

SHANGHAI'S HUANGPU RIVERBANK REDEVELOPMENT BEYOND WORLD EXPO 2010

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Abstract

Event-led regeneration has become part of a deliberate urban policy strategy to position the host cities on the world agenda. Mega events such as the world expo need different facilities and services for an efficient operation of the expo during those three or six months. Most cities stressed exploring city marketing and reimagining effect of these mega events, like the construction of iconic flagship projects or large scale facilities and infrastructures; however, limited attention has been paid towards the post legacy of the mega-event on host cities' development, like the post-use of the event site, maintenance of event facilities and transferring from event function to urban function. Even less examined is the long-term effect of event-led regeneration on the host cities. Shanghai's Huangpu Riverbank Redevelopment Project used World Expo 2010 as a catalyst to regenerate large industrial sites along Huangpu Riverbank. The questions raised in this paper are: 1) What strategies have been explored to transform the expo sites from temporary event sites to urban districts? 2) to what extent has the expo event facilitated the redevelopment of Huangpu Riverbank? 3) what strategies should be explored to improve current development?

1. Introduction

Event-led regeneration has become part of a deliberate urban policy strategy to position the host cities on the world agenda. Mega-events – such as the Olympics or a World Fair – are large-scale undertakings which are intended to encourage local and regional economic development by attracting investment, tourism and media attention for the host city. Most event host cities stress city marketing and reimagining effect of these mega events, like the construction of iconic flagship projects or large scale facilities and infrastructures. Increasingly host cities see the potential of using expos as catalyst for urban development. However, limited attention has been paid towards the post legacy of the mega-event on host cities' urban development, like the post-use of the event site, maintenance of event facilities and transferring from event function to urban function and the integration of the event site with other surrounding urban area. Even though cities claim that events like expos have positive effect on city promotion, economic development and tourist sector growth, much less attention has been paid toward its long-term sustainable effect of the events on cities.

Shanghai attempted to use World Expo 2010 as a catalyst to regenerate Shanghai's main waterfront along Huangpu Riverbank and enhance its cultural sector. The event self has been considered a big attraction for more than 70 million visitors during its half year operation in 2010. The event also aimed to facilitate the regeneration of large industrial sites into the host city's new cultural and exhibition agglomeration. But what exactly is the post-event urban legacy on the event site and its surrounding areas along Huangpu Riverbank after the event ended in 2010? To examine the post-event legacy of the world expo, the paper will focus the transformation of the event sites, especially the main event sites in Pudong New Area. Besides, the paper attempts to

understand to what extent World Expo event has facilitated the redevelopment of Huangpu Riverbank and incorporate Shanghai's urban vision in this process. The three questions raised in this paper are: 1) What strategies have been explored to transform the expo sites from temporary event sites to urban districts? 2) To what extent has the expo event facilitated the redevelopment of Huangpu Riverbank? If necessary, 3) what strategies should be explored to improve current development? To answer the above questions, the research first analysed the strategies Shanghai explored to integrate Shanghai's urban vision in the preparation of the 2010 World expo and various challenges faced in the implementation process. The paper then critically examined the development of the event site in Pudong New Area and impact of the expo event on the development of Shanghai's Huangpu River bank after the event.

2 Current debate on event-led regeneration and post-event legacy creation

2.1 Event-led regeneration

"Urban regeneration" is concerned as a countermeasure to revitalise the declining cities in North America and Western Europe, where the urban dynamic were influenced by the economic restructuring, the declining traditional industrial cities and the increasing social seclusion (Fraser 2003, p.20). Complete sections of cities were restructured or redeveloped to reinforce urban centrality, mostly from a qualitative perspective, and by strengthening the logic of global activities (Roult and Lefebvre 2013, p.549). Some basic facts can be singled out that drives urban regeneration: The first is the rise of tertiary and knowledge-based activities in former declining industrial sectors located within inner and sub-central city; the second is the need of cities to reinvent their spaces and identities that leads to the physical upgrading of historical parts and the creation of new iconic projects; the third is the increase in real estate value through reinventing urban areas both attracting creative professionals and service industry workers and the often-brutal expulsion of old communities to peripheral areas, resulting gentrifications (Sacco and Blessi 2009, p.1117).

In the last decades, cities in Europe and around the world, especially those industrial-based cities, attached great importance to mega events attempting to develop more positive, cosmopolitan image to "replace a whole series of negative, unfashionable images, in order to attract capital, people in the present period of intensified urban competition" (Harvey 1989). There is an increased awareness that cultural and sport mega events can be a vehicle for some form of urban transformation. Chalkley and Essex identify a general transition in urban development strategies in Olympic host cities from an early emphasis on constructing massive sports facilities and urban infrastructure, to a much broader notion of urban regeneration and restructuring programmes that sees the Olympic Games as a catalyst (Chalkley and Essex 1999). In the case of Barcelona (1992), not only was Barcelona's urban structure modified through the development of four Olympic sites in different types of location (such as a low-income neighbourhood, a declining industrial site and a waterfront area), but many programmes that had already been proposed, such as the creation of public open spaces, the general improvement of public transportation, the opening of the city to the sea, the renovation of the city's cultural infrastructure, the landscaping of squares and the commissioning of new sculptures, could finally be realised. These programmes might otherwise have suffered long delays, or might have been cancelled altogether (Chen 2012a) On the other hand, despite awe-inspiring during the event and international media attention, many of the heavily cost venues, exhibition halls or media centres created or modified for the events later fall into disuse or are used sporadically without generating a profit. Furthermore, as host cities use the opportunity to upgrade the cities' urban structures by developing difficult urban locations, such as brownfield or deprived neighbourhoods, these areas, however, remain

vulnerable urban areas. One major challenge these regenerated sites face is how to transit from temporary event function to urban function and gradually integrate within the urban structures of host cities. Due to the pressing nature of event preparation and planning complexity, it is often difficult for most host city organisers to think beyond the events in any systematic fashion.

