



Government initiatives

Developing robust organizational frameworks for Sino-foreign eco-cities: comparing Sino-Dutch Shenzhen Low Carbon City with other initiatives



Martin de Jong^{a,b,*}, Chang Yu^a, Xinting Chen^a, Dong Wang^c, Margot Weijnen^a

^a Faculty of Technology, Policy and Management, Delft University of Technology, Jaffalaan 5, 2628 BX Delft, The Netherlands

^b School of Management, Harbin Institute of Technology, West Dazhi Street 92, 150001 Harbin, China

^c School of Urban Planning and Management, Harbin Institute of Technology Shenzhen Graduate School, HIT Campus of Shenzhen University Town, Xili, Shenzhen, China

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ABSTRACT

Eco-city and low carbon city development enjoy high priority among a great many local governments in China. Underlying this is a host of serious environmental problems resulting from growing urbanization, industrialization and motorization. Still, political realities dictate that economic growth figures cannot be compromised. Consequently, strong eco-city agendas are often combined with the wish to become knowledge cities. To import science and technology from abroad, collaboration is established between Chinese and foreign governments, corporations and knowledge institutes to develop cities with both ecological and knowledge features.

This article aims to identify conditions for robust Sino-foreign partnerships in eco-cities. It examines how Sino-foreign initiatives are organized with their strengths and weaknesses and then construes a typology of Sino-foreign eco knowledge city initiatives. A newcomer on this stage, Shenzhen Sino-Dutch Low Carbon City, in which the authors have been personally involved as initiators and advisors, is then described in depth and compared with other Sino-foreign eco-knowledge cities in terms of its organizational stability, mechanisms for political support and the role of knowledge institutes. We conclude that initiatives where collaboration is embedded in solid frameworks of bi-national political support, public and private investment, advice and exchange are the most likely to succeed. Sino-Singaporean collaboration rests on stronger foundations than Sino-European collaboration, while among European, Swedish and Germans players at their turn have been more effective in building structural long-term relations than others.

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1. Introduction

Eco-city and low-carbon city development enjoy high priority and popularity with China's central government and a rapidly growing number of forward looking metropolises. The list of officially recognized eco- and low-carbon cities in China now runs in the hundreds (see Fig. 1), even excluding the variety of projects around the country not noted by Beijing. From November 2010 to February 2011, the Chinese Society of Urban Studies (CSUS)

conducted a survey on eco-city development in 287 cities and found that 230 cities aimed to develop eco-cities and 133 cities planned to have a low carbon city. Although the option of becoming a low-carbon city has been open only since 2008, the number already sky-rocketed to 97 in 2010 (CSUS, 2011).

This CSUS report implies that many eco-cities in China embrace considerations of green transport, green buildings, the production and use of renewable energy and the promotion of a circular economy and do this with an expectation of generating a knowledge-intensive environment and through active foreign engagement: Singapore in Tianjin, Sweden in Tangshan-Caofeidian and Wuxi, Finland in Mentougou. In various cities on China's East Coast where labor costs have risen in recent years, becoming a knowledge city is considered as the most viable way to keep high GDP growth. Consequently, in the Chinese policy-making practice, the imperative to keep economic growth figures at their currently

* Corresponding author. Faculty of Technology, Policy and Management, Delft University of Technology, Jaffalaan 5, 2628 BX Delft, The Netherlands. Tel.: +31 152788052, +31 655778575.

E-mail addresses: W.M.deJong@tudelft.nl, tudelftandhit@gmail.com (M. de Jong), C.Yu@tudelft.nl (C. Yu), 710hedylamarr@gmail.com (X. Chen), wangdong@hitsz.edu.cn (D. Wang), M.P.C.Weijnen@tudelft.nl (M. Weijnen).

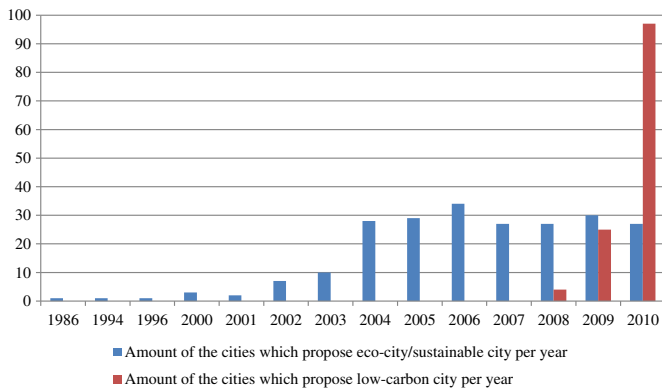


Fig. 1. Numbers of cities in China proposing to develop eco-cities/low carbon cities 1986–2010. Source: (CSUS, 2011).

