

Chapter 4 Development of Supporting Industries by Upgrading Industrial Structure

Growth of small and medium-sized cities is largely depending on their industrial development. Industrial structure in China is said to be monoculture depended with low applicability, and consisting with mostly small scale enterprises with low level of technology. Those characteristics of small and medium-sized cities in China become restrictions to constrain the growth of them. The growth of small and medium-sized cities will be achieved only through the upgrading of industrial structure. This chapter focuses on development of international standards and conformance infrastructure as a breakthrough to achieve the upgrading of industrial structure.

4.1 Consideration on Upgrading of Industrial Structure

Upgrading of industries means whether those industries are competitive enough in the world market. It means neither ignoring traditional industries nor pursuing high-tech industries. And it means neither neglecting small and medium-sized enterprises, nor supporting large scale enterprises.

The international division of labor has progressed so far in the world economy and regardless of traditional industries and small and medium-sized industries, they are required to be competitive enough to cope with the demand of international market. In this environment, the competitiveness of a company is a key issue to up-grade the industries.

4.1.1 Upgrading of Industries: Review of Traditional Consideration

Traditionally, industrial structures have been considered and divided as follows;

Primary Industry: Agriculture, Fishery and Forestry.

Secondary Industry: Manufacturing and Mining.

Tertiary Industry: Service Industries such as Finance, Real Estate, Hotel etc.

Based on these concepts, the upgrading of industrial structure has been considered the transformation from primary to secondary and tertiary industry.

The review of industrial structure in China following the traditional definition of industrial upgrading is as follows;

(1) Conversion from Primary Industry to Manufacturing Industries

The following figure is showing the transformation of industrial structure in China from 1980 to 1999. In the past twenty years, high economic growth rate was achieved through the high-growth of the manufacturing industries which includes manufacturing & mining industries and the service industries. The share of primary industry, which is labor oriented industries, shows a decrease from 30.1% as of 1980 to 17.3% as of 1999. Instead, the manufacturing industries' share maintained the level of slightly less than 50%.

(2) Advancement of sub-sectors within Manufacturing Industries in China

In the Secondary Industry, the transformation from traditional industries to machinery and electric and electronic industries can be observed. Here the traditional industries include such as textile and coal industries and natural resource based industries such as steel industry. The reason of this is that the government of China is considering the difficulty of controlling the production volume based on market demand (excess equipment, excess human resources and excess inventories problem could easily happen in those industries). They have doubt whether such industries could be a core industry for the future under the volatile condition of their profitability. On the other hand the government started to focus on high-value added and high-tech industries, such as information related and electronic industries, could be core industries to lead the country.

Table 1 GDP Composition in China

Year	GDP Total		Primary Industry			Secondary Industry			(Manufacturing Only)			Tertiary Industry		
	Yuan	y to y	Yuan	y to y	Share	Yuan	y to y	Share	Yuan	y to y	Share	Yuan	y to y	Share
	100Mil.	(%)	100Mil.	(%)	(%)	100Mil.	(%)	(%)	100Mil.	(%)	(%)	100Mil.	(%)	(%)
1980	4,517		1,359		30.1	2,192		48.5	1,997		44.2	966		21.4
1985	8,965		2,542		28.4	3,867		43.1	3,449		38.5	2,556		28.5
1990	18,548		5,017		27.0	7,717		41.6	6,858		37.0	5,814		31.3
1995	58,478	10.5	11,993	5.0	20.5	28,538	13.9	48.8	24,718	14.0	42.3	17,947	8.4	30.7
1996	67,885	9.6	13,844	5.1	20.4	33,613	12.1	49.5	29,083	12.5	42.8	20,428	7.9	30.1
1997	74,463	8.8	14,211	3.5	19.1	37,223	10.5	50.0	32,412	11.3	43.5	23,029	9.1	30.9
1998	78,345	7.8	14,552	3.5	18.6	38,692	8.9	49.4	33,388	8.9	42.6	25,174	8.3	32.1
1999	82,054	7.1	14,212	2.8	17.3	40,807	8.1	49.7	35,357	8.5	43.1	27,036	7.5	32.9

Source: "China Information Handbook in 2000", Mitsubishi Sooken

Table 2 Trend of Major Industrial Products

Major Products	Unit	1992	y to y	1993	y to y	1994	y to y	1995	y to y	1996	y to y	1997	y to y	1998	y to y	1999	y to y
			(%)		(%)		(%)		(%)		(%)		(%)		(%)		(%)
Coal	100Mil. ton	11.2	2.7	11.5	3.0	12.4	7.8	13.6	9.8	14.0	2.6	13.7	-1.7	12.5	-8.8	10.5	-16.0
Crude Oil	10 Thou. ton	14,210.0	0.8	14,524.0	2.2	14,608.0	0.6	15,005.0	2.7	15,733.0	4.9	16,074.0	2.2	16,100.0	0.2	16,000.0	-0.6
Natural Gas	100Mil. m ³	157.9	1.9	167.7	6.2	175.6	4.7	179.5	2.2	201.1	12.0	227.0	21.9	232.8	2.6	252.0	8.2
Electric Generation	100Mil. KWh	7,539.0	11.3	8,395.0	11.4	9,281.0	10.6	10,070.0	8.5	10,813.0	7.4	11,356.0	5.0	11,670.0	2.8	12,393.0	6.2
Chemical Fertilizer	10 Thou. ton	2,047.9	3.5	1,956.3	-4.5	2,272.8	16.2	2,548.1	12.1	2,809.0	10.2	2,821.0	0.4	3,010.0	6.7	3,251.0	8.0
Iron	10 Thou. ton	8,094.0	14.0	8,956.0	10.6	9,261.0	3.4	9,536.0	3.0	10,124.0	6.2	10,894.0	7.6	11,559.0	6.1	12,426.0	7.5
Steel	10 Thou. ton	6,697.0	18.8	7,716.0	15.2	8,428.0	9.2	8,980.0	6.5	9,538.0	4.0	9,979.0	6.9	10,738.0	7.6	12,057.0	12.3
Cement	10 Thou. ton	30,822.0	22.0	36,788.0	19.4	42,118.0	14.5	47,561.0	12.9	49,119.0	3.3	51,174.0	4.2	53,600.0	4.7	57,300.0	6.9
Construction Machinery	10 Thou.	22.9	39.5	26.2	14.6	20.7	-21.2	20.3	-1.5	17.7	-12.8	18.7	5.1	11.9	-36.1	-	-
Cloth	100Mil. Meter	190.7	5.0	203.0	6.5	211.3	4.1	240.2	23.1	209.1	-19.6	248.8	19.0	241.0	-3.1	250.0	3.7
Synthetic Fiber	10 Thou. ton	213.0	11.5	237.4	11.4	280.3	18.1	341.2	21.7	375.5	10.0	471.6	25.6	510.0	8.1	600.0	17.6
Pulp	10 Thou. ton	1,725.0	16.6	1,914.0	11.0	2,138.0	11.7	2,812.0	31.5	2,638.0	-6.2	2,733.0	3.6	2,126.0	-22.2	2,159.0	1.6
Sugar	10 Thou. ton	829.0	29.5	771.0	-7.0	592.0	-23.2	559.0	-5.6	640.0	14.5	703.0	9.8	826.0	17.5	861.0	4.2
Synthetic Detergent	10 Thou. ton	166.6	14.0	188.3	13.0	217.0	15.5	299.8	37.8	262.2	-12.5	279.9	-1.9	280.3	0.1	284.9	1.6
Bicycle	10 Thou.	4,083.6	11.1	4,149.6	1.6	4,364.9	5.2	4,472.3	2.5	3,361.2	-24.8	2,999.3	-10.7	2,312.5	-22.9	2,397.6	3.7
Automobile	10 Thou.	106.7	49.4	129.9	21.7	136.7	5.3	145.3	6.3	147.5	1.5	158.3	7.3	163.0	3.0	185.0	13.5
Refrigerator	10 Thou.	485.8	3.4	596.7	22.8	768.1	28.7	918.5	19.6	979.7	6.7	1,044.4	6.6	1,060.0	1.5	1,210.0	14.1
TV	10 Thou.	2,867.8	6.6	3,033.0	5.8	3,283.3	8.3	3,496.2	6.5	3,541.8	1.3	3,637.2	2.7	4,280.9	17.7	-	-
Color TV	10 Thou.	1,333.1	10.6	1,435.8	7.7	1,689.2	17.6	2,057.7	21.8	2,537.6	23.3	2,711.3	6.8	3,497.0	29.0	4,262.0	21.9
Washing Machine	10 Thou.	707.9	3.0	895.9	26.6	1,094.2	22.1	948.4	-13.3	1,074.7	13.3	1,254.5	16.7	1,207.3	-3.7	1,342.2	2.9
Camera	10 Thou.	526.5	10.1	1,930.5	226.7	2,830.0	46.6	3,326.2	17.5	4,120.8	23.9	4,686.8	13.7	5,521.9	17.8	-	-
Mobile Telecommunication	10 Thou.							1,213.1		1,142.4	-5.8	1,441.3	26.2	2,215.2	53.7	3,203.0	44.6
Personal Computer	10 Thou.							83.6		138.8	66.1	206.6	48.8	291.4	41.1	405.0	39.0

Source: "China Information Handbook, 2000", Mitsubishi Sooken

Here, the industrial structure of China is analyzed based on GDP base, and transitions from primary to secondary and to tertiary industries is exactly showing the upgrading of industrial structure. It may be explained that upgrading of industries has already been achieved, however, this fact is not enough to conclude the Chinese economy is internationally competitive.

4.1.2 Linkage between International Competitiveness and Upgrading of Industries

If we analyze the China economy based on traditional definition, it can be said that upgrading of industrial structures has been achieved already. Does such analysis show the real situation of China economy? High level of technologies and IT development are only means or resources. It would be misunderstanding if development of those industries will be considered as base of upgrading of industries. In summary, upgrading of industries means that each industry could have world level

of competitive power.

To achieve such world level of competitiveness, it would be very important for each industry to have world level of factors, such as Design, Function, Quality, Price competitiveness, marketing skill. In addition to have such world level of competitiveness, another important factor for the industries is whether provided products (including agricultural products) and service are matched to the demands from the consumers (including companies and individuals). To satisfy such requirements to be competitive and to respond to the consumers, the issue of conformance to the international standards will be crucially important to compete in the world market.

To develop industries of China, it is important to consider the way to have world level of competitiveness for Chinese products and service. This consideration is important to compete with foreign companies invested in China. This competition can not be avoided in any way. To achieve this goal, Government of China decided to be a WTO member. The Government of China began to have policy to challenge the upgrading of industries by using requirements of WTO as external pressure.

4.2 Fundamental Factors to Support Upgrading of Industrial Structures

4.2.1 System Development

The China government is strongly committing the change of regimes, looking for the membership of WTO. In addition to such regime change, improvement of hard infrastructure, soft infrastructure (like infrastructure of standards and conformance), natural resources, well talented human resources etc. would be important to up-grade the industries. To achieve it, it would be necessary to invest long time and large amount. To achieve it efficiently, it would be necessary to define concrete sectors which are based on regional competitive advantages and proper character.

Just before to be a member of WTO, central and local governments are in the process of changing trade and foreign direct investments related regimes. Governmental administration have responsibilities to inform those policies and plan to

the industries transparently. From the companies side, It can be pointed out the importance of preparation to such regime change to increase their competitiveness.

4.2.2 Market Consolidation

To up-grade the industrial structure, the companies need to establish the institutional structure which could absorb the justify market demand, such as technological, functional requirements. In this context, the companies are also required to evaluate the short/medium term volume demand of the market.

In order to consider the strategy, the companies need to study the way of advancement about production ability improvement (volume/time), technology improvement(quality assurance structure and it's ability to demonstrate on the conformance on international standards) and sales ability improvement based on above information from the market.

4.2.3 Supporting Industries

Supporting industries are well-developed in China, especially in small and medium-cities in Jiangsu Province the weight of supporting industries is huge. Most of enterprises in supporting industries are small in scale and are belonging to traditional industries and they work as a base for manufacturing industrial structure. Without the support of supporting industries, regardless of any manufacturing industries such as those of traditional industry and high-tech industry, the the industry will not grow. In other words, without having such supporting industries the constructive development can not be expected in large scale industries, such as automobile, home appliances and electronic products.

If we take an example of South East Asian countries, they have a bottleneck of having poor supporting industry developments. This is one of main reason of permanent balance of payment deficit. Therefore, the reason of financial crisis in that region could have roots in their Industrial structures. For the development of supporting industries, it is necessary to accumulate well talented technical peoples. Their problem became more serious due to lacking of such accumulated well talented

technical peoples in Thailand.

On the other hand, Jiangsu Province holds a number of such well talented technical people in their supporting industry. However, they are also facing some of the problems such as regarding low technical level and quality control. Through the upgrading of industrial structure, the supporting industry in Jiangsu Province should be developed as an important industry base within China and to the world.

In order to respond to the market requirements from the world market, supporting industries usually consider the following type of plan.

- 1) For lack of technical factors: Try to improve such technical factors through association or royalty contracts with foreign companies as first step.
- 2) To save cost and management of Inventories: Try to outsource in the market.
- 3) To improve sales ability: Try to sell to foreign companies in China until the companies will have ability to sell to overseas market directly

Through these challenges, the companies will try to advance their ability of technology, cost reduction and sales skill improvement.

The upgrading of industries could be achieved through these challenges of Foreign Companies, State-owned Companies, Collective-owned Industry, and Individually Owned Industry, adding to the expansion of supporting Industries. In this report, the above (1) central and local government's role is described in the part of One Stop Center. Regarding (2) market, part of Standards and Conformance explains the contents of market requirements. About (3) supporting industries, key issue is China government's policy to facilitate the activities of foreign companies based on WTO requirements. Therefore, it is explained in the part of WTO related explanation part.

By having above stated strategies, upgrading would be challenged on technologies, cost reduction, sales skill etc. The upgrading of industries in the region could be achieved by the development and expansion of industrial base through improvement of abilities of foreign companies, state owned companies, collective-owned companies and individually owned companies. This improvement could be achieved by mutual efforts of those companies' brisk activities.

4.3 China's Entrance into WTO and the Importance of Standards and Conformance Infrastructure

4.3.1 Effects to be a Member of WTO: Merits and Demerits

Table 3 Merit and Demerits to Enter WTO from the Viewpoints of China

Issues	Concrete Effects
Merit for China	1) PRC will be able to have unconditional access to WTO member countries for trade and will be able to have stable MFN(most favourite nation) treatment.
	2) China will have possibility to get GSP tax treatment in case China will have successful negotiation.
	3) China will be able to utilise WTO mechanism to protect fair rights when some trade conflicts occurs.
	4) PRC will have stable bargaining power for trade negotiation through the participation of multilateral trade negotiation.
Issues to be cleared to be a member of WTO	1)There could be a damage to certain industries. a) Up to now certain protection mechanism has been worked by import volume control for machines and electric products.The competition will be increased due to increase of import products.Also,there is a possibility of cost increase due to strengthened intellectual property of cost increase due to strengthened intellectual property rights. b) Petrochemical sector also will get some negative effects since they have been supported by low oil price.
	2) Reduction of import tariff=competition with import products Actually, 22.2% is average import tariff in PRC. After being a member of WTO,PRC will have to decrease to 17% level.
	3) Opening of Service Sector
	4) Transparency increase for commercial practice and trade policy
	5) Strength protection of intellectual property rights.
	6) Facilitate and relax the foreign direct investments and will recognise their legal status as local companies

Source:Trade and Tariff.Feb.2000

As stated above, there are huge merits to be a member of WTO. However, there are also heavy tasks to clear, like increasing competition with Import products due to market opening and transparency increase. This situation could be recognized as chances to up-grade the industrial structure with other huge benefits of membership of WTO which could contribute to the development of China economy In long term.

4.3.2 Effects to the Individual Industries with the Results of Bilateral Negotiations

Taking an example of the bilateral negotiation with USA, it can be evaluated some effects for the individual industries by being a member of WTO. The followings are result of agreements between China and USA. From these results, it can be pointed out the necessity to up-grade the industries through certain challenges to increase the competitiveness, which would be described in this report. The tariff and non-tariff barriers in the electric and electronic industries will be eliminated eventually.

The upgrading of industrial structure could be achieved by certain competitive advantages that China holds, such as rich natural resources, well-talented human resources, liberalized distribution and service industries once industries will have right directions. However, it should be recognized the heavy duties exist to achieve it.

Table 4 Contents of Bilateral Agreement Between China and USA as of Nov.15.1999.

Issue	Related Sector	Agreements
Tariff Issue	Automobile	* For finished automobile, tariff will be reduced from actual 80-100% to 25% until 2006
		* For autoparts also, tariff will be reduced to 25% until 2006
	Electric and electronic products	Tariff elimination for computer, telecom-equipment, IC, computer equipment and other high-tech products
Non-Tariff Barrier	China will eliminate all the non-tariff barriers after being a member of WTO. Almost all the import volume control will be eliminated within two to three years after being a member of WTO	
Service	Banking and Securities Business	* China will permit the entrance of foreign capital non banks in the auto-loan sector.
		* China will eliminate regional control for foreign banks within five years of WTO membership.
	Electric and telecommunication	* China will permit foreign capital to invest up to 49% on these sectors immediately after WTO membership.
		* China will permit up to 50% within two years after WTO membership.
	Distribution	* China will eliminate the barrier in the wholesale & retail business within three years after WTO membership.
		* China will permit the free circulation of foreign countries' made products without Chinese intermediaries.
		* China will eliminate the rights of trade to specific designated companies within three years after WTO membership.

Source: "Trade and Tariff", Jan. 2000

Table 5 The List of Counterpart Countries of Bilateral Negotiation

O = agreed								
No	Country	Agreed	No	Country	Agreed	No	Country	Agreed
1	Japan	O	13	Chile	O	25	Malaysia	
2	U.S.A.	O	14	EU		26	Argentina	
3	Hungary	O	15	Canada	O	27	Kirghiz	
4	Pakistan	O	16	Norway		28	Uruguay	
5	Turkey	O	17	Switzerland		29	Guatemala	
6	Singapore	O	18	Brazil		30	Peru	
7	Indonesia	O	19	India		31	Morocco	
8	New Zealand	O	20	Colombia		32	Ecuador	
9	Czecho	O	21	Venezuela		33	Mexico	
10	Slovakia	O	22	Netherland		34	Cuba	
11	Korea	O	23	Philippines		35	Thailand	
12	Australia	O	24	Sri Lanka		36	Mongol	

Source: "Tradeand Tariff", Jan.2000

4.4 WTO/TBT Agreement and the System of Standards and Conformance

4.4.1 What is Standards and Conformance

The purpose of a national standards and conformance infrastructure is to provide a system and a technical basis for everyday economic activities which include orderly commerce, national and international trade, technical harmony between manufacturers, and governmental regulatory activities. Fundamental to the achievement of this is an effective infrastructure for physical measurement, standards writing, testing, trade measurement, competency assessment and compliance certification.

The standards and conformance infrastructure facilitates the efficiency and competitiveness of a nation's industry. It contributes to economic performance by providing a common ground for members of a community to express volumes, quantities and technical characteristics of objects such as goods, services and systems. A highly respected and efficient standards and conformance infrastructure is a vital element in achieving international credibility and competing with the world's best.

The development of standards and conformance infrastructure is now an international consensus as stated in the WTO/TBT (Technical Barriers to Trade) Agreement. The member countries of WTO agreed to promote a harmonized

international standards and conformity system. The basic objective of this agreement is to achieve production efficiency and trade facilitation.

Some of the contents of this WTO/TBT Agreement are stated as follows;

Article 1:

General Information about TBT Agreement, such as the meaning of compulsory and voluntary standards and areas which cover this TBT Agreement.

Article 2:

Implementation of compulsory standards by a central government and its application.

Article 3:

Implementation of compulsory standards by local governments and its application.

Article 4:

Implementation of voluntary standards and its application.

Article 5:

Conformity assessment system by a central government.

Article 5 stipulates that each country should see it that the established rules on the conformity assessment system would not become unnecessary non-tariff barriers to trade. Therefore, rules on conformity assessment should be flexible and assure the same treatment of other WTO member countries' conformity assessment systems.

