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## Article

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## A Quality-Oriented Urban Development Pattern? Two Case Studies in Shanghai

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**ABSTRACT.** This article concentrates on the transformation of development patterns due to economic transitions in Shanghai through two case studies looking at different spatial levels. In the transformation process, the improvement of spatial quality in the existing urban space will play the central role in achieving a balance in the future among the relevant economic, social and environmental aspects. Relatedly, economic growth is no longer seen as the only important goal. Social and environmental issues have gained more and more attention, and are increasingly seen as the basic foundation for sustainable development. Given that such significant changes have occurred within a very short period of time, the author will discuss different critical factors and related symptoms as embodied in urban planning practice. Two case studies regarding the transformation in goal setting and the implementation process will be introduced, with a focus on the issues of accessibility and quality of life. One case relates to the development plan for Hongqiao Business Park, which is one of three focus development areas for Shanghai and is located near the comprehensive Hongqiao Transport Hub. The other case considers an area located to the south of the area of interest in the first case; both areas are well connected with each other. A new development strategy for the development of new towns in knowledge economy clusters has been advanced in the outskirts of Shanghai's city center, and has also influenced such efforts on the regional level, i.e., where the Huangpu River flows through the planning area and connects to other parts of the broader Shanghai region.

**KEYWORDS.** *Quality-oriented, urban development pattern, economic transition, Shanghai*

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## 1. EFFORTS TO REORIENT URBAN DEVELOPMENT

In the post-reform period, China has achieved an economic boom that has lasted for over 30 years. Changes to the economic structure of China have also been reflected in the transition from an agricultural country to an industrial country. Even several developed cities in China's eastern region have begun to experience the deindustrialization process.

This transformation has been marked by the hosting of a series of mega-events, e.g., Beijing's Olympic Games in 2008 (Yi, 2011) and Shanghai's Expo in 2010. Such developed cities and regions have assumed the mission of providing connections with the global economy. Their further development will also to a large extent depend on their own respective roles within the global economy and even on the extent to which they become influential players. A global city plays important roles such as serving as a node for the world's economic organization, being an important location for financial and advanced urban industries, and acting as a production center for creativity and innovation, as well as a serving as a market for innovative production and consumption (Sassen, 2001). A study of four world cities identified four key groups of advanced service activity: financial and business services, 'power and influence' (or 'command and control'), creative and cultural industries, and tourism (Llewelyn-Davies, 1996).

With such references, the development of service sectors in Chinese cities was accordingly accelerated in a short period. As a result, such cities are confronting a series of challenges associated with economic transition. With that in mind, the present study will discuss a quality-oriented urban development pattern with a focus on several key aspects. The improvement of spatial quality in the existing urban space will be taken seriously as an important strategy by decision makers involved in the economic transition process. Given that such significant changes occurred over a very short period of time, the author will discuss different critical factors in development frameworks and related criteria as embodied in urban planning practice. Thereafter, this reorientation process will be concretized with the introduction of two case studies in Shanghai. One case considered a key development project that was implemented during the Expo. The other case consisted of a strategic planning study that delineated reconsideration of development concepts and related development paths for the local decision makers after the hosting of the Expo.

## **2. TRANSFORMATION IN DEVELOPMENT FRAMEWORKS**

### ***2.1. Factor 1: Efforts for global city building***

The hosting of mega-events epitomizes the aforementioned efforts to integrate into the global economic system. A series of strategic projects and communication activities have provided extensive opportunities both in material and in immaterial categories for international cooperation. The participation of stakeholders from different spatial levels has been increasingly strengthened through this process.

These cities, according to the national government, will also play a leading role in China's modernization strategy. Although the whole country is still generally in the midst of the industrialization stage, including rapid urbanization, Beijing and Shanghai have already expressed their ambitions to become world cities like London, Paris and Tokyo, which play important roles in the world economy. These ambitions are reflected in efforts such as the aforementioned projects, including strategic investments made with support from the national government, as well as transformations in the planning value systems for decision makers. The spatial structure of these cities and regions has reflected these transformations in many respects.

### ***2.2. Factor 2: The rise of the service sector***

Compared with exemplar references, world city building is analyzed and a series of operational criteria have been prepared for real development programs. In general, such strategies concentrate on service sector development, especially in globally oriented sectors such as finance, commerce and trade, transportation, research and education, the culture industry, tourism, etc.

In addition to policy considerations relating to the updating of the economic structure, the strengthening of global economy in the aforementioned sectors leads to immediate pressures on property rental prices for existing economic sectors like manufacturing. This process was also strengthened by a related city marketing strategy, so that investors on the global and national levels, as well as international tourists, would be encouraged to achieve their existence in urban space.

