

Financing for Urban Development of Shanghai

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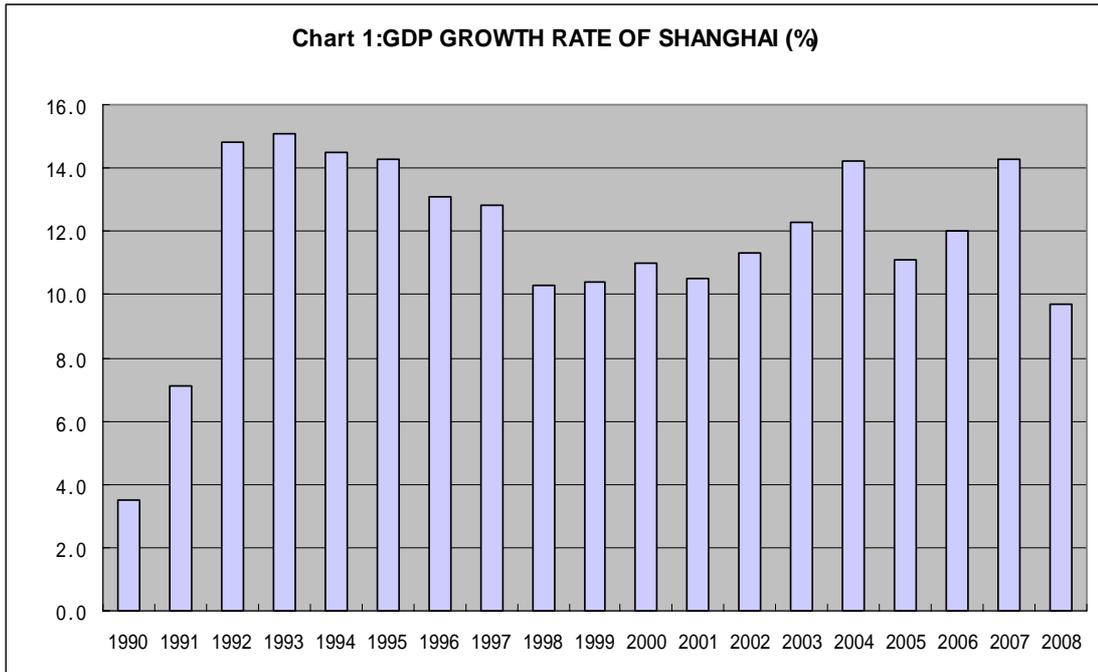
Dr. Li Chen