2.2 World expos and their post-event legacy to urban development: experience of the EXPO 2000

Among different mega events, International Exhibitions, also called World Expo or short Expo, are a mega event that showcases the latest or future advances in arts, cultures and technology (de Groote 2007: 12). Since the Great Exhibition of London in Crystal Palace in 1851, some 78 international or universal exhibitions have been held in more than 40 cities. During the years, World Expo gradually grew into a complex economic, political and planning events that last for three to six months and receives in the short time span millions of visitors from all over the world. Originally a platform for trade and technology, it later became a fair for cross cultural dialogue and an occurring celebration that showcases the latest platform to reflect government power. Nowadays the World Expos are seen as strong vehicles for nation branding. The nations use outstanding national pavilions to show off innovation and cutting-edge technology. Consequently, in the 19th century “the induced effects on the labour market and on the turnover of shopkeepers and others, which justified an expo’s existence, were often revoked”, while presently an expo is “inevitably accompanied by an ambitious operation of national and regional development, decisive for the life of a region” (de Groote 2005, p.19). De Groote (2005)’s analysis on World Fairs defines different layers of effects: economic effects, scientific and technological effects, image building, social and political effects, infrastructure and urbanisation. He emphasizes that the manifold impacts of the event can both lead to an increase in income and job increase, and at the same time, an increase in prices of real estate, lodging and catering. Among the various expo, the development strategy of Hannover EXPO 2000 is worthy of some further attention. For the first time in the 150-year history of World Expositions, the EXPO 2000 in Hannover made use an existing exhibition complex to prepare the expo. The development strategies and challenges in creating legacy to urban development in Hannover case may shed some light to the analysis of the Shanghai case, which also explored an existing urban area for expo event.

The idea of an EXPO 2000 was initiated in 1987 between the board of Deutsche Messe AG (the responsible company of the Hannover Exhibition Grounds), Lord Mayor Herbert Schmalstieg of Lower Saxony and Finance Minister Brigit Breuel. The major purpose of having a World Expo in Hannover was the modernisation and extension of the Deutsche Fair Grounds 7 kilometres from the city centre, to make it more attractive for the future. A mega event as the World Expo can attract the needed investment. Besides, the city of Hannover wanted to develop and upgrade its infrastructure system and public transportation. The Hannover Region, on the other hand, was keen on developing an innovative information and communication technology (ICT) cluster through the continued use of the EXPO 2000 site (Diez 2003). Hannover was granted the expo host right of 2000 in June 1990. In 1991, the Hannover City Council decided to locate EXPO 2000 in the Hannover Grounds and a huge area east of the fair ground. An advantage of the location choice is that EXPO 2000 could benefit from its existing infrastructure, exhibition halls, and service facility. In 1992 an urban design competition of the expo site was organised to fine tune the master plan of the expo site, resulting in the final version as is illustrated in figure 1. In 1994, EXPO 2000 Hannover GmbH was founded to manage the expo preparation and the development, enhancement, management and exploitation of properties within EXPO 2000 terrain (van de Water 2010: 68). The first construction started in the Kronsberg site in 1996. Around 1000 apartments were built for the employees of EXPO 2000 during the event before putting them in the housing market after the event. The pavilion construction started in 1997. EXPO 2000 opened its door on June 1, 2000, with the motto “Humankind, Nature, technology; a

new world arising”. Hannover EXPO 2000 attempted to demonstrate how major challenges in the 21st century can be addressed in an attractive, factual and entertaining manner. During its half-year opening, EXPO 2000 attracted 155 participating countries and 18.1 million visitors.

