



# Coastal urbanisation and creating Eco-cities

## Challenges and innovative, holistic solutions in the Chinese coastal zone

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*Artist's impression of Dongtan, planned in the Yangtze River mouth. (source: Arup)*

### Summary

To address the pressure from a rapid growing population, China is preparing holistic, integrated and sustainable strategies for urban development. These strategies must contribute to better environment for people and improved conditions for nature as well as creating opportunities for local and regional economies. China, with partners, is developing plans for the expansion of old cities and the construction of new ones in harmony with their surrounding landscape. These plans aim at solving user conflicts and contain provisions for delivering sufficient fresh water to sustain large-scale future urban development. The long term components of these plans take into account mitigation measures and adaptive responses to the potential impacts of climate change.

Within this context master plans for three coastal Eco-cities have been formulated in the deltas of the Bohai river and Yangtze river.

These planned coastal Eco-cities are the Tianjin Binhai New Urban Area and the nearby Caofeidian Coastal Port city in the north-eastern part of China and Dongtan Eco-city near Shanghai (see also CCC II-2-3).

The master plan for the expansion of Tianjin, just north of the commercial port, aims to develop a high quality seaside resort as a mixed urban, maritime, green and ecological wetland area with high value waterfronts and coastal leisure facilities.

In the Caofeidian area, a new coastal city will be built. DHV has been commissioned, together with the Chinese Urban Planning Department of the Qinghua University and Arup consultancy, to carry out a masterplan for large scale urban development. The overall development and construction of Caofeidian will be carried out in two phases, the industrial harbour phase to receive up to 300,000 ton vessels (see CCC II-2-3) and the construction of the Caofeidian Eco-city.

The Shanghai Industrial Investment Corporation (SIIC) commissioned Arup to produce a master plan for a 500,000 person Dongtan Eco-city on the eastern part of a large island in the Yangtze River mouth. This island, Chongming, lies near the dynamic metropolis of Shanghai.

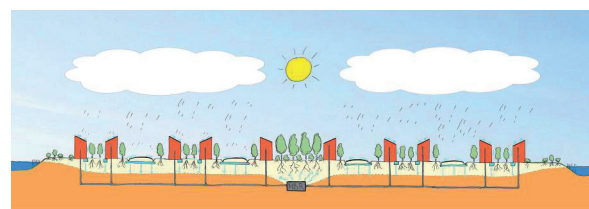
The enthusiasm of Chinese society for the concept of Eco-cities is considerable. Planning ambitious urban development in coastal areas based on water management perspectives could well prove to be the template for improved sustainability in city planning.

Executing the Chinese Eco-city plans requires careful preparation. The results of these pilot projects will determine whether the concept of Eco-cities is viable and can be implemented on a large scale in China and beyond.

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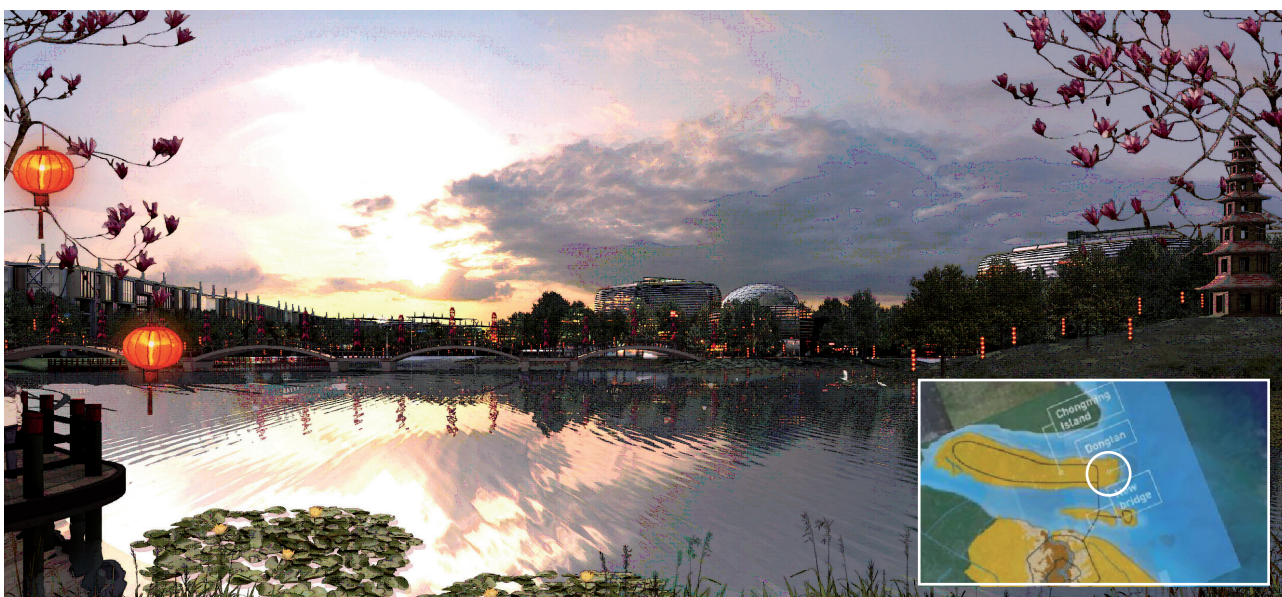


**Fresh water lens on top of saltwater:** The limited rainfall in the north of China necessitates strategies to capture and recycle fresh water in sustainable manner, which is an important element of the Eco-city master plan. (source: DHV)

**Bird's-eye of Master plan of the expansion of Tianjin (western Bohai Bay):** The Delta Diamond design (Consortium with DHV) - management of scarce fresh water and salt water is of great importance; reintegrating land with water in a controlled manner; once the protective ring – dike is built, islands can be created one at a time, creating flexibility in time and place. (source: DHV)



**Project rendering of the Caofeidian coastal masterplan (Consortium with DHV):** The Eco-city master plan will combine coastal development, renewable energy, water, and transport in an attractive urban design, with a high degree of sustainability. (source: DHV)



**Artist's impressions of Dongtan near Shanghai (Consortium with Arup):** The planned Eco-city Dongtan, projected on Chongming island in the mouth of the Yangtze River (inset map), would produce its own energy from wind, the sun, bio-fuel and recycled city waste, clean technologies would power public transport; the Masterplan connects environment and economy. (source: Arup)