### ***2.3. Factor 3: New vision in development concepts***

It has also been realized that such economic sectors have high requirements in terms of spatial quality and that the hosting of such mega-events provides great opportunities for a city

government to adjust the spatial characteristics according to these requirements.

In this context, the development of service sectors requires a systematic adjustment within the urban space. Through the learning experiences of hosting these mega-events, the city government also noticed the gaps in reaching such goals. As a result, their perspectives and goal setting relating to development concepts have been gradually adjusted. For example, economic growth will no longer be regarded as a relatively independent issue. Its further development in relation to the service sector depends on the degree to which social and environmental issues will be integrated into a new development pattern.

#### ***2.4. Factor 4: Urbanization in relation to regional cooperation***

Relying on their economic achievements, cities with leading roles have attracted large numbers of people from other parts of the country, which, in turn, further promoted the expansion of existing built areas. With the rapid modernization in transportation infrastructure facilities, existing city centers and other suburban areas have become closely connected with each other. Many key development projects have also been consciously guided into specific suburban areas with support from city governments.

As a result, the spatial development efforts of cities with leading roles are experiencing a transition in the development scale from the city level to the regional level. In this process, each city center and its suburban areas will assume different roles respectively based on the nature of their economic cooperation. City centers primarily take on the service functions on the international, national and regional levels. Suburban areas will develop other different functional branches for the regional economic system.

### **3. NEW SYMPTOMS IN URBAN PLANNING PRACTICE**

#### ***3.1. Symptom 1: Adjustment in organizational patterns in public sectors***

In the early stages of the reform policy, Chinese cities were basically organized by a centrally planned economic system. The decision making was thus exclusively carried out within public sectors, while private sectors had very limited influences in this process. The urban planning practice concentrated mainly on specific industry projects, with land use programs being carried out to meet the direct demands of such projects (Wu and Ma, 2005).

The new goal of developing the service industry, in which the related requirements in scale, complexity and space characteristics are totally different from former patterns involving specific industry projects, has shown the necessity of making adjustments in organizational patterns for

urban planning establishment and implementation.

With experiences in a series of projects, especially in hosting mega-events, the new cooperation pattern of Public-Private Partnerships has been introduced into urban planning practices for Chinese administrative systems. City marketing strategies have also received more and more attention from city governments. In this way, although the decision making process is still mainly carried out within a given administrative system, the authorities and goal setting from different levels and different sectors have already been differentiated and these sectors have tried to ensure cooperation with each other as well as with private sectors.

### ***3.2. Symptom 2: Learning the new lifestyles of urbanites***

Besides the dramatic changes in the economic field, the transformation in social and cultural fields should not be neglected in this process. For city governments, integration into the global economic system means not only making necessary preparations in terms of hardware aspects such as investment in related infrastructure and facilities. Rather, a proper milieu and cultural atmosphere for global economic activity will also be greatly required. For this reason, during the hosting of mega-events, the international communication efforts have been concentrated on the introduction of global consumption culture. At the same time, the economic growth in China has created a newly rising middle class in the last several years. The global consumption culture has been strongly accepted by this middle class (Castells, 2000).

International communications have introduced extensive information for Chinese urbanites. A series of projects such as grand projects, including new design works by international architects, have significantly demonstrated emerging tastes.

As a result, consumption culture and related service sectors have achieved great importance for economic development in these cities. The city governments have also noticed the great potential for economic growth in such sectors. Beijing has even taken culture-related industry to represent a key industry sector for its future efforts in building world cities. In Shanghai, with the exception of tourism development, culture-related sectors have been utilized to redevelop the existing industry structure. The historical elements have shown important economic attractiveness for tourists and investors.

In this context, the lifestyles that are newly learned through international communication play an important role in the entire economic transformation process. In the globalization era, the global consumer culture has greatly enlarged its influences in such cities as they seek to enhance their status in the global urban hierarchy.

### ***3.3. Symptom 3: Efforts for ecological cities***

As catalyst factors, the efforts involved in the hosting of mega-events have had strict environmental standards, and these standards have led to the popularity of ecological concepts in China's urban development. In addition, city marketing strategies have concentrated a lot of discussion on sustainable development in contemporary Chinese decision making processes. In this way, the hosting of mega-events has even provided important chances to demonstrate the ideal image of sustainable development through a series of development projects. Especially in many newly developed areas, the concurrence strategy aims to cultivate an attractive atmosphere for enterprises and a highly qualified labor force. And this is also supported by the preferences of investors.