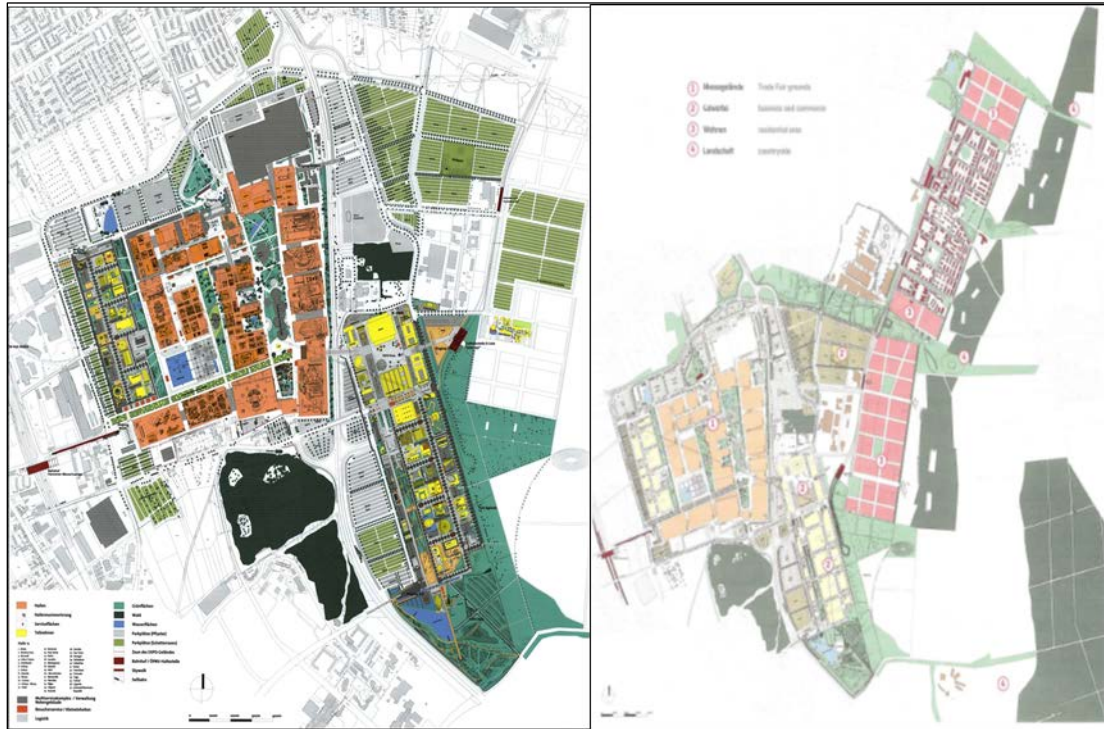


Figure 1 Master Plan of EXPO 2000 Hannover (left) and long-term urban development concept for the Fair Ground and Kronsberg district (right)
(Source: van de Water 2010)

The development of EXPO 2000 has been mainly focused on the realisation of renovating the existing exhibition complex of the Hannover Fair Grounds used for EXPO 2000 and its residential development project of the Kronsberg district – part 3 in figure 2 (van de Water 2010: 60). Although relatively far away from the city centre, the 170-ha EXPO site is still located on the existing exhibition complex of the Hannover Fair Grounds, with only one-third built on greenfield to the east of the fair grounds. For the Exhibition Grounds, the strategy focused mainly on developing new and extended structures and trade halls on the site. This also involved the development of a new ring road and design of green areas and parks on the Exhibition Grounds. The centre area where Expo Plaza and the Eastern Pavilion Area were located were considered to become a quality area for IT and commerce function. The infrastructure, electricity and sewage system prepared for the expo later served new office space in the so-called EXPO PARK Hannover, making the area easy to be adapted as business industry area. The strategy for developing Kronsberg paid special attention to sustainability and the development of an eco-living environment. The 1000 apartments in Phase 1 were completed before the expo. The other 6000 dwellings in Phase 2 and 3 were planned after the expo for potential new demands in housing market. The newly built tram line D connects this neighbourhood with the city centre in maximum 20 minutes travel time. In total, 4 milliard euros has been invested, with most part spent on the modernisation of the Fair Grounds, followed by the investment in the S-bahn and S-line and motorways. Hosting the event also left 2.5 billion debts for the city of Hannover (van de Water 2010, p.139).

After the event, a number of expo exhibition facilities were re-used. Immediately after EXPO 2000, Expo Museum opened on the former Expo Plaza to remember the Expo. The TUI Arena (formerly known as the Preussag Arena) opened in April for ice hockey matches and concerts. 80 percent of the newly developed Eastern Pavilion area was demolished, partly given back to the grassland and other parts closed and functionless. Although some pavilions were sold to investors, they are left there without clear function, such as the Dutch Pavilion. EXPO PARK Hannover was meant for a new centre of information technology, design, media and an art, despite clear vision of the post-use of the area, the reality is less thriving. For the 32 pavilion situated in the eastern Pavilion Area, 11 are in use. Among the 21 pavilion not in use, 11 were relocated elsewhere, 4 had been destroyed and 6 are still being empty, despite the fact that only one out of the six not sold to an investor or project developer. The north side of EXPO PARK Hannover is better in function, with almost all plots sold and actually in use (van de Water 2010: 85-88).

2.3 Main challenges in post-expo urban development legacy

Urban regeneration addresses different temporalities - the present time of social demand, the future time of long-term durability and the past time of heritage preservation and exposition (Roult and Lefebvre 2013, p.549). Event-led urban regeneration undeniably may intensify the challenges, as the existing function, the temporary function and the future urban function of the expo site do not often match each other. Coincidentally in the case of Expo 2000 Hannover, the main urban function of the Fair Ground remains the same before, during and after the exhibition. The fact that the Fair Grounds developed expo on its own land and the new residential area was developed in a greenfield made the development less complicated. Through the EXPO 2000 a number of set goals have been achieved. The Fair Grounds have increased its attractiveness through renovation and upgrading of the exhibition complex. The exhibition area also enjoyed a better environment due to the creation of public space, green areas, new roads, upgraded technical infrastructure and public transportation to connect with the city centre developed during EXPO 2000. For the city of Hannover, it used the opportunity to upgrade the fair grounds and improve its public transportation with a new tram line. Besides, the city realised a new residential district in Kronsberg, by investing in total €400 million. Nevertheless, there is a mixed picture in term of long-term urban development. Although that tourism in Hannover picked up slightly since 2002, the promotion of EXPO 2000 was rather weak in the Hannover case as the marketing effect did not reach even beyond the national border. Consequently, the number of visitors was less than expectation and the improvement of city image was not effective as expected. The Cebit and Messe seem to have less attraction to the IT business, which resulted in limited development made in the wishful new economy and ICT development (van de Water 2010: 81- 83). Van de Water blamed the organisation capacity of EXPO 2000 GmbH and EXPO GmbH, which had no clear responsibility and vision how to implement strategies for post-use period. This fragmentation in achieving long-term goal of the EXPO 2000 reflect the importance how different stakeholders should be incorporated within the governance structure to ensure the development strategies take care of both short-term and long-term. It is perhaps important to develop urban areas using event as a catalyst by combining physical strategy, economic strategy and social-cultural strategy. Focusing on one aspect of the strategies such as physical strategies may be effective to reach short-term goals, such as transforming of a partial urban fabric, or upgrading particular infrastructure system. They are, however, more difficult, to maintain or enhance such achievement in the long term. Furthermore, land ownership, governance structure, leadership and vision may further complicate event-led regeneration process. Not only the key stakeholder involved in the decision making process, but also their resources, capital, land ownership and their vision has big impact on the development process of the event preparation and event legacy development.

