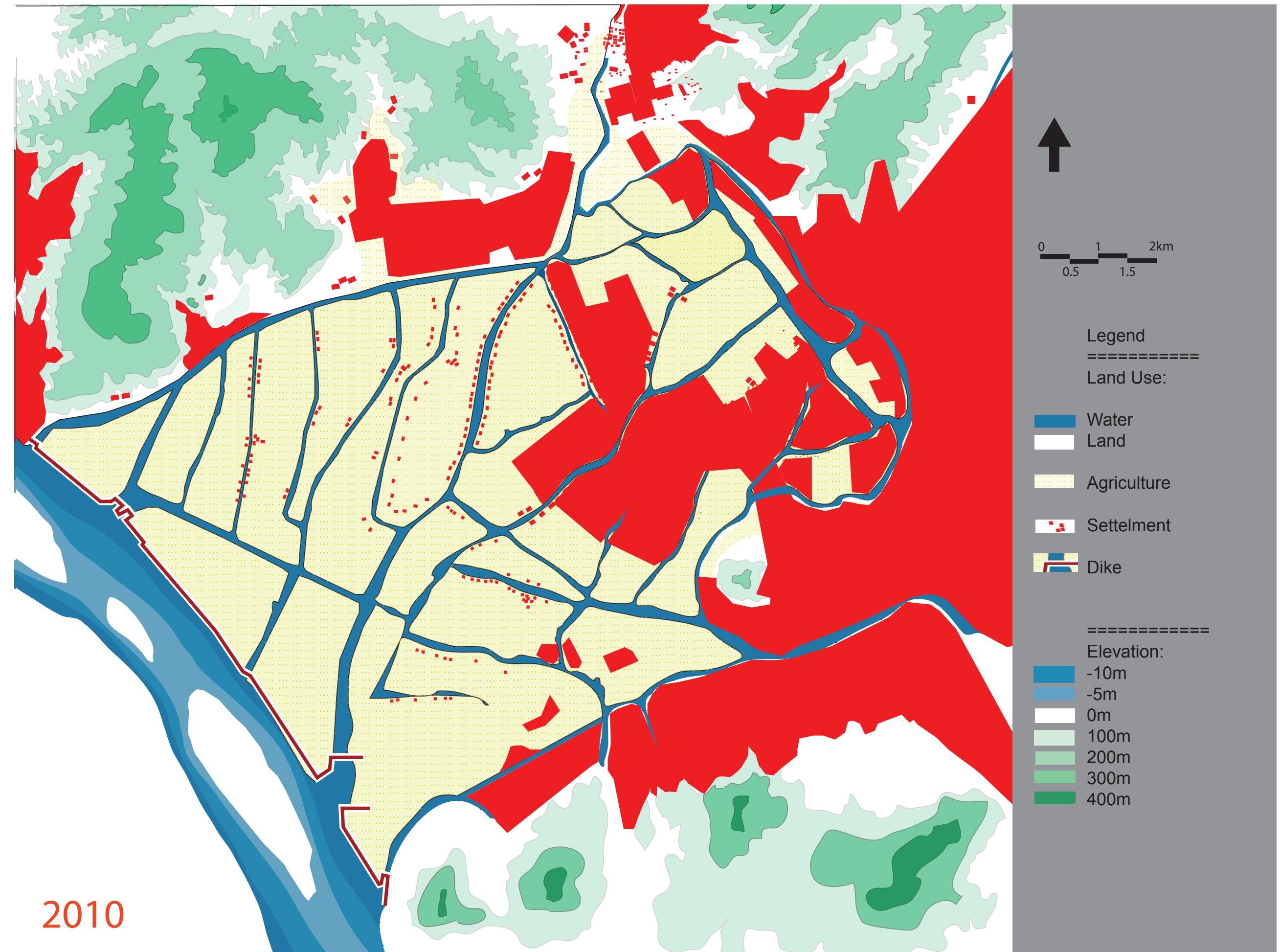


4. Infrastructure dominated (1911-2010)

Delta scale (above): urbanization spread into the floodable area

County scale (right): urbanization spread into the floodable area.

Dike to guard cities, settlement in polder. Dike administration in delta scale, far beyond the reach of the county. Such upscale lead to the ignorance of relation between dike and land use planning.



2010

Conclusion

The inter scale switch of the dike system administration had changed the region flood management in a dramatic sense. Dike construction and management was no longer a county scale issue for villages or families. This management switch resulted into its first application of large scale dike integration. in which the dike systems in the county scale has been connected and upscaled into a more integrated delta-scale dike system.

Unfortunately, the upscale of the dike administration lead to an unexpected situation in the spatial planning and urbanization that has been ignored for long times. A noticeable rural urbanization has had a better chance to spread throughout the Pearl River Delta in the reclaimed area since 1979. Large areas inside the polders

had been transfer from farmland into urbanized area. This means the dike administration shifting from lower scale has gradually changed the settlement pattern.

The delta-scaled dike has changed the local behaviour, which lead to a new, and more infrastructure depended urbanization pattern in the delta scales. The large-scaled dike system has hidden the flood threaten to most people: they decided to convert their farmland into manufactory, and later a new town. During the process, it is hard for the local citizen to realize their change in their farmland can lead to a totally change of urban pattern in the delta scale which heavily dependent on the delta-scaled dike system instead of the landscape dependent system in the Pearl River Delta. In other words, the problematic connection between delta scale and local scale of the dike system lead to the increasing flood vulnerability in urbanization process both from bottom- up and top-down in the Pearl River Delta.