With conscious efforts to cultivate suitable spatial qualities for the service sector, the ecological planning practice has obtained much more attention from decision makers and developers than before. As a result, the related topics, such as ecological planning, energy saving, and reducing carbon emissions, have gained a distinguished status. In real urban planning practice, the resulting projects, e.g., those in the fields of urban form and density, urban infrastructure and mobility, landscaping, as well as energetic renewal projects, will also reflect this new trend and bring the new pattern into reality through a series of projects.

### ***3.4. Symptom 4: Economic cluster cultivation in urban regeneration processes***

With reference to world cities, Chinese cities have tried to provide a suitable space for the service sector. As a result, aesthetic issues have been regarded as serious instruments in the urban regeneration process, so that the inner city and other important development areas will attract investors and enterprises properly.

The development projects have also concentrated on potential economic factors for the spatial layout and other related issues in urban design projects. In this way, efforts to cluster cultivation have also been introduced into today's urban development in Chinese cities.

In contrast to its former role in a centrally planned economy with old industrial areas, the public sector needs to prepare service platforms for diversified enterprises and other related factors, so that the economic activities can be supported by each other. In this way, production- and consumption-oriented service sectors will locate together, so that a series of clusters can be cultivated.

### ***3.5. Symptom 5: Modernization in urban infrastructure***

Actually, the aforementioned aspects of urban planning practice depend fundamentally on the development of infrastructure, which provides the foundation for further economic transformation. Urban regeneration programs are always supported by infrastructure development. As one of the most important issues, national governments assume the responsibility for developments like renovation in infrastructure on the national level for the purpose of stimulating economic growth. For example, China has finished its long distance construction of a high speed railway system in the last several years.

Acting as the hosts of mega-events brought a great leap for the modernization of standards in urban infrastructure. The new highways, subway systems, airports, as well as other municipalities in the environment and energy fields, have contributed drastically to economic growth. In this regard, the efforts of public sectors have significantly accelerated integration into the global economy by means of infrastructure development. Concerning the complexity of service sectors, the public sector will concentrate its efforts on the field of infrastructure and platform building instead of directly intervening in enterprise operations.

### ***3.6. Symptom 6: Multi-centered urban structures***

Efforts to integrate into the global economic system and corresponding adjustments of spatial structures on the regional level have been reflected in an extroverted urban structure. The networks throughout the whole city region with multi-centered spatial structures will be strengthened by the urbanization process. City centers and suburban areas will assume different functions for their cooperation on the regional level. The former introverted pattern of a centrally planned economy, in which specific industrial projects regulated land use and determined the layout for facilities, cannot continue anymore.

Moreover, since the existing city centers cannot provide enough space because of excessive density, the existing land tends to be converted into sectors for international, national and regional clients, such that other existing land and new projects in such categories will be transferred to the suburban areas.

In regions with leading economic roles, the rate of immigration will continue at a high level in the foreseeable future. Consequently, rapid urbanization on the regional scale will be coordinated with structural adjustments in the city centers. The extroverted urban structure will contribute to cooperation among different sectors, so that the integral capacity of the whole region can be strengthened.



## 4. CASE 1: HONGQIAO BUSINESS CENTRE

### 4.1. Outline

In the process to hosting its Expo in 2010, Shanghai gained great influence in the media world and improved its infrastructure standards. Based on these achievements, Shanghai's efforts to pursue world city status have since sought to cultivate better life quality in the city instead of having a one-sided emphasis on immediate economic growth. The knowledge economy has been taken as one important development perspective in this economic transition process. Accessibility and life quality for investors and corporations, as well as high-qualified work forces, have gained the attention of decision makers.

The first case study, Hongqiao Business Park, is one of the strategic projects that was undertaken during the preparations for Shanghai Expo. With the aid of the national government, the city government developed a comprehensive Transportation Hub, including an airport, a high speed railway station and a regional coach system, on the basis of the existing Hongqiao airport. With the help of this Hongqiao Transportation Hub, the business park will assume the mission of acting as Shanghai's gateway in connecting with other cities throughout the whole country, as well as those in the adjacent regions in the Yangtze Delta.

With such important goals having been set, the Hongqiao area has been positioned as one of three focus development areas on the city level. (The other two are the Pudong Financial Center and Expo Park.) Its location in the nearby suburban area will also contribute to improving the spatial structure for Shanghai's region.

An international competition with high design standards was started. A German planning office won the first prize and got the following cooperation work with the local national planning office for a concrete design as well as consulting in legal planning establishment.



**Figure 1.** Hongqiao Business Park. (The adjacent area on the right is the Hongqiao Transportation Hub.)

#### ***4.2. Platform for diversified service sectors***

In the suburban area, there were already a series of industrial parks that had been developed nearby. Considering the intensive concurrence of these other business parks, development will be carried out according to a differentiated competition strategy. Hongqiao Business Park will aim to create an attractive business park with high efficiency for different enterprises in the service industry. The development of the Hongqiao Transportation Hub will provide extensive support for this business park, such as investments in infrastructure for the whole area, as well as accessibility from the international, national and regional levels.