In the following section, the development of Shanghai Huangpu Riverbank development using expo as a catalyst will be discussed. In comparison with the Hannover case, the Shanghai 2010 expo is not only located in an existing urban fabric that had different urban function, but also involve diverse stakeholders and complicated land ownership. It is therefore important to see how the Shanghai case deals with difference temporalities in expo-led urban regeneration and what efforts Shanghai made in balancing event purpose and post-event urban development along Huangpu Riverbank. Analysis will be made on the vision, event planning process, adopted development strategy, governance structure that guide the transition and post-event impact on Huangpu Riverbank development. Current positive result and challenges in post-event development will be made on physical, economic, social-cultural as well as governance aspects. The analysis will lead to several attention points for possible improvement strategies.

3 Case study: Shanghai Huangpu Riverbank Development

Aspiring to become a World City, Shanghai has mapped out an ambitious plan to build the city into an international economic, financial and trade centre. Reconstruction of the city's economic structure and urban structure has been important measures to help Shanghai create the (salient) economic scale and comprehensive strength of a world metropolis. The development of Special Economic Zones (SEZs) and high-tech zones in Shanghai helped establish advanced enterprises and attract Foreign Direct Investment (FDI). The launch of Special Economic Zone - Pudong New Area in 1990 on the eastern side of Huangpu River aimed to establish Shanghai's service sector and upgrade its outdated local manufacturing sector with advanced technology in the less-developed urban area of Shanghai. The establishing of large-scale urban (re)development projects, like People's Square redevelopment, the Bund area redevelopment, Hongqiao Business District development, have been strategically in revitalising its former inner city, infrastructure node and urban fringe. Economic reforms, followed by a series of spatial restructuring measures and institutional reforms, helped utilise Shanghai's potential to achieve a double-digit growth for 15 consecutive years since 1992 and has seen the fastest economic growth of any mega city since the early 1990s (Chen 2012b). To accommodate new growth, Shanghai need to look for new urban space for inhabitants, business and tourists and Huangpu River Bank offers such space not far away from the city centre.

3.1 Expo as a catalysis for Huangpu Riverbank Development

The 113-kilometre Huangpu River in Shanghai acts as a lifeline for the city for centuries. Most of the waterfront areas along both banks of Huangpu River developed as a result of the industrialisation of Shanghai and the expansion of local port activities from the late 19th century. The modernisation and expansion of Shanghai's port near the sea, for example at the mouth of the Yangtze River and Hangzhou Bay created the opportunities to redevelop the waterfront of Huangpu Riverbank. Nevertheless, the derelict docklands have posed tough challenges for urban managers and planners as they were in a dilapidated state, with dock, warehouses, old factories, shipping-related facilities as well as residential buildings covering most bank lines along the Huangpu River. An important incentive to transform the vast Huangpu Riverbank from industrial function to urban function was in line with the objective of improving the city's urban environment. What could be more significant was that both banks of Huangpu River could provide new space to accommodate service sector, cultural facilities and housing estate.

The official establishment of the Project Huangpu Riverbank Development was triggered by Shanghai's success in obtaining the host right of 2010 World Expo in 2002. The World Expo 2010, the first of its kind in a developing country, is seen as a new opportunity to facilitate the

development of Shanghai's cultural sector and project Shanghai's cultural and artistic image to the outside world. The theme "Better City, Better Life" depicts Shanghai's vision of its future: a new way of thinking, using new technology, and an innovative approach towards realising a thriving, eco-friendly urban environment. Despite initiative of using a spacious greenfield at the urban fringe in Pudong New Area as expo site, Shanghai was encouraged by Bureau of International Expositions (BIE) to make use of the waterfront along Huangpu River as its expo site, as the location, in the mind of BIE, could best reflect Shanghai's past, present and future development, and fit well its expo theme.

As Shanghai finally decided to choose the Huangpu Riverbank as the expo location, it recognised three important results this location might bring to Shanghai. First, because of expo, Shanghai had the legitimacy to relocate the polluted factories along the Huangpu River to suburban areas and replace with high-quality cultural and service-oriented urban function, which will speed up Shanghai's on-going economic restructuring process. Especially because these state-owned harbour-related enterprises are under the administration of the central government and not necessarily apply to local development plan, a national branding project can provide the right argument to ease the relocation resistance. Second, currently only 3 kilometres out of 41 kilometre waterfront of the Huangpu River can be accessed by the public. The expo may change this situation, attracting more people to the waterfront with new urban function. Third, despite large investment into Pudong New area, Pudong is still much isolated from the busy downtown area in Puxi. The attention towards the expo brought both banks of Huangpu River to the focus and might facilitate Pudong's integration with Puxi.