Senior Economist , Shanghai Municipal Finance Bureau

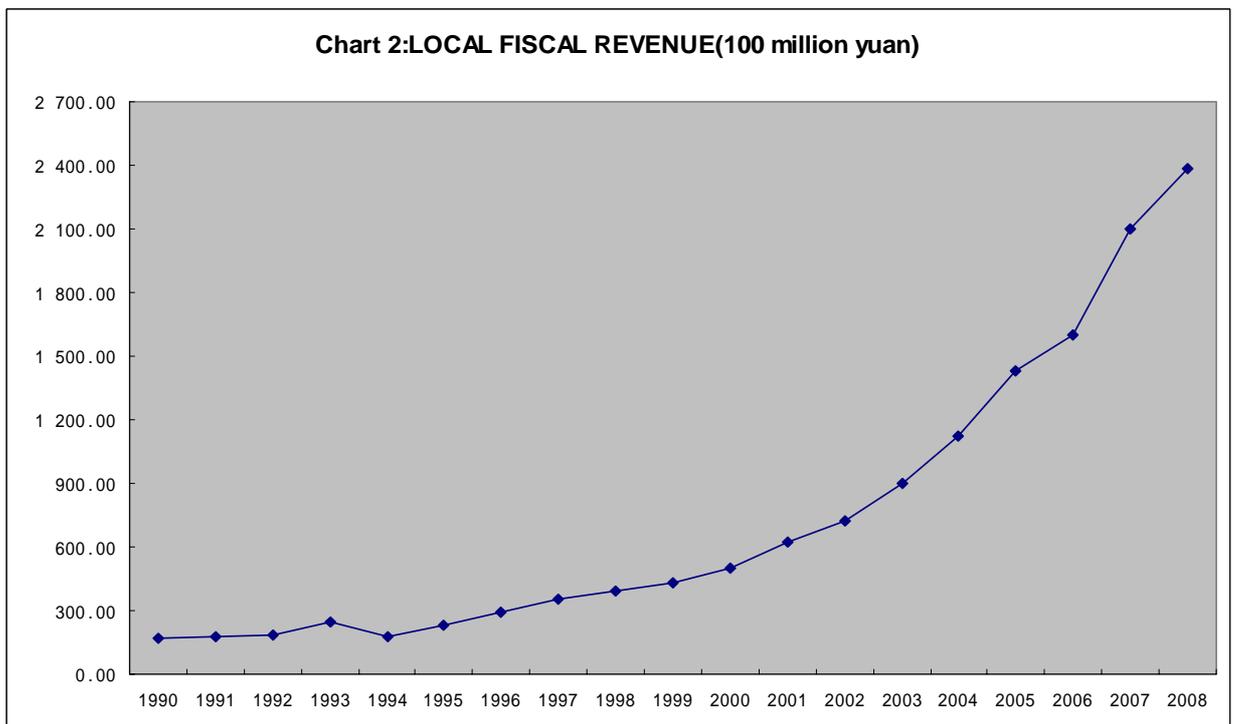
1 Introduction

Shanghai Municipality (Shanghai) lies at the heart of a major metropolitan region of the Yangtze River Delta in eastern China. The Municipality, which comprises the core city and nine suburban districts, covers an area of 6340 km². The metropolitan region has undergone rapid economic and population growth. In 2008, Shanghai was estimated to have 18.9 million residents, and its population is expected to grow to about 24.5 million by 2020. It is the most densely populated city in China.

The Shanghai is China's premier economic, financial, and industrial center. Shanghai's economy maintained double-digit economic growth over the past sixteen consecutive years. In 2008, its GDP reached RMB 1398 billion (US\$201 billion) and GDP growth was 9.7 percent. Its per capita GDP reached RMB73124 (US\$10529), which is the highest among Chinese Provinces. Though the recent global. With the growth of GDP, Shanghai's municipal revenues rose to RMB238.2 billion (US\$34.3 billion), or more than 14 times what they were in 1990. (See Charts 1 and 2.)



Source: Shanghai Statistic Yearbook 2009



Prior to the launch of this modernization drive, Shanghai's development had been hampered by insufficient investment in infrastructure, significant legacy issues and a poor investment climate. In 1990, on a per capita basis, road area was a mere 2.28

square meters; public green area was only 1.02 square meters, and housing space was only 6.6 square meters. Beginning in 1992, Shanghai Municipal Government (SMG) seized the unprecedented opportunity of the development of the new Pudong District on the east side of the Huangpu River. Shanghai addresses its efforts for urban infrastructure development in the past 20 years (see Table 1). Over 80 key projects have been completed, including six bridges and seven tunnels crossing the Huangpu river, connecting the east and west parts of Shanghai; multiple expressways and an urban elevated road network; eight rail transit lines totaling 250 km in length; Hongqiao Airport extension and construction of Pudong International Airport; installation of an integrated sewerage system; water supply facilities upgrading and water resource protection; and large-scale green area development. As a result, by the end of 2008, the per capita road area, public green area and other urban facilities in Shanghai had risen drastically compared with the 2000 (see Table 2).

Table 1 : URBAN INFRASTRUCTURE INVESTMENT

100 million yuan

Year	Total	of which				
		Power Generation	Transportation	Post and Telecommunications	Public Utilities	Civil Construction
1990	47,22	17,53	7,17	2,90	10,83	8,80
1995	273,78	57,33	25,94	53,42	35,03	102,06
2000	449,90	64,61	48,83	68,69	104,43	163,34
2005	885,74	124,22	385,58	58,32	41,33	276,28
2008	1 733,18	129,53	838,91	108,59	112,81	543,34

Note: All items in this table exclude investment in Residential Housing.