4.4.2 The Importance of Achievement of Technical Credibility

The Standards and Conformance System should be supported by technical credibility. The chain of technical credibility (or traceability) of the measurement equipment used in the industries should be assured to international standards through activities of calibration and testing. The technical credibility level of those measurement equipment could be represented by the deviation of calibration results, which is called 'uncertainties'. Normally the products' quality is checked in the process of production and before the distribution. The measurement equipment used in such production process and final check should be calibrated periodically in the

third parties laboratories, which are accredited by the national accreditation scheme. Those accredited calibration laboratories are maintaining secondary standards and compare the measurement equipment from industries with their maintained standards. Such secondary standards should be compared with the national standards which are normally held by National Metrology Institute, such as NIST in the US and NRLM and ETL in Japan. Each country's national metrology institute is normally presenting their standards for inter-comparison with other national metrology institutes to make sure their technical credibility each other. As a result, the chain of technical credibility could be assured by those periodical and continuous inter-comparisons from industries to international market place.

The underlying demand that the standards and conformance and its technical credibility becomes a critical issues are because of the following conditions;

(1) Upgrading of Industrial Technology

By recent rapid development of industrial technology, industries became demanding on the accurate measurement. It became necessary to respond to such demands in the societies. From the industrial policy point of view, necessity to support technical base of industries by providing wide range of industrial standards became strong to improve the industrial competitiveness.

(2) Development of Internationalization and Globalization

ISO/IEC are working to develop internationally-accepted rules to make free trade environment which is essential condition to abolish barriers on trade other than tax and quota issues. This free trade environment is quite important based on the facts that economic activities are expanding their production base and trade area.

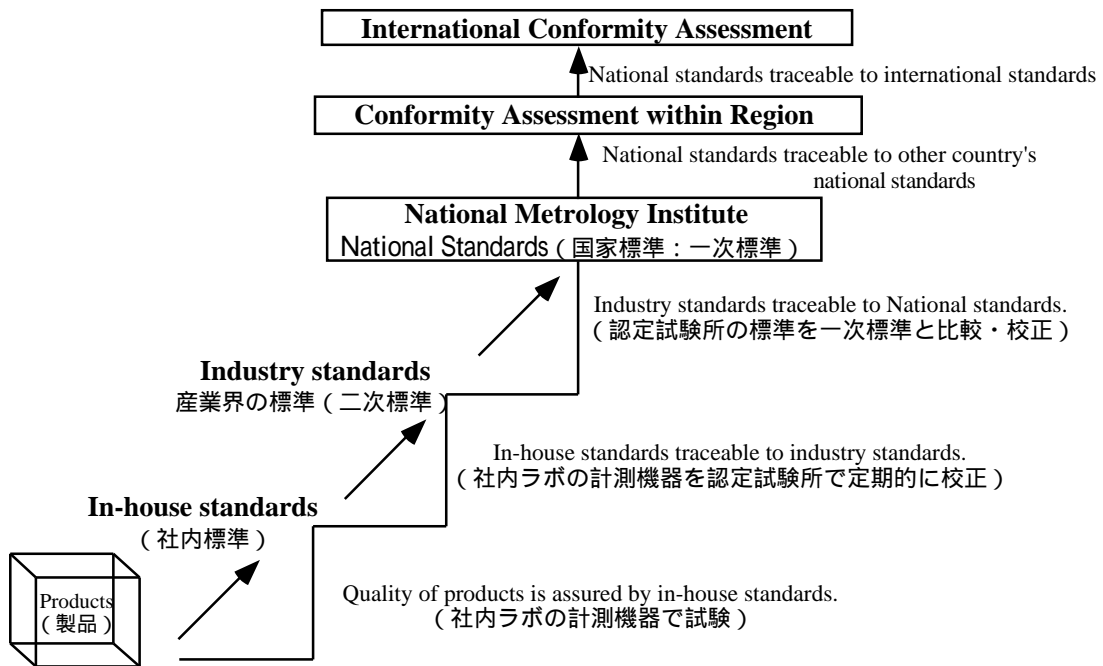
(3) Requirement by the ISO9000 series

Other than above two conditions, ISO9000 series that became very popular are requesting traceability on measurement activities. Also ISO14000 that is a standard to control environment condition, has a condition to request the assurance of measured

data. These requirements by the certification of ISO9000/14000 are also important factor that traceability concept to become popular.

Figure 1 Achievement of Technical Credibility

Chain of Credibility (Measurement Traceability) and Conformity Assessment



Source: JICA-Study Team, 2000

4.4.3 Standards and Conformance Infrastructure in China

Since 1998 China has been involved with the development of standards and conformance infrastructure. The standards and conformance infrastructure, as mentioned above, is a combination of its system development and its technical credibility. The system development has been developed so far as to the level of international standards in a few periods, and the speed of which is much faster than that of Japan.

All the activities and authorization related with standards and conformance used

to be under the supervision of China State Bureau of Quality and Technical Supervision, CSTBS, and in May 2000 those activities and authorization were transferred to China National Accreditation for Conformity Assessment, CNACA. CNACA is a legal entity composed of 26 related ministries, and bureaus of the different sectors. Under CNACA there are four accreditation bodies; 1) accreditation of testing and calibration laboratories, 2) product certification, 3) accreditation of ISO9000 certified organizations, and 4) accreditation of auditors for ISO9000.

Directly under CSTBS, there are department for document standards development and National Institute of Metrology, NIM for the development of physical standards.

(1) China National Accreditation Committee for Laboratories, CNACL

CNACL is China's accreditation body for testing and calibration laboratories. CNACL accredits 16 testing areas and 10 calibration areas. The area that they are strong in is electrical and electronics area and information technology area. CNACL accredited 310 laboratories so far and 26 of which are the calibration laboratories. The testing laboratory accreditation started in 1993 and for calibration laboratory accreditation just started two years ago. Those accredited laboratories are required to follow ISO/IEC Guide 17025 as to follow the international standards, however, mostly they just follow the domestic requirement and conformity assessment with international standards is in behind.

(2) China National Accreditation Committee for Products, CNACP

CNACP is an accreditation body for product certification organizations. They accredited 24 organizations and 22 of which is in active. Industries ask them for their products to be certified with product safety, compulsory standards and voluntary standards. As of June 2000, 12,210 companies (11,919 of which are the domestic companies) are certified by those organizations and 56,443 certifications (52,013 of which are the domestic) are issued.

(3) China National Accreditation Council for Registrars, CNACR

CNACR is an accreditation body for system management, ISO9000s. CNACR was established in 1994 under the authorization of CSBTS. CNACR accredited 36

organizations which certify ISO9000s and 34 of that are Chinese organizations the remaining 2 are the foreign organizations. In China as of July 2000, 19,272 companies are certified with ISO9000s. The companies engaged with electric, electronics and optical fiber are more enthusiastic to get the certificate and metal parts, mechanicals and construction sectors are following them.

In Jiangusu Province, 3,300 companies are certified with ISO9000s that is 20% of the total in China.

(4) China Registration Board for Auditors, CRBA

CRBA is an accreditation body to accredit and train auditors for ISO9000 (system management) and ISO14000 (environmental management). As of June 2000, 7,783 auditors are accredited by CRBA and among which 2,483 auditors are also accredited as international auditors of IATCA, International Auditor and Training Certification Association. China is a member country of IATCA since August 1998.

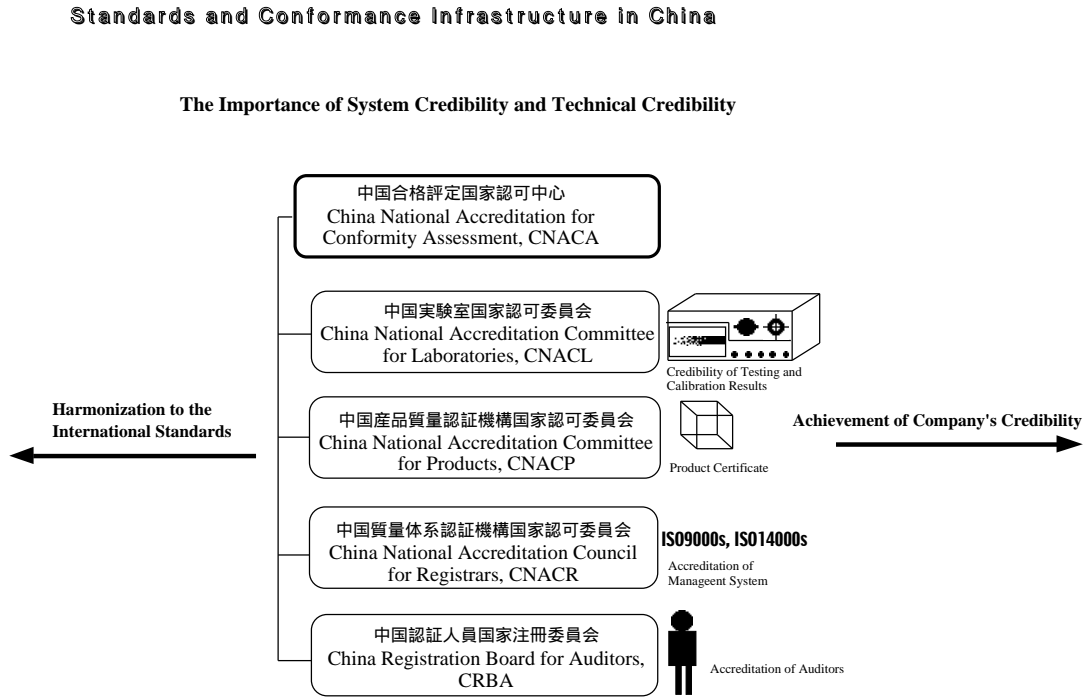
(5) China State Bureau of Quality and Technical Supervision, Department of Standardization

Document Standards in China is categorized with (1) National Standards, (2) Professional Standards (or, Industry Standards), (3) Provincial Standards, and (4) In-house (or, company) Standards. Compared with other countries China has a lot of compulsory standards due to its planning economy. China has been preparing its standards to conform with international standards in order to join WTO, and some of their compulsory standards are not accepted by other countries becomes a question.

(6) National Institute of Metrology, NIM

NIM is directly supervised by CSTBS. NIM carries the nation's primary standard (the physical standards), which is the most accurate standards in China. From NIM, the standards are carried out to provinces, to cities, to prefectures, and to each company, so that the accuracy of the company's production lines and products are traceable back to the national highest level of primary standards. The NIM's accuracy is compared with other countries primary standards, and by that the standards are evaluated at the international level.

Figure 2 Achievement of System and Technical Credibility



Source: JICA-Study Team, 2000

4.5 Future of supporting Industries

4.5.1 Future of supporting industries in Jiangsu Province

Supporting industries in Jiangsu Province has been developed due to certain advantages, such as geographical advantage, moderate climate, easy access to large markets as Shanghai, Guangdong Province. The number of rural & township companies and collective-owned companies are over 110 thousands and their employment are over 6,730 thousand. In terms of specific sectors, those dedicated in the machines, electric and electronic parts are showing thick accumulation. However, it can be pointed out that they are not utilizing their full advantages from the field survey actually. They are in principle working under domestic market oriented policy, having few access to foreign companies in Jiangsu Province or to the companies in

designated development area.

Foreign companies in Jiangsu Province and the companies in designated development area are not relying on the supporting industries in Jiangsu Province. They import parts from Thailand, Malaysia and other countries and export almost 100% of manufactured products.

Once China becomes a member of WTO, facilitating those foreign companies activities in China, the supporting industries in Jiangsu Province will have to face severe competition in the global market. To challenge on this environmental change, it would be encouraged for supporting industries to penetrate in the business relationship with foreign companies in Jiangsu Province, companies in designated development area and global market. It is expected that supporting industries in Jiangsu Province will be transformed to the supporting industries in world market through diversified challenges by trying the business not only with companies in China but also with world market. It is very important that supporting industries in Jiangsu Province would consider diversification.

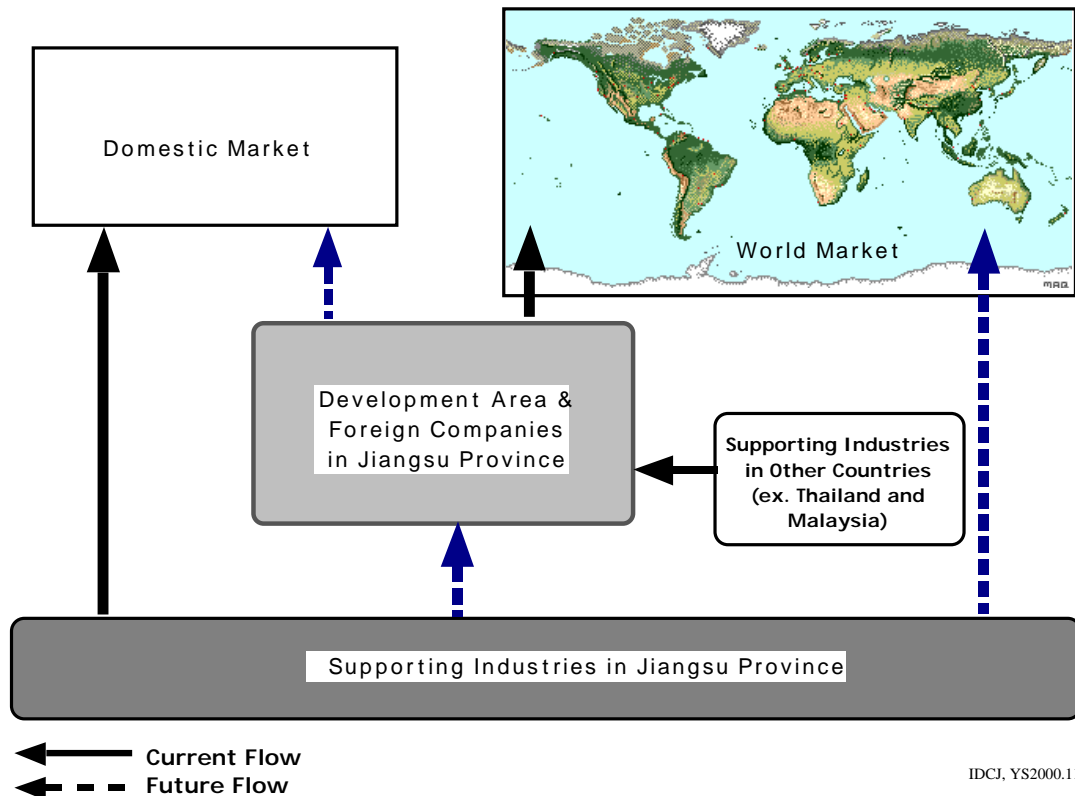
Close relationship with only foreign companies invested in China could be a risk. Due to the volatile exchange rate devaluation in Thailand in July 1997, supporting industries in Thailand are still facing problems. Certain foreign capital companies withdrew from Thailand since the headquarters has decided their management policy. Until then, supporting industries in Thailand had a role to supply parts to invested foreign capital and they lost their market to sell.

4.5.2 Transformation of Supporting Industries in Jiansu Province towards the World Market

Business targets to penetrate for supporting industries in Jiangsu Provice should be companies in designated development area, foreign companies and world market. Therefore, it is important for supporting industries in Jiangsu Province to consider the way to be a supporting industries of world market by diversified challenges to penetrate to the world market directly, keeping the relationship with foreign companies invested in China, companies in designated development.

In order to achieve this, the most crucial and important issue is demonstration of conformity to the world required standards and quality condition as stated before.

Figure 3 Concept of Supporting Industries in Jiangsu Province After Entering WTO



4.5.3 Challenges Facing Companies

The role of core industries to up-grade industrial structure would be technology and intellectual oriented industries. Especially, the sector of machine and electric-electronic sector are regarded as core industries. In order to develop such core industries, the following factors are becoming important in the concept of sales power improvement, technological development and training of engineers etc.

(1) Modernization of Technology

- 1) Modernization of Technology (modernization of equipment and training of

technicians and engineers)

- 2) Improvement of administration
- 3) Improvement of management and administration skill (marketing skill improvement and improvement of network among companies)
- 4) Strengthening Organization and Network (Establishment of Associations by companies)
- 5) Financial Scheme for the development of supporting industries (for modernization of machines/ structure change of industries / supporting industries development / export promotion etc).
- 6) Regulation and institutional strength(for seeds companies development/ export promotion/ modernization of standardization related infrastructure, such as testing and calibration services).
- 7) Environmental protection (modernization of production line/ industrial resources management)

Among above issues, those of technology and administration could be summarized as quality management issues and it would be explained as a issue of quality management. Also, it can be pointed out that quality management and network issues could be related to the challenges of corporation themselves. Instead, the issues of financial/ institutional and environmental protection could be related to both the companies and governments.

(2) Quality Improvement

If we take an example of Japan in the issue of tools for the modernization of equipment/ machines, it can be pointed out the following tools;

- * Tools for the support of Structural Adjustments
- * Tools to Improve Competitiveness
- * Tools to Support Internationalization

Machines modernization could be categorized as the support for structural adjustments. As for the tools to support the modernization of machines in the supporting industries (SME), generally following type of support have been

introduced;

* Tax reduction for the abolishment of old equipment and purchase of new machines

* Provide finance or guaranty to purchase new equipment

* Joint Development in case equipment is expensive

* Training in the public facilities about handling of newly introduced machines

*Promote the introduction of new equipment to SME through the development of contraction with large Industries.

Among these tools, support to modernize the machines is already introduced in China. From now it is expected the consolidation of efforts by companies & government administrations, including the coordination among central, local governments and companies.

Once central government implements industrial plan from whole country's view, such as introduction of supports to modernize machines, tax incentive, public training for the newly introduced machines, joint research & development between government bodies and companies, promotion of joint purchase etc, the most important factor to achieve advancement is good coordination among central, local governments and companies.

In addition to these coordination, government's support to improve the infrastructure for the standards and conformance is expected. Also, business matching between supporting industries and large companies, including foreign companies, which accept the idea of sub-contracts.

These idea would be explained in the part of One Stop Service Center. In (6)-(a)

(3) Up-grade the Technical Level

In addition to the modernization of machines, following issues would be important for the export promotion.

Research and Development (R&D) Function,

Accumulate international document standards, it's information distribution and Modernization of infrastructure to demonstration of conformity on them.

Design Development Function

In China, R&D function has been kept in the government organizations and/or universities. From now on it would be very important to consider how to develop it by the companies themselves. In case of electronic sector, R&D function has been left to the foreign companies Invested In China. There are some cases of technology transfer by the form of OJT(on the job training). It takes a very long time by this form (OJT) to achieve the upgrading of industrial structure and to develop supporting industries. Under this situation, network establishment among companies and supports from central and local governments are expected other than companies' own efforts.

(4) Institution of Networks

In China, there exist institutional organizations which have objectives to support industries. These organizations are called Associations and/or Groups. However, private sector companies have not been invited to be members. The core members of such network used to be governments, officers and academic peoples. The objectives of such network used to be information supply of government plan, academic study etc. In this report, network does not mean the reconstruction of existing network but it means the network which would be implemented by companies themselves.

The following chart shows the composers of such Industrial-origin network, it's traditional objectives and objectives from now on. In this report, network means the linkage between network composers and it's counterparts.

Table 6 Concept of Network

Composer	Counterpart	Traditional Objectives of network	Objective of network from now on
State-owned Companies	Central Government	Discuss Production Volume Plan	Industrial Policy/ Discuss Restructuring
	Local Government	Discuss Production Volume Plan	Industrial Policy/ Discuss Restructuring
State-owned Companies	Collective-owned companies	Information exchange by association	Information exchange,including M&A,association
	Private Companies	Traditional weak network	Information exchange as supporting industries
	Rural and Township Companies	Information exchange as supporting industries	Information exchange,including M&A,association
	foreign companies	Traditional weak network	Market information,technology information etc
Rural and township companies	Central Government	Traditional weak network	Discuss Industrial Plan
	Local Government	Discuss Industrial Plan	Discuss Industrial Plan and market information
	Collective-owned companies	Business Information Exchange	Market information,technology informationetc
	Private Companies	Information exchange as supporting industries	Market information,technology informationetc
	Rural and Township Companies	Business Information Exchange	Market information,technology informationetc
	foreign companies	Business Information Exchange	Joint purchase,market information exchange
Private Companies	Local Government	Traditional weak network	Discuss supporting tools
	Collective-owned companies	Business Information Exchange	Market information,Joint Sales etc
	Private Companies	Traditional weak network	Joint discussion,establishing network
	Rural and Township Companies	Business Information Exchange	Joint Sales, Joint Purchase etc
Foreign Companies	Central Government	Negotiation of incentives, rules etc	Export Market Information,Industrial Policy
	Local Government	Negotiation of incentives, rules etc	Export Market Information,Industrial Policy
	Collective-owned companies	Business Information Exchange	Market,technology Information exchange
	Rural and Township Companies	Business Information Exchange	Market,technology Information exchange

Source: JICA-Study Team, 2000

(5) Importance of Network Composition and Direction in the Future

To up-grade the industrial structure, it is important to compose industrial sector initiated network rather than having government-initiated networks. As described in the [objectives from now on] of each composer of network, it would be very important to have concrete objectives by each composer of networks. To penetrate in the business relationships with world market or neighboring large cities located foreign companies, periodical information and opinion exchanges for the following Issues would be Important Issues; (1) long-term market demand, (2) technical requirements, and (3) industrial policy, looking for the member of WTO.