3.2 Expo preparation and legacy planning

To prepare for the expo site, Shanghai Urban Planning Administrative Bureau organised a series of concept design competition in 2000 and 2001, and finally invited three leading international urban planning and design consultancies to redesign the 41.2 kilometre riverbank line and 91 square kilometre waterfront area along Huangpu Riverbank. A master plan for the waterfront area of Huangpu River was finalised based on the concepts provided by the winning team SOM. The plan further divided Huangpu River Bank into the central part, northern extension and south extension. The central part, as the main focus of the project, begins from Lupu Bridge and ends at Xiangyin Road-Wuzhou DaDao, covering 20 kilometres long riverbank line and an area of 22.6 square kilometres (32.3 square kilometres if including the water territory) (Tang 2012: 9-10). The site will be replaced by modern office, commercial and residential buildings and leisure facilities after the event. Five objectives were defined in the plan:

- functional reform: It aims at moving all docks, factories and warehouses on the banks and building public waterfront open space integrating residence, work, culture, recreation, tourism and other functions.
- environment protection: It aims at treating the industrial pollution and at the same time building greenbelts on both banks to improve biological diversity in the city environment.
- improving life quality and traffic condition. In particular, connection between the city and the waterfront areas should be enhanced and the river bank areas should be pleasant and easy to reach.
- protecting the historical cultural heritages of the city.
- reconstructing the space landscape of the city. Shanghai Huangpu Riverbank Development Group was established to coordinate the waterfront development of both bank of Huangpu River in different urban districts.

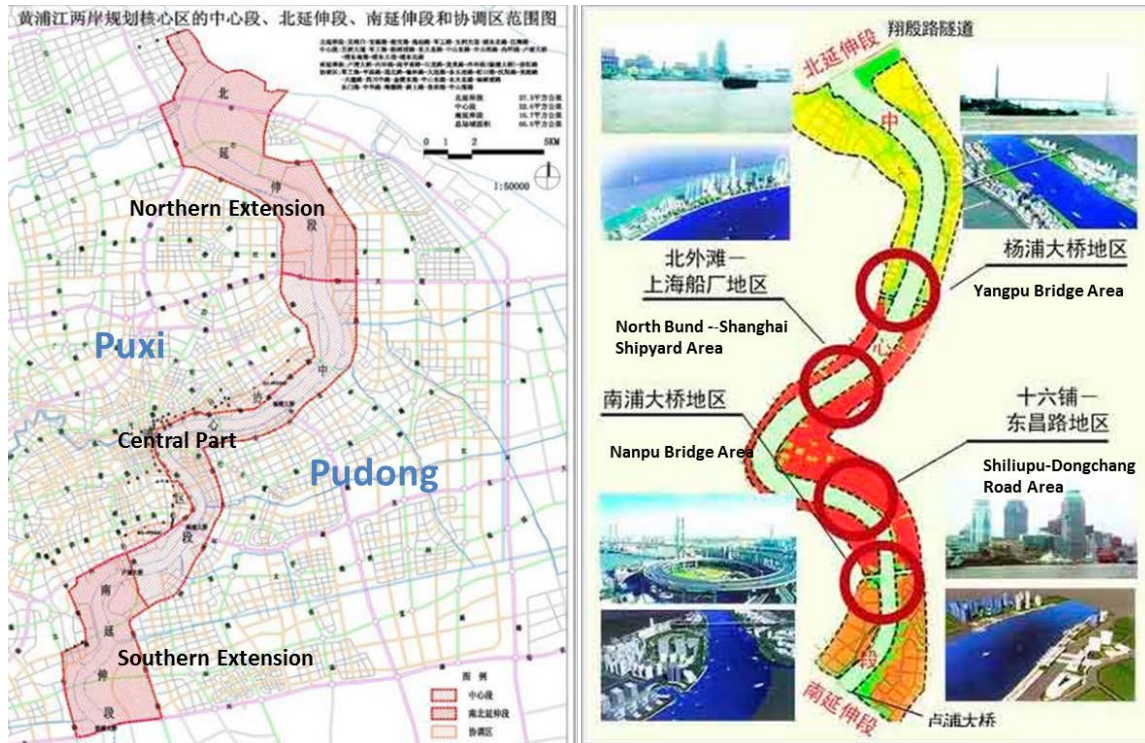


Figure 3. Huangpu Riverbank Redevelopment (left) and core areas in the centre part of Huangpu Riverbank (right)

Within the central part of the Huangpu Riverbank, a total area of 6.68 square kilometres was defined as core areas and would be used to prepare the expo. The core area is further divided into four sub areas to fit in different themes of the expo exhibition and their strategic vision after the expo, as is illustrated in table 1. What need to be highlighted is the development concepts in the four core areas put the integration of both riverbanks as starting point, since the development concepts address both sides of the Huangpu Riverbank. To ensure the expo site and expo facilities being reused after the event, professor Zhiqiang Wu, chief planner of the Shanghai World expo placed urban sustainability as its core concept in planning the expo site (Wu 2009). The focus is post-use of the expo site regarding strategic locations, specific urban functions, as well as sustainable resources. The correspondent strategies include:

- develop for the future of Shanghai and not only for expo. The expo plan is actually a master plan of the expo site that incorporate temporary expo preparation.
- Define permanent building based on Shanghai's urban strategies to avoid demolishing temporary buildings.
- Conservation of historical industrial building from industrial function to cultural and exhibition function
- Combine the development of road system, metro system, other infrastructure facilities, green and public space for the expo with development of Huangpu Riverbank redevelopment to create a new urban centre on the expo site on both sides of Huangpu River.
- apply advanced ecological techniques for recycling water, renewable energy sources at building, district and urban scale.



Figure 4. Shanghai World Expo 2010 venue map

To ensure the urban development strategies allow Shanghai to profit from the expo, Shanghai municipal government's main think tank - Shanghai Development and Reform Research Institute investigated various post-expo effects on Shanghai's development towards a global city, including the development of service sector, cultural sector, knowledge economy, regional integration, low-carbon economy as well as reuse of post-event resource. This research identified that major service sector to be established in the next decades. Furthermore, the research suggests post-event strategies, such as how to make use of land, create new urban function, deal with exhibition pavilions, create waterfront landscape, and complete public facilities (Xiao 2011)

Table 1. Main development concepts for the core areas of the expo site (Ye 2007: 241)

Core areas	Main development concepts
Yangpu Bridge Area	Puxi part: work and residential area Pudong part: yacht pier, transform Yangpu Gas plant to neighbourhood cultural centre
North Bund Area-Shanghai Shipyard	Puxi part: Shanghai Shipping Exchange Centre, business and residential area Pudong part: transform Shanghai Shipyard to Maritime museum, business, office and service apartments, yacht pier, waterfront square and public space along Huangpu Riverbank
Shiliupu-Dongchang Area	Puxi part: Transform Shiliupu ferry centre to water tourism centre, connect old Shanghai neighbourhood with the Bund area, transform warehouse in Dongchang Road to business centre or special market.