Table 2 : LEVEL OF URBAN FACILITIES

Table2 LEVEL OF URBAN FACILITIES IN MAIN YEARS	2000	2007	2008
Per Capita Daily Consumption of Potable Water (liter)	241	253	261
Per Capita Daily Consumption of Water (liter)	114	132	136
Percentage of Population with Access to Tap Water (%)	99,97	99,99	99,99
Per Capita Length of Roads (km)	5,84	11,21	11,39
Per Capita Area of Roads (sq.m)	7,17	16,38	16,64
Length of Sewage Pipelines Per 10 000 Persons (km)	2,86	5,89	6,72
Number of Public Transportation Vehicles Per 10 000 Persons (vehicle)	14,30	12,29	12,52
Number of Taxi Per 10 000 Persons (vehicle)	32,49	35,26	35,05
Per Capita Public Green Areas (sq.m)	4,60	12,01	12,51
Number of Public Lavatories Per 10 000 Persons (unit)	1,67	3,93	4,22

Note: Data in this table is provided by Shanghai Water Authority, Shanghai Municipal Transport and Port Authority, Shanghai Municipal Virescence and Appearance Administration Bureau, and others

2 Sector strategies for Shanghai's urban development

With the coming 2010 World Expo, Shanghai quickens the pace of urban infrastructure construction and is carrying out various measures to improve urban service in an all-round way. Shanghai's sector strategies for urban development, which addressed in Shanghai's Five-Year Plan and "Three-year Action Plan for Environmental Protection", are as follows:

2.1 Water Resources and Water Supply Sector

One of the most pressing challenges in the water sector is insufficient raw water of good quality to meet future demand. With sustained economic and population growth, it is estimated that demand for raw water demand will increase to about 13.6 million m³/day by 2020. The water resource management strategies based on Water Master Plan have three main pillars. First, Shanghai needs to complement its two existing raw water sources (Huangpu River and Yangtze River) with a new raw water source ,Qing Cao Sha Raw Water Project (QCSRWP) located at the estuary of the Yangtze River. It is expected to serve more than half of Shanghai's population. Second, Shanghai plan to connect between existing water sources and the QCSRWP Reservoir System to ensure flexible and secure water supplies throughout the city. Third, Shanghai will complete physical investments with a comprehensive water conservation policy, which could include improved water demand management and further improvements in operational efficiency and water system management.

2.2 Wastewater Sector

With a comprehensive management strategy and supportive investment program, the Wastewater Master Plan has been set out to provide a strategy for the sector to 2020. The sewage treatment rate will reach 80% in urban and suburban town area. The recycling ratio of industrial water consumption will be up to 82%. Centralised sewage treatment, a major approach, will be set up combining with decentralised sewerage system. Sewerage system will be improved for drinking source protection and water environment improvement.

2.3 Solid Waste Sector

Shanghai's solid waste strategy is set out in the Shanghai Solid Waste Disposal and Development Plan are to: (a) change the role of SMG from being a service provider to being a service regulator and facilitator, by transferring responsibility for supplying collection, transportation, treatment and disposal services to district level governments and social capital participation (private) organizations; (b) recover the cost of providing municipal solid waste management services from user charges levied on all waste generators; (c) maintain waste quantities at the 2002 level by implementing a Reduction Recycling and Recovery Strategy supported by source separation of waste. In the meantime, landfill, incineration, bio-treatment and comprehensive utilization will be the facilities for solid waste treatment major options for treating and disposal. Garbage sorting and collection system will be set up together with a waste minimization, recycling and reusing system. The objective is to substantially complete the installation of waste recycling and treatment facilities enabling 85% of household waste hazard-free for the environment.

2.4 Air

While air quality standards are largely being met in suburban Shanghai, suburban growth pressures, and SMG's strong commitment to reducing densities in the core area is leading to a significant and rapid increase in vehicular ownership. This is aggravated by a lag in development of commuter rail and regional bus services to the suburban areas. Shanghai will be the first city to implement the National Automotive Phase IV Standard from Nov 1st 2009, which equals the post-2006 Standard IV in EU countries and is definitely to exert a positive impact on improving air quality during the Expo.