Regarding supporting industries, many SMEs felt happy by limited activities of network, just finding out some limited business chances. If supporting industries companies look for world market, huge opportunities of business chances will emerge through solid network activities of joint-purchase, joint-sales.

From the viewpoints of central and local governments, they could have access to the market reality so that government administration would be able to establish efficient industrial policy.

4.5.4 Challenge by Government Administration and Companies

Challenges by companies to up-grade are described in (3) to (5). However, it is considered that it takes a long time to advance industries, relying only for their own efforts and/or technology transfer from foreign companies invested in China by the form of OJT.

To achieve upgrading the industries efficiently, the strong supports from the central and local governments are expected to the following points;

- World markets' demand forecast information supply
- World market's technical requirement supply
- Support the infrastructure on Standards and Conformance improvement to help the companies' efforts of demonstration of quality and conformance on international documents standards.
- Propose public training on new technology based machines.

In addition to the preparation on the above issues' supports, information publication among companies will be very important issue. To promote this, IT development will be very crucial and essential.

(1) One Stop Service Center, as a Contact Point between Government Administration and Private Sector

As described in network implementation, it would be convenient to have certain place to which companies could access easily. It takes a long time and hard works to explore supporting tools and related information. Again, it would be very convenient for the companies and government administration to concentrate information in One Place for input and output.

Following functions are expected that such One Stop Service Center will provide to supporting industries. These functions are provisional idea could be changed in the process of this study.

Table 7 Function of One Stop Service Center

Services and Functions to be Provided	Conceptual Idea
Government's industrial policy / supporting regime	Database
Concrete tools to support SMEs (Venture capital/export promotion etc)	Database
International documents standards in English and Chinese version(by products/ by sectors etc)	Database
Government's support regime for environmental protection	Database
Public training information for Research & Development	Database
Companies information which have possibility of joint research and development activities	Database
Companies information which have possibility of joint purchase	Database
Companies information which have possibility of subcontracts	Database
Overseas importers purchase condition data	Database
World markets demand data	Database
Activities information of NGO/NPO	Database
Database of world market's demanding condition on technology supply contracts and direct investments.	Database
Business Matching Function	Put promoter
SME consultant service for management improvement etc.	Put consultant
Testing function on electric/ electronic products and parts	Infrastructure for testing

Source: JICA-Study Team, 2000

(2) Introduction of IT (Information Technology)

In the 5th General Assembly, Information Technology was selected as core industry to develop China's economy. The development of IT could be categorized in 1) inside the companies and 2) companies to companies transactions.

(a) IT development for the transactions of companies to the companies

Actually, companies are trying to implement e-commerce for the transactions of companies to companies by the name of Market Place. The objective of the Market Place is to establish electronic based market which intermediate buyers and sellers. The concrete intermediary schemes are as follows;

Auction scheme(from seller side)

Purchase condition offer(from purchasers)

Joint purchase

(b) IT development for the inside the companies

In addition to the IT development on transactions of companies to companies, the companies are trying to develop IT for the inside companies management, which is called as KM (Knowledge Management).

Table 8 Effects from IT Development

Concrete Scheme	Contents of Scheme	Points to be improved by IT	Newly emerging possibility by IT development	Points to be improved other than IT	Expected Effects
MP (Market Place) IT Development between companies to companies	E-commerce market which intermediate sellers and buyers. There are following three basic structure-auction/ purchase condition offer/joint purchase	Review the relationship with the companies which do not have price and quality competitiveness=increase comparative advantage/power to respond market requirement. Traditionally, the main policy of the companies used to be suppliers' condition. After IT development, market requirements will be main issues for the companies' philosophy.	* Easy access to the new suppliers condition, like price, term, production capability etc. * Easy access to the new purchasers' condition, like price, term, volume. Traditionally, such market information were kept in large companies. Easy access to market information is expected.	* Productivity Improvement, * Quality Control, *How to demonstrate conformance on standards, * Logistic improvement, *Prepare the infrastructure, which could demonstrate the conformity on certain standards & quality requirements	Traditionally, companies had to consider the management policies based on existing customers relationships. By IT development, it is expected to have possibility with new suppliers and purchasers.
KM (Knowledge Management) IT development inside the companies	All the employees could enjoy information sharing of most important resources, which is customer related information through KM. Also information sharing of companies policy, including future products idea, is expected by KM.	Share the following information Management Vision Business History Demand on products Demand from clients Companies activities Market information	B to C=possibility of new business model B to B=possibility to improve management efficiency	1) Try to hidden demand of clients-production & logistic cost improvement = merit of standardisation 2) Try to provide high-value added to clients. = Respond to the hidden requirements on certain products and service	For 1) companies try to provide products & service by low cost & fast speed. For 2)Try to explore new and hidden demand by the clients through IT marketing. Easy access to market information, clients by eliminating time and cost constrains.

Original Data: Nihon Keizai Shinbun dated Sept.27.2000
Arranged by: IDCJ

As stated in the above chart, IT development could contribute to the advancement of companies once such objectives of IT usage were clearly set. For example it is expected to advance the internal management and expand the market by IT usage. However, it must be recognized the importance of the following factors even though above positive effects could be expected by IT usage.

- 1) Efforts to increase productivity
- 2) Quality management improvement
- 3) Demonstration of conformity on international standards
- 4) Improvement of logistic structure

These points are fundamentally important to up-grade the industries. In this IT development, following type international cooperation could be considered;

- Research and Development on telecommunication technology
- Exchange of human resources who dedicate on IT
- Regional Cooperation development on IT development

Chapter 5 Local Financial Issues in the Process of Urbanization

5.1 Policy Recommendations

The most important issue concerning local financial operation in China is the adjustment of operational mechanisms of finance, which failed to connect and match with the transition of the overall economic system. The development of local finance into public finance is dependent upon the redefinition of functions of the local government and the redefinition of financial expenditure.

Local financial income mainly comes from local tax collection. At present, there are many problems relevant to local taxes, such as messy systems, and small sizes. In order to resolve these problems, it is necessary to endow the local government with a certain power of legislation to tax collection and determine the main categories of local taxes.

At the present stage, sales tax, enterprise income tax, property tax, individual income tax, and urban construction and maintenance tax may be retained as the main categories of local taxes.

Urbanization needs financial support. The problem China is now facing, however, is that local finance is unable, to a great extent, to support the needs of urbanization. In order to make larger financial investment into urban construction, it is also necessary to construct a banking system of a policy nature to support the construction of urban infrastructure and push forward the system of compensational use of land.

5.2 A Pluralistic Pattern of local Financial Incomes

The JICA Study Team made an analysis in Haicheng concerning the structure of local financial incomes in China. Results show that two features, which are worth noting, characterize local finance of China.

The first feature is that the local finance of China is, in fact, a multi-functional complex. Firstly, as a stakeholder of the local financial funds, the local finance is

responsible for the management and appropriation of financial funds. Secondly, in order to further explore new financial sources, local finance also acts as an investor and directly participates in local investment and economic construction. And, thirdly, local finance is also responsible for making governmental investments and financing activities in the name of government, such as the credit, guarantee, and discount of loans, and other intermediary banking services.

The second feature is that the incomes of local finance come from a pluralistic source. Generally speaking, the income of local finance in China consists of intra-budgetary, extra-budgetary, and non-budgetary incomes. Although extra-budgetary income and non-budgetary income are low in transparency, almost all of the researchers consider that they should comprise over 50% of the total income of the government in the system of local financial income. It is especially so with cities and counties which are well developed in economy and urbanization. The higher they are in economic development and urbanization, the larger their extra-budgetary and non-budgetary income will be in size. In fact, in many places, the construction of urban infrastructure construction is mainly dependent on extra-budgetary and non-budgetary income.

It is evident that the above features of local finance of China are relevant to a certain background.

The first feature is correlated with functions of the local government. In China, a local government has a wide range of functions, and in particular, it is strongly oriented to economy, due to the reasons as follows: Firstly, the local government is responsible for the development of local economy and for the improvement of living standards of residents. In order to fulfill its responsibilities, the local government often involves itself, intentionally or not, in economic activities. Secondly, the local government keeps a gigantic number of state-owned enterprises under its control, and hence is responsible for the operation of these enterprises and the welfare of their staffs and workers.

The wide range of functions of the local government has given rise to a wide range of functions of local finance. Hence, although local finance of China is oriented to

public finance, the former is practically far different from the latter.

The second feature is correlated with the games between the local government and the immediate higher government or even the Central Government. Since the current financial system may lead to a financial concentration in the Central Government, the local government is often embarrassed by the lack of local financial resources. Furthermore, the current hand-over system of financial incomes and the transfer and payment system of expenditure subsidies are far from satisfying local governments in balancing interests among relevant parties, and the local government will choose, intentionally or not, to take the road of "Self-reliance" in order to find new financial resources through fees collection, funds, extra-budgetary means, and even non-budgetary means.

In the meantime, owing to the differences in interest's orientation, the immediate higher finance tends to collect certain funds from its immediate lower finance, while the latter tends to try to gain certain funds from its immediate higher finance. Under such a psychological situation, the expansion of extra-budgetary fund and non-budgetary fund acts as a feasible mode, because the larger the intra-budgetary fund is in size, the more possible it will be for higher finance to require to cut a portion of funds, and similarly, the more difficult it will be to ask for fund transfer and payment from higher finance. Since the departments of local governments are afraid that their own funds should be included in financial management and used to balance local budget and distribute wages, they may try to set up certain flexible funds under its own custody. These flexible funds can be either extra-budgetary, or non-budgetary.

Urbanization is dependent on input of financial funds. In view of the above features of local finance, it seems to us that in the discussions on the process of urbanization in China, the issues relevant to finance are worth noting as listed below.

The first issue concerns the functions of local finance. As stated above, in China, local finance is, in fact, a complex of pluralistic functions, which bears a responsibility that is practically far beyond its capability. Hence, it is necessary to redefine the function of finance and the expenditure range of local finance, in order to suit the process of urbanization.

The second issue is concerning the inherent structure of local financial incomes. As stated above, the local financial income is oriented to pluralistic sources. The local tax income, as the main body of intra-budgetary income, does not comprise any important portion in the income and expense structure of local finance, and the local tax is not well positioned in functions. Thus, it appears to be very important to regulate the structure of financial income and promote the size and position of local taxes.

The third issue is concerning the operation of local financial funds in the process of urbanization. It is evident that only a limited amount of financial fund is invested to urban construction due to the limited size of local financial income. It is necessary to consider how to promote this investment in order to push forward the process of urbanization.

In view of this, discussion will be held in this chapter concerning the 3 issues mentioned above.

5.3 Local Finance and the Economic Functions of the Local Government

5.3.1 Increased Pressure

People concerned about the Chinese economy may notice that the Chinese Government has been most concerned about economic growth in the past few years.

In the past two years, the Chinese Government examined its mistakes of excessive preference and pursuit of economic growth rates, and stopped emphasis on high speed from the Central Government down to the grass-root level as placed before. However, local governments did not show due response to this change of the Central Government. Today, local governments of China at all levels still take high growth rates as their goal. This is because, among other things, the Central Government examines performances of the local government while the latter has a certain definition of its roles. But what is more important is the pressure from the local government.

Firstly, economic growth may alleviate pressures the local government bears from employment, price, individual income, and infrastructure construction. In order to ensure social stability in the transition period, the local government has to take the

responsibilities for finding jobs for laid-off workers, providing price subsidies, offering subsidies to local poor enterprises, build infrastructure and public facilities, while the fulfillment of these responsibilities have to be based on a certain economic growth rate.

Secondly, economic growth may increase financial income. In China, a local government not only has to offer public services to the society for the welfare of residents in its administrative region, but also has to provide a certain guarantee for the reform and adoption of the market principle. To carry out these activities, the local government needs financial support. Under the current tax-sharing system, the financial strength of the local government is dependent on the economic development of its administrative region. The higher its economic growth rate is, the stronger its financial strength will be.

It is based on the impulse of local governments for growth rates, that China was able to maintain a 20-year-long sustained fast economic growth. Take the Suzhou-Wuxi-Changzhou area as an example. In the past two decades, it was in a leading position in China with regard to its growth rate and overall size of economy. Some people consider that this is because of its "geographical advantages", while others consider that it is because of contributions "township enterprises" have made. We should say that they all take certain factors of the issue into consideration and hence they are reasonable to some extent. Economic development at a certain area is correlated with its location, environment, resources, opportunities, and policies. These are objective factors and their use to effect fast economic growth is also dependent on active efforts, which are directly related with economic behaviors of the local government. In fact, the fast development of the SWC area is, to a great extent, attributable to the pursuit of the local government for economic growth and the driving force derived from this pursuit.

Survey results of the JICA Study Team indicate that local government officials of China are most concerned about in their every day work is "the promotion of regional economic growth" followed by "the increase of local financial income". In the meantime, in order to promote their economic growth and expand the size of their financial income, local governments often make investments in the industrial sector, as

shown on Tables 1 and 2.

Table 1. Factors the Local Government Concern

Factors	%
Promotion of economic growth	77
Increase of local financial income	53
Promotion of residential environment	43
Promotion of environment for investment	37
Promotion of social guarantee	17
Increase of employment	15

Question: Which questions are you most concerned about in your daily work?

Source: The JICA Study Team.

Table 2. Motivation of Local Governments for Making Investment

Motivation	%
Promotion of economic growth	70
Increase of local financial income	45
Promotion of environment for making investment	43
Increase of employment	28
Realization of performance goals of this government	24
Promotion of residential environment	17

Question: How many factors do you think a local government may take into consideration when it makes investment in the industrial sector?

Source: The JICA Study Team.

It is just because of pursuit of economic growth, that the local government in China invests a quite large portion of its financial income in the industrial sector and demonstrates a quasi-enterprise behavior. According to the data released by Ministry of Finance of China, the money spent by local finance on enterprise remodeling, R&D programs of new products, and working capital amounted to 59.6567 b RMB, while money spent on urban maintenance and construction only totaled 47.231 b RMB.

If we say a local government's participation in economic activities is mainly aimed to promote its economic growth, then, its second goal will be the control of economic resources. In China, the reform and adoption of the market principle is irreversible, while the economic basis of China shows a strong color of planned economy. Judging from the size of industrial production and the structure of GDP increments, non-state-owned economy has gained a much larger portion than the state-owned economy in China. In spite of this, these indicators can not indicate that non-state-owned economy has gained the main-body position, except revealing a strong growth potential and higher operational efficiency of non-state-owned economy. In fact, without counting the national assets owned by enterprises under mixed ownership, the state-owned enterprises of China still possess over 50% of the total enterprise assets of the whole society. But a certain part of these national assets is under the control of the local government. Under this situation, it is difficult to prevent economic intervention from the local government.

Table 3. Important Headings in the Expenditure of Local Finance in China

(Unit: 100 m)

Heading	1994	1995	1996	1997	1998	1999
Total	4038.1	4828.3	5786.2	6701.0	7672.5	9035.
	9	3	8	6	8	34
1. Costs of basic construction	293.00	410.73	508.91	584.31	778.24	1061.94
2. Funds for enterprise remodeling	266.82	323.81	349.19	416.73	419.42	477.45
3. Fees for R&D programs of new products	27.90	35.94	49.23	63.70	73.33	94.38
4. Increased appropriation of working capital for enterprises	2.94	6.73	13.90	27.92	20.90	24.73
5. Fees for geological survey	0.42	0.84	1.20	0.88	1.03	8.22
6. operating costs of industrial,	63.98	68.47	83.15	96.5	75.19	88.06

communications, and commercial departments						
7. Expenses in support of rural production and operating expenses of agriculture	354.75	383.82	455.12	504.65	557.23	608.82
8. Operating expenses for culture and education, science, and public health	1139.58	1320.08	1542.65	1717.20	1912.50	2150.36
9. Funds for pension and social relief	94.16	114.66	126.74	141.05	164.92	177.66
10. Administrative management costs	670.56	803.00	969.36	1060.63	1235.72	1410.33
11. Subsidies of a policy nature	221.81	263.65	330.51	328.79	348.22	383.71
12. Expenses for urban maintenance and construction	234.16	285.80	336.49	387.88	439.14	472.31
13. Support to the development of economically undeveloped areas	20.18	20.18	55.45	68.65	110.80	119.62
14. Expenses of commercial sector for the construction of simply built structures	8.39	8.35	9.12	9.80	8.68	
15. Other expenses	639.54	782.27	955.26	1292.37	1527.26	1987.75

Source: China Finance year Book 2000. The China Finance and Economy Press, 2000.

5.3.2 Problems Relevant to Financial Income and Expense

Recently, two concepts relevant to finance often appear on newspapers. One says that the national financial income constitutes a too small portion of GDP, while the other says that the financial income of the Central Government constitutes a too small

portion of the national financial income. It is evident that these two concepts are backed up by the fact that people are worried about the slow growth of financial income and the difficulties in financial operation.

It should be pointed out first that financial statistical standards of China are different to the recognized international standards. In 1999, China accomplished 1144.4 b RMB of national financial income, which comprised 14% of GDP. According to the international standards, total financial income includes the total of taxes and all kinds of non-tax incomes collected by governmental departments. Thus, the non-budgetary and extra-budgetary incomes involved in the Chinese financial system should also be included in the calculation of the total financial income. The results of the 1995 national inspection on financial affairs and tax collection revealed that extra-budgetary funds totaled 384.3 b RMB in China, which comprises 61.5% of the financial budgetary income. When non-budgetary incomes are taken into consideration, the current total financial income of China may at least comprise over 25% of GDP, which is not low among developing countries. In spite of this, the financial operation of China is severely embarrassed by financial deficit, as shown on Table 4.

Table 4. Financial Deficit of China

(Unit: 100 m RMB)

Year	Deficit (-) or surplus (+)	Deficit/financial income
1979	-135.41	-11.81
1980	-68.9	-5.94
1985	0.57	0.03
1989	-158.88	-5.96
1990	-146.49	-4.99
1995	-581.52	-9.32
1996	-529.56	-7.15
1997	-582.42	-6.73
1998	-922.23	-9.34
1999	-1743.59	-16.26

Source: China Statistics year Book 2000. The China Statistics Press, 2000.

It is apparent that the range of financial functions, which is too wide, mainly

causes the difficulties in financial operation. In China, the difficulty in financial income and expense was once regarded as the cost of reform, which was deemed to ease following the gradual implementation of the reform policy. Later on, people related financial difficulties to system transition, and deemed that financial difficulty was a natural companion of market economy. However, in the elapse of time, people acknowledged that the adoption of reform measures and the establishment of market economic systems did not necessarily have any connection with difficulties in financial income and expense. The government is involved in too many affairs and its financial input is involved in fields that are too wide. This is the basic reason that has caused the difficulties in financial operation. National finance not only has to satisfy social and public demand in national defense, administrative management, public security, and justice, but also environmental protection, culture and education, fundamental scientific research, and public health. It has to not only make investments in a series of social infrastructure projects like energy, communications, telecommunications, and river management, as well as non-competitive fundamental industrial projects, but also take responsibilities to provide funds for the operation and expansion of state-owned enterprises. It is also responsible for providing subsidies to workers' housing, medical service, schools and nurseries, and other collective welfare facilities.

