

Planning and Policy Coordination in China's Infrastructure Development

-- A Background Paper for the EAP Infrastructure Flagship Study --

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(DRAFT FINAL)

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Introduction

Since 1998 China has invested heavily in economic infrastructure. Annual capital expenditures for transport, electricity, piped gas, telecommunications, urban water supply and sanitation increased steadily from US\$39 billion in 1994, to US\$88 billion in 1998, and to US\$123 billion (about 8.7% of GDP) in 2003.² This is in sharp contrast to other East Asian countries where infrastructure investment dropped dramatically as a result of Asian financial crisis. While the heavy investment in China was partly related to the proactive fiscal policy adopted by the government to minimize the impact of the financial crisis through increased public expenditures in infrastructure, it was also driven by the high demand for infrastructure services fueled by the steady economic growth.

One may marvel the amounts invested and the real things that are coming up and quickly transforming the landscape of many parts of China. But this is only part of the bigger story. The sector has been further moving to the market and decentralizing to the local level. While the central government maintains a strong role in sector planning, financing and policy coordination, the provincial and local governments are fast learning how to finance and manage infrastructure. More importantly, the massive investment is contributing directly to the overall improvement of national competitiveness and business investment climate. The recent emergence of China as the world factory would not be possible without a range of new economic infrastructure services in place.

The achievement is attributable not only to the government's increasing capability for resource mobilization and project implementation, but also a series of economic and institutional transformations driven by the economic reform policy. Infrastructure development is an integral part of China's export-led growth strategy. What make the strategy work are the continuing reforms. The rural economic reform of the late 1970s and early 1980s led to increases in rural labor productivity and a large surplus labor force to enter the manufacturing and service sectors. The open economic policy made it possible for the inflow of foreign direct investment (FDI) mainly to the manufacturing sector. Cheap labor and better than adequate infrastructure were both required for the export-led growth strategy. With seemingly unlimited supply of cheap labor from the rural sector, public investment in infrastructure became the keystone in the strategy. A major focus by the government at all levels on infrastructure thus ensued. The functional and fiscal decentralization associated with the 1994 tax administration reform dramatically increased the incentives and financial capacity of the sub-national governments for infrastructure development. A series of institutional reforms significantly helped transform the bureaucratic system to one that is highly pro-business. Other measures, such as the

² Calculated based on the annual statistics published by the National Bureau of Statistics of China (NBSC). Capital expenditures include new construction projects, upgrading projects, and renewal and technological innovation of the original facilities, and cover only projects each with a total investment of RMB 500,000 Yuan (roughly equivalent to US\$60,000) and over. Urban solid waste disposal and other municipal services such as street lighting and bus depots are not included due to difficulties in identifying their capital expenditures from the "Public Facility Services" category under the broader "Social Services" category. See Appendix Table 1 for the major items of newly added infrastructure capacity in 2003.

simplification of government review and approval procedures and the introduction of performance criteria, helped increase the government capability for implementation.

Many problems have also emerged throughout the process. Wasteful investment, abuse of public fund, excessive conversion of agriculture land for urban construction, destruction of environment, neglect of social impacts, you name it. Most of these problems arose from the void left between the declining central control and increasing local autonomy before the evolving intergovernmental fiscal relations became sound enough. They also had much to do with poor judgment, inadequate managerial capacity, and rampant rent seeking behavior of some government agencies, especially at the local level. Some of these problems have been fixed while others persist and yet others are emerging.

In this paper, I will discuss how the role of planning and policy coordination in China has evolved to meet the country's enormous need for infrastructure. Basically, this is a retrospective analysis of how and, to a lesser extent, why the bureaucratic system worked and did not work. The Chinese experience in infrastructure development is unique.³ It is part of China's unique experience in economic reform and development over the last 25 years, and should be understood in a broad historical context of the country's political and economic dynamics. However, attempt to achieve this level of understanding is beyond the scope of this paper. What I will try is to link the infrastructure story to the relevant historical, political and economic events as much as I could.

Institutional Setup: Stable and Evolving Slowly

There are a number of players in the infrastructure policy making and planning processes at the central level. To name the key ones: the Central Party Committee (CPC), National People's Congress (NPC), the State Council, the macro-economic management agencies including the National Development and Reform Commission (NDRC, formerly National Planning Commission), Ministry of Finance (MOF) and People's Bank of China (PBC, the central bank), and the sector/line ministries including Ministry of Communications, Ministry of Railways, Ministry of Construction, Ministry of Information Industry, Ministry of Land Resources, State Environment Protection Administration and Civil Aviation Administration. Appendix Table 2 describes the role and responsibilities of these and other relevant central agencies, and Appendix Table 3 describes who are involved in the planning, financing, and implementation of infrastructure projects.

The institutional setup at the provincial and local levels is similar to the central setup in many aspects. At the provincial level, there are party committee, people's congress, planning commission, and various departments such as finance, urban construction, communications, and environment protection. There are also differences. For example, there is no railway department because the national railway branches under the Ministry of Railways are not organized on the basis of provincial jurisdiction.

The local level includes municipalities and rural counties. The large municipalities usually comprise a central city and a few or a number of suburban counties. Again there are party

³ It is arguable that precisely every country is unique. China's uniqueness in recent decades has much to do with its transition to market economy. But many social science scholars consider China an outlier even to the group of transition economies.

committee, people's congress, planning commission, finance bureau, and other sector bureaus in each municipality. Many large municipalities have a construction commission that leads and coordinates the work of several bureaus including urban planning and design, municipal engineering administration, public transport and public utilities. A few major municipalities such as Beijing created a metropolitan transport commission to manage transport. The small municipalities usually have a construction bureau that takes care of urban planning and design, municipal infrastructure, and public utilities.

The broad structure of government machinery has remained more or less the same since the early years of the centrally planned economy. This is not surprising. After all, institutional setups are broadly similar across countries, regardless their political and economic regimes. The differences are in the details.

The Chinese central government has undergone 11 major rounds of re-organization since early 1950s.⁴ The five rounds before the economic reform (until 1978) were characterized by the cyclical reduction (mainly through merge) and increase (through separation) in the number of line ministries, mostly a result of trying to achieve a balance between manageability and civil service budget constraint. Those during economic reform were more meaningful as they were driven by the transition of the economy to the market. The latest two took place in 1998 and 2003, and were the most significant. In addition to cutting the functions that had moved to the market and re-aligning and consolidating some other functions, a large number of government employees were made redundant and many central agencies were subsequently down-sized. This was a move to adapt to the changing role of the central government in the continuing transition to a market-based economy and in the functional and fiscal decentralization to the lower levels. It also resulted from the acceptance by the top leadership of the concept of "effective government with limited power."

The NDRC underwent changes during the 1998 and 2003 re-organizations. Its role in planning and its working relationship with MOF, PBC, and the National Economic and Trade Commission in macro economic management were further clarified in 1998. Its function in policy coordination was consolidated in 2003: it unloaded some functions such as sectoral planning for most manufacturing industries, merged with the Economic Reform Office of the State Council, and absorbed some functions from other agencies such as the National Economic and Trade Commission. The items of economic products whose prices are still controlled by NDRC account for only 3% of the total items of products in the entire economy (although these items such as electricity are crucial in the economy). The net result? In my opinion, NDRC is not weakened by the growing role of the market, but is strengthened and become more focused in its primary function of planning and policy coordination. NDRC not only survives the transition to market-based economy, but also retains an equal, if not more, important planning and coordination role in economic affairs in general and infrastructure in particular.

Another notable move was the elevation of the State Land Administration Bureau and the State Environment Protection Bureau to the ministerial level (now Ministry of Land Resources and State Environment Protection Administration, respectively) in 1998. This came a long way and had much to do with the growing awareness that land and

⁴ These re-organizations are carefully documented in Xia (2004).

environmental resources were quickly exhausting and would soon become a binding constraint for economic development. Both State Land Administration Bureau and State Environment Protection Bureau were established in 1988. Before then, their functions rested with the National Planning Commission and the Ministry of Construction, respectively. In 1994, the Government approved and published a landmark white paper on population, environment, and development.⁵ It set the sustainable development of population, resources, and environment as one of the national policies governing the formulation of the medium and long term economic and social development plans (including the Ninth and Tenth Five-Year Plans and Plan 2010) and urban master plans. It was also recognized subsequently that the policy would not be properly and effectively enforced without higher level institutions in place.

The most interesting is that the Ministry of Electric Power Industry was dissolved in 1998, but the Ministry of Railways continues to exist. This is not surprising, though. The power business by nature is more profitable than railway business (which is facing increasingly intensive market competition from road transport). And the unbundling of generation, transmission and distribution appears to be practically easier than separating rail infrastructure from transport services. The Chinese Railways has yet to be unbundled. However, the preparation for its unbundling and move to the market has been continuing for quite a while. In fact, the telecommunication part of the rail system has recently been separated from the core business of railways and moved to the market. It is just a matter of time when the final move will take place.⁶

The provincial and local governments have also undergone several rounds of re-organization since the 1950s.⁷ The most recent one started in 2000 and followed the 1998 central government re-organization. In this round, the central government limited its role to setting the broad guiding principles only, leaving the details of the organizational setup to the sub national governments to determine according to their local circumstances. The basic model adopted across the country was known as “*small government and big society*.” The main objectives were to separate government administration functions from commercial functions, and to make the governments small and efficient.

⁵ China's Agenda 21: White Paper on China's Population, Environment, and Development in the 21st Century. The English version of the document can be accessed through: www.acca21.org.cn/ca21pa.html. See excerpt from Section 6.11: “When making major decisions or proposing key projects, government agencies at all levels should conduct sustainable development impact assessments (SDIA) to see whether or not projects are in accord with the sustainable development requirements of regional development plans.” Could this document be regarded as China's first step to integrate environment into the mainstream of development planning?

⁶ The recommendation for dissolving the MOR and organizing the management functions for all transport modes into a single ministry of transport has been brought up from time to time. In fact, the idea of creating a unified ministry for all transport modes was considered by the government as early as in the 1950s. The recommendation makes sense, but the action taken before much of the rail business is unbundled and moves to the market could be premature or not worthwhile. The gain in the form of better sector planning from a single ministry of transport may not worth the hassle (or transaction cost) inherently associated with re-organization. Moreover, there would be other losses of efficiency and economies of scale. After all, integrated transport sector planning has never been a void in the planning machinery. It has been taken care by the National Planning Commission (i.e. NDRC).

⁷ This is documented in Yang (2002, pp. 390-9).