Nanpu Bridge Area	Facilitate new sector development with the exhibition centre and expo, develop cultural facilities, transform industrial heritage like Jiangnan Shipyard to cultural or tourist facilities
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Following the above strategies, the master plan of the expo site defines strategic projects in the expo site:

- sites for creative industries, international organisations
- exhibition space, industrial heritage as museum
- international conference centre and public performance centre
- sustainable urban districts
- public green space to improve the urban quality
- cross river tunnel and transportation node

For the whole expo site and each of the key expo facility, the master plan defines not only the basic principle of design but also their post-use as well as strategies for operation and management (Wu 2009: 150-153). The right side of figure 5 shows the newly-built exhibition venues (in red), renovated and reused industrial building (in yellow), preserved (historical) building (in pink) have already been singled out before the expo.



Figure 5. Post-expo master plan and preserved buildings from expo

It is important the activities of expo preparation are coordinated in an effective and efficient way. Even before Shanghai was awarded the host right of expo 2010, Shanghai Municipal government establish a project team in January 2002 to coordinate Shanghai Huangpu Riverbank Development. Shanghai Huangpu Riverbank Development Group was established to coordinate the waterfront development of both bank of Huangpu River in different urban districts. Meanwhile, a public company - Shanghai Shenjiang Riverbank Development and construction Investment (Group) Ltd was established to take charge of land development, finance and construction of the Huangpu Riverbank Development with public aim. Since 2003, the preparation of expo site becomes a new priority. The leading role within the organisational structure is Shanghai 2010 World Expo Executive committee, which consists of representatives from both central government and related 24 committees of the Shanghai government. The Bureau of Shanghai World Expo Coordination was established as a core institute in charge of daily operation and development of Expo area and helps the implementation of the policies of national and Shanghai World Expo Organizing Committee till its tasks ended in 2012 after the expo. The Bureau assigned a chief developer and a chief planner to coordinate the expo preparation. Besides, Expo Land Company was established in January 2004 to take charge of land

expropriation, land development and relocation. Shanghai Shenjiang Riverbank Development and construction Investment (Group) Ltd was then in charge of the Huangpu River Bank except Expo Area, some road building tasks during the expo preparation, and cooperate with the Bureau of Shanghai World Expo.

From the above analysis, what can be concluded is that legacy plan has been closely incorporated since the beginning of expo preparation and expo site plan. The master plan combined Huangpu Riverbank development, expo site preparation and Shanghai's economic and spatial restructuring, aiming at turning the waterfront area of Huangpu River bank into new city centre with high quality office space, housing products, attractive public space and green areas.

3.3 Event preparation and urban transformation of Shanghai

The preparation of event facility began with demolition and relocation of houses and households. In comparison with the Hanover case, where land of the expo site mainly belongs to Deutsche Messe AG, Shanghai's expo site contained 270 existing factories and enterprises, factory dormitories built in the 1970s and various neighbourhoods with property right built in the 1990s and 2000s. They were located in three districts of Pudong, Luwan and Huangpu. Relocating factories and inhabitants had thus become the major tasks before the development of the expo site. After investigation, a group of planners under the leadership of the chief planner defined eight neighbourhoods to be preserved within the expo site. They are included in a coordinating area of 1.4 square kilometres. In this way, 15000 households could avoid relocation. Nevertheless, 18000 households within 5.28-square-kilometre expo site (3.93 square kilometres in Pudong New Area and 1.35 square kilometres in downtown Puxi Area) from the eighteen neighbourhoods still experienced relocation between 2004 and 2010. The signing of the first framework agreements on relocation and construction of the first group of enterprises affected by the China World Expo 2010 Shanghai and the purchase and compensation for the use of State-owned land, and the relocation and resettlement of some residents started in April 2004. On June 9, 2004, *Provision of the Demolition and Relocation of Houses on the Site of China 2012 Shanghai World Expo* was issued to define the scope and application of the relocation procedure and standard for compensation and resettlement for households and enterprises (SMPG 2004). The land and facilities occupied by different parties located within the expo site started its process of relocation from March 2005 (Wu and Dai 2006).

The old factories and cargo handling facilities on the eastern bank of Huangpu River (Pudong) was the first to be relocated. According to the master plan for Shanghai's industrial layout, enterprises under the Jiangnan Shipyard would relocate to the shipyard base on Changxing Island of Baoshan District. Pudong Steel Company would relocate to Luoqing Area of Baoshan District. The status of these state-owned factories and the decision in relocation would be decided eventually in Beijing, no matter the value of land for local development. The Shanghainese insisted the location to be best for expo and won their argument in the end. Despite the agreement of relocation and compensation, the dispute remains how to share the rising profit after the location changes its industrial function to urban purpose. These conflicts were put asides due to the pressure of completing expo site construction, but long before the final resolved solution. This also led to some existing post-legacy plan on hold before and during the expo event. Besides land issue, preservation and transformation of industrial monuments to new functions was another challenge in the expo site development. Besides 20,000 square-metre historical monuments under preservation, 400,000 square-metre-floor-areas, mostly industrial buildings and shipyards were under transformation as event exhibition halls like shipping Industry Museum, Commerce Museum and Energy Museum.