If the above situation is understood correctly, the problem in financial income and expense of China may be concluded to be the adjustment of the financial operational mechanisms, which failed to connect and match with the transition of the whole economic system. Hence, the hope to get out of the financial plight lies in the change in economic functions of the government and the reconstruction of financial operational mechanisms.

According to the interviews made by the JICA Study Team with Chinese economic experts, the economic functions of the government should be first based on "satisfying social and public demand" and "correcting ineffective market mechanism". According to the standard of "satisfying social and public demand", the present functions of the government may be identified and screened in order to attain two objectives, i.e., one being the elimination of "offside", that is, the government ceases

its involvement in matters that it can not or should not manage and in matters that do not belong to the sector of social and public demand, the other being the elimination of "absence", that is, the government should successfully manage matters of the social and public sector that it should but failed to manage.

Study results indicate that many matters may be included under the heading of "offside", including governmental investment in competitive fields, which people are most concerned about. The government has to, no doubt, recede from the competitive fields as quickly as possible.

Similarly, many matters may be included under the heading of "absence". Take social guarantee as an example. In countries under the market economic system, social guarantee as a kind of social and public demand is an important matter the government is concerned about, and the financial expense in social guarantee is not merely a small one. Following the implementation of the market principle in China, the defects of the social guarantee system become increasingly evident. It is apparent that finance should fortify its input in social guarantee and take the establishment and operation of the social guarantee system as its basic function.

5.3.3 Redefinition of Functions of Local Finance

Financial expense is the cost of governmental behaviors, and local finance is the basis for a local government to function. In view of the troublesome situation of local financial income and expense in China, local finance has to change the functions of local governments, alter the current financial expense system, and redefine the range of expense. At the present stage, it should try to remove, out of the range of financial expense, the existing financial functions that are involved in market economy. With regard to this, several points of view are worth noting as follows:

Firstly, financial support should be stopped to non-administrative management functions in professional economic departments and social organizations, while economic organizations that have a certain administrative function, such as industrial and trade organizations, also should gradually reduce their administrative functions and gradually recede from the range of financial support.

Secondly, it is necessary to make classified management on the financial support to institutional units. Finance should maintain the normal development of institutions of the public welfare type, and should provide financial support including personnel funds, public funds, and institutional development funds. Finance may provide a determined amount of subsidies to the semi-public-welfare type of institutions for personnel and public funds, while funds for their institutional development may come from their created income. The business type of institutions should go to the market.

While reducing the range of financial expenses, local finance should give a large share to the transfer type of public expenses, which belongs to the part of social redistribution of finance. It consists of 3 parts, i.e., expenses in social guarantee, support to undeveloped areas, and price subsidies. The expense in social guarantee includes expenses in social insurance, social relief, and social welfare, which belong to the mutual public expense. This expense, comprising a large share in the expenses of local finance in many countries, is mainly used in social relief and social welfare, as well as social insurance if necessary. Since the social guarantee system is not very perfect in China, local finance has to find fund as much as possible to support the social guarantee system.

5.4 Reform of Local Taxation System

5.4.1 Problems of the Current Local Taxation System

The current local taxation system was derived from the 1994 reform of taxation systems. This taxation reform divided taxes into 3 kinds, i.e., the tax collected by the Central Government, the tax collected by the local government, and the tax shared by both the Central Government and the local government, as shown on Table 5.

Table 5. Classification of the Tax

National tax	Shared tax	Local tax
1. Customs	1. Value added tax <ul style="list-style-type: none"> ■ National tax: 75% ■ Local tax: 25% 	1. Sales tax exclusive of sales tax collected from the railway, head offices of banks, and head offices of insurance companies
2. Consumption tax and value added tax collected by the Customs Office on behalf of the government	2. Resources tax All the resources tax from offshore petroleum goes to national tax, while the other kinds of resource taxes go to local tax.	2. Income tax collected from local enterprises, exclusive of Income tax from local banks, foreign-capital banks, and non-bank banking enterprises
3. Consumption tax	3. Securities tax <ul style="list-style-type: none"> ■ National tax: 50% ■ Local tax: 50% 	3. Individual income tax
4. Income tax from enterprises owned by the Central Government		4. Tax for land use in cities and townships
5. Income tax from local banks, foreign-capital banks, and non-bank banking enterprises		5. Tax for adjusting directions of investments into fixed assets
6. taxes (sales tax, income tax, and city construction tax) collected from the railway, head offices of banks, head offices of insurance companies		6. City construction tax exclusive of the city construction tax collected from the railway, head offices of banks, head offices of insurance companies
		7. Housing and land tax
		8. Tax for use of vehicles
		9. Stamp tax
		10. Slaughter tax
		11. Agricultural (animal husbandry) tax
		12. Tax for farmland use
		14. Contract tax
		15. Tax for legacy and donation
		16. Value added tax for land
		17. Feast tax

Source: JICA study team

It seems to us that the current local taxation system has many advantages that are worth noting, while it also faces a number of problems.

The first problem is that the power of taxation is too centralized and the local government has no power of legislation concerning tax collection.

Generally speaking, the power to manage tax collection is centralized in China. Under the shared taxation system, national tax and local tax are almost clearly defined, and the power of legislation and explanation concerning local taxation all belong to the Central Government. Almost all of "regulations" and "detailed rules for implementation" are promulgated by the Central Government, and the local government can only formulate certain practical methods for tax collection in accordance with the regulations and detailed rules promulgated by the Central Government. Local tax and national tax are managed according to similar rules, and as a result, the name of local tax falls short of the reality. The current highly centralized taxation management system in China is in dire contrast with the market economic system that is under steady improvement. On the one hand, differences exist among regions in economic development and natural resources, resulting in the variation of taxation sources. Local governments may have some odd taxation sources, from which neither the Central Government can collect taxes according to an integrated legislation, nor the local government can collect taxes on an independent basis. As a result, many potential financial incomes are lost for nothing. On the other hand, local tax is collected under an integrated control of the Central Government. It is collected at a rate that is determined according to the average standards of national economic development, and is equal to everybody, without any preferential policies. This is not suitable for local governments to make use of the economic lever of local taxes, regulate their economic development, and organize financial incomes in accordance with their practical situation. As a result, the local government can not determine the size of their own tax income and is in a passive position for the arrangement of its expenses, with its administrative functions being restrained.

The second problem is that the local taxation system is much fragmentary, unreasonable in structure, and too small in size.

In China, the power of the local government is relatively fixed, which requires local finance to have a stable source of income. At present, of the 18 kinds of local taxes, with the exception of sales tax which is relatively stable and reliable, however, many taxes fall into the category of small and odd taxes, which, poor in stability, are collected from fragmentary sources at a higher cost.

Judging from the current local taxes, the tax for legacy and donation is not yet collected, while the feast tax is merely nominal. The individual income tax has an extremely high potential. But this tax is severely lost due to the high difficulties caused by the scattered basis of taxation and the lack of sense of taxation among citizens. The tax for adjusting directions of investment to fixed assets, the tax for the use of farmland, and the tax for land use are established for specified purposes, and they have functions in economic regulation, which are far bigger than the financial functions of taxation. Therefore, it is not necessarily better to collect taxes at higher rates.

Two kinds of detrimental tendencies are derived from the fragmentary structure and small size of the local taxation system. One is that the local taxation system failed to play any significant leading role in local financial income, resulting in the high dependency of local government on the Central Government. The other is that the local government may collect fees through illegal means and "eat next year's food" in order to resolve its lack of funds. This will, on the one hand, aggravate the burdens of enterprises and farmers, and on the other, damage the social image of the government.

The third problem is that the reform of the variety of local taxes is lagging behind and the system is not perfectly designed.

In 1994, the reform of taxation systems in China focuses on the circulation tax and the individual income tax, without any impact on most of the local taxes. Six years has passed and the problems relevant to the variety of local taxes are becoming increasingly severe.

Firstly, the current local taxation system still implements discriminative policies to Chinese-capital enterprises (CCE) and Foreign-capital enterprises (FCE). For instance, the CCE income tax, the tax for the use of vehicles, the tax for urban real estate, and the tax for land use are collected from Chinese-capital enterprises, while the FCE and

FE (foreign enterprises) income tax, the tax for the use of vehicles, and the tax for urban real estate are collected from foreign-capital enterprises. The tax for adjusting directions of investment to fixed assets, the city construction tax, and the additive educational fee are only suitable for Chinese-capital enterprises and not suitable for foreign-capital enterprises and foreign enterprises.

Secondly, the variety of local taxes is outdated. The agricultural tax, the slaughter tax, the stamp tax, and the tax for the use of vehicles were started to collect in the 1950s in accordance with the old standards, which are not in conformity with the current market economy.

Thirdly, the variety of local taxes is only nominal. For instance, the tax for urban maintenance and construction is called "tax", but is not an independent kind of tax. It is, with a much-limited function, only equivalent to the value added tax, the sales tax, and the additive consumption tax.

Fourthly, no main-body tax is available for local taxes. We can not say that there are not many kinds of local taxes now in China. Of over a dozen of taxes, there are only few taxes that practically play a wide range of leading and regulatory roles at a strong regulatory strength, assume a simplified mode of collection and management, and gain a large size of income. The lack of these kinds of taxes has led to the lack of main stay in the construction of the local taxation system. Besides, judging from the structure of the current local taxation system, people feel that the current kinds of taxes are only a physical accumulation, lacking inherent complementarily and operational stability. In fact, there has been no definite overall concept yet concerning the number of taxes, the selection of main-body taxes, and the range and strength of tax regulation in the construction of the local taxation system.

Finally, the social collection of fees has a direct impact on the collection of local taxes. As mentioned above, as a means of game between the Central Government and the local government, the latter participates in the social income distribution through the collection of all kinds of administrative fees. As a result, the extra-budgetary fund owned by relevant departments increases in large amount, while the size of local tax collection is restrained from expansion.

5.4.2 Solution for the Problems on Local Taxation: Give Legislation Power to the Local government for the Collection of Local Taxes

As mentioned above, the local taxation system is facing a series of problems. For their solution, it is first necessary to give, to the local government, a certain power of legislation for tax collection, which is closely related to its local economy and social development.

With regard to the legislation system in China, the Constitution of China and relevant organizational codes clearly specify that the People's Congress and its standing committee at the provincial level as well as the provincial government enjoy powers to formulate local codes and rules. Hence, there exist no barriers in the legislation system to giving proper powers of legislation to the local government concerning the collection of taxes. Judging from the current financial system, the shared tax system has been primarily established in China, and the developmental mode of public finance widely recognized. Public finance requires governments at every level to have a certain taxation basis in support of their own public expenses. Besides, since laws and rules are gradually established and perfected in China, and the behaviors of governments at every level gradually become mature, granting a certain power of legislation to the local government may not lead to any disorder in tax collection.

In the world, the power of legislation at the local government level assumes 3 modes. The first is the American mode, in which the power of legislation for local tax collection is completely granted to the local government with no intervention from the Federal Government. The second is the Japanese mode, in which the local government does not have any power of legislation. The Central Government, when making laws concerning local taxation, gives a right to the local government to choose the kinds and rates of taxes that are suitable to their practical situation. The third is the German mode, in which the power of legislation concerning tax collection at the local government level is confirmed while it is properly controlled through the principles of the power of legislation. According to the international experiences, it seems to us that the power of legislation at the local government level in China should be defined as below:

Firstly, the powers to make and explain taxation laws concerning widely collected local taxes, such as the individual income tax, the tax for adjusting directions of investment to fixed assets, and the sales tax vest in the Central Government, while the powers to start and stop tax collection may be granted to the local government at the provincial level.

Secondly, the Central Government may retain the power to make taxation laws concerning important local taxes, such as slaughter tax, while the powers to explain taxation laws, start, stop, reduce and add taxes may be granted to the local government at the provincial level.

Thirdly, the local government at the provincial level may, through the legislation of local taxation, start to collect new kinds of taxes which may help give full play to advantages of the local government within its administrative region, in compliance with the national laws and rules concerning taxation, and without seizing the financial income of the Central Government.

It should be pointed out that it is necessary for the Central Government to fortify the regulatory mechanism, while it grants a certain power of legislation to the local government. According to the current financial system in China, the Central Government, instead of taxpayers and their agents, is mainly responsible for the supervision over the local government. Of course, the reform should be oriented to the direction of giving up the power of regulation over financial behaviors of the local government, and turning the regulation by higher authorities into the regulation by local taxpayers.

5.5 Solution for Local taxation System: Determination of Local Tax Categories

As stated before, the main categories of local taxes are rather ambiguous presently, which imposes manifold dangers:

Firstly, the ambiguity of main categories of taxes will give rise to the local expenditure's over-dependence upon transferred payment of the Central Government and non-tax revenues of the local government. However, due to the confinement of the

old system, the amount of transferred payment by the Central Government is not adequate, nor is the means of payment standardized, in which case it is a far cry from compensating the fiscal shortage. Therefore, local governments often shift their attention on non-tax revenues, and hence cause rapid inflation of funds and charges. Much of these funds and charges are collected as a result of administrative power, and are by nature a *defecate* tax disguised in the form of fees and charges. However, due to the fact that they are standardized by nature, the charging of funds has many problems with its collection, collection standards, management and utilization. There even exist illegal yet half-open non-budget funds besides the off-budget funds.

Secondly, the ambiguity of main categories of local taxes leads to the fact that the local tax revenue depends in a more or less similar degree upon all categories of local taxes, and that any factor that might affect the amount of certain tax may exert a substantial effect upon the entire local tax revenue. Thus the amount of local tax revenue shall be apt to fluctuate, which is not conducive to the stability of local fiscal revenues. In the meantime, it may also increase the difficulty of a reasonable arrangement of budget expenditure and hampering the accomplishment of the governmental functions of the local government.

Thirdly, the incompleteness of the local taxation system and the ambiguity of main categories of local taxes are prone to give the local government (particularly local governments of less-developed regions with limited financial strength) a false picture of the taxation function of local governments, in which case the government may overemphasize the revenue function of taxation and adopt alternatives to augment their tax revenues within their limited scope of power, thus neglecting the adjustment function of tax collection. Even for those categories of taxes that should play a significant role in adjustment, the government too makes plans with a purpose to augment its organizational revenue so that it loses a very important tool for regional adjustment and impedes the health development of local economy.

Therefore, it is imperative to determine the main categories of local taxes. We believe that at the present stage the following categories of taxes can be taken as the main categories of local taxes:

I. Sales tax. The range of levying sales tax includes the entire third industry, and has a bright prospect. In accordance with experience of developed countries, the higher the GDP, the greater the driving force for the third industry and the faster the pace of its development. China is presently at stage of economic take-off, with the GDP keeping growing at a rapid pace for successively several years. In the next few years, there lies great room for the development of China's third industry, along with a great potential for the growth of sales tax, which is closely related to it. In the meantime, since sales tax has already been in a dominant position in the local taxation system, it is therefore fully entitled to be a major category of local taxes.

II. Income tax of enterprises. Although the income tax of enterprises has already been a great contribution to the local taxation, it still invites some necessary adjustments. For instance, it is necessary to combine the internal and external income taxes of enterprise into one, to unify the deducted items and standard of expense listing of income tax and to standardize the tax basis of income tax of enterprises. Furthermore, to be in accordance with the trend of market asset restructuring and enterprises' shift into joint-stock companies, we shall, in stead of dividing income taxes according to administrative jurisdictions, turn the income tax of enterprises into a shared tax of both the Central Government and the local government and be placed in their respective treasuries.

III. Property tax. In foreign countries, property tax forms a major category of local taxes. Therefore, we shall refer to foreign experience and classify the categories of taxes in three links, including occupancy and utilization, transfer and sales and estate income of assets. In the asset utilization and occupancy link, we shall combine the housing property tax, land holding tax and urban housing and land tax and establish a housing property tax, which applies to both domestic and foreign capital; in the asset transfer and sales link, we shall establish housing property registration tax and cancel the tax items regarding asset transfer in the stamp tax and the existing contract tax; in the estate income link, we may continue to collect land increment tax and income tax.

If condition permits, we shall integrate the land income into the income tax and in the meantime cancel land increment tax so that a self-contained property tax system with several links can be established.

We believe that, within the property tax system established in accordance with the above plan, the property tax related to real estate will increase greatly in amount as a result of increase in categories of taxes and changes in calculation basis, tax rate and scope of tax collection. And on the other hand, with the development of economy and the improvement of the market mechanism, the stock of property will gradually increase, thus enriching the tax source of property tax day by day and increasing the amount of property tax collection.

IV. Individual income tax. Many scholars hold that the collection of individual income tax is based on the principle of capability, in which case the tax basis has a relatively high liquidity. It is also related to the adjustment of personal income of the whole country. Therefore, it is not convenient to put it in the category of local taxes, not to say its being a major category of local tax. However, owing to the lack of main categories of local taxes and the growing potential of individual income tax, we believe that in the next few years the individual income tax shall become a major category of local taxes.

In China, the loss of individual income tax revenue is pretty serious. In accordance with statistics from National Tax Administration, the amount of loss in individual income tax revenue accounts for some 50% of the total. The reason for this lies not only in the lack tax awareness of the citizens and of strength in tax collection, along with the backwardness of the means of tax collection, but also in the apparent defects in the individual income tax system itself. To change this situation, we shall reform and improve the current individual income tax system. First of all, we shall reform the collection mode for individual income tax to better adapt to the trend towards pluralism and to fulfill the aim of equality to the greatest extent; second, we shall further expand the tax basis, e.g. to include the private-owned, partnership and joint-venture enterprises that share the nature of natural persons into the range of individual

income tax collection; third, we shall gradually launch the self-declaration taxation system and reinforce the legal strength in the tax source deduction system, improve the tax check capacity and punish severely the tax dodgers.

V. City maintenance and construction tax. Presently, there are still many problems lying ahead for the city maintenance and construction tax to become a major category of taxes. Therefore, certain reforms are inevitable. In this respect, we shall the following three alternatives:

Alternative one is to combine the city construction tax with the items of fees and charges of the city construction department and lift the tax rate of city construction tax, which shall be collected by local tax departments. Although coinciding with the current trend of “changing fees into taxes”, this large scaled reform still has to wait for some time to be implemented.

Alternative two is to maintain the city construction tax, provided that the calculation basis for the city construction tax shall be improved. The tax revenue shall come from the sales revenue of manufacturing and operation. This alternative has the advantages such as stabling and expanding the tax basis and preventing it from shrinking, etc. However, it runs counter with the trend of tax reform, which mainly stresses marginal tax collection. Therefore, there will be considerable difficulties in the actual practice of this alternative.

Alternative three is to collect city construction tax independently. Its collection shall be independent to the value-added tax, consumption tax and sales tax, and shall include tax revenue from foreign-invested and foreign enterprises.

We believe that given the present level of the development of tax collection in China, the third alternative shall be the most preferable, if the principle that “benefits shall be equals to obligations” is to be considered.

Reason one, in accordance with the principle that “benefits shall be equals to obligations”, the independent collection of city construction tax may help us solve the problem that, due to deduction and exemption, defaults and instant collection and returns of value-added tax, consumption tax and sales tax, some tax payers do not pay

the city construction tax while enjoy the amenities brought about by the city's infrastructures.

Reason two, in accordance with the principle of equality on a horizontal level, the expansion of collection of city construction tax and establishment of tax collection from foreign-invested and foreign enterprises shall be beneficial to the realization of tax equality between domestic and foreign enterprises.

5.6 City's Infrastructure and Fiscal Status

Undoubtedly, the city's infrastructure depends largely on the fiscal status of the local government. However, it is known to all that the investment on city's infrastructure is far from enough.

The reason for this is that the source of capital funding the city's infrastructure construction is singular and lacks insurance.

First, the investment from financial budget is rather limited, as result of which the government finds it difficult to fund construction of the city's infrastructure, which usually demands huge amount of financial input. Moreover, due to problems with the system, enterprises are unable or unwilling to participate in the construction of infrastructure, causing the development of city's infrastructure to lag far behind its economic development.

Second, being the main source of city's construction fund, the city maintenance construction tax is too low in tax rate and too little in terms of revenue, and is still a far cry from actual demand.

Third, the state budgetary investment on infrastructure used in city's infrastructure construction lacks a reasonable proportion and a fixed limit, and is on a steady decrease. For many years, the intra-budgetary investment on infrastructure has been used mainly in construction of industrial manufacturing facilities, while the city's infrastructure is deemed as non-manufacturing construction and therefore arranged by local governments.