As a result of the re-organization, the number of provincial departments was cut from 55 to 40 in average, and 47% of government staff were down-sized. Similar results were also achieved at the local level. Almost all industrial and commercial departments at the provincial level were dissolved and their administration functions were transferred to the comprehensive economic management agencies such as the provincial development planning commissions. Many municipal governments merged relevant functions into a single bureau. In Shanghai, for example, a unified Water Service Bureau was created to merge the water resource management, water supply, underground water utilization, drainage, and sewerage functions that were scattered under the former Water Resource Bureau, Public Utilities Bureau, and Municipal Administration Bureau; a newly created Urban Transport Bureau unified the management of the formally scattered functions of highway transport, ferry services, mass rail transit, bus transport, and taxi services.

The achievement of the recent re-organizations both at the central and sub national levels is significant not in the reduction of the number of line departments or bureaus, but in the substantial reduction of government employees. It would be extremely difficult to cut government employees if there were no alternative jobs for them to take. As part of the administrative reform, the government granted permissions allowing bureaucrats to quit bureaucracy and join businesses, sometimes along with the commercial functions moving to the market. The growth of market and the non-state sector offered them both jobs and alternative career opportunities. On the other hand, the growth of the market also created a favorable condition to absorb the commercial functions from the government. The future is brighter for the bureaucrats. They could either climb the bureaucratic ladder or use their connection with and knowledge about the government as an asset to move to businesses. To some extent, this transformation contributes to the bureaucratic incentives to support economic reform and businesses.⁸

The Role of the CPC: Big Boss, and Hands-on, too

The leadership role of the CPC is paramount not only in political affairs but also in economic affairs. The organizational structure of the Chinese government is shown in Figure 1.⁹ The CPC at the top of the structure is a unique and the most important feature of China's policy making process. The highest level policy making body is the standing committee of the CPC Political Bureau. The NPC, the State Council and the Chinese People's Political Consultative Conference (CPPCC) carry out their respective functions (i.e. legislature, administration, and policy consultation) under the leadership of the CPC. In fact, the top position of NPC, State Council and CPPCC has almost always been held by a Political Bureau standing committee member. Through this arrangement, the CPC is firmly in charge of the government.

⁸ See Li (1998) for more detailed discussion.

⁹ The figure is adapted from Cai and Lin (2003, p. 248).

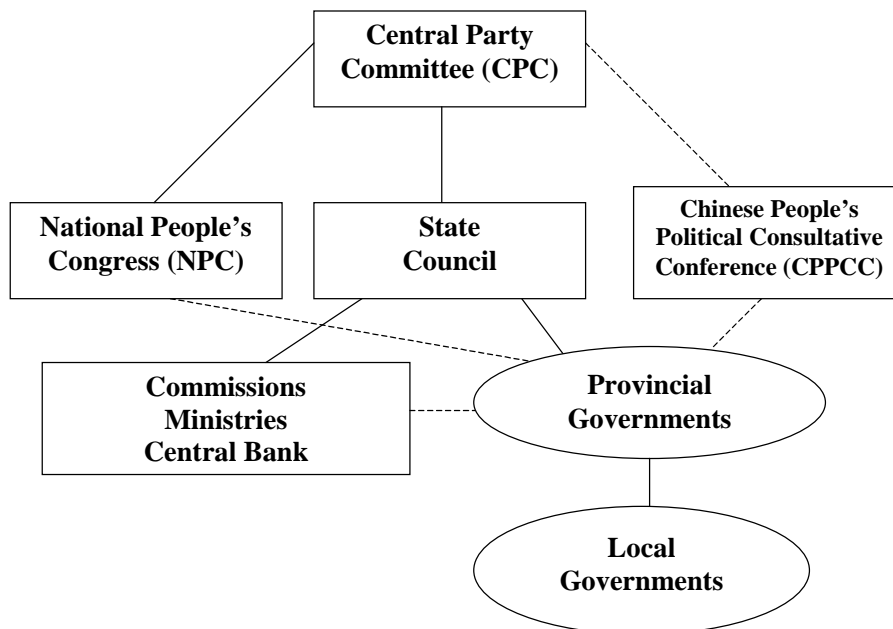


Figure 1 : Organizational Structure of the Government

The CPC plays a leading role in setting national policy agenda, making national policy decisions, and even guiding the law making process (Box 1). However, its role does not end there. It closely monitors and guides policy implementation. This is made possible by the so-called *party/administration double-track implementation system*, which is characterized by the party's organizational structure set in parallel to the administrative organizational structure at every level of the government. Under the system, every government agency is led by an official who serves both as the party secretary and the administrator (commonly seen at the central level), or jointly by two officials, one as party secretary and the other as an administrator (more commonly seen at the provincial and local levels). In the second case, the party secretary does not engage in the day-to-day administration functions, but closely monitors the policy implementation process and would always have a final say on major policy and personnel decisions.¹⁰ He or she is accountable to the higher level party secretary. The administrators need not be a party member, but many of them are. The career of a government official with party membership, moreover, is not limited to just party or administration track. It could be both.

¹⁰ It is interesting to note that in many cases where a government line agency or a state-owned enterprise was transformed into a shareholder company, the party boss became the chairman of the board, and the administrator, the chief executive officer.

Box 1. The 1998 Amendment of Land Administration Law

China's first Land Administration Law was promulgated in 1986. Its implementation in the next 10 years exposed a number of weaknesses that caused serious problems especially the excessive conversion of agricultural land for urban development. In January/February 1997, the standing committee of the CPC Political Bureau and the State Council held three hearings with the State Land Administration Bureau (SLAB). It was decided that the law be amended. On April 15, 1997, CPC and State Council issued a circular to stop further conversion of agricultural land until the new law was passed. The circular also provided specific guidelines for the amendment of the law.

The policy analysis work for the amendment, led by the CPC Rural Work Steering Group, got immediately underway by a team formed by the SLAB, State Planning Commission, Ministry of Agriculture, and the State Council's Law Office. A series of field investigations covering 8 provinces and 12 cities across the country were carried out. Based on the study recommendations, a SLAB task force completed the first draft amendment on June 10, 1997. The draft then went through several rounds of review and revision, step by step, first by provincial and local land bureau directors, then by 23 relevant agencies under the State Council, and finally by the Standing Meetings of the State Council. On April 26, 1998, the draft amendment was presented to a session of the NPC Standing Committee, and was heavily debated. Then the NPC Legal Committee took over to modify the draft. After review and revision through two more sessions, the amendment was finally approved by the NPC Standing Committee on August 28, 1997, and the President of the State who was also the CPC Secretary General issued an executive order to promulgate the 1998 Land Administration Law.

Source: Wu (2001a, pp. 283-92).

If the party secretary is considered to be a politician, this double-track system would appear to be similar to some democratic political systems, where a stable professional bureaucracy (such as the India Administration Service) serves the elected political party or party alliance. However, there are two key differences. First, of course, China's is a single party unitary system, which inherently offers a better chance for the continuing implementation of long-term policies. Second and perhaps more important, the party secretaries in the current Chinese system are mostly technocrats who rise from within the bureaucracy and have at least some basic understanding of and practical experiences in their administration duties. There is no dichotomy between politicians and bureaucrats. There is only distinction between top leaders and bureaucrats. Politicians, bureaucrats, and professionals are often the same group of people. The highest *professional* advancement of a bureaucrat is to enter the rank of top leadership in the government. This creates a strong incentive for staying firmly at the party line. Moreover, the current Chinese government personnel policy is to ensure that government officials including the party secretaries are professionalized and with both adequate education and experience. For a long period time, the implementation of government policy in China had suffered from the so-called "innocent blindly leading the knowledgeable," a situation where a technical agency was led by a party secretary and an administrator who were chosen because of their revolutionary background not professional competence.

All too often in the democratic developing countries, politicians do not have adequate understanding how a bureaucracy is run. As a result, they may move policy agenda unrealistically or set unrealistic policy. Moreover, the frequent changes of government and associated policies may well encourage the bureaucracy to respond to the changing

political agenda slowly or not to respond at all. Why do I mind to implement your policy, if you are leaving soon? What is the point to move forth so fast when a move back may be called tomorrow by the next government? This kind of disincentives creates a bureaucratic inertia, a root cause for policy implementation gap.

In addition to the double-track system, another unique feature in China is the highly centralized personnel management system. Despite functional and fiscal decentralization, the personnel decisions for key government positions are still highly centralized. Appointments of director general level and above at the central government and their equivalents at the lower governments need to be approved by the powerful Organization Bureau of the CPC. To some extent, their performance is also monitored by the Bureau. While it is unclear whether the centralized personnel management has more pros or cons, it is clear that the system provides certain accountability and incentive for officials to ensure the central government policies and strategies get carried out across the country and down to the local level.¹¹ The selection criteria for government positions include skills, loyalty, and young age.¹² This provides a powerful incentive for the young bureaucrats to perform and excel.

Within this system, the bureaucratic accountability is not to the constituents directly as seen in the case of democracies. Instead, bureaucrats are accountable up-ward to their superiors. The top leadership is accountable to the society, but indirectly in the sense that social instability would threaten the political fate of the top leaders. This system of accountability requires that the central policies are sensible to the contemporary social agenda and reflect the interest of the majority of the population, and that the policies get implemented. The key is thus to ensure the good performance of the bureaucrats in carrying out central policies is rewarded with promotion and other honors. This is facilitated by the centralized personnel management.

The attention and effort of the party leaders given to economic affairs is intensive. This could be illustrated by the intensive role that CPC has played in leading the implementation strategy of the western regional development which involves massive investment in infrastructure (Box 2). It is not uncommon for a ruling political party to pay constant attention and give direct guidance to economic affairs. After all, successful performance in supporting economic development is a safe way for the one-party ruling system to survive. In fact, the CPC has had clear economic objectives since coming to power in 1949, except during the peak period of the Cultural Revolution when it focused only on the mass political movement. The economic target set in the early 1950s was to exceed the UK's per capita income level and catch up with the US in 30 years. This failed miserably, not only because the target was unrealistic and the wrong means was chosen,¹³

¹¹ In reality, the lower level the government, the less effective the implementation of the central policies and more possible the misinterpretation of central policies. As I will discuss later, this is due mainly to declining professional quality of government officials from the center to localities.

¹² The CPC set an age limit for the highest level leaders in 1989. Then a "trickle-down" effect took place: the lower the government, the younger the average age of officials. This happens partly due to a culture factor that people find more comfortable to supervise the younger.

¹³ For example, the rural commune production system that took away any micro-incentives of the households for more and better effort in production.

but also because the leadership was often distracted to political affairs. Since the beginning of economic reform in 1978, and especially since 1992, the CPC has been able to focus on economic affairs persistently. Economic growth becomes the overriding objective of the CPC. Everything else is subordinate to the objective. Under the unitary political structure and with the stability of institutions, the government is able to address tough reform issues by inflicting short-term pain for long-term gain without fearing loss of power. It is only until very recently that more equitable and more environmentally sustainable economic growth is called for attention. The move is certainly in the right direction.

