

# **COMMUNICATION CONSTRUCTION & ITS FUND RAISING OF SHANGHAI INTERNATIONAL METROPOLIS**

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**Abstract:** The article describes the development concept of global, regional and urban communication from the point of strategic target to build Shanghai into an international metropolis, as well its multi-way to raise funding.

## **A. THE EXISTING STATUS OF SHANGHAI COMMUNICATION CONSTRUCTION AND THE URBAN DEVELOPMENTAL TARGETS**

### **1. Briefing On Construction Of Shanghai Traffic Facilities In 90's**

The opening-up and developing Pudong has brought a great social and economic evolution in Shanghai, as well big progress in urban development. The city has made giant strides and reap rich fruits in public transportation.

a) For the past 5 years, the investment is accumulated 142.8 billion yuan in urban infrastructure, equal to 7 times as that in 1980's. Great progress has been made in city transportation.

b) Yangpu Bridge, Xupu Bridge, Fengpu Bridge, Inner Ring Viaduct Road, North-south Elevated road, West Section and East Section of Yan An Elevated Road, and Yan An Road Due-tunnel, and the surface main road system are completed in the central city. The network frame of vertical transportation is forming gradually in Shanghai.

c) As far as mass transit, No.1 subway is open to traffic, No.2 and No.3 subways are under construction now.

d) Hongqiao International Airport is being extended, Pudong International Airport is being built, the first phase of which will be finished and be put into operation by October, 1999.

e) Constructing of Waigaoqiao Deeper Water Port, dredging of the channel at the Chang Jiang Estuary are being done in a planned way. The handling capacity of Shanghai Port is 160 million tons in 1997, of which, the one in container is around 2.5 million containers.

f) Shanghai-Nanjing Express Highway is put into operation, Shanghai-Hangzhou Express Highway is under construction in full swing now.

g) The transport facilities of railway is improved. The speed per hour for the existing lines of Hu-Ning and Hu-Hang has been accelerated, the trips from Shanghai to Nanjing and Hangzhou saved up to 3 and 1.5 hours. The express railway of Shanghai-

Beijing is put on the agenda. The construction and development of transportation facilities support and promote the economic growth of Shanghai.

However, the facilities still can't satisfy the fast development demand of Shanghai to be an international city. 1) Increasing vehicles -- Shanghai now has 500,000 vehicles, 500,000 motor-aided bicycles and 7 million bikes. These have exerted great pressure upon road transportation and lowered the average speed. Traffic congestion and shortage of parking space have happened in the central area of the city; 2) Unformed track network -- The trip ratio of bus to bike is 4:6 in Shanghai; the structure of passenger transportation is unreasonable; 3) Over 1.3 billion person trip of the air passenger volume in 1997 -- The volume has exceeded the design capacity of Hongqiao Air Port; 4) No deep-water channel to the sea -- giant ships come and go to Shanghai relying on tide level; the capacity of deep-water wharves is not enough, which hampers the further development of international container shipping; 5) Unformed fast external access for railway -- Pudong has no railway access. The layout of railway hub is not quite rational.

## **2. Construction Targets Of The City Planning**

In line with the city master plan facing towards 21 century, Shanghai will be built into a biggest economic city of China, and become one of the international economic, financial, trade centers; as well one of the international navigation centers. Following the developmental experiences of international metropolises in the world, our city wants to be an international economic, financial and trade center, we must have modernized transportation facilities as her support and must become a global - integrated transportation hub.

## **B. CONCEPT OF THE DEVELOPMENT & PLANNING OF SHANGHAI URBAN TRANSPORTATION AS WELL ITS FUNDING**

### **1. Overall Targets Of Development Of Transportation Plan**

- a) In line with the strategic targets to establish a comprehensive transportation system of an international metropolis, the important target for Shanghai transportation development is to build the city into an international transportation information center and an international navigation center, so as to make the exchange of goods, personal and information smoothly, which support the sustainable development of the city economy.
- b) Advanced regional network of express highway and railway should be built to enhance the terminal and radiate function of Shanghai economic center.
- c) City transport means should be utilized scientifically. Its distribution should be arranged reasonably and linked organically. The facilities should be built coordinately, and its management should be intelligent to meet the development needs of the city.
- d) Modernized transportation facilities should be built, and its management institution

and rules should be set up so as to form a comprehensive, grade and global transportation system with safety, quickness, convenience and comfort.

## **2. Development Framework Of Global Communication**

The international economic center should be supported by financial, trade and navigation center. The exchange of personal, goods and information will be carried out through airport, sea port and information port.

a) Shanghai air port will be built into an air gateway of China to the world, an international hub, as well an international passenger and goods transportation center. Shanghai is the communication hub of Asia Pacific Region. She has an advanced location, which has strong competition and terminal function. In the short term, the facilities of Hongqiao International Airport should be improved, the construction of Pudong International Airport should be speeded up. By the year of 2005, passenger volume will reach 20 million person trip per year, and gradually reach 70 million person trip per year. Pudong Airport will be taken as main port and Hongqiao Airport done as auxiliary one so as to form a combined air hub, which will become one of biggest airports of Asia Pacific Region to satisfy the demand of Shanghai air transportation, it will be an important mark for our international metropolis.