2.5 Urban Livability

The areas within and adjacent to the inner city of Shanghai are characterized by

extremely high densities, overcrowding, poor housing without basic services, and a lack of infrastructure to meet current demands. To improve livability, SMG is regenerating these second-class old style alleys through infrastructure upgrading, revision of land use, and employment generation, particularly in the districts of Hongkou, Huangpu, and Yangpu, which contain large lower-income industrial communities of the former state-owned enterprises. By the 2010, four million square meters of second-class old style alleys in the inner city will have gone through renovation.

3 Urban Financing Sources In Shanghai

Shanghai recognize that investment in urban infrastructure and services is necessary to achieve overall economic and social development. During last 20 years, there are more than 10 financing sources for urban development in Shanghai:

3.1 National Government Grants

National funds for construction approved by the National People ' s Congress at the start of each budget year that are managed by the NDRC; Then NDRC allocate the funds to major projects applied by province (municipal) government. MOF distribute funds to these projects as Grants through province finance department. Such Grants usually are not cover all the cost of projects so municipal governments should also arrange counterpart funds to finance projects.

3.2 National government loans raised from treasure bonds

After Asian crisis in 1997 , MOF approved by the National People's Congress to issued RMB910 billion long term treasure bonds to stimulate investment from 1998-2004. Some of these funds were on-lent to province's projects as 10-15-year loans through Municipal government. These years most projects using funds from treasure bonds in Shanghai focus on environment, agriculture, science and urban development sectors.

3.3 Municipal government funds

Municipal government funds are generally raised from taxes, charges, and fees. At the start of each budget year, Capital expenditure budget which used for urban development should be approved by Municipal People's Congress. Land leasing revenue, vehicle licensing auction fee and other government funds are also major sources for urban financing in Shanghai.

3.4 Local government bonds (Municipal bonds)

The 2009 issue of RMB200 billion local government bonds is part of an active financial policy, aiming at dealing with the global economic crisis and maintaining rapid and stable growth. This is the first time that a local government is allowed to issue bonds approved by the State Council .The bonds will mature in three years and interest will be paid annually. In Shanghai 7.6 billion proceeds are used to reinforce schools and hospitals , build roads, renovate old districts and other urban projects approved by Municipal People's Congress. Local government bonds are clearly becoming an important financial option.

3.5 International assistance

International assistance is provided by the ADB, World Bank, Overseas Economic Cooperation Fund, and developed countries. Shanghai has made good use of loans from these sources to finance such projects as the Shanghai Sewerage Project, the Yangpu Bridge, Metro Line #1 and #2, Shanghai urban environment project , Suzhou Creek rehabilitation project and the Hongqiao International Airport. Apart from getting the funds, international financial institutions and the government have the same broad objectives such as reducing bottlenecks in the urban infrastructure and services sector, and improving people's living standards.

3.6 Tariff and user charges

Governments are reforming pricing in urban infrastructure. Rapid income growth in recent years indicates that urban households can afford to pay increased tariffs and user charges . Tariff and user charges can be a large source of funds and their approval is often within the power of local governments. In Shanghai tariffs in sectors such as water wastewater has been gradually adjusted to appropriate levels .Though it still not high enough to recovery full cost. RMB 10.3 billion has been collected which accounts for 30% of the total investment in urban sewage treatment.

Like all provincial and municipal governments in China, SMG cannot borrow directly from commercial banks or the capital markets. State owned investment companies such as Shanghai Urban Construction Investment Development Corporation (Chengtou) are authorized to engage in raising, utilizing and managing funds for urban construction. For example, Chengtou, which was established in 1992, has raised RMB 200 billion (US\$29 billion) to invest in key bridges, road and rail infrastructure projects. Following sources are undertaken by these State owned investment companies.

3.7 Domestic loans from banks

Commercial banks often provide short-term loans to urban infrastructure projects. It is relatively inexpensive to borrow from banks since the domestic interest rate is low. Domestic banks are looking for investment opportunities under the pressure of increasing savings deposits. Loans are the most common 3-5-year but they are too short to cover the life of most infrastructure facilities. State development banks also provide medium to long-term funding to major projects.