Box 2. Implementation of Western Regional Development Strategy

Recognizing the widening regional income disparity between the poor western region and the richer eastern coastal areas by late 1990s, the CPC started to consider striking a better balance in regional development. In March 1999, the then CPC General Secretary, Jiang Zemin, proposed internally to study how to reduce poverty through scaling up the western regional development. In June 1999, he formally called for the implementation as one of the major strategic tasks of the party and the administration. In January 2000, the CPC and the State Council approved the conceptual framework of the implementation strategy, and an implementation steering group was created within the State Council and headed by Premier Zhu Rongji, who is a standing member of the CPC Political Bureau. In October 2000, the CPC spelled out the principles, objectives, and priorities for the implementation strategy in its proposal for the forthcoming formulation of the Tenth Five-Year Plan. At the same time, the State Council announced several specific policy measures as part of the implementation. In April 2002, Jiang chaired a high level meeting to review the implementation progress and set forth further policy guidance for the next-step actions. Such high-level party involvement effectively ensures the strategy get implemented, and more importantly, paves the way for the administration to find practical solutions to unexpected emerging implementation problems.

The role of infrastructure in supporting national economic development has been emphasized by the CPC since it took power in 1949. This role has been further emphasized since the CPC made a sensible strategic choice to adopt an export-led economic development strategy and to promote economic growth by attracting FDI especially in manufacturing in the 1980s. Without this policy emphasis, infrastructure investment would not have been supported by governments at all levels. This strategic choice was a result of learning from past failures such as the Great Leap Forward and the Cultural Revolution and from successful development experiences overseas. To a great extent, China benefited as a late comer, learning from its neighboring economies—Japan, South Korea, Taiwan, Hong Kong and Singapore. The special economic zones (SEZ) and coastal open cities are variants of the tax-free manufacturing zones and industrial parks. The early infrastructure investment was mostly associated with the SEZs. It was concentrated heavily on the port capacity and road transport links in a few selected harbor cities. The significant improvement of economic infrastructure in the coastal urban areas in the 1980s and the policy to allow rural labor to enter urban labor market made these areas highly competitive in attracting manufacturing FDI, setting the precedents for the subsequent waves of infrastructure investment.

The Planning Process at the Central Level: Adapting Well

Infrastructure development in China is guided by various government plans and increasingly by the market. The planning system consists of socioeconomic planning and sectoral planning at all levels of government, and urban planning at the municipal level. The time frame for socioeconomic and sectoral plans include long-term, medium-term (i.e. five-year) and annual. Urban master plan usually covers a time span of 20 years. Regional planning is not mandatory. It is carried out on an ad hoc basis, and is more a forward-looking regional study in nature. With increasing emergence of inter-provincial economic cooperation, the government is facing a new challenge in regional planning: Is it needed? Who should be in charge? How is it formalized?

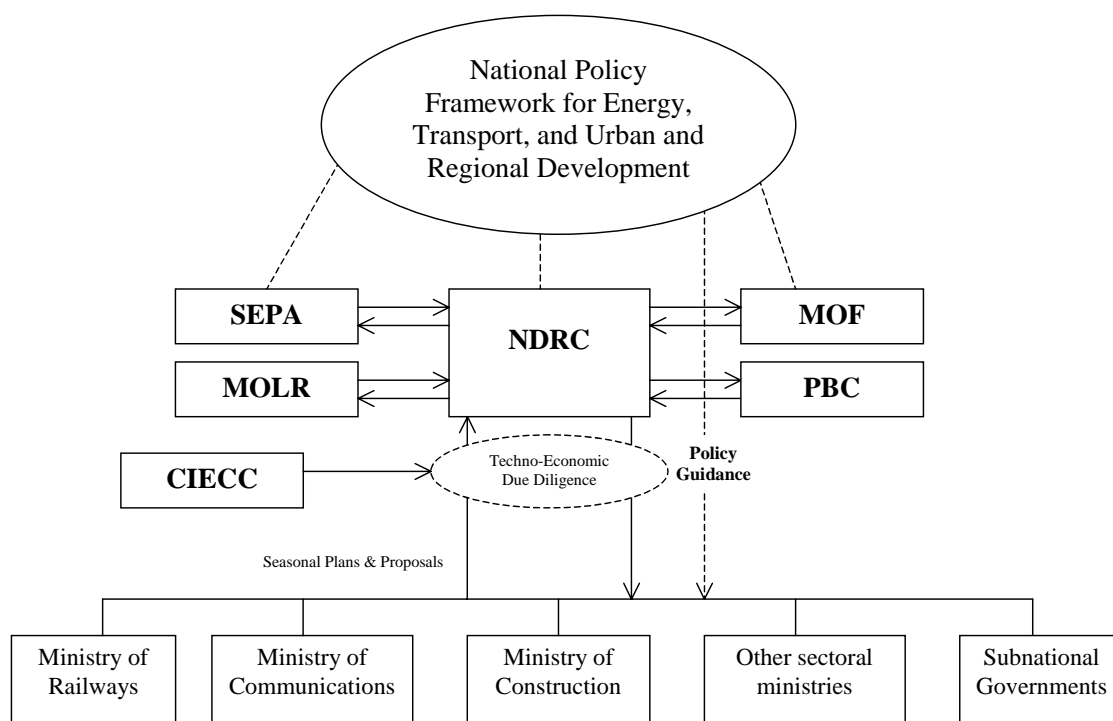


Figure 2 : Institutional Setup for Planning at the Central Level

The institutional setup for infrastructure planning and policy coordination at the central level is illustrated in Figure 2. To a great extent, it is similar to what could be seen in many other countries where government planning still has a significant role in economic affairs. However, there are noted differences. The NDRC is not only the planning agency for national economic and social development, at the core of the planning machinery, but its role also extends beyond the formulation of economic development strategies, five-year plans and annual plans. It organizes and coordinates the implementation of these plans. This leadership role in implementation is needed, because the actual implementation functions rest with a number of line ministries and lower level governments and because

the sheer size of China and its institutions poses high risk that things could easily go out of control somewhere. In addition to its planning and implementation role, NDRC is part of the top policy making mechanism. Along with the Development Research Center of the State Council, NDRC serves as one of the primary think tanks on development policy issues for the CPC and the State Council. At the same time, it carries out its planning and policy coordination functions under the national policy framework set by the CPC.

The planning process adopted by the Chinese system is similar to what could be seen in other countries. To put in the simplest way, it is a top-down and bottom-up process led by a central planning agency. The main difference arises from the fact that greater effort is needed for the Chinese system to cope with the inherent complexity of economic planning for a large territory, population, and economy with significant regional diversity and disparity.¹⁴ A large amount of background work has to be carried out by NDRC, individual line ministries, and the lower level governments. The work at each level and in each sector involves a sequence of data collection, assessment of current situation, identification of problems, forecast of future need and demand, analysis of alternatives, and recommendations of investment plans and priority actions.¹⁵ It would be an extremely complex task if all the work starts from scratch. But this seemingly complicated process benefits greatly from the relatively stable institutions that allow the accumulation of data, experience and knowledge and the gradual improvement of established procedures and methods. Moreover, a clear national policy priority framework set from the top, which by itself is a result of bottom-up knowledge accumulation, simplifies the planning process to a certain extent.

Nonetheless, a major challenge is how to ensure the ground level information is accurate, up-to-date, and flowing up. This is a crucial element in the top leadership's accountability to the population. At the early stage of the planned economic regime, and for the purpose of "optimal" resource allocation to achieve the economic objectives under the central planning economy, there was genuine need to understand the natural, economic, and human resources across the country and the regional disparity. The planning system has developed a long tradition for data collection, cross-country benchmarking, field investigation, expert consultation, and pre-feasibility studies. Technical data on topography, geology, and morphology are readily available. NDRC and other ministries often carry out fact-finding field investigation and research on the need basis. When new issues emerged or are emerging, the planners visit the local areas, often for weeks or months, to see with their own eyes what actually is happening. Sometimes, the investigations are jointly conducted by NDRC and several relevant ministries. The

¹⁴ In this respect, only India is comparable.

¹⁵ The economic planning methodological framework was adopted during the central command economy, but it remains quite the same even nowadays. I learned this central planning method in a university in China. Years later, I was surprised to see the great similarity it had to the methodological framework proposed by the World Bank for public expenditure review. I came to understand that the methodological framework was just a practical wisdom and a common-sense way of planning, and could be used in different economic regimes. The key difference in the central planning method is lack of market instruments such as prices and competition. When the Chinese economy started move to the market, what the central planners did was to incorporate role of market and prices for resource allocation into the existing methodological framework. As a result, the planning task became simplified, and better focused on the areas with market failure or where market was not yet developed.

investigation reports are often channeled to the top leaders. Similar fact-finding investigations are fielded regularly as part of the policy implementation monitoring process. The accumulation of vast amount of information over many years has proven to be very helpful for the rapid implementation of infrastructure investment over the last decade.

The planning system has been staffed with trained professionals and planners. They are able to set clear (not necessarily realistic due to political interferences) economic development objectives, formulate strategies, and prioritize action plans. Most of them spend their entire career in the system, thus sustaining the institutional memories (lessons learned from past failure in particular). The institutions have a merit-based promotion mechanism to permit and encourage planners to search for solutions as far as the solutions do not deviate from the ideological and political directions. Perhaps more important, the decision makers in the planning machinery are often those who rise within the system and thus have adequate respect to the professional work.

The institutions also ensure planners understand the ideological and political constraints in their search for solutions, but often tolerate internal, informal debates on the impact of these constraints. Planners understand under what conditions when the role of planning becomes useless, redundant or a cure worse than the ill. Planned economy without market incentives was a dead end. The movement of great leap forward resulted in a great leap backward. And the Cultural Revolution a total disaster to all. Through the debates planners get to know where to go if certain constraints are removed, and wait for the opportunity to occur. Thus, solid proposals for actions often follow quickly the relaxation of certain constraints. When it comes to learning from other countries, independent thinking and consideration of domestic conditions and characteristics are encouraged. Even the old generation of revolutionaries understood well from their revolution experiences that simply copying foreign models without taking into consideration the national initial conditions were deemed to fail. The government listens to outside comments, suggestions and even criticism, but accepts only what it is persuaded is appropriate to China's circumstances and purposes.

