ON INTERTWINED AND INTEGRATED DIMENSIONS
- ALTERNATIVE STRATEGIES TO THE NEW URBAN DESIGN

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ABSTRACT: This paper proposes to investigate the mechanism behind the numerous and complicated urban sceneries on two intertwined and integrated dimensions, focusing on study the intangible relationship between urban landscape and the built environment, and finally to generate an in-depth discussion about open and sustainable design strategies towards the new urban form.

KEYWORDS: urban design, two dimensions, design strategies, urban landscape, the built environment

> *God made the country, and man made the town.*

William Cowper, 1785

The intimacy between cities and human beings cannot be exaggerated in any measure. More than half of the world's population now resides in cities and towns according to the *State of World Population 2007* report from the United Nations.[1] The city has become the key matter for human beings in pursuit of well-being. However, the current rapid urbanization is not the simple answer to the proposition of creating a ideal urbanism, since emerging environmental and energy issues cast a shadow over cities' prospect, and the urban design/planning strategies of the past have failed to solve these urban issues. Derived from the Athens Charter of 1933, modern urban planning applied the underlying concept of the creation of independent zones for four "functions": living, working, recreation, and circulation. Nevertheless, the concept of a "functional city" has been seriously criticized due to outcomes such as disserved urban zones and negative effects on people's living environments.

The link between "substantiality" and "city" is a contemporary phenomenon, a result of concerns about these urban issues, but also a response to the long-term development of cities. Under these new circumstances, urban designs have investigated the creation of a "smart" city instead of a "beautiful" or "functional" city. This shift reflects the updated interactive relationship between nature and human beings. In the current paper, the mechanism of the city is dissected and analyzed on two intertwined and integrated dimensions (substantiality and social dimensions) through a fresh approach, which is a point of departure for alternative strategies to the new urban design.

SUBSTANTIALITY DIMENSION: URBAN ELEMENTS AND THE HYBRID COMPOSITION

Substantiality constructs the basis of the phenomenal world we perceive, and there is no exception for the city. On the substantiality dimension, the city can be approximated as a complex network composed of a series of urban elements, including buildings, greenery, and the infrastructure system. Among others, the built environment has played the most active role throughout urban history. It shaped the outline of the city and simultaneously created space for growing urban populations. Public green spaces traditionally involved decorating buildings and making the ground welcoming and visually appealing, while the infrastructure system worked as a practical necessity to fulfill the underlying demanD028-1_Liao_Yuan_Research on the Development Startegy and Characteristics of the 100 Urban Complexes in Hangzhou.docds of buildings. As a result, the Big Three (the built environment, green space and infrastructure) constitute an intangible relationship in which buildings take priority over the other two. The fundamental proposition of establishing

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[1] "State of World Population 2007", p1, see www.unfpa.org/swp/2007/presskit/pdf/sowp2007_eng.pdf

an ideal urbanism is set up by means of properly placing these elements.

SOCIAL DIMENSION: THE INDUSTRIAL STRUCTURE AND URBAN FORM

As a truly man-made thing, the city is tied to human beings and is thus embedded within sociality. On the social dimension, the urban form is situated within the context of industrial development. A review of modern and contemporary urban history would reveal the major role of industrial development in shaping the cityscape. For example, the classification of the primary industry (raw material) and the secondary industry (manufacturing) in the industrial revolution distinguished the rural area from the urban area.

However, as Jean Fourastié and Colin Clark pointed out in their three-sector hypothesis, the service sector would eventually take the leading place in this industrial competition. As a result, the transformation of the industrial structure calls for corresponding urban design strategies.

STRATEGY 1: FROM "BACKGROUND" TO "FOREGROUND"

As opposed to the fragmented land-use map in traditional planning, within the open frame of design strategies, urban landscape and the built environment must be reconciled to seek a solution which is both ecologically and economically effective on all levels in response to the urban issues we are facing.

As we analyzed the substantiality dimension, urban design in the first instance focuses on the study of the relative position and quantity of different urban elements. Ironically, the built environment is now considered to be the largest negative factor in terms of carbon emission and energy consumption. Concerned about the stability of ecosystems, architects and urbanists initiated the concept of "green building" in order to reduce the overall impact of construction works on human health and the natural environment. However, we are still unable to build the green future of the city by constructing a great amount of "green buildings". On the contrary, although visually similar to the natural reserve, the urban landscape could introduce the infrastructure system into the field, integrating the environment, living systems, and the manmade. It represents a poetic and healthy living environment (mainly by the green space), and more importantly establishes a connected eco-system (through infrastructure).