According to the decision making for this project, Hongqiao Business Park will strengthen Shanghai's capacity in the field of trade and commerce. The design team has furthermore analyzed the spectrum of different target groups in various service sectors while considering location factors and Expo influences. On the regional level, regionalization in the Yangtze Delta provides great support in this process. Shanghai's location gives it a predominant status in the national railway system. This provides a very positive influence for a business park.

Furthermore, the location of the Hongqiao area in a nearby suburb implies the potential for an attractive environment with relatively low density as attractive characteristics. A mixed-use land use strategy will contribute agglomeration effects among different sectors and contribute to the cultivation of dynamic clusters. Different sectors like logistics, the information service industry, exhibition and tourism, retail, leisure and entertainment, and hotels are taken as representing the primary functions. The proportions of different industry sectors were also ensured through case studies conducted in European cities, like studies of Frankfurt Airport, Hamburg's Hafencity, and so on. In this way, office functions were mixed with public facilities, hotels, culture and entertainment, and conference facilities, as well as with commercial activities.



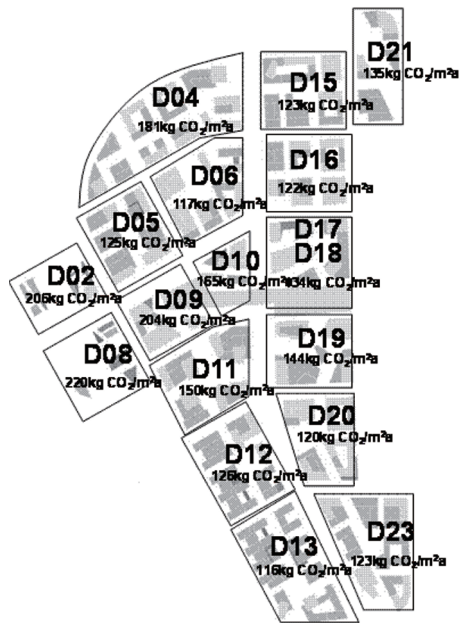
**Figure 2.** Mixed land use plan

At the same time, the cultivation of community identity was emphasized, and the capacity to provide high quality in the production and consumption sectors was developed. Different categories with respective concepts such as liveable environment and attractive atmosphere, social service platform, communication space and high quality of life were also emphasized.

#### ***4.3. Low carbon Business Park***

Except for support in terms of investment and accessibility, one of the most important instruments for the Business Park's development is known as the city marketing strategy. As one of subordinate projects for the Expo, whose slogan was "Better City, Better Life", Hongqiao Business Park is regarded as having been developed with high quality using low carbon technologies and related ecological planning methods.

With technical support from German researchers, the operational standard for low carbon has also been defined. The goals of the Copenhagen criteria were adopted as well as the goal of a reduction of CO<sub>2</sub> emissions by 45% compared with the current Shanghai standards for buildings and compared with the average for mobility.



CO<sub>2</sub> reduction plan in respective plots

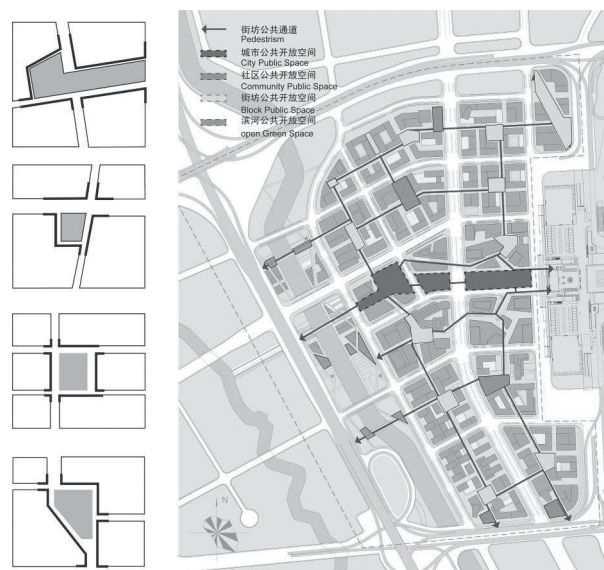


Figure 4. Proposed Bus Lines Plan

At the site of the Business Park, a series of demonstration projects were implemented with low carbon characters. Different technologies in municipal facilities, public transportation, landscaping, and regenerative energy, as well as building techniques, were proposed in this process.