At the core of the planning process is the balancing act to synthesize and prioritize investment plans proposed by line ministries and sub national governments and to link them with the budgetary process undertaken by the MOF. This is known as the "synthesis and balance" process. The principle is to treat the process as a chess game in which each move is to serve the ultimate goal of winning the whole game.¹⁶ Some developing countries find it difficult to integrate the infrastructure investment plan into the overall

¹⁶ The chess game principle also implies the possibility of partial sacrifice in return for the overall gain. For example, Shangxi Province—China's coal mining industrial base—had suffered for years during the central planning regime from a mandate to concentrate on supplying the nation with coal at artificially set low prices. Such a policy would be impossible in a democratic system, and in fact becomes increasingly difficult in China, especially after the tax administration reform in 1994 that introduced the tax assignment system. It is useful to note Deng Xiaoping's remark to the leader of State Planning Commission: "The advantage of socialism over capitalism is that you could treat the whole economy as a chess game, where you could deal with priority issues by calling on all your capacity. The disadvantage is that the economy would stagnates if one does not know how to make use of the market force. The key question is thus how to deal with the relationship between planning and the market."

budget preparation process due either to lack of established procedures for planning coordination among planning agency, finance ministry, and line ministries, or in the case of alliance government, to the constant conflict of interest among cabinet politicians from different parties. This is not much a problem in China, though it occasionally happens that some (smaller than mega) projects sneak through the back door and get approved without a secured budget.¹⁷

The chess game principle, which is easier to say than to do, is made possible by the clear line of order and command within the planning machinery. Under the strong leadership of the CPC and State Council, the macro-economic management agencies—NDRC, MOF, and PBC—work closely in planning and budgeting process. In fact, NDRC has a department in charge of finance matters, and the office buildings of NDRC and MOF are “strategically” located next to each other, and the PBC office is only several blocks away. They maintain frequent formal and informal dialogue among themselves and have a shared understanding of national policies and development priorities. They often fight and argue over specific issues, but at the end, consensus and compromise are always reached, sometimes through the intervention/guidance of the higher leaders, and sometime just due to pragmatism: “Time is running out, let’s move on and leave the argument and truth to next year.” Investment priorities at the national level are thus mostly ensured with budget or some sorts of extra-budgetary funding arrangements. Few if any mega-projects financed by the central government in the last 10 years could be considered as “white elephants”—a term that refers to the mega infrastructure projects that have been abandoned midstream due to unrealistic planning and budgeting or are not justified on any economic or social ground. Most mega-projects have been under consideration for budget for years. Budget or extra-budgetary funding may not be allocated in the first year, but the chance improves over time.

In fact, the central budget process has insignificant and declining impact on the funding of most infrastructure investment projects. It is largely incremental in nature because the budgeting is first based on last year’s actual expenditures.¹⁸ The public expenditure priorities are determined by the long established principles known as: basic consumption first and production second, maintenance first and development second, production first and capital investment second, renewal and rehabilitation first and capacity expansion and new construction second. In most years, there is little room to maneuver for development expenditures after strictly following these principles. Thanks to the authoritarian government, development priorities do not change as often as seen in democratic societies. Moreover, the details of development priorities are not determined through a transparent, democratic process such as intensive public debates and voting. Therefore, it is easy for the government to tell that the budget-funded development projects are priorities.

As is unique in China, the growing infrastructure investment priorities are funded mainly beyond the budget. By 1997, the share of infrastructure investment funded through

¹⁷ That infrastructure investment plan far exceeds the budget limit did occur in the past when political emphasis or poor and inexperienced judgment prevailed. For example, in 1979-80, the central government proposed 20 mega-projects including 10 new oil fields and 10 steel manufacturing bases. But soon financial reality set in and the program was forced to scale down substantially.

¹⁸ See World Bank (2000) for detailed discussion.

government budget has declined to merely 6%, down from 57% in 1981.¹⁹ The infrastructure projects under the responsibility of the central government include the Three Gorge Dam, national highways, national railways, rural electrification, cross-provincial water works, and a few others. Most of these are funded by state debt, user surcharges and earmarked tax revenues. For example, the national railway investment is funded by the revenues from a construction surcharge on freight tariff, commercial loans, and “policy loans” from the China Development Bank. The national highway construction is funded by revenues from a tax on the purchase of motor vehicles, and a series of state debts issued under the pro-active fiscal policy. The renewal of the rural electrification system is also funded by the state debts. Power generation is already commercialized and outside the domain of public financing.

Since the East Asia financial crisis, China’s infrastructure sector has benefited from the proactive fiscal policy. This is in contrast to almost all other East Asian countries where the financial crisis was a killer of infrastructure development. Introduced in 1998, the policy was to mitigate the impact of a cooling economy by issuing state debt (treasury bond) to fund infrastructure investment. The bond issuance amounted to Y100 billion in 1998, Y110 billion in 1999, and Y150 billion each year since 2000. The policy continues to date although there is debate if it is time to replace the proactive fiscal policy with a more neutral one. Much of the fund raised through state debt went to irrigation, water works, transport, and urban infrastructure.²⁰

The management structure for the state debts is clearly established. The amounts of state debt to be issued every year are estimated by NDRC, in collaboration with MOF. The issuance has to be approved by NPC. A steering group for infrastructure construction comprising the leaders of relevant line ministries meets once every year under the coordination of NDRC, to determine the allocation of state debt to specific investment projects. The use of state debt is monitored by the NDRC and the National Audit Office. Similarly, the central dedicated funds such as the railway fund are also governed by specific rules. The same cannot be said at the provincial and local levels. As will be discussed later, the major challenge for the budgeting process is how to keep the sub national extra-budgetary expenditures for infrastructure in check.

The opening up of fiscal space for infrastructure is also attributable to the rapid growth of national tax revenues as a result of tax reforms. The growing revenues helped the government to fund priority expenditures in other sectors. The tax reforms started in 1984 when the government introduced income tax to state owned enterprises, and abandoned the full control of their expenditures and revenues. Subsequent reform actions aimed at stimulating production incentives and ensuring the steady growth of budgetary revenues. The most significant reform came in 1994 when the tax assignment system was introduced.

¹⁹ Deng (2003, pp. 155-6). The composition of infrastructure funding sources in 1997 is budget (6%), domestic loans (23%), foreign financing (14%), and self-raised funds and others (57%).

²⁰ The proactive fiscal policy was successful in fueling economic growth, but also brought about heavy government debt and inefficient investment projects. An empirical study cited by Cai and Lin (2003, p. 265) shows that the policy contributed, through its stimulation effect and linkage to other sectors of the economy, to 1.5 percentage point of the 7.8% national GDP growth rate in 1998, 2.0 percentage point of 7.1% in 1999, and 1.7 percentage point of 8% in 2000. However, a recent report by the National Audit Office shows that 25% of the projects funded by state debt do not achieved minimum rate of return.

The system promised to sort out the role of the government and the market. At the same time, the tax collection effort was largely strengthened with the improvement of the collection system.²¹ As a result, the national tax revenues increased from Y422 billion in 1993 to Y2 trillion in 2003 (at current prices), at an average rate of 17% per year.

To sum up, the planning system has been evolving to meet the challenges arising from economic reform and decentralization. The evolution of the planning system has benefited greatly from the opportunities for trials and errors, which is made possible by the stability of institutions. The success of the planning system, which is reflected by the generally successful planning and policy implementation, is greatly helped by the government's increased capability for resource mobilization. But it is the drive to economic reform that put the system on the right track.

Project Preparation and Approval: Major Reform Ahead

Infrastructure project preparation and approval is a crucial part of the planning implementation process. The responsibility for project preparation rests with project sponsors, mostly government agencies. With the gradual move of some sectors (such as power, and water and sanitation) to the market, more and more business firms become project sponsors. In the case of government sponsored projects, the approval by the higher government is necessary to ensure that the project is consistent with government development strategy, investment program, and public expenditure rules, and that the project meets certain economic, social, environmental and financial criteria.

The procedure for the preparation and approval of infrastructure investment projects has long been established, a legacy of the central planning regime. The preparation process of a project before implementation usually involves conceptual proposal, pre-feasibility study, feasibility study, detailed engineering design, appraisal, and final approval. Nearly every step requires some form of review and approval before moving to the next. The technical institutions for project preparation are mainly the planning and engineering design institutes of individual line ministries or municipal governments.²² The level of authority for final approval depends on the size of the investment. Until very recently, all projects with investment size over Y50 million, whether sponsored by the government or private sector, had to pass a lengthy review and approval process by NDRC.²³ Smaller projects were subject to the approval of the provincial planning commissions.

The cut-line for Y50 million may have been set unrealistically too low, which sent a tremendous workload to NDRC. The priority was then given to the scrutiny of mega-projects, which by the Chinese standards was a quite different category than most of what were called elsewhere in East Asia. For example, the Three Gorge Dam, the 50,000 km national expressway network, Qinghai-Tibet Railway, Beijing-Shanghai high-speed railway, the South to North water diversion project. The review and approval process for

²¹ See Bahl (1999) for a discussion of the tax assignment system.

²² In recent years, international competitive bidding for procurement of planning and design consultant service has increasingly been adopted by government sponsors of investment projects.

²³ NDRC delegates the due diligence work to some reputed institutions, especially the China International Engineering Consulting Corporation (CIECC).

the Three Gorge Dam was unprecedented in the Chinese history. It had been debated almost continuously since the early 1950s if the project should go ahead or not. Meanwhile, the survey and design work had not been stopped. In 1986, the CPC and the State Council decided to start a project evaluation process. The NPC, CPPCC and other social organizations organized field visits and provided feedback to the design. In 1990, the State Council established a review and approval committee to carry out the preliminary review of the design. In 1992, the State Council submitted its review comments of the feasibility study report to the NPC for final consideration. In contrast, the smaller the size of the project, the less intensive the scrutiny process (but the more suspicious due to asymmetry of information).

This approval process has been increasingly facing challenges. A long-standing concern by the central government is aggregate over-spending for infrastructure. This should not be a concern if the government investment plans at all levels are strictly followed. In reality, the inherent rigidity of long- and medium-term investment plans and urban master plans limit the responsiveness of the planning system to meet the rapidly changing needs. Too much control by the government and the associated long process of review and approval could restrict local incentives and waste good investment opportunities. Facing growing pressure for the delivery of infrastructure services driven by the rapid economic growth, project sponsors have increasingly become impatient with the approval mechanism. Flexibility in approving projects that are significantly different from plans or not included in the plans is often required or requested. This could be achieved by the approval authorities exercising discretion and judgment. However, their judgment is not always sound and their discretion opens a door (sometimes at the back) for investment projects motivated by short-term political or even private gains. While safeguarding the national interest, NDRC draws notoriety for lengthy scrutiny and is often wrongly accused of being arrogant and insensitive to local needs. Despite negative reactions, NDRC has made constant effort to strike a balance between central control and local/sector incentives.