3.8 Corporate bonds

Since 2000, government-owned or controlled enterprises have been allowed to issue corporate bonds to finance infrastructure. Corporate bonds approved by the NDRC are often restricted by a short repayment period, typically three years, with repayment starting in the first year. These corporate bonds have to be invested in fixed asset construction projects approved by the NDRC. Some corporate bonds can be traded in domestic bond market that also included treasury bonds, T-notes, financial bonds, and commercial paper. Most infrastructure projects are not completed within three years or do not quickly generate income, leading project holders to borrow funds elsewhere to pay back the debt. Since 2009, some corporate bonds are allowed to have a longer repayment period 5-10 years, which also can be used as part of capital fund of project.

3.9 Capital markets

State owned investment companies , like Shanghai Chentou , have some holding companies listed in Shanghai Stock Exchanges which engaged in raising funds for urban projects. Shanghai Airport ,Shentong metro,Shanghai Port, Shanghai Shentou and Shanghai shennen etc, all list in Shanghai exchanges which have raised billions of funds to develop the airport ,harbor, water sector , urban rail sector and also electric sector. Mobilizing funds from capital market also improve list company's performance and its institutional development including corporate governor , transparency and accountability.

3.10 Private sector involvement

Shanghai has attracted a large amount of foreign direct investment in early 1990s, but little flows into the urban infrastructure sector. National and municipal governments have made policies to attract overseas and domestic private investors involvement in urban financing. For revenue-generating infrastructure projects, such as expressways,

urban water supply works, wastewater treatment facilities etc., investments have been encouraged and attracted from international partners, domestic enterprises and private investors. Concession contracts, leasing and franchise , joint ventures agreements and other public-private partnerships have been introduced. For example, shifting the operation rights of some toll expressways to social investors, including private domestic and foreign investors, have contributed RMB 44.8 billion to construction expressway network.

3.11 Other funds

As the financial center in China, both bank , other financial institutions and government investment companies are encouraged to initiate new approaches for urban financing, including mid-term commercial paper, short –term bank trust co-financing , insurance fund, special infrastructure funds for specific sectors and District Financing Vehicle. For example, Qing Cao Sha Raw Water Project, whose total investment is RMB16 billion, have attract RMB2 billion insurance fund. Another case is Pudong Water Works, which sales out 50% assets to a French investor, VEOLIA, which successfully introduced external investment of RMB 2.03 billion.

4 Case study

4.1 Case study 1---- Shanghai Laogang Municipal Solid Waste

Landfill project

Shanghai Laogang Municipal Solid Waste Landfill is situated in the eastern part of Laogang township in Nanhui district, about 60 km from the Shanghai city center. The project covers an area up to 6.5 square kilometers. It was upgraded and the capacity increased from 3,750 to about 6,000 tons/day, accounting more than 70% for the city's garbage output. The component included civil works for landfill extension, including installation of facilities for leachate collection and treatment, landfill gas collection and flaring, equipment for landfill operations, and transport vehicles. It is currently Asia's largest solid waste landfill.

Total investment of project is RMB 629 million. On behalf of Shanghai government, Shanghai Sanitation Bureau tendered out Laogang Phase 4 Project internationally in 2003 for the design, construction, operation & transfer. The Consortium led by Veolia Environment Group (local partner is Shanghai Chengtou), won the project. The concession period is 20 years and guaranteed minimum waste supply is 3500tpd. Structure of Funding included Joint Venture Registered Capital (RMB170 million), World Bank Loan (US\$33 million), and local bank loan (RMB107 million).

4.2 Case study 2 ---Urban financing in Waste water sector

The Suzhou Creek, with 53.1 km of its total course of 125 km falling within Shanghai's municipal boundaries, is an important aboveground water body for the city. In the process of industrialization and population growth, the creek is murky and foul-smelling year-round. Starting in 1988, Shanghai took a series of measures to clean up and protect its water environment. A conservative estimated addressed in Three-year Action Plan for Environmental Protection , over RMB23.8 billion has been invested in these water-related activities in last 20 years. Following sources have been used to fund these investments:

First, the government made investment through its investment companies, which amounted to about 30% of the total investment needed. Second, Shanghai got USD 731 million loans form World Bank and the Asian Development Bank. For instance, the Suzhou Creek rehabilitation project was completed with a USD160 million-loan from ADB. Third, a cost recovery mechanism was put in place. Shanghai took the lead in the country to charge a fee for wastewater discharge in 1996. The principle is "polluter pay and treatment plants get paid". So far RMB10.3 billion has been collected, most of which are used to invest in urban sewage treatment. Forth, loans from the State Development Bank and domestic commercial banks also contribute a lot for the projects. Fifth, Shanghai Chengtuo issued corporate bonds, which raised RMB 1.5 billion. Sixth, BOT and other types of PPP modes were also introduced to attract non-government capital. For example, Shanghai Zhuyuan No.1 WWTP, which raised RMB670 million from domestic investor in 2002, is the biggest BOT wastewater project with a treatment capacity of 1.7 million cubic meters per day (advanced primary treatment) in China up till now.

5 Lessons and Experiences in Urban Financing

With the persisting efforts for the reform practice of urban financing so many years, Shanghai has basically realized that only we change the government's role into improving the matching-up laws and regulations, formulating the planning, building the financing environment and fostering the main investors, can we deepen the urban financing mechanism reform. In the reform practice, the main lessons and experiences Shanghai got in urban financing are as following:

5.1 Strengthening regulatory mechanisms of urban infrastructure

investment

Strengthening the regulating mechanism of urban infrastructure investment will improve investment performance, reduce risks, and increase funding sources. Since 2004 afterwards, National Government intensified regulating urban development via a series of policy paper as the Measure on Public Utilities Concession Management (No.126 Policy Paper of the MOC, 2004), the Decision on the Reform of Investment Institutions (No.20 Policy Paper of the State Council, 2004), the Opinions on Strengthening Regulation of Public Utilities (No.154 Policy Paper of the MOC, 2005). SMG also stipulate regulations to strengthen supervision, management, the coordination and comprehensive service for the social investors, and to increases the transparency and stability of the policies. The government protects the investor's equity and also requires the investors to take their responsibilities in respect of asset safety, service standards, price and charge, and information disclosure, etc. A well-established regulation framework, such as the selection of concessionaire, cost regulation, performance regulation, information regulation and etc is important. A sound legal framework for urban development, including the specific reform policies and supporting policies as land policy, institutional reform policy of governmental undertakings, financing policies, and etc is also necessary for shanghai further development.

5.2 Setting up a sustainable urban development master plan

Shanghai realized that a stable and sustainable master plan for urban infrastructure development, in line with the overall city development strategy, will be benefit for urban financing. Shanghai's Five-Year Plan for Economic and Social development, Five- year plan for urban development and “Three-year Action Plan for Environmental Protection” etc made it more transparency for all parties involving in urban financing. Good plans are the prerequisite for the infrastructure project to produce its utmost benefits. The quality of the plans of the infrastructures in Shanghai has been increased by introducing advanced international concepts through the international competitive bidding procedure. For example, Shanghai has invited the international consultancies in the formulation of the plans of the city's rapid rail way transportation network and the plan of the development of two sides of the Huangpu River.

5.3 Diversifying financing sources

As mentioned before, though there are more than 10 sources available for urban financing, loan from different parties still are the main stream. Shanghai has rationalized debt financing for urban development by effectively controlling associated risks. For a developing country, it is extremely important to control the scale of borrowing, as fiscal revenue may otherwise be insufficient for debt servicing. This is one of the primary reasons Shanghai has looked to the market for direct investment in infrastructure facilities. The use of Government grants has generated private sector interest in urban sectors. Although some BOT arrangements or other PPP such as service contracts, leasing and franchise, are often expensive, they bring in the necessary funds and also help develop the local economy, as about 40 percent of capital investment is converted into salary and consumer goods. PPP can also tap financial resources like private savings, foreign loans, foreign direct investments, and others not usually available to governments. Shanghai also find out that government financing, supported by international or bi-lateral funds, is competitive for social sector and long term investments; it does not require private equity participation, therefore the overall cost of the financing contributes to a better "tariff's affordability"; and public financing can more taken into account of public interests, social, cultural, environmental and economic sustainability.