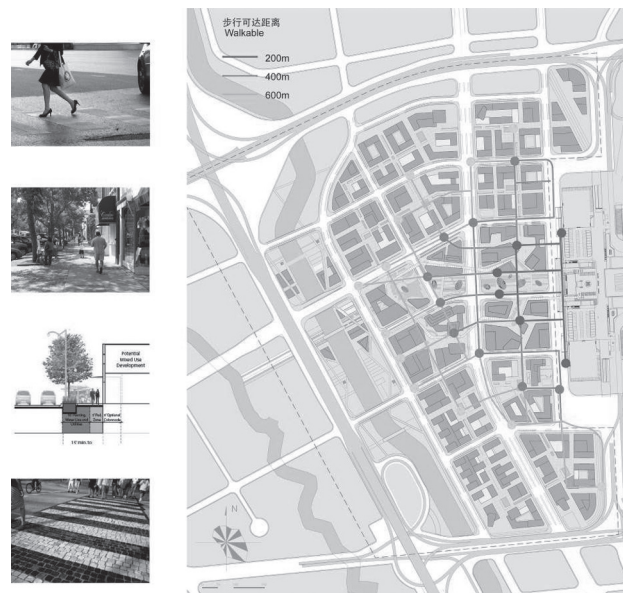
Public transportation will be developed both on the city and quarter levels. A subway system has been developed to connect to the Hongqiao Transportation Hub as well as other areas in the city. A bus line system is to be built to reduce the traffic flow in the whole business park and improve the environmental quality.

In addition to technical aspects, the communication function is also emphasized in the cultivation of public spaces. The spatial structure of the Business Park aims to create continuity in the urban space. The layout of public facilities and traffic lines will also help to cultivate this system. A pedestrian plan for the whole area was taken into serious consideration. In every block, open spaces like squares were connected with each other so that the design concept for the community in terms of strong communication could be realized.



**Figure 5.** Continuity of public space

As a result, a highly qualified urban space will be realized with the aforementioned low carbon techniques. Such instruments have already been discussed in western countries for some time. But because of limited urban development demands, projects in China's urban development have led the way in the implementation of such techniques on a large scale.



**Figure 6.** Pedestrian system in walkable urban space

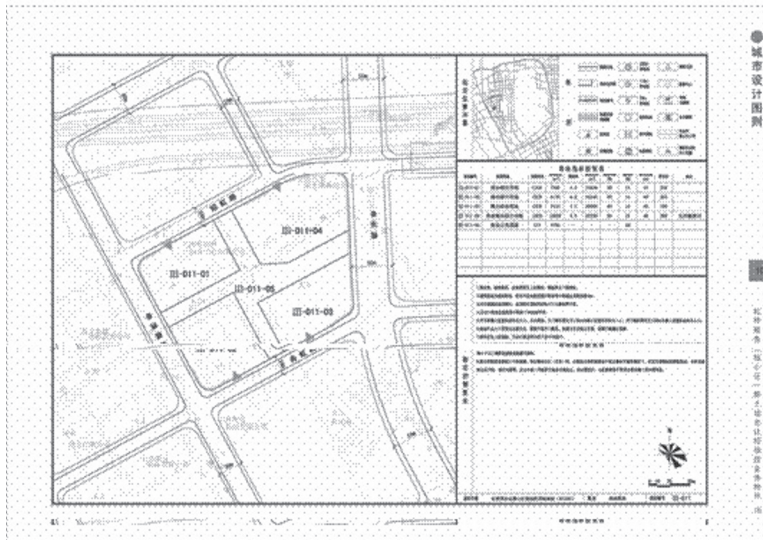
#### ***4.4. Integration into existing institutional frameworks***

In addition to the design efforts aimed at creating attractive urban spaces and utilizing low carbon technologies, one of the most important works has concentrated on solving conflicts between design concepts with integration into existing institutional framework for urban planning practice.

Since Chinese land use patterns still have a strong character of functional division, the idea of mixed-use land cannot easily find corresponding support in the prescriptions of existing land use regulations. The cultivation of public spaces and the continuity of pedestrian systems require strong control efforts from city governments. However, such requirements have not yet gained enough attention on the institutional level for the cultivation of urban space quality.

In this special case, the importance of this strategic project helped to overcome such difficulties. The city government accepted this project as a special case and even allowed the foreign office to take part in the following legal planning establishment, in which the affairs of the latter are normally carried out within public sectors. With the support of decision makers, the foreign planning office then assumed the role of establishing guidelines and participated in the legal planning establishment. Furthermore, such requirements like low carbon technologies and related planning methods were even reflected in the “tender and bidding documents” given to the

developer. The developer was required not only to provide high enough prices in land conveyance, but also to achieve technical standards in a series of criteria relating to low carbon technologies, such as energy savings, among others.