This is being changed now, for the better. In July 2004, the State Council announced a Decision on Reform of Investment System (hereafter the Decision). The fundamental purposes of the reform are to relieve intervention of the government and to allow the market to play a primary role in resources allocation. It represents one important step to move toward a more market-based macro management approach to control the aggregate over-spending. In the words of the Decision, it is to bring into full play the basic role of the market in resource allocation under macro control by the state. The decision also clarifies the investment responsibilities between the central and local governments. The central government will primarily invest in inter-regional and inter-river basin projects or in projects with significant national economic impacts. Local governments are encouraged to attract private capital into utilities and infrastructure projects. Private financing will be allowed and encouraged in any sector as long as no laws and regulations prohibit private sector participation in that sector. Subsidies, including concession loans, are clearly allowed for social sector investment and projects aiming to optimize industrial structure or reduce regional disparity.

Under the new system, business enterprises would make investment decisions at their own discretion and shoulder risks of losses while banks should extend loans on their own account. Most non-government sponsored investment projects need not go through any

government approval process. They will be subject to government confirmation or simply record filing.²⁴ The government, on the other hand, is expected to perform its duties in formulation of development plans and sectoral policies. The government investment decisions are expected to be made in a more democratic manner through a better decision making process, which would include public consultation, information disclosure, and mechanism to hold decision makers responsible for their loss-making investment. The review and approval procedures for government-funded projects will be simplified and standardized. NDRC will continue to assume the responsibility for investment macro control, but is expected to adopt a more market-based approach for macro control.

All these do not sound to be innovative and special. However, it has been a long way to get to this point, and a number of practical issues associated with the implementation of the decision will still need to be sorted out soon. The Decision does not make clear the detailed division of authority for the approval of government-funded projects which will be worked out by the State Council and NDRC.

Perhaps a major gap in the Decision is lack of clarity in how the infrastructure pricing policy is linked with the investment system reform. This will have significant implication for the viability of urban utilities sector. At present, the prices of infrastructure services are in principle determined by the cost of service plus allowed rate of return. Normally, the service providers propose for government approval price increase based on evidence of actual cost increase. Due to general lack of market competition and performance benchmarking, the cost associated with poor management and operating inefficiencies is largely unknown and expected to be high. However, there is no established procedure to verify the real cost of service provision. This leaves plenty of opportunities for operating inefficiencies, cheating, and incentive for over-investment. It is not uncommon that some local service monopolies find their ways to raise the prices of services in order to cover their expenses unrelated to service provision, including “excessive” salaries, benefits, and bonus to employees. Recently, the central government and some local governments (Beijing, Shanghai, Guangzhou, and Qingdao) introduced public hearing as a mandatory process before the decision on price change in rail transport, civil aviation, residential electricity, and residential telecommunication service (Deng, 2003, pp. 333-4). But more market incentives and contestability should be introduced to the sector before the pricing issues could be better managed.

Municipal Infrastructure Development: An Enigma

Urban infrastructure development in many municipalities is an enigma, a wild wide west. It is supposed to be guided by an urban master plan.²⁵ However, urbanization has grown so rapidly in many cities that actual urban population tends to exceed in just a few years the planned population target for the entire span of the master planning period (i.e. 20 years). This is accompanied by faster than predicted personal incomes. Therefore, actual

²⁴ Just a few weeks after the announcement of the decision, several power generation projects easily passed the government confirmation procedure.

²⁵ To be precise, urban infrastructure development is guided by the urban planning system, which produces a 20-year urban master plan, a five-year implementation plan, and a number of associated sectoral master and implementation plans.

demand for urban infrastructure services grows much faster than the predicted and planned. Over and over again, land use and infrastructure development in most cities exceeds the limit and expectation set by the master plan. The mayors are under tremendous pressure to mobilize extra resources for the delivery of infrastructure services.

Things might have been much simpler if the mayors are concerned only with infrastructure investment to meet the growing demand. In reality, many mayors are busy for another task at the same time, that is, to further raise infrastructure investment as a way to lead the urban economic growth. When financial resources are inadequate for both tasks, which is often the case, the mayors tend to give priority to the second task. It is not uncommon to observe that land use and associated infrastructure in the outlying areas are rapidly developing while the existing built-up area suffers from poor and degrading infrastructure services and lack of investment and maintenance.

Why and how does this happen? Two explanations: the peculiar role and responsibilities of the Chinese mayors, and the peculiar Chinese land use management system. The Chinese mayors are a special product of the on-going functional and fiscal decentralization process. Unlike mayors in many other countries, they are responsible not only for the provision of urban public services but also for the performance of the urban economy, including, among other things, reforming the state-owned enterprises, running (indirectly as the majority share holder) the local financial intermediaries such as the urban commercial bank, and seeking business investment from outside. It is not an easy task to play such a role during economic transition and decentralization. Central and provincial budget support is shrinking, local budgetary revenue base is at the early stage of development. The one way out is to be innovative, which is made possible by the central policy that local incentives should in principle be encouraged and protected, as appropriate and feasible.²⁶

However, no one knows for sure what legal framework and what central monitoring and supervision system should be in place before the innovations are invented and implemented. In other words, no one knows where is the legal limit on what a municipal government can do. The central policies sometimes conflict with each other. For example, under the decentralization policy, local governments are supposed to raise fund to finance urban infrastructure. But under the administrative reform policy that aims to separate the government functions from commercial functions, they are not supposed to engage directly in commercial activities. A number of local financing innovations have emerged from this gray policy area. Nearly every major city has an urban commercial bank. The primary shareholder is the municipal government, who often asks the bank to finance the government-sponsored infrastructure projects. Some municipalities find indirect means to raise fund through commercial operations such as the Shanghai Urban Investment Company (Box 3). The funding for the first line of Guangzhou subway system was partly

²⁶ The words “as appropriate and feasible” literally appear in many written policies, guidelines, regulations and laws. It is up to everyone including the policy makers and implementing agencies to interpret what this means. There are pros and cons. It provides room for experiment and innovation but also lends opportunity for abuse of power and public resources. The philosophy behind the use of this vague term, in my opinion, is that you get to allow people to move along the general direction first, and depending on the intermediate outcomes, revise the specific steps or even scrap the roadmap. Isn't it broadly similar to the Anglo-Saxon legal tradition along which a law can be modified after the ruling of landmark case?

raised by a local surcharge on hotel bills. Funding for Shanghai's subway lines was partly raised by the district governments through so-called donations from enterprises. Almost all cities collect funds including IOU from state owned enterprises and local businesses through the so-called extra-budgetary process, which is neither disciplined nor transparent. Municipal financing in China is characterized by the rapidly growing share of extra-budgetary revenues and expenditures over the consolidated revenues and expenditures.²⁷

Box 3. Urban Utilities Financing in Shanghai

In 1988, Shanghai decided that funding for urban utilities, municipal services, waste management, and parks and forests be managed by the Urban Construction Fund (UCF) under the Municipal Construction Commission. This move ensured the unification of functional assignments and expenditure assignments. In 1992, the Shanghai Urban Investment Company (SUIC) was established. In fact, it was run by the same staff of UCF. However, due to this new name, the entity was empowered to seek, utilize, and manage the funding for urban construction and maintenance. This move turned the government direct investment to government indirect investment via SUIC. In 1995, Shanghai opened the urban infrastructure sector for investment from other investment companies and large enterprises. Meanwhile, Shanghai devolved to the district and county level the management of district and county urban infrastructure investments. In 1996, the reform effort has mainly focused on the improvement of the quality of investment project decisions (by adopting mandate for alternative analysis), and the introduction of concessions.

Deng (2003, pp. 177-8).

The extra-budgetary process was first permitted by the central government. As part of the decentralization and to stimulate local incentives, the central government adopted policy to allow provincial and local governments to raise revenues through various charges, surcharges and fees on the "users pay" and "charging those with ability to pay" principles. Without clear laws and regulations to protect the interest of the enterprises and the general public, this turned into extortion or forced donation in countless cases. Some local governments just set toll booths on existing highways simply for the purpose of raising local revenues. There are many more ways to collect money. While complaints became increasingly loud, many local governments came up with a large amount of extra-budgetary revenues for infrastructure investment. By the time the central government intervened to stop the excessive or illegal charges, a large amount of money had gone to infrastructure investment as well as private pockets of corrupt officials.

Working under superficial policy guidance and without specific rules, the mayors naturally develop a special mentality: it would not be illegal if there is no law to prohibit it from happening. Moreover, this is a time of reform. No one knows for sure what would work and what would not. If you try something new and fail dearly, don't worry, it is just a tuition for learning or a cost for experiment. Unfortunately, the tuition turns out to be very high in more than a few cases. And the financial liabilities incurred by all local governments are still unknown and may one day trigger major crisis to the financial sector.

²⁷ This is discussed in Bahl (1999) and World Bank (2000).

For a long time until very recently, the performance of mayors has been measured by one single indicator—the rate of annual urban GDP growth. The primary concern for the mayors is thus how to attract investment (especially FDI) and create jobs. Every mayor tries to do the same, and competition for FDI among cities intensifies and is characterized by a race for infrastructure investment and other local incentives given to investors. Infrastructure development is perceived by nearly every city as a win-win strategy. Firstly, good business environment for FDI requires good infrastructure. Secondly, infrastructure development could be profitable for the city, not through direct revenues (such as user fees) but through land transaction and concessions. After all, FDI in manufacturing means factories, industrial parks, and even development zones, all requiring land.

China's land management system is unique. Urban land is owned by the state (meaning the central government), but its use is managed by the municipal government. Central control, monitoring and supervision through administrative means is highly inadequate. Rural land is collectively owned by individual villages. Land acquisition for urban use and infrastructure development is the activity of the municipal government and is governed by the Land Management Law. However, the replacement cost of the rural land is calculated on the basis of its agriculture use, without the premium reflecting the locational proximity to urban centers. Thus, rural land at the edge of the cities is seriously under-priced, leading to strong and even excessive incentive for the conversion of rural land into urban land. Many municipal governments engage in massive land acquisition activities under the disguise of meeting the rapidly growing demand for urban space driven by urbanization, industrialization, and preference for low-density lifestyle that is increasingly made possible by personal income growth and motorization. They acquire the rural land at city edge at very low prices, service the land with basic infrastructure, and sell the land use right to real estate and industrial developers at much higher prices, reaping the financial gains that would not pass through the formal budgetary process. These gains are a major portion of the extra-budgetary revenues which are mostly used as extra-budgetary expenditures, going to infrastructure, industrial parks, social sector, as well as private pockets. The revenues from the transaction contribute to the urban GDP, raising the “success” of the mayors.²⁸

The land developers join to become an important part of the game. Some are serious business entrepreneurs. Others come either for speculation, or simply as a follower without a clear business objective. Many of them are municipal-owned enterprises seeking avenues to diversify their businesses. If you get a piece of land, you could use it as a collateral to obtain a much larger amount of loans from state-owned commercial banks or municipal financial intermediaries. For a long period of time until recently, the use of these loans was not closely monitored by the lenders. Condition was ripe for the movement of land enclosure, Chinese style.