high level represent a *conditio sine qua non* for developing eco-cities, indicating that the greening of urban space actually requires deep industrial transformation (de Jong et al., 2013). This economic transition, at its turn, necessitates bringing in “knowledge infrastructures”. Most green cities thus welcome (often foreign) universities and knowledge-intensive industries that can guide them through this transition. This trend is so significant that in effect we can speak of “Sino-foreign Eco Knowledge Cities”. In the remainder of this contribution, we would like to address the following issues:

- How are the concepts eco-city, low carbon city and knowledge city defined in the academic literature and what can be said about their interrelations? To this end, a literature study and a keyword analysis have been conducted. (Section 2)
- What are the main Sino-foreign eco-city initiatives to date, how do they deal with the connection between eco and knowledge aspects, how are they organized and what can be said on their organizational stability, mechanisms for political support and the role of knowledge institutes? We collected evidence through desk research and interviews. (Section 3)
- What has been the collaboration experience in the Shenzhen Sino-Dutch Low Carbon City project, a recent example in which the authors were personally involved in the planning and decision-making process as initiators and scientific advisors? First, the geographical qualities of the area and the highlights of the vision as developed by the authors will be presented (Section 4). Then, the decision-making process which transformed the proposed ECO-2-ZONE concept with an Open Innovation Campus into a Sino-Dutch Low Carbon City and the organizational implications this had will be dealt with (Section 5). The materials in Sections 4 and 5 were collected in two different ways. First, the authors were the planning researchers and co-authors of the strategic vision “A world-class knowledge area: Developing a Special ECO-2-ZONE at the intersection of three cities” (NGI & HITSGS, 2011) allowing them to obtain first-hand information they otherwise never would have had. Second, they were personally involved in many of the meetings relevant to the subsequent decision-making process, sometimes as active participants, more often as observers. The research method can thus be typified as a mixture of “participatory observation” and “observatory participation” and the description was laid down here as a narrative. Given our position in the process, we had to make a tradeoff between our access to key data and observation of the context in which important political decisions were made on the one hand and our reduced impartiality on the other. We can obviously not

claim objectivity, but we have attempted our utmost to give a factual and neutral account of the events.

- Being compared with the other Sino-foreign eco-city initiatives, how does the Shenzhen Sino-Dutch Low Carbon City combine environmental and knowledge features and in terms of the conditions for organizational stability, mechanisms for political support and the role of knowledge institutes? What lessons can Shenzhen and other future eco knowledge cities draw from the main Sino-foreign eco-city initiatives (Section 6)? Conclusions here were based on a typology of Sino-foreign eco-city initiatives which enables us to position each of them and outline their pros and cons systematically.

2. Defining eco-cities, low carbon cities and knowledge cities

Eco-cities have been defined as cities that are self-reliant, minimize the demands on resources like energy and water and reduce waste (Register, 1993, 2006). Also named green cities or sustainable cities, they express the wish to reduce pollution, utilize energy efficiently, promote public transport, bicycling and walking and use land smartly and sparsely. Urban Ecology (<http://www.urbanecology.org/>), the first organization on researching eco-city, identified 10 common principles of eco-city development: efficient land-use, transportation, restoration of damaged urban environments, affordable and decent mixed housing, social justice, urban greening projects, resource recycling and conservation, encouraging business to support pollution reduction, reducing excessive consumption and enhancing public awareness of sustainability issues (Roseland, 1997). In China, Yichun City in Jiangxi Province was the first to draft a plan for an eco-city in 1986 which in retrospect can be considered the beginning of eco-city development. In 1995, the Environmental Protection Ministry (EPM) initiated the policy regarding the National Planning of Eco-demonstration Zones (1996–2050) to encourage towns and cities to implement eco-city principles and explore solutions suitable for the Chinese context (EPM, 1995). Since then, eco-oriented practices blossom in a great many Chinese cities. It should be added, however, that in the early stages, landscaping and urban gardening were overemphasized and eco-city development was not considered as systematic approach involving aspects of infrastructure and city management, social and cultural integration or realizing a policy transition (Shi, 2006).

Low carbon cities are cities of which the economic development has been decoupled from energy consumption and/or CO₂ emissions mainly in terms of building, transport and production (Chen and Zhu, 2013). Urban planning should aim at sustainable development and integrate ecological and resource management in the decision making process (Chan et al., 2013). We can thus conclude that there is substantial overlap in the policy implications promoted in eco-cities and low carbon cities, but that low carbon cities are a direct response to the phenomenon of global warming and thus potentially somewhat narrower in scope and easier to measure and monitor.

The enormous boom of eco-cities in China must be seen in light of the soaring urban population, rapid urbanization of rural lands around cities, severe resource depletion, serious air and water pollution and the adoption of national policies regarding greenhouse gas reduction as agreed in international forums (Yusuf and Saich, 2008). Industrialization and a dramatic increase in the number of private cars require a thorough transformation of urban space, and this is clearly recognized by the authorities. The central government’s 11th Five Year Plan (2005–2010) announced the target that China would reduce energy consumption per unit GDP by 20% compared with that in 2005. And by 2020, China should

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