b) Construction of Shanghai deep-water port is the basic condition to be an international navigation center for the city. Relocating the port from inner city along the Huang Pu River to outer city along the Chang Jiang River and the East China Sea is the only way to develop the port. In the short term, construction of the deep-water quays in Shanghai Port should be speeded, harnessing of the channel at the Chang Jiang Estuary should be pushed forward, and container shipping should be spread. In the middle and long term, the objective is to build Shanghai International Navigation Center to conform to the tendency towards international container shipping, transportation line should be opened up to reach the handling capacity of over 10 million containers per year. New locations should be selected for deep-water port around the sea area in the vicinity of Shanghai as a strategic basis for sustained development of the port. The advantage of the city and its hinterland should be played fully, and combine further develop industries and service function related to the port.

c) Construction of Shanghai information port is the key to realize the function of international economic central city. 21st century is the time with information. Development of scientific technology makes the development of society, economy and culture be closely linked with information. The developmental target for Shanghai information port is to build some spine networks such as the express information way and hub connecting with the world information network, a transmission platform with high-speed and large capacity covering the whole city and interning domestically and abroad, as well satellite transmission network, inter network and scientific information network.

### **3. Developmental Concept Of Regional Communication**

- a) Shanghai is biggest economic city of China, which is a bridge and ties linking up with the world. Her transit and radial location makes her become a head of the Chang Jiang Valley. And the function of the central city is played dependent on advanced regional communication. Its developmental concept focuses on forming a network of express railway and highways.
- b) Shanghai railway hub should be strengthened and the construction of express railway should be speeded up so as to improve the capacity of transportation. By the year 2000, the express railway of Beijing - Nanjing - Shanghai with the speed of over 250 km/h will be put into operation, and the express railway of Shanghai - Hangzhou - Guangzhou is planned to be built so that passenger transportation between Shanghai and other cities or city groups will have a fast, efficient and comfortable one, which will be a means of concentrating and dispersing city functions.
- c) Fast road system should be planned to be built in Shanghai. A fast road system of three ring and ten radiate roads will be formed within the area of 6340 sq.km. so as to link Pudong with Pi Xi, and link the central city with new towns as well the Chang Jiang Delta and the whole country. Three ring roads are consisted of inner ring road, outer ring road and outlying ring road. Ten radiate roads are expressways radiated from the central city to national highways, Hu-Jia, Hu-Ning, Hu-Hang express ways and etc.. The common section of fast road is 60 meters green belt + 50 meters red line + 60 meters green belt in the respect of plan and design with the speed of over 80 km/h. The whole fast roads constitute a organic network, radiating from Shanghai to hinterland of the Chang Jiang Valley to connect our national highway network so as to promote the development of society, economy and city-towns of Shanghai as well coastal regions.

### **4. Developmental Framework Of Urban Traffic**

An urban traffic network is planned for 21st century of the city, i.e. mass transit as her main transport means, elevated cross-ring road, three west-east and three north-south artery roads.

- a) Eleven subway lines with the total length of 340 km and 10 light track lines with the total length of 110 km are planned to be built for mass transit. Consideration on linkage should be fully given to those locations of terminals and stops so as to form a transit network;
- b) Besides the existing river-crossing projects such as the bridges and the tunnels, more projects over and under the Huang Pu River will be built to connect the road net system of the whole city.
- c) Construction of Material Exchange Center and Transferring Terminal should be speeded up so as to establish reasonable transference both for materials and personal, to build public parking facilities step by step.
- d) Study on urban transportation system and 'smart' management should be

strengthened. The strategy on priority to bus should be implemented. The layout of the bus routes should be improved reasonably. The complete service function on passenger and goods transportation should be improved.

e) The target for vehicle volume is set to 1.5 - 2 million.

## **5. Funding Methodology Of Communication Construction**

To build an urban comprehensive traffic system of a modern international metropolis demands much investment. Many developed countries have carried out the policy of inclining towards and aiding the traffic facilities in the process of economic development and modernization, such as adding more investment. Shanghai is now in the period of fast growth and in the process of transferring planning economy to socialist market economy. The way to raise fund for traffic facilities should be shifted from the government only to multi-ways.

a) To make more investment by the government. The central and local governments should incline towards investing in major traffic projects, which should be given first priority to large backbone infrastructure and public facilities. For example, to construct of deep-water port and harness the channel at the estuary of the Chang Jiang River, to build Pu Dong International Airport and express railway.

b) To establish traffic development foundation. Exclusive fund should be set aside for traffic development in City Construction Foundation. Paid-use of traffic facilities should be practised so as to roll the development. Thus, traffic construction will have a long stable funding source.

c) To introduce domestic funds and compensate preferentially. Central government departments and provincial enterprises should be encouraged to make a joint-investment in building railways, highways, ports and airports. And the development of related industries should be followed up so as to take the comprehensive revenues as repayment of the investment.

d) To issue bonds, form listed companies and raise social funds. For example, Pudong Bond was used in the prior traffic infrastructure projects.

e) To lease and redevelop land. The revenues can be gained in the redevelopment of the area.

f) To take the loans from international financial organization. For example, the loans with low interest provided by World Bank, Asia Development Bank were used to build two bridges over the Huang Pu River and the viaduct inner ring road.

g) To use the loans on favorable terms provided by foreign governments in large traffic projects of Shanghai.

h) To introduce foreign investment through the general international way of building - operating - transferring. For example, the operating rights of the Huang Pu Bridges and the tunnel have been transferred with payment, and the money can be again used in other traffic construction.

i) To encourage overseas and domestic investors to make a joint-investment in railway,

highway, sea port and airport, as well related modernized transportation facilities.

j) To use foreign and domestic loans to build transportation facilities such as highways, bridges and tunnels; and to levy tolls on them to pay back the loans and roll developing new projects.