

The Chinese Experience

Case 1: Caofeidian International Eco-City

Tangshan, Hebei Province

Vision of the project: Located in the “blue harbor and green city”, in the future, Caofeidian International Eco-city will be built into a future city enjoying high degree of openness, prosperity and civilization, an innovative city blessed with innovation in culture, institutions and environment, an eco city featuring harmony in industry, resource and social life and a happy city with development in economy, technology and service.ⁱ

Caofeidian Eco City has been planned to become a show case for the ‘Eco Block’ paradigm which will substitute the recent ‘Superblock model in urban planning which has shown to be extremely energy consuming.ⁱⁱ

	Primary Tools: →Tool CUD 1, →Tool CUD 2, →Tool CUD 3, →Tool CUD 4
	Secondary Tools:
	→ Largest eco-city developments in the PRC. →Transit-oriented design. →pedestrian friendly and livable
	→biodiversity, →eco-shelter, →eco-safety and →eco-repair
	→Flood control and →prevention of soil salination. →Store the freshwater from the rivers. →50% of water supply to be provided through re-use
	→wind power generation



Projections of the city centreⁱⁱⁱ

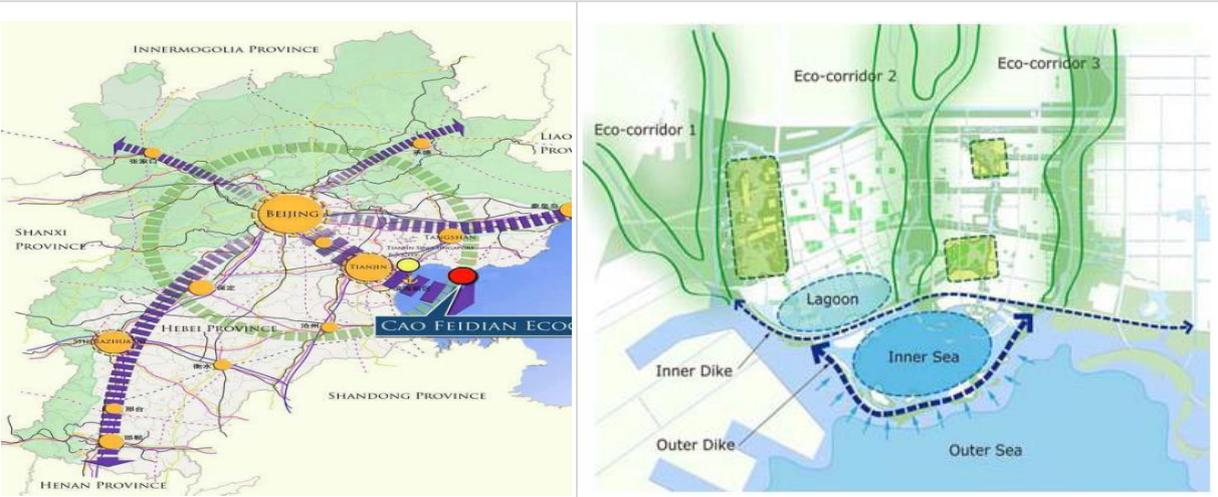


2014 – a city in the making^{iv}



Background. Caofeidian is a small alluvial islet facing the Bohai Sea, located to the south of Tangshan, about 80 km from central Tangshan, Hebei province. The Caofeidian eco-city is close to the industrial zone of Caofeidian New Area. The industrial zone has been established under the jurisdiction of Tangshan and the zone is designated as pilot site for the promotion of a →circular economy. More than 50 km²

2 have been reclaimed for the development of Caofeidian since 2003. The PRC's port construction, steel and power enterprises such as Beijing Capital Iron and Steel Group, Huadian Power Group and Petroleum, are reportedly investing CNY 192.9 billion for infrastructure construction in Caofeidian. Beijing Capital Iron and Steel Group's steel plant was moved from Tangshan city to the Caofeidian industrial zone in 2007. There are plans for Caofeidian to become the PRC's largest steel production base.