The fourth is the lack of capital markets. Presently the fund for urban construction

is specially appropriated and used for sole purposes, and thus lacks the credit system that has categories of credit modes and credit instruments and serves to finance capital. The capital lacks the conditions required for horizontal flow, while amount of bank loan is extremely limited. In the meantime, as a result of the fact that for long the city's infrastructure is treated as a sort of welfare project, investment on infrastructure can hardly be rewarded. Moreover, the urban construction department has little access to financing in the capital market; the source of capital for the construction of city's infrastructure is rather limited.

To solve the above problems, we present herein the following proposals:

- I. To reform the city construction tax to improve the tax basis and scale of the city maintenance construction tax, which has been mentioned above.
- II. To establish a complete system of housing and land tax.
- III. To adjust intra-budgetary investment structure of fixed assets. The emphasis of fiscal investment shall be to focus on public utilities such and traffic and communications and basic industries such as energy and important raw materials and in particular to increase the fiscal input on infrastructure.
- IV. To construct a policy-making financial system in order to provide the basic industries with long-term, stable and low-interest rate capital. In many countries in the world, it is a very important channel to raise the fund for city infrastructure construction for local governments at all levels to establish policy-making specialized banks. These cities manage to make up the shortage in the transferred payment of both the local and Central Governments through these specialized banks, which is a very good example for our Chinese counterparts.
- V. To promote the system of compensation use of land. In this way, we may not only improve the efficiency of allocation of land resources, but also facilitate the country to acquire the grading benefit of land use, which will be bring fortune to the local government and thus creating a channel for the funding of city infrastructure construction in the long run. Except for the state-invested office buildings of government organ and administrative institutions, land for residential housing and land for public facilities and public utilities, the fund of which shall continue to be supplied

in terms of appropriation, other newly-added construction land, particularly construction land for commercial, financial, tourism, service purposes and projects concerning foreign affairs, shall be subject to the measure of compensational and limited transfer of use right of land. The system of compensational use of land shall be promoted fully.

VI. To allow the local government to issue public debt in a certain range. In accordance with the existing standards in China, local governments are not allowed to issue government bonds. The main basis of this is firstly that the issuance of public debt would restrain the expansion of expenditures of the local government; and secondly would infringe the macro-control of the Central Government. However, so far, the shortcomings of not allowing the local governments to issue government bonds are becoming more and more conspicuous. On the one hand, with the development of economy and the improvement of the income level of residents, the demand for the city's infrastructure is growing much faster than the normal growth rate fiscal revenue of the local government. On the other hand, the local government's function to stabilize the local economy and optimize the regional allocation of resources requires it to lead the regional economic growth through comprehensive fiscal measures and optimize the regional economic structure. It is necessary to allow the local governments to issue local public debts, for it can improve the order of distribution of local fiscal income and fully perform the local fiscal function. However, there should of course some restrictions regarding the issuance of local public debts, for example, the issuance of local government bonds shall only be conducted after the issuance of national debt; the issuance of local government bonds shall be subject to the interest rate policies of the country; the scale of the issuance shall be controlled; and we shall strictly forbid the current fiscal expenditure use of revenues from the issuance; the revenue from the issuance shall be directly to the construction of city's infrastructure. As to the source of capital for the reimbursement of local government bonds, the government may raise the fund through taxation and reasonable charges for utilization of the infrastructure.

5.7 Discussion: Urbanization of Suburbs, and System of Finance and Taxation

The growth of cities will inevitably lead to the urbanization of suburban areas. In fact, all the metropolises are developed through the urbanization of suburban areas.

On the outskirts of the downtown area of Beijing are at least two large suburban “cities”: Huilongguan residential area and Yabei residential area. But in these two regions, you can hardly find any public service provided by the government, such as hospitals and schools. Of course, we have schools here, but they are private schools run by private institutions; and we have hospitals too, but they are all tiny clinics. Since we have laid much emphasis on creating a society of the city residents, then where are the resident-oriented public services in these areas?

The problem lies in the fact that the governments of these new residential areas have hardly any financial strength in providing such public services, although residents in these two areas have relatively high salaries and high demand for services.

We have pointed out that cities are agglomeration of industries as well as of population. Being the basic units of industrial agglomeration, enterprises shall pay various categories of taxes to the local government; and only in this way can an enterprise realize external economy; by the same token, being the basic units of population agglomeration, residents shall also pay taxes in order to enjoy the public services provided by the government. However, in accordance with the existing system of China, all employees except the self-employed shall pay their individual income tax through the enterprises where they work, i.e. the enterprises shall collect the tax due from the tax payers for the taxation department and turn the tax to the taxation department of that region.

However, the problem is that such a system brings to us the following three problems:

Problem one is that the areas of residence has no support from tax collections and therefore unable to provide public service in the communities. As a result, governments will try to attract enterprises to operate in those areas, even though these areas may be more suitable for being residential areas.

Problem two is that the tax revenue of the government comes from enterprises rather than residents. While providing services to enterprises, the government may consider it its obligation; but when it provides service to residents, it may well consider it a kind of burden.

Problem three is that, since the government finds that only when cities become an industrial agglomeration can there be enough profit while population agglomeration brings no economic benefit, it usually has more enthusiasm in participating economic activities and lacks initiative in providing public services. However, the social demand of the government is precisely the opposite: the key mission of the government is to provide public services, rather than participate in economic activities.

In view of this problem, we have conducted a small-scaled survey in Jiangsu Province. According to the survey, we find that most of the respondents understand the practice to pay their individual income tax to the local government of the district in which they live. However, in the meantime, these supporters are also worried about the fact that if this practice is to be adopted, the current system that enterprises collect taxes for taxation departments may not be able to continue; furthermore, if we continue this way of operation, the difficulty in tax checks will be increased while leaving more room for tax evasion and dodging for enterprises. The answer is negative.

In Japan, individual income tax is also collected by the agency in which the individual works on a commission basis. The target of tax collection is easy to understand, while direction of the payment of tax collected is from the enterprise to the taxation department of where the individual lives, rather than where the enterprise locates. Of course, this kind of practice may add more burdens on the side of enterprises: they need to make out the addresses of their employees and the account numbers of the taxation departments of the residence of the employees.

As to the issue of tax evasion and tax dodging, they are by no means a sound reason, for even under the present standard, there are still many enterprises evading and dodging taxes. The solution to the problem lies in the improvement of the quality of the enterprises as well as the level of services provided by taxation departments.

As previously stated, the urbanization of suburban areas is a very important mode

for the growth of cities. However, in developed countries, the emergence of the “hollow” phenomenon in the downtown area of a city is almost inevitable in the suburbanization of cities. However, some super large cities in China still maintain considerable prosperity, or even over prosperity, in the downtown areas. One important reason for this is that, under the present system in China, suburbs and other newly established areas can only realize industrial agglomeration, rather than population agglomeration, in other words, the industrial agglomeration and population agglomeration can hardly go hand in hand.

If this problem cannot be solved, it will be very harmful to the economic development of China. In this respect, the development of Pudong is a vivid example. Even today, there are still many empty houses in Pudong, whereas in Puxi, the housing condition of many city dwellers is rather poor. Many people would rather cram in the tiny attics than move to Pudong. One of their concerns is the doubt about the service quality in Pudong, or in other words, they do not have high expectation about the public services in Pudong.

Like Pudong, the newly developed areas in other cities are in the same situation. In Beijing, the development of Yizhuang area brought to us a GDP of RMB 20 billion in one year, while the population there only amounts 10,000.

Apart from restricting the development of new residential areas, the current system also causes many problems to the reconstruction of the old city zones. We have conducted a survey among over 100 families living in the shack zone of the west zone of Beijing, asking them if they were willing to move to residence in suburbs. The results were that 89% of them answered that if condition allowed, they would still prefer living in the city zone. The reason for this is that they believe the newly developed areas are only residential areas, rather than cities. Such a psychology of residents not only increases the difficulty in the reconstruction of old city zones, but also increases the cost of the reconstruction.

Here is another problem that is related to the public service issue in the new residential areas. Normally, upon the emergence of new residential areas, rural areas surrounded the new residential areas. Therefore, the residents in the new residential

areas have much more demand for public utilities than do the residents in neighboring areas. However, city service takes time, and money doesn't mean anything.

According to the present situation in China, the urbanization of Chinese suburban area may differ from that of those western countries. The characteristics of such a process is listed below.

1. Passive sub-urbanization. In western countries, the sub-urbanization occurred spontaneously with the increase of middle-class people, the dissemination of cars as well as people's strong desire to live a more comfortable life. On the contrary, Chinese inhabitants moved to the suburban area passively due to the reconstruction of the old cities.
2. The inhabitant sub-urbanization far behind the industrial sub-urbanization. Because of the underdevelopment of the necessary equipment in the inhabitant areas, Chinese people are not willing to move to the suburban areas. They prefer to go to their enterprises in the suburb in the morning and return to their home in the city at night. Westerners, however, they work in the city and live in the suburban areas.
3. The gradually spreading sub-urbanization. Due to the lack of cars and underdevelopment of public transportation system, the suburban areas in China are not far away from the city center, usually 10 kilometers away. In western countries, people might purchase their house or villas 20 kilometers away. The government of Beijing used to carry of the plan of satellite city, yet the result is not satisfactory enough.
4. The undistinguishable social classes. In western cities, people live in different areas according to their income. The more income they gain, the further they live away from the city. Obviously, the cost of municipal service might increase, yet such problem might be easily solved since the inhabitant with higher income have to pay higher taxes.

It is not difficult to explain such characteristics of the urbanization in Chinese suburban areas. One of the most important aspects is the influence of present fiscal revenue system. Therefore, with the development of urbanization as well as the economy of metropolitan areas, relevant financial policy should be introduced. The

individual income tax, which we have just discussed, is only one aspect among the whole policy.

5.8 Conclusion: New Concept about the Local Financial Rules and Regulations

Compared with the shortage of local financial resources, the "shortage" of financial operation system is much more serious, especially in the fields of financial revenue organization, financial expenditure system as well as the investing and financing management.

The financial revenue organization lacks efficient protection from rules and regulations. For instance, national taxes are organized by the Central Government while the provincial government, which are difficult to be coordinated, organizes local taxes. Furthermore, there is not a distinguishable line in the revenue management system. Markets and individual owned enterprises have to pay taxes to both the Central Government and the local government, yet the tax-collecting power in the two governments can not differ from each other. Thus the revenue efficiency is lowered and tax-collecting resources are lost.

The financial expenditure system lacks efficient track-monitoring rules. Although some fiscal systems of payment partly in kind and partly in cash is carried out, the accounting of the expenditure budget still adopts the base-increasing method, which cause serious imbalance in fund among different fiscal units. A large sum of money is wasted during the process of expenditure.

The investing and financing management lacks perfect management systems together with efficiency. For example, banks prefer to invest in those short-term projects, including the competing projects with high marketing level, rather than those public projects.

Definitely, the problems in the local financial operating rules and regulations are difficult to be solved unless new ideas are introduced.

In the financial revenue organization, the distribution system should be orderly arranged and the tax & fee reform should be carried out. Too much fee and fund may

greatly damage the revenue collecting system and disperse the economic force. As a result, the government should take measures to cut down fee and fund so as to put the distribution system in order gradually.

Meanwhile, small categories of taxes should not be ignored. The standardization and regularization of small categories of taxes are essential in the tax-collecting system.

In the financial expenditure system, it is said that if the fiscal department quits the producing and competing fields, the government does not need to support the development of economy any more. Such an idea is wrong since fiscal department is entitled to take the responsibility to support the economic development. The quit is referred to as an indirect participation in the market and the investment in public projects. And the whole society may benefit directly or indirectly from such policy. On the contrary, the more money we spent on the state-owned enterprises, the heavier burden we might suffer.

Simultaneously, it is not wise to make a large-scale expenditure as we did before. The government should make zero-base budget and improve the government purchasing so as to raise the fiscal expenditure efficiency.

In the investing and financing management, we should pay attention to the guidance function of fiscal fund, guiding social capital to invest in city construction. For instance, the public projects can be carried out in the competing market. The government should stick to the principle that allows social capital to invest, to operate and to gain. Furthermore, in order to reconstruct the old city, the local government may directly finance the project in the form of share-holding system.

The fiscal discount also plays an important role in the reform. By this means, bank credit and loans can be used in the process of urbanization.

In our opinion, there are many new ideas in the reform of local fiscal rules and regulation. Besides, there is still a large scale of room for the local finance system in Jiangsu to explore.

Section 2 Formation of Mobile Society

Chapter 1 Population Shifts: Prerequisites for Urbanization

1.1 Policy Recommendations

(1) Take an Active Approach to Population Shifts

The migration of rural populations to urban areas is the prerequisite for the development of urbanization. As a result of the implementation of the dual administration system for urban and rural areas under conditions of the planned economy, China's government adopted a series of strict administrative planning and control measures for restricting population movements. Since the beginning of reform and opening up to the outside world, and following the rapid development of citizens' economic conditions and increasingly thorough urbanization reforms, unprecedented aspects of the transformation of labor's production spaces and the transfer of labor space have appeared. The employment structure of the labor force and the urban and rural distribution of population have changed greatly within a short period of time. According to statistics, the proportion of people employed in primary industries decreased from 70.5% in 1978 to 50.1% in 1999, a fall of approximately 20 percentage points over a period of 21 years. The fall greatly exceeds the decline of 13 percentage points over the 26 years from 1952 to 1978. Before the middle of the 1980s, the principal manner in which the production space of labor was transformed was for labor to be no longer working in the fields, but to still remain in the countryside. Thus, while marked changes were occurring in employment structure, the spatial movement of the population was held in check. From the latter part of the 1980s, the movement of labor from the countryside to the cities and from inland regions to coastal areas began to increase in pace. A process of unprecedented scale of rural people migrating to the cities had begun.

The large-scale migration centered on rural labor was not only useful for the rational deployment of labor resources, but also had extremely great significance for

the promotion of urbanization reforms applied to the traditional planned economic system, the dismantling of the dual urban-rural social structure, increasing farmers' incomes and reducing regional disparity.

The combination of labor and other elements of production is the essence of population movements. In addition, this combination always moves towards the spatial location, which is most beneficial to the development of production strength. Therefore, population movements are an important prerequisite for the formation of an urbanized society.

With China's situation of facing surplus labor in both urban and rural areas, it is understandable that many municipal governments hold feelings of exclusion towards in-migrant labor. However, for the majority of cities, in-migrant labor has already become an indispensable component of economic activity.

(2) Accept In-Migrants with Fairness and Tolerance

The relationship between municipal governments and migrant labor should gradually change from crude "administration" into refined "service", and compensated administration should be transformed into service without compensation, thereby making the in-migrant population at the level of a "weak community" able to have a comparatively fair starting point for social development.

(3) Improve Training Mechanisms

With regards to governmental services to the transient population, there is at present quite an urgent need to establish a standard mechanism for releasing information so as to guide population shifts. At the same time, pre-employment training mechanisms should be set up at both the transient population's point of departure and the point of arrival.

(4) Establish a Social Security System Suited to Population Shifts

Research for the establishment of social security for the rural population moving into cities needs to be considered. In particular, the issue of security against job

redundancy must be considered. Only if this is done can the problem of how the migrant population, after arriving in urban areas, can remain living there be resolved.

1.2 Characteristics of Rural and Urban Population Shifts in China

According to statistics, in an average year the transient rural labor force in the entire country numbers between 70 million and 80 million people. Of these people about 70% move to cities, and form about 25% of the country's urban population not employed in agriculture. The main direction of movement is from central and western regions towards the eastern regions with their concentration of cities and towns, and from rural areas to large and medium cities. Coastal provinces and municipalities including Guangdong, Jiangsu, Zhejiang, Beijing and Shanghai are the regions with the greatest influx of population. On the other hand, provinces including Sichuan, Hunan, Anhui and Henan are the regions with the greatest outflow of population. According to statistics prepared by the Agricultural Bank of China at the end of 1993, 77.9% of China's transient population moved to urban areas (including cities and organic towns). Central regions were the largest source of transient population in the country, with 44% of China's transient population coming from those areas. The proportion of migrants moving out of central regions reached 15.9%. The second largest source was the western regions of the country, with the proportion of migrants moving out of the region reaching 13.5%. The eastern regions had the lowest rate of external migration, equivalent to about one half of the rate of central regions. According to the latest statistics, the migrant population of cities such as Beijing, Shanghai and Guangzhou is more than 3 million in each city. Of this figure, the proportion of people staying in those cities for one full year or more is around 25% - 30%. In a number of cities in the Pearl River delta area, the proportion of the non-agricultural population to the in-migrant population stands at 1 to 1. In the regions of the Pearl River delta, Yangtze River delta, Beijing and Tianjin municipalities, central-southern Liaoning province, and coastal areas of Shandong and Fujian provinces, all regions with high concentrations of cities and towns, the registered temporary resident population already

accounts for 45% of the entire country's registered temporary resident population and 70% of that of the eastern coastal areas. The area with the highest in-migrant temporary resident population is the Pearl River delta area. The number registered in the area has reached more than 8.9 million, but the actual figure is around 16 million, equivalent in number to 74% of the total registered long-term resident population. The Yangtze River delta is the area with the second highest in-migrant temporary resident population, with 5.2 million registered, but with an actual number of around 10 million, equivalent to about 13% of the area's registered long-term resident population.

Income from labor services has already become a potent force for local economic development in provinces with a net population outflow. According to statistics, the average annual income in China of migrant laborers who have left the countryside is RMB6206, and the amount returned home over one year adds up to about RMB220 billion for the entire country. In Hunan province, out of a rural population of 52.41 million, surplus labor amounts to 9.2 million people, of which 4.6 million have moved outside the province to work. The annual income of workers who had moved outside the province was RMB6907 in the year 2000, RMB1100 higher than the average per person disposable income of urban residents in the province. The amount of income remitted home through the post office by workers who had moved outside the province reached RMB15.922bn, approaching the total local fiscal revenues of Hunan province for 1999. Exporting labor to other provinces has become a point of economic growth for many provinces with large populations in China's central regions.

In comparison with the early period of reform and opening up, centered on the shift of surplus labor towards non-agricultural industries with the local, temporary, simultaneous and oscillating characteristics of spontaneous population shifts, a series of new characteristics of population shifts in China has appeared recently after twenty years of development:

(1) China is now in a period of large-scale movements of the rural population to cities and towns. The incoming population of most cities and towns is larger than the

outgoing population, and the migrant population of large and medium cities is increasing very rapidly. In 1988, the migrant population of Beijing was about 738,000, and this shot up to 3,295,000 by 1994, a 4.5-fold absolute increase.

(2) The inevitability of spatial shifts becoming population shifts following changes in occupation. Driven along by surplus agricultural labor, the phenomenon of entire households migrating has begun to appear with the large-scale movement of the rural population to towns and cities. Long-distance migration and stable migration have increased markedly. At the same time as the marked increase in out-migration of the rural population, the size of the population migrating from city to city has also increased by a large degree, as has the proportion of the population migrating between provinces.

(3) The factors influencing the number of people migrating between provinces have certain differences in different areas. Overall, however, the main factors are the size of the migrant population already in existence, the disparity between the level of economic development or income of the destination and the place of origin, the distance of migration and the economic maturity of the destination.

(4) The ratio of the in-migrant population received in eastern regions to the population moving out of the central regions is still increasing. However, the population moving out of western regions is increasing the most rapidly. Regarding the scale of inter-provincial population shifts, the population moving out of western regions in 1998 increased nearly 100 percent over that in 1993. In addition, the majority of the migrating population moved into eastern areas. However, in 1993, 38% of the people leaving western regions migrated to central regions, and this fell to 14% by 1998. Most of the inter-provincial migrating population from western regions moved to eastern regions.

(5) Population movements from rural areas to cities show the trends of movement to

nearby areas, towards cities, and towards prosperous areas. The migration of families has become a new form of migration. According to a survey in Beijing municipality in 1994, the migrant population of the municipality had already reached 3.295 million at the time. Of those people, migrant families who had rented housing, built their own housing (shacks) or took up other forms of residence had formed one third of Beijing's migrant population.