**Figure 7.** Urban design guideline in cooperation with the local planning institute

## 5. CASE 2: STRATEGIC PLANNING ALONG THE HUANGPU RIVER IN MINHANG DISTRICT

### 5.1. Outline

The other case study concerned an area located on the south side of the Hongqiao Transportation Hub and in the near outskirts of Shanghai's city center, such that the areas have good connections with each other. A new development strategy was discussed for one new area with a district scale of about 126 km<sup>2</sup>. This area considered in this case covers one part of the Huangpu River in the new suburb of Shanghai. This part is located in the Minhang District and is more than 26 km in length. This area is located between the Expo Park, which is downstream near the city center, and another area for drinking water conservation, which is located upstream.

After hosting the Expo, Shanghai confronted a series of challenges. The booming period of preparing for the Expo, which involved a great amount of investment, was finished. A lot of new infrastructure and facilities became a reality. However, the problems involved in integrating into

the global economic system, such as a significant rise in property prices and deindustrialization, were also greatly intensified by this process. Moreover, international and national economic conditions have also been troubled as a result of the world financial crisis.

Against this background, the new development policy, which gives substantial attention to social and environmental issues, has been further strengthened by Shanghai's city government. The former development concept in which goal setting was based on GDP has been explicitly negated, and exemplar world cities like London and Paris were analyzed from this new perspective. Finance and commerce sectors obtained privileged status in this process. Creativity and technological innovation capacity have also been greatly emphasized.

In terms of spatial aspects, Shanghai has sought to conduct spatial organization on a regional level. Several key development areas and a development axis are defined as the main drivers of these efforts. Except for the three aforementioned strategic areas, the Huangpu River will be seen as a development corridor for the whole region.



Figure 8. Three focus development areas at the city level

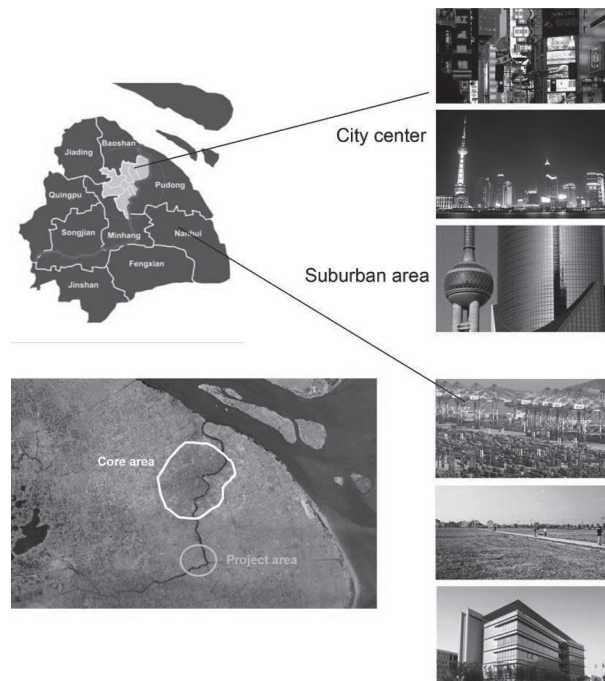


## 5.2. Knowledge-based development concept

Since the efforts to engage in international communication lasted only for several years, the expectations of the city government regarding international economic activity still view that activity as being located in very limited fields for financial and related extroverted sectors or specific high-tech industry sectors. The notion of systematic coordination on the whole city or regional level for integration into the global economic system is just now receiving the attention of decision makers.

Basically, this project focuses on the accessibility and life quality for the urban development of a new city level with a population of over one million and an area of more than 126 km<sup>2</sup>.

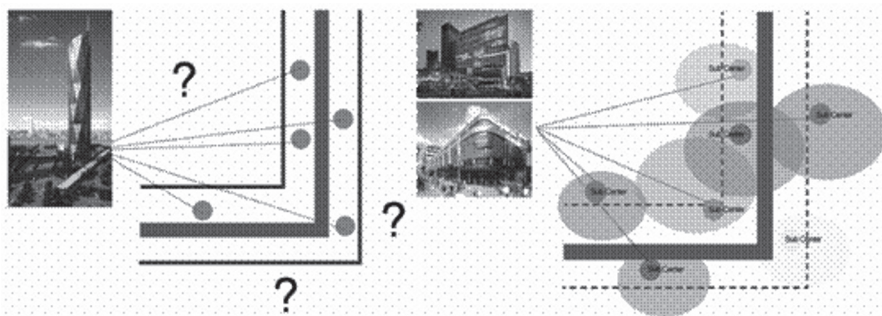
This new area, with its district scale, great science park and high-tech industry, is seen as being central to Shanghai's global city efforts. The accessibility from the Hongqiao Transportation Hub and the cultivation of local spatial quality are seen as interconnected elements. On the regional level, the Huangpu River flows through the planning area and connects different parts in the whole region. E.g., the city center as financial center will take more cooperation with this area for the regional development in fields like R & D and high-tech production, as well as residential functions.