Location of Caofeidian Eco-City	Caofeidian Eco-protection and Eco-Repair System
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Source: Ma, Qiang (2009). Eco-City and Eco-Planning in China: Taking an Example for Caofeidian Eco-City.^v

Relevance of Caofeidian. The Caofeidian Eco-City is one of the →largest eco-city developments in the PRC and is envisaged to be a new sub-centre for Tangshan along the coast and would help to alleviate the increasing urban pressures in the area while supporting the area's industrial development. The first stage is expected to house a population of 400,000 over an area of 30 sq. km. When fully completed by the target date of 2020, the eco-city will accommodate 1 to 1.3 million residents over 150km². Incidentally, Tangshan had been considered as the host city for the Sino-Singapore eco-city project which eventually went to Tianjin. The strategic planning for the southern coastal area of Tangshan was launched in 2006 with the involvement of the Urban Planning and Design Institute of Tsinghua University, CAUPD and the Shenzhen Planning and Design Institute. Foreign expertise was also brought into the project through the participation of Swedish sustainable engineering and design firm Sweco in the concept planning in 2008. The statutory master plan is being developed by a team from Tsinghua University.

Caofeidian Eco-city master plan. The site faces a number of difficulties including the shortage of fresh water; the threat of salination and possible storm surges, owing to its coastal position as well as the adverse developmental impact on the original site. The planning framework used considered the →→site problems in terms of four aspects – →biodiversity, →eco-shelter, →eco-safety and →eco-repair. The master plan will promote eco-repair by

conserving the existing green corridors and wetlands with buffers to protect these ecologically rich areas from further damage. For →flood control and →prevention of soil salination, it was proposed for two dykes to be constructed along the coastline, with an artificial lagoon created on the inland portion of the inner dyke while an inner sea would be formed between the two dykes. The lagoon would serve to →store the freshwater from the rivers and mitigate salination of the soil and groundwater. The inner sea could be used for recreational purposes, such as water sports.



Caofeidian Eco-City^{vi}

Development targets. The master plan for Caofeidian would also feature →green transport modes and →transit-oriented design to create a “city of short distances”. The city centre and sub-centres would be served by light rail and bus-rapid transit systems, with the intention of making the eco-city more →pedestrian friendly and liveable while reducing transport-related emissions. For energy sources, the planners turned to →wind power, which has good potential, as Caofeidian is a coastal city. The target is for wind power to provide at least 80% of the eco-city’s energy needs. Cleaner energy sources such as gas would be used while waste-to-energy plants to generate biogas, heating and electric power are also being incorporated. Given the water supply constraints of the area, water conservation and re-use would be emphasized, with a target of →50% of water supply to be provided through re-use and reclamation.^{vii}

Authors:

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Sources and Further Reading:

ⁱ http://en.tswstc.gov.cn/comcontent_detail/&FrontComContent_list01-1289889106619CurrentIds=5__4&comContentId=4&comp_stats=comp-FrontComContent_list01-1289889106619.html

ⁱⁱ <http://esci-ksp.org/project/caofeidian-new-area-tangshan-bay-eco-city/>

ⁱⁱⁱ Source: Fangzhu Zhang. 2011. Eco-Cities in China – Dream or Reality. www.dime-eu.org/files/active/0Zhang-2011-cities.pdf

^{iv} Source: <https://i.guim.co.uk/img/static/sys-images/Guardian/Pix/pictures/2014/7/16/1405508396995/5fc1012c-38fc-4453-8044-96afeb7d461f-2060x1375.jpeg?w=1225&q=55&auto=format&usm=12&fit=max&s=1f75a95ed9bc6eb822e12cb67737a290>

^v In *The 4th International Conference of the International Forum on Urbanism (IFoU) 2009*. Amsterdam. http://newurbanquestion.ifou.org/proceedings/4%20Urban%20Technologies%20and%20Sustainability/full%20papers/C023_Ma_Qiang_Eco-city%20and%20%20Eco-Planning%20in%20China-Taking%20An%20Example%20for%20Caofeidian%20Eco-city.pdf

^{vi} Source: <http://www.swecogroup.com/en/Sweco-group/Solutions/Sustainable-City/The-new-Caofeidian-eco-city-will-be-climate-neutral/>

^{vii} Adapted from J. Chia. 2010. *How Can ADB Better Support the PRC’s Sustainable Urban Development? Selected Themes in Sustainable Urban Development in PRC*. Intern Report. Asian Development Bank, Manila.