

OPERABLE ECO-PLANNING APPROACH: EXPERIENCES IN SHANDONG

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INTRODUCTION

China cities are undergoing an accelerated rate process of industrialization/urbanization, esp. in the Pearl River Delta, Yangtze River Delta and Bohai regions. Prioritized on economic/industrial growth, large cities are the hottest spots and focuses of developments, where extensive expansion and intensive restructure are common¹. The developments are mainly investment led, with changes so rapid and uncertain that it seems difficult to plan and manage them in more rational manner.

Smaller cities, more close to the rural hinter land, with less development demands and resources constraints, should have fewer difficulties to attain a balanced development, harmoniously coexisted with the ecosystem. In reality however, these cities share common pitfalls of many large China cities, typified by congestion and pollution. What physical planners can do about this?

This paper focuses on related eco-planning issues, based on the recent masterplan planning experiences in small and medium-sized cities in Shandong Province.

PLANNING PROBLEMS

In order to accommodate the rapid growth, the city acquires new usable land by transforming agricultural lands, and restructures/optimizes the existing land uses. All these need to be implemented with a continuous long-term masterplan and operable immediate plans, otherwise the balance between development and ecosystem cannot be ensure; problems arise as in the following:

With direct waste water discharge, rivers/canals become heavily contaminated; because of dirty color and bad smell, waterfront area are no more attracting place, as shown in photos (fig. 6, 7) and the existing land use pattern in fig. 1;

With large development footprint, the land use efficiency is quite low, as shown in the example of new industrial development in fig. 2;

With encroaching of informal uses and unavailable spaces, adding green buffers to the existing urban areas is difficult (cf. fig. 4, 5);

Artificial beautification could be a problem; the sealed canal bank, the neatly cut trees and lanes along the boulevard and canal lack bio-diversity and need higher water consumption; they are not good solution in ecological terms (cf. fig. 6, 9);

With funds constraints, relocating polluted industry, some of which are the main bread givers of the city like A (fig. 1, fig. 3) or major infrastructure like B (fig. 1, 8), is unrealistic; the constructed large infrastructure only operated for "exhibition" purpose at important occasions, as the daily running cost is too expensive to afford¹.

KEY ISSUES

Decision maker: long-term vs short-term?

In current system, the city's main administrator plays the role of both developer and governor, who has the power to make planning decision, to implement and manage accordingly¹. This simplifies and expedites the development procedure. The developments priority is to promote immediate growth, both by the needs of the city and by the ambition of the administrator to demonstrate his "achievement" within his short tenures¹; thus he may become opportunists, seeking chances to maximize the uses of available land.

In this context, it could be difficult to ensure long-term goal to be met. The city's masterplan, just as a tool to control its physical development, could lack rationality, because by imposing of wills from the high level, its short-term orientation may conflict to the city long-term vision if any; and on the other hand, there is no effective legal procedure to ensure strict planning implementation. This explains why masterplans are often deemed useless, esp. in smaller cities, where the shortage of financial resources

and absence of strict legal framework are more severe.

Planning professional: what kind of Eco-plan?

Aiming to transform into an eco-province, Shandong started pilot ecocity projects in early 2000s. Many cities have issued their ecocity plan or demonstrated eco-district plan etc.; but the related practice in some smaller cities shows that these plans are not effective although comprehensive enough with various standards; because they are defined in rather generic terms, not spatially specified corresponding to the city's masterplan, thus difficult to enforce actual planning control.

In current planning system, Eco-planning issues are dealt in various governmental offices, such as industrial waste water mainly by the Office of Environment Protection, green and landscape by the Office of Park and Office of Forestry, river and other water issues by the Office of Water Conservancy etc. In the Planning Office, which is responsible for the city's masterplan, there is no such unit that specializes in coordinating various ecological requirements and translating them into the physical plan, with which planning control is enforced.

PROPOSED ECO-PLANNING STRATEGY

In the 11th five-year plan, to ensure development of resource sensitive and environmental friendly cities becomes a national development policy. Ecocity practice in smaller cities still has a lot to expect, it actually involves the whole system from planning to implementation. As physical planners, we would rather focus on how to make relevant eco-plans that work, trying to make incremental betterment instead of dreaming about system reforms¹. Followings are our proposals; each corresponds to the levels of masterplan, eco-plan and more detailed urban design respectively.