**Figure 9.** Location analysis for regional cooperation

### 5.3. Water front development in cooperation with regional development

From the mission statement, it appears that the limitations of the development concept have been noticed by the city government. The original mission state showed a clear perspective for water front area development with reference to the city center's real estate development. The goal setting has concentrated on creating an attractive urban space along the river side. The local conditions of the study area, which is located in a suburban area and is still in an urbanization stage, have not yet been properly evaluated. At the same time, the mission statement has also allowed enough free space for the urban planner to use international experiences and helpful concepts to show the new direction for the spatial development in this area.



**Figure 10.** Comparison of development relationships between the river side and hinterland areas

For the existing development situation in Minhang district, the manufacturing sectors still hold a dominant place, even as some industry parks are confronting serious problems with regeneration issues and serious critics regarding the environmental pollution and low efficiency incurred by their economic production in comparison with the amount of land they occupy.

With a general understanding of the aforementioned characteristics, the local areas in question are categorized as suburban areas within the Shanghai region, in which there is great potential because of the region's location in the main development corridor as well as the good accessibility it has due to the Hongqiao Transportation Hub.

Since the Huangpu River has a length of over 300 km, the mission of river side development has been transferred from exclusive water front urban design in the city center area to other areas to achieve comprehensive urban development for the city and suburban areas along the whole length of the river.

A dramatic transition in setting of goals from a focus on urban regeneration to regional development is needed. In this regard, the strategic plan has included a development concept of combining the water front development with regional development along the Huangpu River.

Since this river is regarded as the main development axis for Shanghai, the financial center, as a global node located within the city center, is connected with other areas with different divisions of functions and different development standards. The development of city center and Expo Park has already been carried out for several years, but other areas actually remain somewhat neglected in this respect. The city government has not paid enough attention to these areas, but this project has provided some good opportunities to introduce some new concepts to the relevant decision makers.

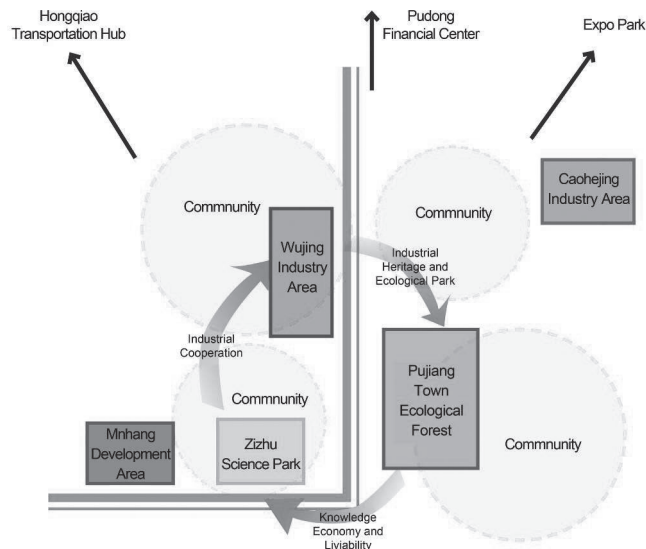
#### ***5.4. Efforts in accessibility and quality cultivation***

In contrast to the first case and its emphasis on implementation, the second case concentrated on establishing goals for an area on the district scale and the related implementation path. Based on an understanding of Shanghai's development over the past 10 years, it can be seen that the process of integration into the global economic system has brought both opportunities and challenges. Against the more and more intense international competition, capacities based on regional clusters have received more attention from planners.

This Minhang Riverside area also provides possibilities for transformation. A large spatial area has located several critically important themes for urban development. There is the successful Zizhu Science Park, which was developed with national support, several universities that are important to Shanghai or even have national reputations, an old industry area with strong centrally planned characteristics, as well as several new great neighborhood areas experiencing rapid population immigration. This area has good accessibility due to the Hongqiao transportation center. Huangpu River also provides an important relationship in terms of connecting with other key areas on the city level such as Expo Park and Pudong financial center.