²⁸ Other local incentives for land use development include land value-added tax and land use tax, which go to the local budget revenues.

Box 4. Image Project: the Case of Fengcheng Municipality, Jiangxi Province

Fengcheng is a city of 220 thousand population. Its surrounding area is one of the 10 national bases for commercial grain production. In 2001, the municipal government proposed to change the image of the city by financing and implementing a so-called “image project.” The project was to build a brand new city district on a rural location, 22 square km in size and 6 km away from the current built-up area. Up to the point when the higher level government intervened to stop the project, nearly 10 thousand mu of high yield agricultural land was acquired and turned into a mega construction site, leaving the 10 thousand involuntarily displaced rural households worrying about their future livelihood.

The project comprised a new municipal government building designed to be bigger than the provincial government building, two new boulevards (one 100 meter wide and the other 80 meter wide), a public square of 176 mu, and so on. This happened at the time when the central government made it clear that all image projects were strictly prohibited, and the State Council strengthened the approval procedure for large scale land acquisition. How did this happen? To beat the law that requires approval of the State Council for large scale land acquisition, Fengcheng Municipality divided the new district site into many small land parcels and submitted them to the provincial government for approval pieces by piece and phase by phase.

The project would have cost the municipal government several billion yuan for infrastructure and public buildings. But municipal revenues amounted to less than Y500 million yuan per year. In order to cover the financing gap, the municipal government used its administrative power to force the local enterprises and even households to share out a sum of Y100 million. They also forced the local financial institutions to provide finance to the project.

Source: based on Tang, Xinpeng (2004), “Playing game with policy: the image project of Fengcheng, Jiangxi.” www.people.com.cn, July 21, 2004.

One would wonder why it is difficult to control land use for the central government constantly worrying about the loss of agricultural land. The Land Administration Law is there, and requires the approval of the State Council for acquisition of agricultural land over 35 mu and other rural land over 70 mu.²⁹ However, law is one thing and enforcement is another. There are ways to bypass and even cheat the system, for example, the case of Fengcheng (Box 4). One would then wonder what is the motivation of municipal leaders as this would incur significant political risks. The likely financial gains from land acquisition is a major incentive. But poor judgment and folly also explain some cases such as Fengcheng. The whole nation is admiring the pace of urban reconstruction and development in Shanghai. What most people see is the physical development not the underlying demand. If Shanghai can build Pudong in a decade, why cannot we build a new district of 10 square kilometers? A mayor usually serves a four-year term. If you don't take chance now, you may never have it again, and you have the “means” to do so.

Lack of rigorous public policy analysis and collective voice for social needs also contributes to an investment bias toward infrastructure at the local levels. Few people are trained as public policy analysts and would ask the question of optimal public expenditures between infrastructure and social sectors (education and health). Collective preference for

²⁹ One mu is equivalent to 0.15 acre, which is smaller than the lot for a typical suburban single-family detached house in the USA.

public expenditure priorities is not known or not voiced, as the priority-setting process rarely involves meaningful public consultation. The success in financing and building infrastructure projects, and city hall, city square, and the like becomes a “popular” yardstick to measure the performance of the government, and an important qualification for promotion of government officials. This perception unfortunately creates tremendous motivation for officials to focus on infrastructure projects.

The oversight function of the central and provincial governments on urban spatial expansion also largely fail amid rapid urbanization. There are many reasons why it fails. Perhaps the most obvious is lack of practical tools of urban master planning to predict and accommodate the rapid urbanization in the specific local context. The traditional method of controlling aggregate urban land use focuses on the land use limit set by the approved urban master plan, which is based on the urban population projection. In reality, the rapidly growing cities are those that attract a large number of rural laborers (known as floating population) seeking urban jobs. However, they are not registered in the urban resident registration system (known as hukou which itself is falling apart). And they come and go, following job opportunities. No planners can be sure how many people actually live in their city, not to mention the scenario 20 years later. Although the master plans are required to be modified, reviewed and approved every several years, the rapid growth on the ground for the really growing cities is just overwhelming, and there is little justification for the higher level governments to control the real demand. At the local level, there is no time to think the long term strategy through. The serious professional urban planners are running to modify master plans to keep up with demand. The mayors, who have just a few years to perform and are held accountable for urban management, are running faster to actions, ignoring the potential long-term adverse impacts of their actions.

Under this circumstance and before finding a better control mechanism, the higher level governments find it difficult to control the land use expansion of those stagnated cities, too. There are no sophisticated macro control methods yet. What the governments rely most is administrative means. The question of fairness then kicks in. The stagnated cities would say: The affluent cities became affluent partly because of their earlier massive land development to attract businesses; why do you stop us when it is our turn? China is an open economy now, the urban economic growth depends on the dynamics of globalization, which adds more uncertainties in urban economic and population forecast. Some cities changed from an ugly duckling to a white swan in a short period of time. Thus understandably, the stagnated cities tend to think that their dream for FDI will come true tomorrow if they work harder to improve themselves or simply dress better today. It is difficult for the central government to stop their dream, especially at the time when local incentives are popularly considered more important than central control.

So the more fundamental reason lies in the decentralization process, before the rules of the game are adequately established and an effective check and balance mechanism is put in place. The way to see this point is to compare the behavior of the central and local governments. The former is relatively conservative and cautious. They cannot afford to gamble. If failed, legitimacy would be threatened. In contrast, the latter tends to be much more risk-taking. If things go wrong, the province or even the center may come for a rescue. In this sense, the cities face soft budget constraints. In fact, many cases of over-ambitious infrastructure development schemes involved strong backing from the respective

provincial governments or even prominent central leaders. The backing may have come from a shared high optimism before the harsh reality sets in.

The infrastructure planning process at the municipal level is also markedly different from that at the central level in several aspects. The spatial/physical dimension is much more dominant in the municipal planning system. This makes monitoring and supervision more difficult for the higher level government. The central government is caught in surprise from time to time by the significant difference between the actual urban land use data obtained from remote sensing and the data reported by the cities. Due to the extra-budgetary process, the integration of infrastructure investment plan with the budgetary process tends to be weak at the municipal level.

Despite the problems of reckless risk-taking, moral hazard, and poor judgment found in some cases, most mayors should be given considerable credit for doing their extraordinarily difficult job reasonably well. Given this level of urban population growth, one would expect to see sizable slums here and there without basic infrastructure services such as access to clean water and sanitation. Slums have emerged on a limited scale mostly at the urban fringe areas in some large cities. But they are not widespread in urban China, thanks largely to the relatively sound physical planning process and effective implementation. Except for worsening traffic congestion, basic infrastructure services (power, water, sanitation, and public transport) are adequate in most cities. This outcome is achieved with no or little central budget support and within two decades amid rapid urbanization. Not a small deal. It is fair to say that the achievement would not have been possible if the mayors just sit there to wait for central budget and clear guidance and do not resort to the extra-budgetary process and quick decisions and actions.

The functional and fiscal decentralization is expected to have three major impacts: to relieve central budget burden through reduced central direct control, to leash the potential power of local incentives through higher degree of local autonomy, and to harden the local budget constraints. Looking back, all three objectives are generally achieved and being achieved, albeit at significant social costs in the forms of excessive conversion of agricultural to urban land, wasteful investment and the like. The inter-city competition in infrastructure and land development is reaching the limit. Some cities start to understand that improving municipal governance and reducing bureaucratic barriers to business might be a more cost-effective and sustainable way to attract FDI.

Now the problems associated with the local innovations are known, lessons are learned. It is time to clean up the mess, and the course of decentralization will continue, perhaps in a more healthy manner. The newly announced investment system reform aims to hold the government decision makers legally accountable for their investment decisions. The government is considering another amendment of the Land Management Law and the introduction of a new Land Planning Law. A punitive tax may be introduced on the land that is acquired but remains unused for an extended period time. Urban planners are also exploring ways to reduce the rigidity of urban master planning. For example, planners in Guangzhou Municipality adopted a strategic planning approach, putting the future development of urban spatial structure in a much broader context of globalization, regional integration, and ecological preservation. The strategic plan allows higher level of flexibility by focusing on spatial structure and cluster development instead of the specific use of every land parcel.

On the municipal finance side, cities are also increasingly benefiting from private concessions of urban infrastructure, which contribute to the alleviation of local government financial burden. Private concessions of water supply, waste water treatment, and solid waste disposal are rapidly gaining acceptance in the affluent cities (see Box 5). After all, demand for clean water and environment quality is highly income elastic. The key is the pricing policy, which is less a political constraint in these cities than in others. Most people in these cities are used to high prices and care more about the quality of services, and the low income groups are mostly the floating population—the rural laborers seeking urban jobs—who do not have vested interest yet.

Box 5. Private Concessions in Urban Infrastructure

Cities around China, eager to raise cash and shed polluting services, are increasing private sector participation. In Shenzhen, waste water treatment, solid waste disposal and public transport are among the municipal services put up for tender since the city launched China's first privatization trials in 2001. With the early trials judged a success, the Ministry of Construction issued new nationwide rules in May 2004 formally allowing private investors to operate water, gas, heating, public transport and water and waste-management operations.

Known as “Administrative Measures on Concession Arrangements for Municipal Public Utilities,” the new rules limit foreign firms to a minority stake in the utilities. But crucially they open the door to private Chinese capital in a move that invites private money to take a controlling share in China's public services. Investors will be allowed to operate the facilities for up to 30 years. So far, most of the strongest foreign interest has been expressed from water companies like French giants Veolia Water and its subsidiary, Générale des Eaux.

Shenzhen and other affluent cities like Gunagzhou, Foshan, and Dongguan are taking the lead in outsourcing public facilities. In February, Foshan put 14 waste water treatment projects and the first 95-hectare phase of a huge landfill projects out to tender. Dongguan has put out 37 waste water treatment plants for tender this year. Bidders included a large number of domestic companies as well as international ones.

Privatizing public utilities has generated enormous public controversy in Europe and the U.S. But in China, the selling-off of publicly owned assets has produced surprisingly little debate. When asked what the public thought of the reforms, responded Jiang Zunyu, vice secretary general of the Shenzhen Government: “There are no complaints yet. What people care about is the expansion of the public utilities and that the price should be as cheap as possible, regardless of who is operating the system.”

Source: Adapted from “Stinking, Filthy, Rich,” *Far Eastern Economic Review*, October 21, 2004, pp. 32, 34.