(6) The in-migrant population is mainly employed or engaged in informal sectors outside the organized system. In addition, most migrants are engaged in heavy, low-skill, low-wage jobs that lack stability. Some migrants replace local workers in fields of employment with relatively poor working conditions, such as textiles, metallurgy, chemical industry and construction. Some are engaged in heavy laboring work in service industries such as assembly work, cleaning, repair work, goods delivery, house moving and recovery of second hand goods. Some migrants are engaged in service work that city residents prefer not to do, such as security work, housekeeping, and food and beverage and entertainment work. Of course, there are also a small number of young people with a high level of educational qualifications and having technical specializations engaged in specialized technical work, and who have even begun to establish their own enterprises.

(7) The transient population in large and medium cities has distinct features of migrant groups and concentrations of industries. One aspect is the formation of the marked geographical feature of areas of migrant residence, such as Beijing's well-known "Zhejiang Village" and "Xinjiang Village". At the same time, it exhibits the close relationship between job and original place of residence. According to findings by Gu Chaolin and other people in their surveys in Beijing: the majority of the male transient population from Jiangsu, Shandong and Hebei provinces is engaged in the construction industry in wood working, bricklaying and plumbing; the majority of those from Henan province are involved in recovering secondhand goods, foundry work and cleaning; and those from Shandong province are absorbed in transporting vegetables

for sale and other work. The majority of the female migrant population from Jiangsu province prefers to undertake light trading, textile work or assembly work, while the majority of those from Anhui province take on housekeeping, child-minding and house cleaning work in the city's households. Some of the female migrant population from Sichuan and northeastern regions works in the food, beverage and entertainment industry, such as in restaurants, hotels, song and dance halls, and in other service industries. The migrant population from wealthier provinces and regions sets up their own small companies, whereas those from comparatively poor provinces and regions open small regional-flavor restaurants or undertake small-scale trading of goods with regional characteristics on street stalls. For example, there are people from Fujian province who are involved in the timber trade, people from Guangdong are involved in aluminum alloy building materials and other trades, some of the migrant population from Xinjiang and Ningxia opens Muslim restaurants, and migrants from Tibet and Qinghai sell Tibetan medicines on the street.

(8) Along with the increasing pace of opening up to the outside world in the inland regions, population shifts have already changed from the unidirectional movement from west to east, and from the countryside to the cities, to bi-directional movement. Minority ethnic populations from central and western areas have also begun to move into the eastern coastal regions, and rural populations from coastal areas are migrating to central and western cities on a large scale. According to a report in the *China Economic Leader*, the ethnic minority population from border regions engaged in work or trade in Jiangsu province numbers more than 3000, and the migrant ethnic minority population in Shanghai exceeds 100,000. At the same time, signs of people from Zhejiang province can be found in more or less every city, and even county towns, in central and western regions.

(9) From a general perspective, the main reasons for the movement of the transient population to large and medium cities is the search for an improvement in economic conditions and living environment, and the search for personal development and new

work opportunities. In large cities, the proportion of the migrant population engaged in commercial tertiary industries is relatively high, whereas in medium cities the vast majority is engaged in labor in secondary industries.

1.3 Urban and Rural Population Shifts in Jiangsu Province

Jiangsu is an economically developed province in the east of China. It stands at the forefront of the country in terms of the scale in which it absorbs in-migrant populations. However, there is quite a large gap between northern Jiangsu and southern Jiangsu. The Yangtze River delta area in the south of the province is one of the primary destinations of migrants, whereas northern Jiangsu is an area of net population outflow. The inter-city and inter-county transient population in the province is in the range of 1 million people. According to research findings, the following features are present in population shifts in Jiangsu:

(1) The proportions of population shifts and rotating populations are relatively high in counties and cities

Since the overall level of economic development in Jiangsu is relatively high, the mobility of the population is greatly increased. The scale of movement within the ranges of cities and counties is also worthy of observation. According to research by Zheng Hongyi and others in Jiangyin city, at the forefront of economic development in Jiangsu, in the middle of the 1990s, the total permanent resident population in 1994 was 1.1336 million, and the in-migrant temporary resident population was 103,900, approximately equivalent to 9% of the permanent resident population. Since rural non-agricultural industry is universally quite well developed, and population density is quite high, people work in towns where there is a high concentration of administrative bodies, but the “rotating population” who live scattered throughout the countryside has become a major feature of population shifts in southern Jiangsu. According to research findings, the rotating population in towns and townships of Jiangyin city had reached 150,000 people by 1985. After the beginning of the 1990s, the marked

improvements in towns and cities brought on by infrastructure construction increased their attraction for people. At the same time, controls on the movement of the rural population were gradually relaxed, and so the scale of the rotating population decreased, although it still numbered 80,000 people in 1995.

(2) Labor in the transient population has mainly come from outside the province

According to statistics from towns and townships in Jiangyin city, incoming labor of 57,435 persons was admitted in 1995, of which 31,101 people, or 54%, came from outside the province. The number of people from other cities and counties within the province amounted to 16,819, or 29%, and the number of people from other towns and townships in Jiangyin city amounted to 9515, or 17% of the total.

(3) Migrating distances of some of the outgoing population are limited

The combined data for the outgoing persons from the towns and townships in Jiangyin city for 1995 indicate that the outgoing population totaled 43,316 people, of which 26,290 people, or 61% of the total, moved to other towns and townships in the city. The number of people moving to other cities and counties in the province numbered 11,233, or 26% of the total, and 5793 people moved out of the province, equivalent to 13% of the total. Most of the people who moved out of the city shifted to Wuxi, Shanghai, Beijing, Nanjing and the large and medium cities of the Pearl River delta. According to data provided by the Jiangsu Provincial Administrations of Labour and Social Security, of the 1 million-strong rural labor force moving between cities and counties in the province, between 400,000 and 700,000 individuals have moved to the provincial capital Nanjing. Adding to that the labor that has moved to other cities in southern Jiangsu, it can be judged that the total transient population leaving Jiangsu province is very limited.

1.4 Problems Facing Population Migrations

Over the past twenty years of development, there has been a corresponding shift of a portion of surplus agricultural labor to non-agricultural sectors. However, the

majority of surplus agricultural workers who are now engaged in or are mainly engaged in non-agricultural sectors still keep their original rural residences, thus becoming an urban-rural dual residence population. Even if rural labor has already moved into the cities, the majority of individuals can still only choose relatively difficult temporary or mobile positions, and manual labor jobs in particular. They are still unable to cast off their rural residency or the restrictions of land tenure. At present, the major difficulties for the transformation of surplus labor lie in the contradiction between the unceasing increase in the amount of surplus rural labor and the limited ability of industry in cities and township enterprises to absorb that labor, which is becoming more prominent day by day.

Firstly, the “dual surpluses” of urban and rural labor are the basic factors influencing population migrations. China is regarded as a developing country with a large population. Within a correspondingly long period of time, the country will face the issue of the inability to achieve the target of full employment for both urban and rural labor. Particularly after the middle of the 1990s, when the country felt the effects of the international economic environment and the transformation of the domestic consumer market, and the economy’s rate of growth began to slide, the ability of the urban non-agricultural industries to absorb rural labor declined, which affected the continued expansion of the scale of migration of urban and rural populations. In recent years, owing to the difficulties faced by urban economies, the situation of rural workers being dismissed from their jobs has appeared in a large number of locations. The *Beijing Municipality Administrative Regulations for Non-resident Workers in Beijing* were issued as early as 1995. The regulations clearly stated, “This city implements controls on the total number of persons from outside Beijing who may work or trade in the city. Insofar as this city makes use of the trades and vocations of persons from outside the municipality, the Municipal Labor Administration may, by way of relevant departments, and in accordance with the city’s labor requirements, and under the principle of the labor force of the municipality’s urban and rural society being insufficient to meet the needs of recruiters and employers, make proclamations in these regards.” At the beginning of 1997, Beijing Municipal

Government made regulations prescribing 20 occupations for which non-Beijing residents are not permitted to find work in the city, including financial, insurance and sales personnel, star-rated hotel service staff, telecommunications personnel (including wireless communications), motor vehicle drivers and elevator operators. Shanghai and other cities also required that enterprises in the cities reduce their employment of people from outside those cities by 10% year-on-year in 1997. After Chinese New Year in 2001, administrative departments in major coastal cities one after the other communicated by way of the media to remind in-migrant workers that they must not move blindly to the cities. Beijing stated that the number of migrant workers is to be controlled at the level of 950,000 people, and the number of migrant workers in Shanghai is to be controlled at the level of 200,000 people.

Secondly, with the situation of many cities facing serious employment pressures, regardless of whether they are looking at it from the point of view of concept or of actual operation, it is difficult for city governments to treat rural in-migrant workers equally with local residents. It is even more difficult for them to create a fair and just organizational environment. Since the problems surrounding permanent residency cannot be resolved, except for a number of occupations with restrictions on entry, discrimination against migrant workers in many public service fields is widespread. For example, in addition to migrants having to pay high fees for their children to attend school, purchasing a mobile phone requires additional guarantees, and even purchasing monthly public transport passes requires the payment of higher fees than local residents. It is frequently all the more difficult for migrants to set foot in the world of credit consumption.

Third, the lack of soundness in the rural land circulation system also influences the acceleration of the migration of rural populations. At present, although China's rural land tenure period extends to 30 years without change, a system of circulation of land use rights still has not been set up. Under these conditions, one aspect is that, since appropriate resolutions for the tenured land of persons moving out to work in other areas cannot be obtained, it involves to a certain extent the energy of those persons. Another aspect is that, if farmers wish to abandon the land, which is their basic social

security and go to the towns and cities, the price they must pay is excessively high, and thus influences farmers' resolve to leave the land and move to the city.

Fourth, education levels of rural labor urgently need improving. The overall low quality of rural labor in China is a major barrier to surplus rural labor's movement to small cities and towns. According to statistics, among China's rural labor force in 1997, the proportion that had reached an educational level of junior high school or below was 88.3%, of which around 10% were illiterate or semi-literate. The proportion of the rural labor force that had reached primary school level was 33.9%, while only 11.7% had a senior high school education. Among the rural labor force, only 10% of the total had received vocational education or training. The present situation of the widespread low-trending level of the quality structure of the rural labor force has intensified the contradictions of surplus labor. Firstly, workers use the time that they ought to have for education and training instead on production activities, thus increasing the labor supply. Second is that the productivity of labor that has not received a relatively high level of education or training is usually quite low. A certain level of output and income can only be reached through prolonged periods of intensified laboring. This amounts to an increased supply of labor. Third is that labor that has not received good education or training has a relatively poor ability for and consciousness towards innovation, and can commonly only resort to relying on traditional experience to carry out traditional avenues of production. It is difficult for them to develop or adapt to new and more employment opportunities.

1.5 Solutions for the Issues

Promoting the shift of rural populations to towns and cities is a systematic project. Innovative work must be undertaken to improve governmental organization, administration and systems on the basis of actively directing the effects of market mechanisms.

(1) Forming a unified urban-rural labor market is an important guarantee for promoting the transfer of the rural population. Governmental administration of the labor market

must first be perfected and standardized. As described above, with the situation of an unlimited supply of labor, and faced with the pressures on city infrastructure, social order, family planning and other factors created by a large population influx, local governments in areas with migrant influxes are mostly tending towards drafting relatively strict policies regarding the use of in-migrant labor, and are raising thresholds. There are still many deficiencies in the drafting of regulations for the labor market and in the safeguards for the rights and interests of migrant laborers. Government administration in source areas of migration also has problems such as only attaching importance to mobilizing the labor force to move out so as to reduce local employment pressures and increase the amount of income remitted home, poor grasp of the situation of out-migrating rural workers, and insufficient organizational and training work. Government administration at the national scale begun this work even later than local government administration, and has even more gaps. At the end of 1994, the Department of Labor made public the *Provisional Regulations for the Administration of Inter-Provincial Rural Labor Migration*. The main content covered a method involving the source location of migration issuing an “Outgoing Employment-Seeker Registration Card” and the destination granting a “Migrant Employment Permit” in accordance with the requirements of employers. The aim of the method was to regulate and control the number of inter-regional migrants and develop an organized outflow of labor. Although these regulations filled in the blanks in the overall scope of the administration of the migrant rural population, there were still many shortcomings in the method of implementation, organizational co-ordination and various aspects of the safeguards for the rights and interests of migrant labor. Therefore, China must now establish a complete set of laws, regulations and systems to promote the rational movement of rural populations between regions, and which must both cover the entire country and suit the characteristics of different regions, as well as both being able to protect the interests of the destination regions of migrants and assert the legitimate rights of migrants.

Second, vigorously develop multiple kinds of labor employment intermediary organizations, and establish a sound employment services system. A socially oriented

employment services system including employment information, consultation, job introductions and training should be formed gradually. First, a multi-layer, multi-format job introduction organization system should be established and perfected on the foundation of standardized acceptance of qualifications. The system should be entrusted to county job-introduction offices, and a labor services network at county, township and village levels should be formed. At the same time, the inter-county, intercity and inter-provincial exchange of information required by labor should be developed, a horizontal network for labor cooperation services should be formed, and a socially-oriented employment services system including information, consultation, job introductions and guarantees of security should be gradually formed. Second, training of the labor force should be completed before migration. In order to suit requirements for employment, pertinent training for the labor force should be conducted, thus meeting the requirements for different levels of employment. Third, follow-up services for and administration of out-migrant job seekers from rural areas should be improved.

Third, reform of the household registration system should be increased. The direction for reform of the system should be posed in accordance with central views regarding the promotion of the healthy development of small towns and cities. The division between the rural and urban labor markets should be eliminated in the system, and all kinds of additional socioeconomic disparities related to the household registration system should be eliminated, to the point where urban and rural residents truly have equal status and equal opportunity for chances at development. Reform of the household registration system should also accompany reform of the urban employment system and of the urban social security system. A market-oriented employment system of enterprises being free to employ personnel, and workers being free to choose their jobs, should be established in the urban employment system. At the same time, the urban social security system, and that in small towns and cities in particular, should be improved.

(2) Accelerate the establishment and improvement of land-use right circulation mechanisms. Establishing rational land-use right circulation mechanisms is an

important link for regulating urban and rural social relationships and adapting to the development of production capacity. At the same time, it is the breakthrough point for resolving the dual identities of rural residents who have moved to cities, and for increasing land use efficiency and benefits. Mechanisms for land-use right circulation should be established under stable centralized general policy for land tenure and management. The mechanisms can be implemented by the coordinating functions of strengthening collective economic organization, and attempts can also be made to design a scheme in which land tenure rights can be brought onto the market. Carry out compensated transfer of land use rights for tenured land, for rural residents who have moved to cities or towns. For residents who have had their registered residency moved to cities or towns, realize the liquidity of collective assets that have been quantified or maintain residents' rights to shares of the dividends from those assets after moving. Consider and plan as a whole the issues of rural workers who have moved to cities and their share of their original community assets, and of social security after those workers move to cities. Search out a number of effective methods in practice for each location, for example, converting at a set rate the original homes of rural residents who have moved to cities, and providing compensation for housing after moving to the city. Summarization, improvements and expansion should be carried out promptly, and systematic guarantees should be provided for them.

(3) Improve rural education, and improve the basic qualities of rural residents. First, improve and develop rural adult education and vocational skills education. Improve the educational level and skills of workers, in order to meet the requirements of urban and rural economic development. Second, make young people the primary target of such programs, implement properly the 9-year compulsory education system, and improve the educational level of the following labor force. Young people are the main source of the labor supply of the future. They participate in labor at too early an age, which both intensifies the contradictions of surplus labor, and results in the waste of human resources. Only by increasing the input into their human capital can the requirements of changes to industrial structure, driven by progress in knowledge and skills, for a skilled work force be met.

(4) Continue to improve town and city construction and related administration, so as to provide a good living and working environment for the rural migrant population. First, improve the construction of infrastructure and other facilities in small towns and cities, and attract township enterprises to concentrate in towns. At present, 80% of the township enterprises in China are distributed among natural villages. The scattered distribution has resulted in the loss of collective effects, and the effects of proliferation, and their capacity to take on employees has also declined continuously. According to research findings by departments concerned, the capacity of existing township enterprises and small towns to absorb employees could be expanded 30%-50% if the scattered township enterprises could be moderately concentrated in towns, and the corresponding industries driven along with the shift.

Second is because one of the important paths of movement for the rural population is to large and medium cities and to developed coastal areas. Governments at the destination points should closely combine service and administration in their administration of the in-migrant population, treat the in-migrant population in the same light as the permanent resident population, and actively serve them. In particular, the needs of in-migrant workers for facilities such as housing and schools should be included in city construction plans. If a city merely plans for development according to the number of the permanent resident population and excludes the in-migrant population from planning, serious shortfalls in the availability of infrastructure are bound to appear in the future. With regards to this issue, a number of local governments in large and medium cities and in developed coastal regions have already begun to alter their approaches. For example, in locations, such as Beijing and Xiamen, where the reality is that, for the in-migrant population, private housing rental conditions are poor, housing rentals are high, residential areas are scattered in distribution, and administration is difficult, financing is being provided in many ways for the construction of housing estates for in-migrants. As another example, a number of districts in Nanjing city where in-migrant populations gather have explored home education in their administration, as a form of migrant community administration promoted by way of service. The practical experience in these areas shows that

leading the rural in-migrant working population in cities with planning, and earnestly improving the dissemination of education and provision of services to that population, is able to achieve the dual results of promoting migration of the rural population and of urban development.

1.6 Recommendations for Jiangsu Province

(1) Recommend that Jiangsu province, as soon as possible, make public detailed rules regarding the reform of the household registration system. Take the lead in relaxing household registration administration in county-level cities, abolish household registration controls, and permit the rural population to obtain legitimate city residency under certain conditions (such as purchasing or building a house, or having a stable source of livelihood). Then, open up residency, from the bottom to the top, successively in small cities and medium and large cities. Lastly is the household registration administration in the provincial capital. Over a period of ten to fifteen years, set up a new household registration method in the capital using the identity card system in place of the current household registration administration system. Therefore, the basic restrictions that have constrained the movement of China's labor force for a long period of time, and that have affected the rational deployment of human resources would be thoroughly broken down, and the process of urbanization would be accelerated. Increasing the number of new residents in cities with migrant investors requires corresponding preferential policies.

(2) Extend the existing urban residents' social security system to small towns. In addition, the system must cover new residents in those towns. Explore channels to replace tenured rural land with social security funds. Set up new housing, medical, employment, education and social security systems that meet the needs of development in small towns. At the same time, unify re-employment projects for people who have left or been made redundant from their jobs, actively explore methods for providing work skills training for newly-settled residents in towns, and increase their adaptability

towards urban life.

(3) Styles of administration for in-migrant labor should be improved. The relationship between city governments and labor should transform gradually from crude “administration” into refined “service”, and compensated administration should be transformed into service without compensation, thereby making the in-migrant population at the level of a “weak community” be able to have a comparatively fair starting point for social development.

Chapter 2 Transportation Construction Policy

2.1 Policy Recommendations

In the Study, it is proposed that the following measures be implemented as policy for the future construction of transportation infrastructure in China.

As basic direction for transportation construction in cities or urban areas:

- Urban development integrated with public transportation infrastructure
 - Introduction of rail infrastructure to business districts and commercial districts
 - Development of residential districts that is based on introduction of public transportation
 - Selection of public transportation or rail systems in line with urban scale
- Shifting of demand for car utilization to public transportation
 - Internalization of the social cost of cars
 - Implementation of TDM (traffic demand control)

Moreover, as basic direction for transportation infrastructure development over wide areas:

- Freight transportation: promotion of railway freight transportation through conversion of freight stations to collection and distribution centers
- Passenger transportation: promotion of railway passenger transportation including shift from buses through enhancement of railway services

2.2 Conventional Problems and Future Problems

2.2.1 Appearance of the Automobile Society

Greater affluence leads to consumption of more goods and services. As China's economy continues to grow in future, numerous goods will need to be delivered directly to consumers, and many people will need to travel to service supply centers. Transportation will inevitably become more active and larger in scale as future growth takes place.

This trend is already dramatically evident in some areas, where road construction is being coupled with more active use of automobile transportation.

Automobiles, especially family cars, are extremely convenient for users since they enable users to freely select their time of travel, to carry what they want, to go where they want to go, and to freely select journey departure and arrival points. Users can travel door-to-door and reach their final destination without having to reload or change along the way. This leads to higher efficiency for both producers and consumers. Taxis and courier services, etc. are also convenient, but they are not as flexible as private cars. It is forecast that automobile transportation and travel will increase greatly in the future.