Within the urban landscape, vegetation plays an important role given the fact that photosynthesis has been proved by scientific research as an effective way to absorb carbon emissions in the natural environment. A single mature tree can absorb carbon dioxide at a rate of 48 lbs/year and release enough oxygen back into the atmosphere to support two human beings. An acre of trees absorbs enough CO_2 over one year to equal the amount produced by driving a car 26,000 miles.[2] Meanwhile, the infrastructure system contributes to the establishment of a connected eco-system within the city. The significance of a connected urban landscape was noted by Frederick Law Olmsted more than one hundred years ago. He wrote: "No single park, no matter how large and how well designed, would provide the citizens with the beneficial influences of nature… A connected system of parks and parkways is manifestly far more complete and useful."[3]

A connected urban landscape system would effectively reduce public costs for storm water management, flood control, transportation, and other forms of built infrastructure. Practically, urban landscape offers collective open spaces, enabling high-quality public life, which is an essential issue of the new urban form. Meanwhile, it is also able to be the local identity, presenting the uniqueness of the region, rather than the built environment in the conventional sense, due to vegetation-environment interactions. As a matter of fact, some attempts have been made to convert the existing infrastructure into urban landscape, especially in the post-industrialized region. The High Line project in New York City is a remarkable case of this kind of transformation. Although still partly under construction, when all sections are complete, the High Line project will be a mile-and-a-half-long elevated park, running through the city. Established on an abandoned train track, this urban landscape has become a lively record of the city's history while creating recreational value in its social and environmental context. (Fig.1) [4]

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[2] Nowak, David J., "Benefits of Community Trees"
[3] Conan. "'Green Infrastructure's Low Priority in Michigan"
[4] Photo by Jonathan Flaum, see relevant information from http://www.thehighline.org/

Figure 1 High Line project in NYC

For these reasons, and with the aim of generating substantial urban growth, the traditional "figure-ground" urban pattern should be revised. The urban landscape should be set in the governing position in order to become the parameter for other elements, including the built environment.

STRATEGY 2: FROM "CENTRALIZED" TO "SELF-SUFFICIENT"

Historically, the typical city was developed around a "hard core", which served as the central focus. However, the modern course of urbanization challenged this concept through the endless urban sprawl. Therefore, other than the traditional "centralized" city, the new urban form is a dynamic and flexible network composed of "self-sufficient" components. From the "input-output" point of view, the city on all scales (from the megacity to the small dwelling) is ideally a self-sufficient ecosystem, balancing its resource use and waste release.

As a result, the emerging concept of "urban agriculture" attempts to seek a breakthrough on this respect. It provides an answer to the food security and safety issues caused by the loss of farm land and air pollution during the process of urbanization through the application of biointensive production methods (Fig.2). [5]It also improves the self-purification capacity of the whole eco-system by "using and reusing natural resources and urban wastes to yield a diversity of crops and livestock".[6] At the same time, the booming service industry and advanced technology such as the Internet pushed the new business models (e.g. long-distance trading and SOHO), providing possibilities to generate economically "self-sufficient" communities. This economic self-sufficiency is not associated with the concept of an enclosed community, but to a great extent the creation of local jobs, reduced carbon emissions and energy use by eliminating unnecessary traffic, and the formation of an affinitive neighbourhood. With the application of urban agriculture and the new business model, the "self-sufficiency" on both dimensions is capable of providing cities with dynamic sustainable development.

[5] Photo by Linda.N, image resource from Steven Walling/gallery(online)

[6] Smit, J., A. Ratta, and J. Nasr, 1996, "Urban Agriculture: Food, Jobs, and Sustainable Cities"

Figure 2 An urban farm in Chicago

Given the fact that urban design is complex and cross-disciplinary, these open, yet systematic, strategies are not a set of operations in conventional urban planning. The intention is to create a common and powerful platform on which people from a wide range of domains, including policy-makers, ecologists, economists, urban planners, and architects, could contribute their knowledge, insights, and diverse perspectives in order to build healthy and sustainable cities for the future.

REFERENCES

[1] "State of World Population 2007", www.unfpa.org/swp/2007/presskit/pdf/sowp2007_eng.pdf, p1
[2] Nowak, David J., "Benefits of Community Trees", (Brooklyn Trees, USDA Forest Service General Technical Report)
[3] Smith, Conan. "'Green Infrastructure's Low Priority in Michigan" *Michigan Environmental Report* 20.1 (February 2002) Michigan Environmental Council 2 October 2003
[4] http://www.thehighline.org/
[5] Smit, J., A. Ratta, and J. Nasr, 1996, Urban Agriculture: Food, Jobs, and Sustainable Cities. United Nations Development Programme (UNDP), New York, NY