Under the city's plan for "One City and Nine Townships", some residents within the planned World Expo site were to be resettled to Pujiang Township in Minhang District. Sanlinyongtai Garden, the base of relocation and resettlement were completed by the end of October 2005, with most of the relocated residents from Pudong moving into this neighbourhood. In December 2005, another residential community for relocation, Pujiang Expo Garden, was also put into use to received relocated residents from Luwan and Huangpu Districts. Although for most of the households relocation might mean big improvement in living condition and living quality in term of space and facility, the emotional connection to their lost house and neighbourhoods that was difficult to overcome. Furthermore, the new houses are located far away from the city centre and the public transportation system was not well developed in the beginning, which all resulted in discomfort and dissatisfaction towards the relocation process.

For the development of expo site, it was estimated that 18 billion Yuan was spent on event facility and infrastructure, 10.6 billion Yuan¹ for the operation and 24.8 billion Yuan for the expo pavilion (Xinhua News 07-03-2009). The event facilities include four categories. The first one are permanent facility constructed by expo Authority, which will be retained after the event as part of the future facilities of Shanghai, like the 20,000-square-metre China Pavilion, 129,000-square-metre Theme Pavilion, World Expo Centre, 126,000-square-metre Expo Performance Centre, Public Activity Centre, World Expo Museum and Pavilion of Urban Future. The Expo Boulevard is built as the main access to the site, will become a modern commercial corridor as well as tourist attraction. The expo village, on the other hand, was constructed to accommodate officials from participating countries and organisations before turning into a hotel centre with a five-star hotel, 3 budget hotels and more than 20 commercial apartments. Besides, there are 150 pavilion belong to other participant countries, non-government organisations or corporations. Many of these facilities had been designed by world famous architect or design consortium. A number of national pavilions, like the British Pavilion, the so-called Seed Cathedral and the Dutch Pavilion, the so-called Happy street, received various prize for their innovative architecture design. Further, Shanghai subsidised the construction of temporary pavilion for the 50 poorest countries in the world so they could participate the expo.

Besides the expo exhibition facility, heavy investment were made to provide facilities for visitors, pedestrian, landscape as well as infrastructure network for the expo site that are required for post-event use. The three main green areas- Expo Park, Houtan Park and Bailianjing Park –covering an area of 50 football fields in Pudong New Area along the Huangpu River, will form a riverside green corridor. Not only the streets and neighbourhood adjacent to the expo site, but the whole urban zones along main streets within the entire old city were renovated (Wong 2010). Some critics raised the doubts how effective the superficial renovation would be when simply placing false facades on buildings deprived the city of original look of the underlying structures.

Using the expo as a catalyst, Shanghai has invested heavily in upgrading its infrastructure system that is considered crucial to its global economic status. Officially the Shanghai Expo cost \$42 billion to stage, unofficially, the amount will arise to \$58 billion if the infrastructure spending is added. By the time when the expo starts, Shanghai has added five new metro lines, one new airport terminal, and myriad of new road tunnels under the Huangpu River, improved road network and more than several square kilometres of prime urban area ripe for redevelopment (McCabe 2010). Jones Lang LaSalle, the property services firm, estimates infrastructure investments made cut the total cost at \$95bn.

3.4 Post-event Huangpu riverbank development beyond 2010 world expo

¹ 1 Yuan = 0.12 Euro

The duration of the festival, at 184 days, is four times longer than the 2005 World Expo held in Aichi Japan. With more than 200 countries and international organisations had been attracted to participate in the exhibition, the World Expo attracting 73 million domestic and foreign visitors, both event records. At its attendance peak, the expo attracted one million visitors in a single day. The expo put Shanghai under the global media attention and showcased Shanghai as the go-to destination for world leaders, business executives, technology pioneers, celebrities and international as well as domestic tourists. The event organizers are particularly good at promoting business development, city image, face-to-face cultural and informational exchanges between China and the rest of the world. In term of economic development, the expo strengthened regional economic in Shanghai and the Yangtze River Delta area, produced \$3.6 billion expo franchise commodity. Shanghai's retail sale was up 17% in August during the expo and tourism revenue was to exceed \$45 billion by the year end (Balis 2010). A final auditing report of the 2010 Expo suggests the total cost of the expo is 11.96 Yuan and the expo revenue of the expo is 13.01 billion Yuan, resulting a final income of 1.05 billion Yuan. The financial sources come from local government (2.66 billion Yuan), donation from enterprises and societal organisations (2.86 billion Yuan), cultural subsidies (1.2 billion Yuan), expo bonds (5.5 billion Yuan) as well as bank loans (Xu and Yang 2011).

Although Shanghai expo preparation and expo site plan shows high integration of event preparation and post-event legacy creation, the implementation of the post-expo plan was not as smooth as it was expected to be. After the expo, Shanghai's expo site experienced an eight-month demolishing process. For most of the national pavilions, auction for the design and some of the building materials were organised to rebuild these pavilion in other locations. For example, the Swiss Pavilion was auctioned for 7 million Yuan and will be rebuilt in Zhenjiang. The Norwegian Pavilion was donated to Chongqing and will be rebuilt in that city. When the owner of some of the most popular pavilions, like the Italian, French and Saudi Arabian government, wished to donate their pavilion as a gift to the expo host for permanent cultural exchange purpose, the discussion among the academics and in public intensified how to make use of the pavilion after the event in the best way. Besides demolishing all pavilions as BIE request as every expo, can exception can be made to reuse outstanding pavilions. If so, how to transform pavilion with low temporary building standard to acceptable permanent building standard? This discussion has led to the temporary reuse of Saudi Arabic Pavilion, Italian Pavilion as cultural centre. Because the discussion of the fate of a few outstanding pavilions continues, Shanghai Municipality decided to leave a number of pavilions stay as they are in the next five years, till a better idea comes.