The main problem for the development in this area is the limitations associated with the relevant development concepts. According to the existing master plan, this area is still seen as a less intensively urbanized area, although it is experiencing a process of rapid urbanization and will not assume the main tasks for Shanghai's economic transformation. The development goals relating to the scale and standards of public facilities reflect its secondary role according to the existing development concepts. This strategic planning aims to change the attitudes of decision makers with persuasive thesis and references for the decision maker.

The concepts of knowledge-based development as well as space-related patterns in economic clusters have been proposed for further development. The whole area is seen as an open community and business park in the broadest context.



**Figure 11.** Knowledge-based development by means of coordination among different clusters

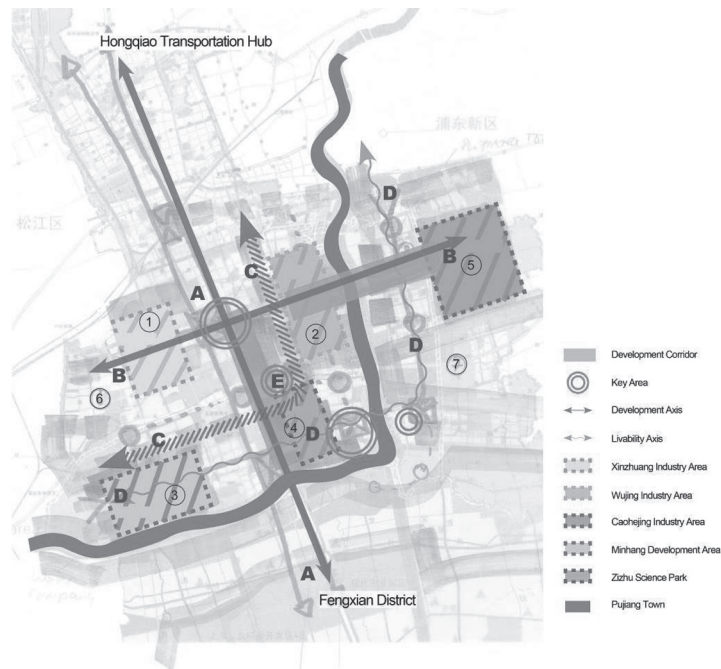
As a reflection of a new spatial organization pattern for the city and local governments, planners have sought to focus on dual roles to enhance the development possibilities for this area: regional accessibility on the international, national and regional levels on one hand, and life quality cultivation on the local level on the other hand. The existing successful Zizhu Science Park and old industry area can contribute to the upgrading process for Shanghai's economic structure by means of cooperation with each other.

In terms of its spatial embodiment, the plan also shows both of these roles in its development concepts. Four development axes are advanced. Two development axes (see axes A and B in Figure 12) contribute to connections within and outside the area, including the Hongqiao Transportation Hub outside as well as the eastern and western parts across the Huangpu River that lie within the area.

At the same time, to solve the existing isolated spatial structure, the other two axes (see axes C and D in Figure 12) are proposed to connect the existing science park and industry areas as well as other local communities such as neighborhood and villages. With references to various European projects, several existing aspects of the infrastructure will be converted for new functions. For example, the space of an existing railway (see axis C in Figure 12) for transporting coal to a power plant will be reserved and developed as a new open space for connecting different parts of the area. Other open spaces between these different parts have also attracted the interests of planners. In order to promote participation among different authorities, investors,

enterprises and local citizens, the layout of public facilities will be allocated along with such open spaces.

The last axis (see axis D in Figure 12) is intended to connect the communities from west to east to ensure their cooperation. Since the western part has already developed lots of industry sectors, the eastern part is experiencing a rapid urbanization process. The new immigrants are both from Shanghai's city center and from other nearby cities throughout the whole region. A well balanced structure between work and residential areas can be developed by strengthening accessibility between the west and east sides.



**Figure 12.** Spatial structure with four development axes

## 6. CONCLUSION

From such cases studies, several experiences can be concluded. Chinese cities with leading roles for the purpose of integrating into the global economy have to assume the need for economic transition to the service sector-based economy. The urban spaces of such cities are experiencing a series of transformations in their development patterns, with an emphasis on the cultivation of quality. The related spatial development will be carried out based on interactions among the

different spatial levels during the globalization process.

In this context, a quality-oriented urban development pattern will not be restricted to a single site but will extend into the regional level with the introduction of knowledge-based economic clusters. The efforts to integrate into the global economy depend greatly on the local areas providing suitable urban spaces for social, economic and ecological requirements.

In the near future, there will be opportunities to systematically implement the experiences of development in western countries over the last 40 years in China's urban transformation process. These new development patterns will not only have flagship projects in separate plots, but will also require systematic coordination on the quarter, district and city levels. And this process will provide a wealth of new opportunities, not only for western architects but also for urban planners.

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