However, cars also entail various problems such as traffic accidents, noise, exhaust gases, global warming gases, and so on. Moreover, automobiles require space for roads and parking areas, and this leads to use of land resources and costs of construction and maintenance. Moreover, not all people are able to use automobiles; for example, physically challenged persons, elderly persons, sick persons, color-blind persons, pregnant women, students and children, etc. are either totally or partially unable to use automobiles.

Growth in car use also means growth in the external diseconomies and social costs that are entailed by cars. Moreover, there is a high possibility that great dependence on cars will deteriorate the transportation environment for persons who are disadvantaged in terms of transportation or persons who have restricted movement.

It is necessary to build a society where automobiles are used to an appropriate degree and where automobiles are not relied on too much.

2.2.2 Increase and Broadening of Mobility (Commuting, Shopping, etc.)

It is expected that increase in income brought about by economic development will reduce the comparative burden of fares for both individuals and corporations and greatly encourage mobility. Priority is given to more essential expenditure and spending on transportation is overlooked when incomes are low and the burden of fares is heavy, however, transportation comes to be selected when incomes increase.

People travel to urban centers where wide ranges of products and services are available, or they head for the alluring cities in search of entertainment. It is thought that the scope of shopping mobility and leisure mobility will become far broader.

Agglomeration not only makes economic growth possible but it increases the commuting mobility of larger numbers of workers. Commuting distances are also increased. Even if work and habitation areas are planned in close proximity, since personnel changes are constantly taking place in work places and individuals develop a stronger desire to freely select their living area, it is inevitable that long-distance commuters increase.

The same thing applies to school commuting. Agglomeration increases the commuting mobility of students. Moreover, as household incomes increase in line with economic development, since academic advancement becomes possible and users of senior and specialist education increase, it is thought that more and more children who had previously been tied to their parents' living zones will be able to commute long distances to their schools of choice.

In this way it is thought inevitable that work and school commuter mobility will increase and broaden in scope.

The manner in which services are received from corporations will probably change in all walks of life. It is thought that retail, medical care, education, child tending and welfare services, etc. will come to be provided by more general operators, that the trend of commuting from company housing will change so that many more people will choose and purchase their own homes, and that cases where commuting by bicycle is impossible will become more frequent. It is thought that the economy based on strong self-sufficiency and strong autarkic characteristics will fall away in line with changes to nationalized enterprises, etc.

However, the greater the scale of growth in cities, the more that infrastructure with greater transportation capacity will increase. Infrastructure with large transportation capacity will be required to deal with agglomeration and the resulting increase and broadening of mobility. Moreover, since people's lifestyle demands will become more sophisticated, in addition to simply acquiring mobility, demands will come to be

made for faster, more reliable, more comfortable, safer, more pleasant and more environmentally friendly forms of transportation.

2.3 Basic Direction of Transportation Construction

2.3.1. Basic Concept

The basic target of transportation infrastructure development should be maximization of the total social net benefit of transportation. This is achieved by seeking the optimum combination of transportation infrastructure according to the density of transportation flows.

The ability to move people and goods at high-speeds and low costs greatly raises private benefit and is also a basic requisite for raising overall social benefit. High-speed movement makes it possible to save on time; saved time can be used for other production and consumption activities, and these activities make lifestyles more affluent. Meanwhile, low cost movement makes it possible to save on resources; saved resources can be used for other production and consumption activities, and these activities again make lifestyles more affluent.

However, on the other hand, in addition to the consumption of fuel and other energy, transportation brings about external diseconomies such as traffic accidents, noise, exhaust gases and global warming gases, etc., it generates crowding and congestion, and it incurs costs in the construction and maintenance of transportation spaces and facilities. The parties that cause such problems do not suffer or carry the burden of their results, but these are borne by other parties. In logical terms, therefore, an unfair situation is created.

Discussion of the burden and sharing of benefit and costs by each party is important, however, this shall remain untouched here. It is at least necessary to reduce the aggregate of total social costs. It is necessary to aim for the construction of transportation infrastructure that can maximize the net benefit for society overall (social benefit minus social cost). (Various issues clearly exist concerning the way in which overall social benefit and cost are defined and assessed, but the basic line of

thought is as indicated above). This will pave the way for developing movement that is at harmony with people and the environment.

In more specific terms, in areas where transportation flow density is high, transportation infrastructure that offers large transportation capacity per unit area, contributes to energy saving and has low environmental load, i.e. rail systems, should be adopted. In areas where transportation flow density is low, unless there are no other appropriate options, there is little choice but to adopt transportation infrastructure that offers small transportation capacity and has a high environmental load, i.e. roads based on use by privately owned cars. Meanwhile, city planning that raises overall transportation capacity per unit area should be implemented with a view to minimizing roads based on use by privately owned cars.

2.3.2 Transportation Construction in Urban Areas

(1) Integration of Public Transportation with Urban Development

a. Introduction of rail infrastructure to business districts and commercial districts

Differentiation of land use occurs in growing cities. In cases where location of business establishments and development of real estate can be freely carried out, functions that obtain the greatest merits from mutual proximity gather in specific districts, thus leading to the occurrence of high degree agglomeration. Business districts, where functions for exchanging transaction and information exchange between companies come together, and commercial districts, where customers are convened from a wide area, are examples of this. Concerning commercial districts, since concentration of numerous shops enables customers to compare various products and makes it possible to conduct one-stop shopping that satisfies various shopping needs, attraction of customers from a wide area is made possible. There are not just one business district and one commercial district in a single city, but numbers increase as the city size grows.

Concerning residential districts, industrial districts and physical distribution districts, etc., the merits of concentration and agglomeration are not as great as in the case of business districts and commercial districts. It has already been stated how

advantageous it is for such districts to be concentrated in cities, however the merits of concentrating such functions in specific districts within cities are not as great as in the case of business districts and commercial districts. Accordingly, in cases where location of business establishments and development of real estate can be freely carried out, these functions tend to be distributed in a relatively dispersed manner.

In growing cities, it is normal for singular or multiple business districts and commercial districts to be formed in the center of urban spaces. This is an inevitable and rational outcome.

Business districts and commercial districts witness very many arriving and departing trips and transportation flow density is extremely high in such districts. In response to this, there are strong demands for construction of transportation infrastructure, or considered in the reverse sense, business districts and commercial districts form in areas where the transportation infrastructure is already developed.

When it comes to the construction of transportation infrastructure, space that can be allotted to transportation use is limited. Just because demand for transportation increases, this does not mean that business districts and commercial districts can be cut down in size to make room for transportation infrastructure. Space can only be increased until a certain balance is naturally reached. Even in advancing the multi-level utilization of space, it is necessary to construct infrastructure that offers high transportation capacity per unit area.

In other words, in growing cities, it is important to direct rail infrastructure into business districts and commercial districts. If there is not enough transportation demand to justify rail use, it is important to promote development based around bus lanes that secure the reliable running of buses.

b. Residential District Development Based on Introduction of Public Transportation

Residential districts tend to be more dispersed than business districts and commercial districts because the necessity for mutual exchange between such districts is comparatively smaller. However, dispersion of residential districts leads to comparatively higher energy consumption and the adoption of means of transportation that entail large external diseconomies and environmental load. In order to realize

energy saving transportation and low environmental load transportation, it is necessary to promote residential district development integrated with the introduction of public transportation.

As a rule residential district development should only be planned in areas where rail transportation infrastructure and special bus lanes have been constructed. It is necessary to develop high density and multiple level residential districts, and to actively adopt TOD (Transportation Oriented Development) in such districts.

c. Selection of Public Transportation or Rail Systems in Line with City Scale

Density of public transportation utilization differs according to the scale of cities. In areas where utilization density is high, even if public transportation infrastructure that entails high initial cost and running costs is adopted, it is easy to achieve a comparatively high degree of profitability.

Generally speaking, in terms of the construction cost required to achieve the same transportation capacity (passenger kilometers), the most expensive form of public transportation is subway, and this is followed in order by overhead railway, LRT and trams, and finally bus lanes. Concerning running costs, since it is easy to deal with personnel expenses per transportation amount by connecting rolling stock, differences between each type of infrastructure are ignored. Based on this thinking, transportation modes should be selected as described below.

In major urban areas, transportation density is extremely high in central business districts and commercial districts. As the public transportation infrastructure for providing access to such central areas, development should be carried out based around elevated railways that comfortably offer large transportation capacity and does not entail very high construction costs. Moreover, in non-central and suburban parts of major urban areas, elevated railways stretching out from the center in radial fashion form the basic framework, however, since these alone are unable to adequately serve large areas, construction of LRT, trams and bus lanes should also be advanced.

In small and medium cities, transportation density in business districts and commercial districts does not become so high. As the public transportation infrastructure for providing access to central areas in such cases, development should

be carried out based around LRT and trams that entail comparatively low construction costs and are a medium capacity mode of transport. (However, if transportation density is relatively high, measures should be taken such as increasing transportation capacity through increasing LRT cars and increasing speed through introduction of special lanes and priority signals, etc.) As for non-central and suburban parts of small and medium cities, LRT and trams stretching out from the center in radial fashion form the basic framework, however, since these alone are unable to adequately serve large areas, construction of LRT, trams and bus lanes should also be advanced.

(2) Shift of Car Users to Public Transportation

a. Internalization of the Social Cost of Cars

As the first step in limiting over-use of cars and diverting transportation demand to public transportation, it is necessary to establish systems whereby the social cost of cars is shifted onto car users.

In specific terms, taking the case of road maintenance costs, excluding the cost of pedestrian roads, bicycle roads and bus roads, a system should be adopted whereby car users are asked to bear the cost of remaining road sections and public parking spaces without using general taxation for this purpose.

A system should also be introduced for collecting insurance premiums that makes it possible to fully compensate the lifestyle of survivors (injured parties) of road accidents.

The structure of roads should be improved and transportation regulations strengthened as a means of thoroughly preventing traffic accidents, and a system should be introduced for having car users bear the costs of such measures.

A system should also be introduced whereby the cost of rectifying pollution and impact caused by noise, exhaust gases (NO_x, SPM, etc.) and global warming gases, etc., or whereby charges are collected to ensure that emissions are reduced.

b. TDM (Traffic Demand Control) Implementation

In order to shift transportation demand towards public transportation, it is necessary to adopt measures whereby the market mechanism and direct regulations are

used to make use of cars disadvantageous and use of public transportation advantageous.

It is necessary to introduce a system whereby entry tax is collected from car users that enter designated areas such as central business districts and commercial districts where transportation density is high. This is designed to levy charges for occupation by cars of spaces that could otherwise be utilized in more socially productive ways by other forms of transportation (public transportation). (Such charges would compensate for lost opportunity benefit).

Also in designated areas such as central business districts and commercial districts where transportation density is high, it is necessary to totally prohibit road parking and, concerning business establishments and residences that need to use cars, to obligate owners to prepare parking spaces at their own expense or to secure private sector parking spaces. This is to prevent transportation convenience being greatly reduced by road parking.

Meanwhile, in order to enhance the appeal of public transportation, it is necessary to realize punctual operation and comfortable speeds. In other words, it is necessary to promote adoption of exclusive use lanes, priority signals and self-ticket inspection (ticket canceller system), etc.

Furthermore, it is necessary to realize cheap fares and high operating frequency. For this purpose, it is necessary to form a social consensus and enable financial assistance concerning the treatment of public transportation as a civil minimum. Alternatively, it is necessary to assess the money value of the merits of public transportation and subsidize these. In specific terms, the merits of public transportation are mitigation of congestion, reduction of traffic accidents, reduction of exhaust gas emissions, reduction of global warming gas emissions, and possibility of high level utilization by persons with impaired mobility or other disabilities.

2.3.3 Construction of Wide Area Transportation Infrastructure

In constructing wide area arterial transportation infrastructure that links cities to cities and cities to regional areas, rather than leaning too much on roads, priority

should be given to construction of infrastructure that is capable of high capacity transportation. Automobile transportation is very convenient in that it enables door-to-door transportation without reloading or changing vehicles and time of travel can be freely selected. However, as was mentioned earlier, since car transportation also entails a lot of problems, in the case of wide area transportation too, it is necessary to build infrastructure that shifts passengers towards public transportation centering on railways.

(1) Freight Transportation - Promotion of Rail Freight Transportation By Conversion of Freight Stations into Distribution Centers

Rail transportation is currently conducted based around bulky freight. However, it is necessary to construct a network where railways can be used for carrying all kinds of freight in general.

On sections between major cities, since transportation demand is high, it is easy to achieve cost reduction through large capacity transportation. As economic growth continues in the future, existing major cities will expand and new large cities will be formed, it is forecast that transportation demand between such cities will increase dramatically. Construction of the railway network should be advanced as the arterial transportation infrastructure connecting major cities.

Concerning use of railways for freight transportation, costs are incurred and time consumed in the loading and reloading of freight between trucks and trains, and this detracts from efficiency a lot. Therefore, use of railways tends to be limited to transportation of bulky goods and long distance freight transportation. In order for utilization of railways to advance, it is necessary to remove the bottleneck created by this loading and reloading work. By converting freight railway stations themselves into truck collection and delivery and truck distribution centers, it will at least be possible to improve small and medium lot freight transportation that generally entails reloading. Concerning large lot freight that does not require reloading, for example, direct delivery by automobile from plant to plant, this cannot always be reduced by rail transportation, but it will be at least effective with respect to small and medium lots. However, concerning large lot freight too, if large cost reductions can be achieved via

large capacity transportation, there is ample possibility that railway transportation will acquire an advantage compared to automobile transportation. It is necessary to convert freight stations in truck collection and delivery centers by selecting station sites, deciding station layout and setting the operating format of stations according to the needs of transportation operators or by leaving such decisions largely to the discretion of truck operators. Moreover, roll-on roll-off systems and containerization that simplify reloading work also need to be advanced.

Furthermore, in order to raise the appeal of railways, realization of high-speed freight transportation services should also be aimed for. High-speed freight transportation can generally be achieved through securing high-speed in railway construction, and this is especially possible by adopting designs that are compatible with both passenger and freight transportation in the construction of new arterial lines. In other words, new arterial lines should be constructed as freight arterial lines.

Internal marine transportation cannot compete with railways and trucks in terms of speed, but it does offer larger transportation capacity. Concerning utilization of this too, it is thought that river and canal ports should be converted into truck collection and delivery centers, introduction of roll-on roll-off systems and containerization should be advanced, and speeding up of internal vessels should be implemented to raise efficiency of marine transportation, and navigation routes should be developed between major cities.

(2) Passenger Transportation: Promotion of Rail Passenger Transportation Including Shift from Buses through Enhancement of Railway Services

Currently, railways and long-distance buses are used as the main modes of wide area arterial passenger transportation. However, the scope of the railway network is extremely limited and there is little choice but to rely on buses.

Concerning inter-city and wide area passenger transportation, which it is thought will greatly increase in future, railway development should play the leading role. As integration and concentration advance and are promoted in future, conditions that make it easier to realize merits of scale in passenger transportation between cities will be

prepared. Efforts should be made to realize the mass transportation capability of railways, to reduce costs per passenger-kilometer, and to achieve efficiency based on large capacity transportation. At the same time this will enable major energy saving and reduction of environmental load to be achieved in transportation.

If integrated and concentrated implementation of railway plans can be advanced to handle growing population and transportation demand, if railway networks can be constructed through high demand districts, and if railway transportation speeds, frequency and available seats can be increased under such conditions, it is thought that transportation demand will lean greatly towards railways because of the comfort they offer. Realization of railway networks that enable passengers to sit down, are pleasant, fast and frequent should be aimed for.

2.3.4 Division of Roles Between Central and Local Governments

The following table summarizes the organizations it is considered should take responsibility for implementing the measures described in preceding sections.

Table 1 Division of Roles Between Central and Local Governments

Measures to be Implemented	National Government	Provinces	Cities or Prefectures
Introduction of rail infrastructure to business districts and commercial districts		Guidance	
Residential district development based on introduction of public transportation	Institutional development	Guidance	Planning and implementation
Selection of public transportation or rail systems according to city scale		Guidance	Planning and implementation
Internalization of social costs of cars	Institutional development		
Implementation of TDM (Traffic Demand Management)	Institutional development	Institutional development	Planning and implementation
Promotion of rail freight transportation by conversion of freight stations into distribution centers			
Promotion of rail passenger transportation including shift from buses through enhancement of railway services			

Source: the JICA study team

2.4 Basic Direction of Transportation Construction in Jiangsu Province

2.4.1 Wide Area Transportation Construction in Jiangsu Province

(1) Basic Concept

Wide area transportation infrastructure in Jiangsu Province must be planned and constructed as an integrated component with the wide area regional formation plan. The wide area regional formation plan has proposed circular concentration over a radius of 300 km centering basically around Shanghai, while to the north it has proposed concentration around axes radiating northwards from Shanghai. It is necessary to construct infrastructure that makes realization of these plans possible.

In carrying out transportation infrastructure construction, selection of transportation modes is important. In order to realize high degree integration and concentration, it is necessary to give priority to rail systems and public transportation modes that offer high transportation capacity and fast speeds.

(2) Liberation Via Bridges, etc. to the North Side of Chang Jiang River (Area with Growth Potential)

It is first necessary to broadly spread growth potential from the Shanghai side to the north side of Chang Jiang River, and for this reason it is necessary to construct bridges or tunnels across the river.

There are currently three bridges across Chang Jiang River in Jiangsu Province, that is two in Nanjing City and one linking Wuxi to Taizhou. These are not enough. Work on one bridge between Zhenjiang and Yangzhou has been started under provincial plans, and construction of another bridge is planned between Suzhou and Nantong in the future.

Of these, the bridge between Suzhou and Nantong should be constructed as soon as possible. In order to develop and induce the latent potential for development on the north side of Chang Jiang River, the faster this bridge is constructed the better. Without construction of this bridge, it is considered that development of Nantong and the cities of Yancheng and Lianyungang to the north will be impossible.

Moreover, since it is considered that future demand on this bridge will be very large, it is necessary to plan construction upon making an appropriate estimation of future traffic volume so that ample capacity is secured in advance or that one bridge is constructed at first and a second bridge is planned for later. In particular, since it is certain that exchange between Nantong City and Shanghai will be very active and high frequency rail services will be required, it is necessary to compile a plan that takes various contingencies into account.

(3) Inducement of Development Potential to the North of Jiangsu Province by Two Rail-Road Key Axes

a. Route of two axes

As axes for inducing development potential based around Shanghai to the north of Jiangsu Province, two core radial axes are proposed in the wide area regional formation plan.

One is the coastal axis linking Shanghai, Nantong, Yancheng and Lianyungang. This axis also links Nantong Port and ?? Port at the estuary of Chang Jiang River with Lianyungang in the north, and this will be an important industrial axis for Jiangsu Province, which will possess container ports at both ends.

The other axis is an inland one linking Shanghai, Wuxi, Yangzhou, Huaiin, Su Xian and Xuzhou. Another axis radiating from Shanghai is the Nanjing axis, which connects Shanghai to Nanjing, however, this is completely incorporated within the Chang Jiang River metropolitan region.

b. Formation of Axes with Railways and Roads in Close Proximity

As the transportation infrastructure along these key axes, in addition to general roads and high-speed roads, railways should also be constructed. Since general roads already exist (albeit in need of repair), high-speed roads and railways are dealt with here. Rather than simply proposing construction of railways and high-speed roads along these key axes, it is proposed that these be positioned in proximity to each other and not too far apart.

It is repeatedly stated in this survey that concentrated land utilization should be

realized. From this viewpoint, cities should be concentrated around railway and road axes, and dispersion of cities around these axes must be prevented. Therefore, it is necessary to construct high-speed roads and railways not too far apart from each other, and it is sometimes a good idea to construct these facilities together in the same common space.

c. Transportation Infrastructure Construction on the Coastal Axis

Concerning coastal axis railways, a railway plan only exists for the section between Nantong and Yancheng. A railway plan should also be compiled for between Shanghai-Nantong and Yancheng-Lianyungang, i.e. plans should be revised to include construction of an integrated railway from Shanghai to Lianyungang.

In this case, concerning plans for the existing bridge over the Chang Jiang River between Suzhou and Nantong, it is necessary to conduct examination and decide whether to plan for passage of a railway or to plan for construction of a new railway bridge or tunnel.