The newly-constructed as well as a number of transformed preserved buildings, after some revision, have been transferred to their new owners as is listed in table 2. Except Mercedes-Benz Arena, all the rest buildings make little to no profit, as museums are instructed to open freely to the public. Because of the different ownership and the gates and other barriers around them, these buildings are not well connected with each other or to the public transportation, resulting in limited visitors. The metro stations were closed due to limited passengers, which further weakened the accessibility of these cultural facilities in Pudong. Different ownership also makes it difficult to coordinate the management of the buildings. Furthermore, although the post-expo plan has clearly defined the function of the blocks, the more detailed guidance is still lacking. A similar development can also be found in the exhibition and business area, where 28 regional headquarters will be located in several blocks. However, little coordination has been made to define their architecture feature, urban quality in general or public space in particular. Similarly, many blocks in former expo site in Pudong as well as in Puxi had little coordination but focus eventually on business and office function, which is very similar to the adjacent Lujiazui Financial Centre in Pudong Area. Furthermore, as all urban districts focused only on their own urban blocks. District governments with strong financial background have already developed

their Riverbank, like Xuhui's waterfront, others have difficulty even to start their pilot project due to financial constraints, like Yangpu District. The competition for investment project and investors also present the coordination among the urban districts. Although the development of the urban blocks continue, the integrated concept that connected different parts of the expo sites on both sides of Huangpu River seems to fade away after the cross river ferries stopped their service after the expo.

Table 2. Main preserved buildings and their post-expo ownership

Expo facility	Post expo function	Ownership
China pavilion	China Culture Museum	Propaganda Bureau
Expo Performance centre	Mercedes-Benz Arena	Propaganda Bureau
Expo News Centre	Expo Centre	Shanghai Exhibition Center (Group) Company Limited (SEG), under Government Offices Administration
Expo Theme Exhibition	Shanghai World Expo Exhibition & Conference Centre	Shanghai East Best Convention & Exhibition Management Co., Ltd
Saudi Arabic Pavilion, Italian Pavilion	Saudi Arabic Pavilion, Italian Centre	Expo Development Group
Urban Future Exhibition Hall (former Nanshi Electricity Plant)	Power Station of Art	Propaganda Bureau

4 Conclusions

Urban regeneration addresses different temporalities - the present time of social demand, the future time of long-term durability and the past time of heritage preservation and exposition (Roult and Lefebvre 2013, p.549). Often Expos often cause significant disruptions in the host towns. The interruption is undeniably spatial but also observable in term of economic, social and cultural consequences. In return they receive investment meant for expo purpose that realised the erection of new infrastructure, public space and exhibition buildings that can be adapted to their needs. Most expo sites are located in the greenfield such sites have in the past died a slow death after the exhibition closes, or being completely demolished (de Groote 2005). The case of the Shanghai 2010 expo discussed in this paper has been brave enough to use existing urban tissues and hoped to better integrate with other urban areas of the host city. This research attempted to look for answers of the three questions raised at the beginning of the paper:

1) What strategies have been explored to transform the expo sites from temporary event sites to urban districts?

One important strategy used in the Shanghai 2010 expo preparation is to incorporate legacy plan in expo site plan from the beginning. The expo site plan defines the post-event urban function, public facilities and preservation strategies of historical, transformed and newly-built buildings after the expo. For the long run, the expo plan incorporates Shanghai's economic restructuring by turning a large industrial area into cultural and business districts. This intention is best reflected in the persevered buildings within the expo sites as cultural and exhibition centres, museums. After the expo, the cultural and exhibition function of the area has been strengthened.

2) To what extent has the expo event facilitated the redevelopment of Huangpu Riverbank?

The expo facilitated the development of the key project - Huangpu Riverbank development by delivering a ready-to-develop urban land. It used the expo as a legitimate argument to relocate

hundreds of industrial enterprises and thousands of households, especially the powerful state-owned enterprises. The time constraints of the event obliged involved parties to make compromise before the event for disputed land relocation. Some dispute even put post-event legacy plan on hold, giving the disagreement on the compensation and how to make use of the relocated land after the event. The land value of the waterfront on both sides of Huangpu River has been increased substantially, making them more appealing to private investors after the expo. Furthermore, the expo event left several cultural facilities, which help establish the culture function within the expo site,

3) What strategies should be explored to improve current development?

Post-expo development faces several bottlenecks. The first is the fragmentation of development in different blocks; the second is the similar urban functions different urban blocks aim for in their development plan. The third is lack of coordination among different urban districts. To improve the current development of the expo site and the development of Huangpu Riverbank, it is important to define more nuanced development concept, e.g. making use of expo concept, and secondly strengthen coordination among different urban district administrative bodies.

How host cities balance temporary short-period event purpose and long-term post-event urban development will have significant impact on the long-term development of the host cities. The research suggests that, various factors such as mono functionality, dispute in land ownership, complicated property right, lack of coordination between various stakeholders and government organisations challenged the post-event development of the world expo site. Future urban strategies should not only focus more the development of new urban functions of the event sites, but also pay attention to the integration process of economic functions, social coherence and sustainable re-use of post physical legacy of the event site. Besides, district governments need to coordinate their developing strategies to ensure event sites and its surrounding areas along the Huangpu River Bank develop their own distinctive urban and economic function and become vital integrated urban tissues.

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