5.4 Conciliating social acceptability and economics stability in tariffs

Although over past 20 years Shanghai has increased tariffs in sectors as water and wastewater many times over from virtually zero to appropriate levels, tariffs still not high enough to recovery full cost. Shanghai realized these tariff increases have occurred during a period when Shanghai enjoyed double digit GDP growth and major increases in household incomes in most years, which mean final users are affordability and willingness to pay. In the meantime, higher user charges and lower government subsidies mean that local governments have more funds available for other priorities, such as health, education, social services and public infrastructure that must be financed by government.

Shanghai also realized that the governmental responsibilities such as providing all residents living there (both rich and poor) basic services and a good environment to live can't be imputed to others via any model of PPP constructions. It is risky to establish a payment mechanism only relying on the increase of tariff, in that sense, the payment obligation is shifted to the resident at last which may result in many social problems. Government should conciliate social acceptability and economics stability.

For instance, the subsidy policies of Shanghai Government, in which the government bears the necessary prophase investment (about USD 30 million) and provides lands to the operator of free charge, are one of the major reasons bringing out the lowest bidding cost of Shanghai Zhuyuan WWTP projects; making the local water tariff rate at a stable level

5.5 Allocating reasonable risk to the appropriate parties

PPP projects often rely on risk allocation to deliver the expected benefits in terms of improved efficiency and performance. PPPs are in theory expected to unleash the efficiencies of the private sector and deliver social and environmental benefits subject to the effective allocation of operating and political risks to the parties best placed to minimize and manage such risk (ADB, 2000).

Shanghai has introduced PPP in urban financing for almost 20 years. One experience or lessons we got is that a successful financing project is based on a risk and profit breakdown for each of the partners (the government, the private sector and other stakeholders) , in accordance with the principle of financial and economic balance. In the early stages in projects, such as Pudong Water Works, government guaranteed investors a specific rate of return, and used other sources of income to supplement direct user tariffs. Now, government guarantees have been greatly reduced and initiate allocating reasonable risk to the appropriate parties. Basic technical and financial risks tend to be transferred on to the private sector; demand and price related risks should be split between the various partners in accordance with expected level of benefit; risks due to the changing external conditions such as natural disasters, political breakdowns, financial crisis, cannot in reality be transferred to the private partner. Some of these risks may be covered by guarantee organizations.

6 Conclusions

It is difficult to make an overall assessment for the practices of Shanghai urban financing due to urban service covered a board area. Different counties and cities have their own social, cultural, environmental and economic situation. However the empirical evidences above have indicated some positive results coming from Shanghai practices of urban financing: 1) the adapted institutional, legal and financial frameworks as well as the accountability and regulatory procedures is basis for urban financing 2) Developing funding channels worthwhile urban development master plan

and projects [PVI] is the key to solving the funding shortage 3) Funding channels can be developed by strengthening existing funds such as loans and corporate bonds, and by developing new instruments such as local government bonds and infrastructure investment funds. 4) Government can't fully withdraw from public service management although they can transfer some responsibilities as investment, construction, operation and management to private operators via various forms of PPP. An appropriate risk allocation can improve efficiency and service quality.

At present, Shanghai is actively making preparations for the World Exposition 2010. The city will take this opportunity to balance well the development of economy, population, resources and environment and achieve the goal of sustainable development. Shanghai has confirmed its commitment to building a "harmonious society" by hosting the World Expo 2010: Better City, Better Life, whose main theme is environmentally sustainable urbanization.

Box 1: Shanghai EXPO 2010: "Better City, Better Life"

Expo 2010 will be held in Shanghai from May 1 until October 30, 2010. The main theme of the Expo is "Better City, Better Life," The theme "urbanization" addresses the concerns of many developed and less developed countries, given estimates that more than 55 percent of the population will be living in urban areas by 2010.

Shanghai aims to display and share information on its social, economic, cultural, scientific and technological achievements for countries around the world. The city expects 200 countries and international organizations to take part in exhibitions and 70 million people to visit. EXPO 2010 will support the vision of a "harmonious city" in China's 11th Five-Year Plan. Shanghai intends to illustrate the harmony between men and nature, and between past and future.

(Source: <http://en.expo2010china.com/expo/expoenglish/oe/es/index.html>)