Concerning high-speed roads along the coastal axis, although the completion schedule is unclear, the provincial government already has a plan to construct a road from Suzhou to Lianyungang.

At the current point in time, therefore, bridges, roads and bridges over Chang Jiang River do not exist at all. There are plans for the construction of a road and bridge. However, railway plans are only fragmented. First of all, establishment of a railway plan should be carried out immediately.

d. Transportation Infrastructure Construction on the Inland Axis

Concerning inland axes, existing railway line can only be found between Shanghai and Wuxi and the only plans for future construction are for the section traversing Chang Jiang River between Wuxi and Taizhou. (The currently planned line from Wuxi is linked to Haian Prefecture north of Nantong, i.e. it connects with the coastal axis). Accordingly, a new railway linking Zhenjiang to the south of Taizhou with Yangzhou, Huaiyin, Su Xian and Xuzhou should be planned and preparations made for a renewed plan to realize direct services from Shanghai in line with existing railway plans.

Concerning high-speed roads on the inland axis, road has already been completed

and is used between Shanghai, Wuxi and Yangzhou. The section between Yangzhou and Huaiin is currently under construction. As for the section between Huaiin and Su Xian, plans exist but work has not yet commenced. Work on the section between Su Xian and Xuzhou was only just started in 2000. It appears that work will be delayed between Huaiin and Su Xian. However, in any case it is thought that the road axis will be completed earlier than the railway axis.

e. Railway Contents and Functions of Each Infrastructure on the Coastal and Inland Axes

An issue exists concerning whether or not to make the railway on the coastal axis into a high-speed line. If emphasis is placed on high-speed, the number of stations will be limited and this will reduce convenience for commuters and shoppers. On the other hand, if the number of stations is increased, speed will be diminished.

In the final analysis, both features are required. This means that construction costs will increase, however, both elements of this key infrastructure are needed in Jiangsu Province.

High-speed railways and high-speed roads are needed in order to spread development potential from Shanghai to the northern districts of Jiangsu Province. Wide area transportation and exchange of goods and people are essential. Ordinarily, railways and general roads are indispensable for the regional transportation and exchange of goods and people.

When it comes to deciding what should be constructed first with limited funds, attraction of industrial location to the north is considered to have the highest comparative priority, and for this reason it is probably necessary to start with construction of high-speed roads. In this case, for the immediate future high-speed buses running on such roads could provisionally fill the functions of high-speed railways.

However, unless a start is made on high-speed railways and conventional railways, the further inducement of development potential will be restricted and it will not be possible to realize construction of concentrated cities around the transportation axes. Cities concentrated around axes are formed by setting districts where population and

industry are concentrated around railway stations.

In order to ensure that industries attracted by high-speed roads are located in districts that are targeted by railway and axial city formation plans, it is necessary to incorporate the planning and construction of high-speed roads with the formulation and implementation of new railway plans, conventional railway plans and axial city land use plans.

(4) Formation of a Sub Axis to Nanjing and Transportation Construction

Nanjing plays the central role in Jiangsu Province, and it is necessary to make access to this the provincial capital more convenient. Therefore, formation of a sub axis composed of railway and high-speed road routes is proposed to link Yancheng to Yangzhou to Nantong. This will make access to Nantong more convenient from both the coastal axis and inland axis.

There is already a plan for railway construction along this axis between Nantong and Yangzhou, however, there are no plans for the section between Yangzhou and Yancheng. An integrated plan for the whole section between Yancheng and Nantong should be compiled.

High-speed road on this axis is already in use between Nantong and Yangzhou. There are no plans for the section between Yangzhou and Yancheng, but a plan should be formulated.

(5) Construction of an International Container Port and Port Facilities for a Heavy Chemical Industry and Energy Base around the Estuary of Chang Jiang River

In the wide area regional formation plan, it is proposed that an international container port and heavy chemical industry and energy base (facilities that will be required in future) be located around the estuary of Chang Jiang River. Therefore, it is necessary to construct related port facilities in this area.

First of all, it was projected that the population of Jiangsu Province will one day exceed the national population of Japan. Since the degree of import and export

dependence differs between Jiangsu Province and Japan, simple comparison should be avoided; moreover, as international cooperation for the prevention of global warming advances, it is certain that pressure will mount for change in heavy chemical and energy industries that are dependent on fossil fuels. Having said that, as a general guideline, the scale of container ports in Japan is as follows.

The amount of foreign trade container freight handled in Japan in 1998 was approximately 160 million tons and the number of handled containers was roughly 10 million TEU. Meanwhile, the amount of raw steel produced by Japanese steel companies in 1995 was 100 million tons, of which 67 million tons was produced in converters and 33 million tons in electric furnaces. Electric power generated by Japanese power stations (10 power companies) in 1999 amounted to 800 million MWh, of which 420 million MWh was from thermal power generation. Production of ethylene by the Japanese petrochemical industry in 1999 was 7,690,000 tons, and crude oil treated by Japanese oil refineries (only refining operators) in 1999 was 4,130,000 barrels/day.

(6) Other Issues Requiring Implementation

a. Provincial Railway Construction

Jiangsu Province deeply understands the need for railways, and construction and operation of provincially run railways in cooperation with the national government is something that should be advanced. Construction as national railways is also acceptable, however, concerning the coastal axis and inland axis, although these can make a major contribution to the development of Jiangsu Province, since other parts of the province are not described, it is doubtful whether they can aid province-wide development. For the time being, these railways should be advanced as provincially operated railway plans.

b. Major Improvement of Railway Services

Railway services compete with public bus services. People select the most advantageous mode of transport upon making an overall judgment. Items that are considered when selecting mode of transportation include the following

Proximity of station
Proximity of network to destination
Cheapness of fare
Frequency of departing and arriving services
Ability to sit down
Comfort of ride
Quality of station services

Currently operating railways in Jiangsu Province are almost totally limited to the section between Shanghai and Nantong and the section between Xuzhou and Lianyungang. By developing the aforementioned coastal and inland axes and sub-axis to Nantong and attracting high concentration population and industry around these axes, railway users should be greatly increased. If the coastal axis and inland axis are formed as proposed, the current major disadvantage experienced with respect to buses regarding items and above will be greatly remedied.

Concerning railway services, items (frequency of departing and arriving services) and (transportation capacity) are important. Both these items should be increased so that passengers are able to use trains at almost all desired times and also sit down except for during special seasons. It is thought that distances on the coastal axis and inland axis will be longest when passengers are traveling towards Shanghai. It is necessary to realize the situation whereby passengers freely select their going time and return time and use high-speed railways so that they can finish their business and return home in the same day. Concerning conventional railways too, it is necessary to realize the situation whereby work commuters, school commuters and shoppers can freely select their going time and return time and make trips to nearby cities. After making these things possible, it is necessary to increase demand for railway use, and for this reason too it is essential that cities be formed in concentrated fashion around railway stations.

2.4.2 Transportation Construction in Cities and Urban Areas in Jiangsu Province

(1) Construction of Commuter Railways Centering Around Shanghai

Commuter railways centering on Shanghai should be constructed.

The greater metropolitan region of Tokyo in Japan is a massive urban area having of population of some 30 million people. In this urban area, approximately 20 (depending on the method of counting) railway lines radiate outwards from the center to the suburbs, and this concentrated rail network makes it possible for large numbers of people to conduct transportation for work commuting, school commuting, shopping and business.

In the previously indicated frame concept, the Chang Jiang River Delta Greater Urban Region based around Shanghai is potentially larger than the Tokyo greater metropolitan area. It is possible that combined population in the four cities of Suzhou, Wuxi, Changzhou and Nantong around Shanghai alone will exceed 30 million by 2015. Therefore, it is considered that commuter railways centering on Shanghai will need to be constructed with higher density and capacity than in Tokyo metropolitan area.

Commuter railway distances in the Tokyo metropolitan area are varied, but a figure of 70 km is a rough indicator. Based on this, when one considers the huge size of the greater urban area centering on Shanghai, it is possible that commuter railways will need to cover distances of 100 km or 150 km or even 200 km. In this case, since transportation speeds will need to be fast in order to keep commuter times down, if it is not possible to construct high-speed commuter railway like linear rail, the distance of lines will probably need to be held to around 100 km. When one considers the state of existing technology, an appropriate range for commuter railways would be from Shanghai to Suzhou.

(2) Construction of Commuter Railways Centering Around Nanjing, Wuxi, Yangzhou and Nantong

The wide area regional formation plan proposes the formation of a urban areas centering around the four cities of Nanjing, Wuxi, Yangzhou and Nantong within the Chang Jiang River Greater Urban Area. These cities have the potential to become

major urban areas each possessing a population of 10 million or more in the future.

Commuter railways will determine the framework of these four urban areas. It is necessary to appropriately plan contents that enable highly integrated and concentrated cities to be formed. Commuter railways should be constructed along major radial routes and circular routes.

In this project, it is appropriate to incorporate Taizhou into the urban area of Yangzhou. As for Zhenjiang, this should be incorporated into the urban areas of both Nanjing and Yangzhou, and Changzhou should be incorporated into the urban area of Wuxi. As for Suzhou, this should be incorporated into the urban areas of both Wuxi and Shanghai.

(3) Promotion of LRT Plans, etc. in Major Cities and Urban Areas

a. Features and Characteristics of LRT

LRT stands for light rail transit. Put simply, this refers to the major upgrading of old tramcars. Main points to be improved are speed, transportation capacity and ease of boarding and alighting. Trains are able to run at speeds of 100 km/h or more, which is the same as ordinary commuter railways. It is also possible to achieve large scale transportation capacity by linking multiple rolling stock units, and there are cases of LRT formations becoming as large as six cars. The floor height of LRT is generally low at around 30 cm and this makes boarding and alighting easy for physically challenged persons, elderly persons, pregnant women and small children, etc. More than anything, compared with subways and elevated railways, the fact that users don't need to climb and descend staircases is a great relief.

LRT is gaining worldwide attention not because of its rolling stock but as a transportation system. Since LRT often runs on road surfaces, speed is limited by intersections and pedestrian crossings, however, in order to overcome these limitations, signal systems that give priority to LRT have been developed. There are also moves to secure tracks exclusively for use by LRT. Furthermore, concerning ticket collection, self-inspection and ticket canceller systems have been introduced. In this case, passengers stamp their own ticket on the station platform prior to boarding or on

the train after boarding, and this makes it possible for large numbers of passengers to simultaneously board and alight from multiple entrances. These factors combine to raise speeds.

A major factor behind the attention directed towards LRT is the comparative cheap cost of construction. It is difficult to make a general statement since costs vary according to the construction conditions, however, the cost of LRT is said to be one-tenth less than the cost of subway construction.

b. LRT Construction as a Complement to Commuter Railways in the Four Urban Areas of Nanjing, Wuxi, Yangzhou and Nantong

Commuter railways in the four urban areas of Nanjing, Wuxi, Yangzhou and Nantong will be constructed along major radial axes and major circular axes.

As for other radiating axes with relatively lower transportation demand (moving from central urban areas), it is appropriate to build LRT lines. Also, it is appropriate to construct LRT as feeder lines from commuter railway stations.

c. Construction of LRT in Place of Buses in Major Cities of Jiangsu Province

Moving beyond cities in the Chang Jiang River delta region, LRT construction should also be advanced in place of buses as urban public transportation in northern cities such as Xuzhou, Lianyungang, Yancheng, Huaiin and Su Xian.

New urban areas for accepting growth potential should be planned at the same time as LRT so that high density and multi-level housing and business establishments are located along LRT lines. In this way, cities where it is possible to conduct daily life and business without relying on cars or taxis should be constructed.

It is normal for LRT to be planned radiating from the center of cities. Circular lines become necessary as the size of cities increases.

d. Partial Underground and Overhead LRT Sections According to Need

In central urban areas, it is sometimes necessary to construct parts of lines underground or overhead in order to deal with high density and large volume transportation demand.

However, since doing this takes away the LRT merit of not requiring staircases, complementary systems such as elevators and escalators need to be installed.

Furthermore, in Europe, success has been reported from cities that have constructed transit malls whereby only LRT is permitted and entry by cars is prohibited in central commercial districts. There are numerous reports of this undertaking leading to the revitalization of central commercial districts. Since the underground and overhead construction of LRT is not compatible with formation of such malls, ample consideration also needs to be given to this point.

e. Construction of Bus Lanes when LRT Cannot be Constructed

The demand for LRT transportation increases by limiting urban development to areas alongside LRT lines. However, in cases where transportation demand must become comparatively smaller for some special reason or other, or cases where LRT construction funds cannot be secured, it is proposed that urbanization plans be advanced under the following system.

This method has proven to be a success in Curitiba in Brazil. Roads possessing special bus lanes are constructed, and high-density and multiple-level urbanization is formed alongside such roads.

The city of Curitiba has a population of approximately 1,600,000. In the master plan for the city, five urban axes are set radiating outwards from the city center. As a rule the urban axes are composed of three parallel-running roads separated from each other by approximately 200 m. The central road has four lanes of which the inner two lanes are reserved for buses. Of the three roads, the two roads on the edges are for one-way traffic and have on average three lanes. The highest occupation ratio is allowed on the land in between the three roads, and purposes of land use here are set with a high degree of freedom. On the outer side of the one-way roads, the occupation ratio as a rule is high close to the roads and declines as distance from the roads increases.

In the case of China, unlike Curitiba, since there is a great need to plan realization of high occupation ratio, rather than promoting urbanization away from the central roads of urban axes, it is necessary to cover the whole urban area with numerous urban axes and achieve high occupation over the city as a whole.

(4) Review of Road Planning Methods

a. Promotion of Road Plans as Railway Spaces and Public Transportation Spaces

When it comes to realizing the above proposals and planning roads in Jiangsu Province, it is clearly essential to not just plan for roads but to plan for the construction of railways or public transportation.

The routing of new roads should always be examined based on consideration of the fact that railways, LRT and special lane buses can be operated on road spaces. Thought should be given to the running of LRT and buses on road surfaces, running of subways in space underneath roads, and running of elevated railways in space above roads.

Assuming that trucks will account for a large proportion of freight transportation (potential for railway use is on the urban level as well as the wide area level), or assuming that trucks will bear almost all terminal transportations, it is clear that roads for use by vehicles (there are also roads for pedestrian and bicycle use, etc.) are indispensable. However, while recognizing the need for such roads, it is necessary to lower the priority of routes that do not fit with public transportation or to review the very necessity of such facilities. High agglomeration and concentration society is based on the use of public transportation that focuses transportation demand and is the basic means of transporting people.

b. Securing of Compatibility with LRT Plans in Road Multiple Level Intersection Plans

Road construction is being advanced in all areas of Jiangsu Province. In Nanjing City, construction of multiple level road intersections is advancing very well. However, since this does not include any LRT plans, no thought is given to how these multiple level intersections will be dealt with when it comes to the introduction of LRT. Construction of LRT stations on intersections detracts from the LRT merits of location on the level plane. Therefore, in such cases, there is no choice but to locate LRT stations on road footpaths or running into bicycle ways. When it comes to promoting multiple level intersection plans, LRT and railway plans should be compiled in advance and compatibility then sought with these.

(5) Securing of Funds for Public Transportation Construction

Securing of funds for the construction of public transportation is described not only for cities and urban areas but for railways, LRT and buses (special bus lanes) that incorporate wide areas.

Concerning the idea of raising funds based on collecting fares from users, major difficulties accompany construction. First of all, in the same way as taxes are used to fund the construction of general roads, taxes (general financial reserves) should also be utilized for constructing basic infrastructure such as ballast and track on which railways run.

However, it is further necessary to depart from the idea of cost bearing by users and beneficiaries.

Utilization of public transportation such as railways contributes to mitigation of road congestion by shifting demand from roads to railways. Utilization of railways, etc. leads to reduced occurrence of road traffic accidents. Utilization of railways, etc. contributes to reduction of noise and atmospheric pollution caused by exhaust gases such as NO_x, SO_x and SPM (suspended particulate matter), etc. Utilization of railways, etc. brings about major saving in transportation energy and this aids prevention of global warming. Utilization of railways reduces area required for roads and parking spaces and thus contributes to conservation of farmland. Moreover, construction of railways and other public transportation modes provides equal transportation possibilities to children, physically challenged persons and other people who are unable to drive cars.

In view of these social benefits imparted by utilization of railways and other public transportation modes, it is proper that public funds be used to cover (subsidize) the costs of both infrastructure construction and operation.

Incidentally, in France, there is the Versement de Transport system whereby a public transportation construction fund is applied to operations on a certain scale or over. A set ratio of total salaries paid to employees is collected for the public transportation construction fund. This system was first applied in Paris in 1971 and has since spread to regional cities throughout the rest of the country. The maximum

taxation rate is 2.20% of total employee salaries (Paris), but this is set at 1.75% in urban areas with a population of 100,000 or more, which have major infrastructure investment projects that receive national subsidies, 1.00% in urban areas, which have no such projects, and 0.55% in urban areas where the population is between 20,000 and 100,000.

In Germany, there is the Local Authority Transportation Fund Law. In this law, which was established in 1971, the federal government increases the petroleum tax placed on car fuels (gasoline, etc.) and donates the revenue to local authorities as funds for transportation construction. Subsidies were previously divided between public transportation and roads, with the federal government allocating public transportation funds and provincial governments allocating funds for roads, however, the system was changed in 1992 so that the provinces allocate funds for all works apart from large-scale projects. The local authority transportation fund was originally set at 3 pfenigs per liter of gasoline, however the fund came to be displayed as a total amount (6.28 billion marks in 1999) following revision of the system in 1988.

2.4.3 Transportation Construction Measures that Should be Promoted in Jiangsu Province

To sum up the ideas put forward in the previous sections, the following measures are proposed as transportation infrastructure that should be constructed according to priority in Jiangsu Province.

As an axis for attracting development potential over the whole province, especially the northern part, a bridge should be constructed between Suzhou and Nantong and a coastal axis consisting of high-speed road and railway should be formed between Shanghai, Nantong, Yancheng and Lianyungang. Also:

An inland axis should be formed by extending the high-speed road that already exists between Shanghai, Wuxi and Yangzhou further north from Yangzhou to Huaiin, Su Xian and Xuzhou and combining this with construction of a new railway.

In the Chang Jiang River Delta Greater Urban Area, work should be promoted for

construction of a commuter rail network based around Shanghai, construction of a commuter rail network based around Nanjing, Wuxi, Yangzhou and Nantong, and construction of LRT to supplement areas that cannot be covered by these networks. Furthermore, LRT plans, etc. should be promoted in major cities and urban areas.

Table 2 Proposal for Jiangsu Province on Transportation

Character of Infrastructure		Infrastructure that should be Advanced in Future
Infrastructure linking the Chang Jiang River greater urban area and neighboring areas	Infrastructure linking the north of Jiangsu Province to the Chang Jiang River greater urban area	<ul style="list-style-type: none"> • Bridge and tunnel over the Chang Jiang River between Suzhou and Nantong • Construction of two key radiating axes from Shanghai (railway + high-speed road) • Coastal axis (Shanghai-Nantong-Yancheng-Lianyungang) • Inland axis (Shanghai-Wuxi-Yangzhou-Huaiin-Su Xian-Su Xian) • Construction of a sub-axis (railway + high-speed road) linking the two key axes to Nanjing
	Infrastructure linking all of China to the Chang Jiang River greater urban area	<ul style="list-style-type: none"> • Capacity increase of Shanghai Airport) • Capacity increase of Nanjing Airport
Infrastructure to solidify the Chang Jiang River greater urban area	Infrastructure to enable exchange and trade with overseas	<ul style="list-style-type: none"> • Capacity increase of Ningbo Port) • Port construction around the estuary of the Chang Jiang River • Capacity increase of Shanghai Airport) • Capacity increase of Nanjing Airport
	Infrastructure to solidify the greater urban area	<ul style="list-style-type: none"> • Bolstering of the Nanjing axis High-speed railway between Shanghai - Nanjing
	Infrastructure to solidify individual cities and urban areas	<ul style="list-style-type: none"> • Construction of the Shanghai commuter railway network • Construction of commuter railways centering around Nanjing, Wuxi, Yangzhou and Nantong • Construction of LRT to complement commuter railways in the four urban areas of Nantong, Wuxi, Yangzhou and Nantong.

Source: the JICA study team