INTEGRATED MASTERPLAN

Eco-plans need to be long-term focused and be defined according to the ultimate spatial structure of the city, in order to safeguard its rational development against destructions to its ecosystem. The physical masterplan should always be integrated with the eco-plan, so that the original ecosystem can act as the basic layer of the city, upon which compatible developments are planned.

To achieve this, "structural eco-use" is introduced into masterplan. This new kind of landuse type is excluded as the urban construction land, but included in the compulsory planning elements to ensure its proper eco-functions¹.

DEDICATED ECO-PLAN

As an indispensable component in masterplan, a dedicated eco-plan is proposed. It could incorporate plans of both open space and environmental protection etc, not only on regional level of the current practice, but also on city and district levels. The eco-plan should focus on the functions of individual elements such as water, air, soil, biodiversity, visual landscape etc, as well as the land suitability and capacity of the whole ecosystem, so that an optimum land use intensity and distribution can be achieved without disturbing the self-regulating mechanism of this system.

BLUE AND GREEN SENSITIVE URBAN DESIGN

Eco-plan should be incorporated into all other aspects of planning and design. Blue and green eco-sensitive urban design is introduced, for integrated concerns both on good visual landscape features and their proper eco-functions. For example, more vegetation species are planted to guarantee a more robust self-regulating system, the biodiversity create good landscape features too; the function of water retention, natural treatment of the riparian system is fully considered together with the waterfront landscape design; rain water harvesting and natural water infiltration by permeable paver and less sealed surface are introduced, as solutions to the water shortage problem, commonly suffered by northern Chinese cities.

Several control lines are introduced to enforce actual planning control, e.g. green line defines the setback of road and green buffer etc; blue line controls the allowable gap between development and the water bodies¹.

Figure 1. EXISTING LAND USE PATTERN, YUCHENG

Source: Author

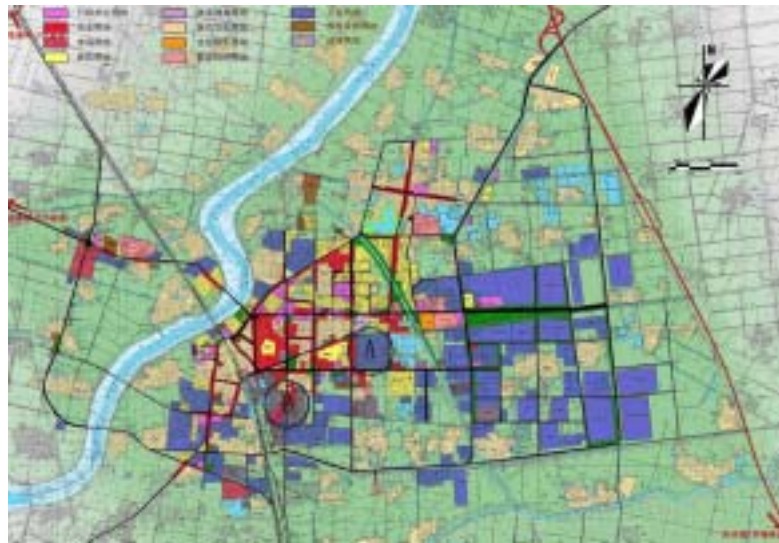


Figure 2. INDUSTRIAL ZONE, YUCHENG

Source: Author



Figure 3. POLLUTION AT THE CITY'S GATEWAY, YUCHENG

Source: Author



Figure 4. STREET IN EXISTING CITY, YUCHENG

Source: Author



Figure 5. "STREET MARKET" IN EXISTING CITY, YUCHENG

Source: Author



Figure 6. POLLUTED CANAL IN INNER CITY, YUCHENG

Source: Author



Figure 7. HEAVILY POLLUTED WATER, YUCHENG
Source: Author



Figure 8. HOUSING MIXED WITH HEAVY INDUSTRY, XINTAI
Source: Author



Figure 9. LANDSCAPE BOULEVARD, XINTAI
Source: Author