But the central issue is still how to ensure that the mayors' short run economic incentives are aligned with the long-term socioeconomic development objectives. At the municipal level, the power of the mayors is just too much. Their power and behavior must be kept in check. A promising mechanism is to empower the local people's congress so that it would function in a way similar to the municipal council in other countries. In fact, the powers of the People's Congress in legislature and monitoring in many localities are growing real. Some local People's Congresses are already empowered to appoint and fire the mayor and other leaders the municipal government. The formal *rubber stamp* is hardening. Condition is about ripe to effectively stop the harmful movement of land enclosure.

The Modes of Policy Coordination: Leadership and Pragmatism

Policy coordination is a routine, but also a challenge for the Chinese government. It is a routine because it is inherently required by, and thus built in, the complex planning and implementation system. The need for effective policy coordination has been perceived to be high due to a long standing recognition of regional disparity over a large territory and population. Under the central planning regime, the government took care of all economic matters in a highly vertically integrated administrative structure. Policy coordination was not a very difficult task. It followed the chess-game principle. Preferences of individual sectors, localities and households, if any, were suppressed, or not supposed to be honored if they ran against or compromised the national development objectives. For the central government, the most difficult policy coordination was perhaps the allocation of revenue expenditures to the provinces. It chose to carry out the coordination through one-on-one negotiations, where leadership and discretion mattered. This one-on-one negotiation process continued till 1994 when the tax assignment system was adopted.

Economic reform has brought major changes in policy coordination. Functional and fiscal decentralization and the expansion of market across jurisdiction are the two major factors that make policy coordination increasingly more challenging. While the basic modes of coordination remain, new modes are also emerging to meet the new challenges. Most of the time, policy coordination is carried out as a routine under clear policy guidance of the CPC and through regular meetings among relevant agencies. For example, the current policy coordination for intergovernmental transfer is guided by a clear policy emphasis on the poor population, western region, and agriculture sector. Any conflict of interest among sectors and localities would be resolved on the basis of the policy emphasis. In case that several central ministries are involved, the coordination is either led by a higher level agency (State Council) or a permanent coordinating agency (such as NDRC), or a line ministry.³⁰ Which mode to choose depends on the nature of the issue to be resolved and the relative practicality of the modes to be considered.

The highest leadership intervenes when the most serious problems emerge and quick actions are required, for example, the macro control of overheated sectors in early 2004 (Box 6). However, this type of policy coordination through administrative means could respond to problems quickly but could not be sustainable. This is because the coordination objective is often achieved at the costs of some segments of the economy, for example, the enterprises in the overheated sectors in the case of Box 6. It would take further deepening of economic reform especially financial sector reform to get to a point that a self-regulating market mechanism is fully developed so that this type of policy coordination is no longer required.

³⁰ For example, the Ministry of Construction is the lead agency in urban transport policy, and should take a lead in coordinating with the Ministry of Public Security (traffic enforcement), Ministry of Communications (inter-city highways), Ministry of Railways, SEPA (environment), and NDRC (investment).

Box 6. Macro Control of Overheated Sectors, 2004

It started with the emergence of electricity shortages in the coastal provinces. The economic performance statistics of the first quarter of 2004 by the National Bureau of Statistics of China showed faster than expected increases in fixed asset investment and urban investment. As a way to alleviate the shortage of electricity and cool down the overheated economy, the State Council issued a circular, announcing a decision to raise capital ratio requirement for capital investment projects in several high electricity consumption sectors including iron and steel production, aluminum, cement, and real estate development. Moreover, the State Council required all level governments to review all on-going and planned fixed investment projects and postpone those not in priority. Subsequently, the People's Bank of China (PBC), NDRC, and Banking Regulatory Commission issued a joint circular, directing the banking sector with specific measures to control loan size and reduce credit risk. In October, the government announced a modest increase in interest rates, signaling a move toward a more market-based macroeconomic management approach.

After the overheated sectors started to show signs of cooling down, it was suggested as a hindsight that the conservatism of NDRC in approving new power generation investment projects over recent years was responsible for the power shortages. Immediately after the decision for the reform of investment system was announced in July 2004, the first batch of investment projects that passed the NDRC newly adopted project confirmation procedure were all power generation projects.

Source: "Major Events during the Macro-Control," *Chinese Economic Weekly*, No. 28, July 2004, p. 15, and interviews with central and local government officials.

When a new policy issue could not be conveniently addressed through the routine coordination mechanism, an inter-agency task force or steering group may be formed and led by a higher level leader to coordinate decision making and action implementation process. This kind of practice is not uncommon across countries. What is unique in China is perhaps the intensity of leadership in decision making and the effective resource mobilization for action implementation. This is illustrated by the recent campaign aiming to uproot the truck axle overloading problem (Box 7).

Box 7. National Campaign to Uproot Truck Axle Overloading Problem

Truck axle overloading is a common problem in most developing countries. It causes premature damage on highways, encourages unfair or even destructive tariff competition, and increases traffic accidents. Most developing countries have regulations for axle load control, but few have the ability for effective enforcement. Worst yet, enforcement without proper monitoring and supervision often lends the opportunities for corruption. Facing little chance for effective enforcement and knowing the trends of larger trucks being utilized, the World Bank suggested building thicker and stronger pavement as the best solution to axle overloading problem.

With more and more expressways built and in operation, and increasingly observing the premature damage of the roads by overloaded trucks, the Ministry of Communications (MOC) became less tolerant to the problem. A big-band action was recently carried out as a result of coordination among seven central agencies, including MOC (lead agency), Ministry of Public Security (law enforcement), NDRC (economic policy), State Quality Inspection Administration (truck and fuel tanker quality), State Industrial and Commercial Administration (business licensing), the Office of Law and Enforcement under the State Council, and State Safety Inspection Administration.

The effort started with a pilot that covered five northern provinces in March 2004. A multi-agency steering group was formed. The issue was discussed significantly in China Central Television. Then it was decided that a nationwide enforcement program be carried out. On June 18, the steering group announced the nationwide action through mass media and held a TV news conference to answer questions from reporters. In anticipation of capacity shortage of trucks during the action period, the steering group arranged a contingent plan to provide truck capacity for transportation of emergency goods. The steering group also provided detailed instructions in the form of a handbook to local governments how to inspect trucks and treat overloading cases appropriately. The action started on June 20 at 9:00am. On the national and provincial highway networks, 1,470 fixed inspection stations and 1,774 mobile inspection stations were put in operation. A total of 110,000 enforcement officers were mobilized. Within eight days, almost one million trucks were inspected and 140,000 overloading cases were registered and fined. The MOC officials including the minister and vice ministers made secret field visits to inspect the implementation process.

The truck traffic and freight tariff were closely monitored. Initial monitoring results showed that truck traffic declined by about 30-35 percent on the first three days of action, but bounced back by 20 percent a few days later. The transport tariffs for most goods increased on the first few days before fell roughly to the pre-action level. The tariff for coal transport increased the most as expected, but still at the level deemed to be reasonable. It remains to be seen how sustainable the positive effect of this nation wide campaign will be. But it is clear that the campaign has achieved two major outcomes. First, it proves that the government is serious about axle load control and enforcement. Second and perhaps more important, the initial increase and subsequent fall of tariffs demonstrates that axle load control is actually good for all stakeholders, including the truckers who are otherwise forced into dog fight of destructive competition (although the longer term impact on truckers and shippers remains to be seen and depends on the efficiency of the future truck technologies).

Perhaps the most interesting mode is the one adopted by the Shenzhen Municipality to address urban transport policy coordination issues (Box 8). This is a mode with administrative power but without financial power. What is commendable is the underlying philosophy that financial power vested in a coordination body would sooner or later become a vested interest, thus undermining its role and effectiveness. Moreover, the administrative power given to the coordination process is not for fire-fighting but mainly for ensuring individual agencies follow the established rules and procedures.

Box 8. The Urban Transport Management Headquarters in Shenzhen: An Administratively Powerful but Financially Powerless Coordination Agency

Shenzhen Municipality has a similar institutional setup for urban transport as other cities. Urban planning and construction bureaus take charge of urban transport infrastructure development; municipal management bureau, road management and maintenance; public security bureau; traffic management and road safety; and transport bureau, public transport, taxi services, freight transport, and integrated transport. The main problem associated with this setup is weak coordination.

In 1996, the municipal government established a high-level Urban Transport Management Headquarters (UTMH) as a coordination agency for urban transport. The main functions of UTMH are to set urban transport policies, oversee and coordinate the urban transport planning, financing and implementation process, and ensure urban transport development follows policies and physical

and budget plans. To a certain extent, UTMH is similar to the urban construction commissions of major cities. However, unlike urban construction commissions, UTMH is neither empowered with the authority for project approval, nor public expenditures. This is to ensure that the UTMH plays its neutral coordination role without vested interest.

UTMH is headed by the Executive Vice Mayor, and comprises a vice mayor in charge of urban construction, directors of finance bureau and relevant functional bureaus, and the heads of all five city districts. UTMH is supported by an executive office which ensures that coordination decisions and policies get implemented. The office is headed by the deputy chief of staff of the municipal government, who works closely on the daily basis with the designated officials from relevant functional agencies. The UTMH has been functioning effectively since its establishment.

Source: Zeng (2002).

The most challenging is perhaps the policy coordination among jurisdictions. Amid economic transition and decentralization, localities tend to compete with each other to attract outside investment for businesses and for infrastructure projects. The means for the competition are mainly preferential policies, such as tax holiday, free land, and discounted land concessions. Without higher level coordination in resource allocation, competition of this nature tends to result in wasteful resource usage. This problem is increasingly recognized by locality leaders. On the other hand, with the continuing local economic growth, the market is expanding across jurisdictions. A few major cities have been developing into metropolitan areas. For example, the Pearl River Delta Region centered around Guangzhou, Shenzhen and Hong Kong, the Lower Yangzi Delta Region centered around Shanghai, and the Beijing-Tianjin Region. These are regions across more than one jurisdictions. Leaders of the localities started to see the need and benefits for cross-jurisdiction coordination. Regional integration through regional development coordination is thus emerging. A metropolitan planning exercise is on-going in the Pearl River Delta Region. It is led by the Ministry of Construction in a hope to establish a practical metropolitan planning model in China.

The most ambitious to date is perhaps the initiative for the Pan-Pearl River Delta Regional Cooperation and Development. It involves nine Southern provinces, seven ministries, and Hong Kong and Macau, covering almost one fourth of China's territory. The region comprises a few most developed coastal urban economic centers and several poor but natural resource-abundant interior provinces. The idea was initiated by the party boss of Guangdong Province, a member of the powerful CPC political bureau. All justifications for this mega regional integration of markets and resources boil down to a pledged focus of priority investment in highways and railways by the central ministries, and a 29-kilometer, US\$2 billion bridge across the Pearl River Mouth Bay between Hong Kong and Zhuhai. It will be interesting to see how this grand scheme evolves.

Summary and Conclusions

China's recent experience in infrastructure development planning and policy coordination is unique. It is unique in the sense that most key factors contributing to the success are

integral elements of the evolving system that had struggled under the central planning regime but also has led the economic transition. The success in the infrastructure development is part of the overall success of the economic reform. The main characteristics of the system include strong leadership, clear policy emphasis on the improvement of the economic well-being of the nation, and a professionally run bureaucracy with technical sophistication and vast but mostly failed experiences. The most important factor is perhaps the extraordinary pragmatism demonstrated by the CPC over what could be done and what could not. It is characterized consistently by the bold vision, sensible national strategy, careful macro management, cautious step, and small step at a time before being ready to take off.

Despite considerable success, the planning and policy coordination system is still very much a work in progress. There are various defects, as described in the previous sections. For example, there are holes in the system that invite excessive and wasteful investments, and rapid infrastructure development at the costs of the society and environment. This is especially true at the local level. The exact size of local government debt and financial liabilities is still unknown and may be large enough to threaten the financial market. There are unfinished businesses in the legal and regulatory reform, land management system, environmental and social safeguard policies, and institutional capacity building.

There are new challenges ahead. First of all, time to clean up the debris after the rapid race through the jungle. It is likely that most debris becomes sunk (social) costs forever. But the lessons learned are heavy. The good news is that the current central government makes it clear that economic growth rate is not all development is about. The current leadership places a new emphasis on people-centered development, which means, in the original words, a human-centered scientific concept of development featuring humanistic governance and comprehensive, coordinated and sustainable development of the economy and society.³¹ Associated with the newly earned competitiveness as the world factory is the emerging infrastructure bottlenecks in power supply and transportation. Moreover, demand for quality infrastructure services will continue to grow rapidly. The bottlenecks will then exist for an extended period of time. However, thanks to the previous experiences, better institutions for decision making and implementation are in place to deal with the bottlenecks.

China has gone through an initial critical path to broadly based economic development. The hope lies in the pessimistic concerns voiced more and more frequently about the political, economic, and social system, the gradual introduction of public consultation, increasingly improved check and balance mechanism, and the gradual opening up of the decision making process. It is not an exception for the planning system.

My analysis above is tedious, focusing on how the planning and policy coordination institutions work. Is there any more fundamental explanation for the phenomenon of massive infrastructure development in China? Wen (1997) extended a dynamic general equilibrium model developed by Yang and Borland (1991) to examine the interplays among infrastructure expenditures, transaction efficiency, and evolution of division of labor for economic development. Her model shows that the larger the population size, or the more efficient the public sector, the infrastructure expenditures will take place earlier,

³¹ The English translation is from South China Morning Post, August 4, 2004.

economy will grow faster, and evolution of division of labor and widening of market will speed up. The Chinese experience appears to confirm the dynamics suggested by the model. For those who are bored by the details of my paper, Wen's short paper will be a refreshing beginning. One could easily skip the sophisticated mathematical formulas, and focus on the text that offers interesting insight.

References

- Bahl, Roy (1999). Fiscal Policy in China: Taxation and Intergovernmental Fiscal Relations. The 1990 Institute.
- Cai, Fang, and Justin Y. Lin (2003). Chinese Economy. China Finance and Economics Publishing House. (in Chinese).
- Deng, Shulian (2003). Public Policy in China's Infrastructure Sector. Shanghai University of Finance and Economics Press. (in Chinese: Zhong Guo Ji Chu She Shi de Gong Gong Zheng Ce).
- Li, David, D. (1998). "Changing Incentives of the Chinese Bureaucracy." American Economic Review: Papers and Proceedings, May 1998.
- Wang, Chunying (2004). The Current Government of China. Henan People's Publishing House. (in Chinese: Dang Dai Zhong Guo Zheng Fu).
- Wen, Mei (1997). "Infrastructure and Evolution in Division of Labor." Review of Development Economics, Vol. 1, No. 2, pp 191-206.
- World Bank (2002), China: National Development and Sub-National Finance: A Review of Provincial Expenditures. Poverty Reduction and Economic Management Unit, East Asia and Pacific Region.
- World Bank (2000), China: Managing Public Expenditures for Better Results: Country Economic Memorandum. Poverty Reduction and Economic Management Unit, East Asia and Pacific Region.
- Wu, Zhaoji (2001a) (ed.). Public Policy Analysis. China Drama Press. (in Chinese)
- Wu, Zhaoji (2001b) (ed.) Budget and Finance Management of Public Sector. China Drama Press. (in Chinese)
- Xia, Hai (2004). The Government Revolution from Within: A Study of Government Institutional Reform in China. China Legal Press. (in Chinese)
- Yang, Fengchun (2002). An Overview of the Chinese Government. Peking University Press. (in Chinese)
- Yang, Xiaokai, and Jeff Borland (1991), "A Microeconomic Mechanism for Economic Growth," Journal of Political Economy, Vol. 99, pp 460-82.
- Zeng, Jingkang (2002) (Ed.) Urban Transport Development in Shenzhen: Theory and Practice: Proceedings of 2001 Annual Conference of Shenzhen Urban Planning Association. Asian Pacific News Press. (in Chinese)

**Appendix Table 1:
Newly Increased Infrastructure Capacity through Capital Investment, 2003**

Infrastructure by Subsector	Newly Added Capacity
Power generation	30,000 MW
New trunk railways put into operation	1,164 km
Double-track railways put into operation	583 km
Electrified railways put into operation	615 km
Newly constructed highways	36,444 km
Of which, expressway	4,639 km
Newly increased cargo-handling capacity of 10,000-ton berths at harbors	82.2 million tons
Newly installed capacity of telephone switchboards	67.4 million gates
Newly increased length of optical-fiber cables	450 thousand km
Newly installed capacity of digital cellular mobile phone switchboards	62.3 million subscribers

Note: The on-going key infrastructure projects continued to progress. The Three Gorges Project achieved its goal of impounding, opening to navigation and power generating. A further 317 kilometers of the Qinghai-Tibet Railway were completed in 2003, finishing 28.6 percent of the targeted length. The capacity of power transmission to Guangdong Province through the west-east power transmission project topped 5 million kilowatts; piping work for the west-east natural gas transmission project reached 48 percent of its total investment, with the eastern section of the project completed and starting to supply natural gas to the eastern areas of China. Four sub-projects were started under the central and eastern routes of the south-to-north water diversion project. Nineteen key projects designed to harness the Huaihe River had finished 49 percent of the total investment.

Source: “Statistics Communique on National Economic and Social Development in 2003: IV. Fixed Assets Investment,” www.China.org.cn.

Appendix Table 2**The Role and Responsibilities of Relevant Organizations in Infrastructure**

Organization	Role and Responsibilities Relevant to Infrastructure
Central Party Committee	Sets national development policy direction and general guidance to the formulation of long-term and medium-term national socioeconomic development plans
National People's Congress	The national legislative body. Three of the committees are relevant to infrastructure policies and laws: (i) Legislative Affairs, (ii) Finance and Economy, and (iii) Environment and Resources. It reviews and approves national economic and social development plans, national budget, and investment mega-projects such as the Three Gorge Dam.
Chinese People's Political Consultative Conference	A multi-party advisory body, with main functions in political consultation and supervision on major political, economic, and social policies. It is a major channel for constructive criticism of government policies.
State Council	The administrative body of the central government.
National Development and Reform Commission	Formulate and organize the implementation of national socioeconomic development strategy, long-term plan, medium-term plan (i.e. Five Year Plan) and annual plan; provide policy recommendations for macro-economic management and sectoral development of national significance; coordinate policy implementation across sectors and levels of government; set and guide implementation of price policies; determine the size of fixed asset investment; guide and approve major infrastructure investment projects.
Ministry of Finance	Formulate and supervise the implementation of medium-term and annual budget plans; set and supervise the implementation of fiscal policies; supervise central government expenditures; allocate funds to central government investment projects; set public debt policy and manage public debt; formulate state debt issuance plans.
People's Bank of China (Central Bank)	Analyze, formulate, and implement macro financial credit policy based on national socio-economic development policy and sectoral policy.
Ministry of Communications	Line ministry responsible for roads and highways, inland waterway, ports, and ocean shipping
Ministry of Railways	Railways

Ministry of Construction	Line ministry responsible for urban planning, urban development and construction, urban utilities, and urban transport
Ministry of Information Industry	Line ministry responsible for information and telecommunications industry
Ministry of Land and Resources	Line ministry for planning, protecting, and managing the use of, land, mineral and maritime resources.
Civil Aviation Administration of China	Central level bureau for civil aviation.
State Environmental Protection Administration (SEPA)	Sets guidelines for project EIA
State-Owned Asset Supervision and Administration Commission of the State Council	A special agency established in 2003 under the State Council to supervise and manage the state-owned enterprises (including the infrastructure sector SOEs such as China Power Grid Co) and SOE reform and restructuring.
China Development Bank	A policy bank reporting to the State Council, and heavily involved in infrastructure financing
State Commercial Banks	Infrastructure financing and SOE financing
State Electricity Regulatory Commission	A newly established regulator of the electricity power sector
Development Research Center of the State Council (DRC)	An in-house think tank for the State Council, focusing on the overall, comprehensive, strategic and long-term issues in the national economic and social development, and providing policy recommendations and consulting advice. Among its research departments three are highly relevant to infrastructure: (i) Development Strategy and Regional Economy; (ii) Sectoral Economy; and (iii) Technology Economy (survey and study on major construction projects and regional development projects).
China International Engineering Consulting Corporation (CIECC)	The primary agency designated for the due diligence of the feasibility studies of key investment projects that require approval by NDRC. It provides its services mainly on commission from project sponsors including governments at all levels and enterprises.
Institute of Geography, China Academy of Sciences	Heavily involved in regional planning, regional urban system planning, and detailed surveys of natural resources across the country and assessment of their economic potential.

Appendix Table 3.
Who Does What for Infrastructure Projects

	Planning	Financing	Implementation
National arterial expressways	MOCm and NDRC	MOCm	Provincial departments of communications
Provincial highways	Provincial departments of communications	Provincial governments	Provincial departments of communications
Railways	MOR and NDRC	MOR	MOR
Local railways	Provincial Government	Provincial Government	Provincial Government
Power plants	Central government (indicative master planning only)	Power enterprises	Power enterprises
Transmission	Central government (indicative master planning only)	China Power Grid Co. and China Southern Grid Co.	China Power Grid Co. and China Southern Grid Co.
Urban water and sanitation	Municipal Government	Municipal Government and utilities companies	Municipal Government and utilities companies
Urban bus transport	Municipal Government	Municipal Government and bus transport companies	Municipal Government and bus transport companies
Urban mass rail transit system	Municipal Government, subject to approval of NDRC	Municipal Government	Municipal Government