Testimony before the U.S.-China Economic and Security Review Commission
China's 13th Five-Year Plan

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Thank you to the U.S.-China Economic and Security Review Commissioners for inviting me to testify today, particularly as related to fiscal reform priorities. I appreciate your interest in China's urbanization processes and outcomes. How China accommodates its rising urban population is critical to the well-being of an increasing number of its people but also indirectly to the country's sustained economic development. The rapid urbanization (see Table 1) is in no small part powered by massive building and expansion of urban infrastructure, and public finance matters for this. I hope to address the opportunities and challenges in this area by responding to your specific questions.

1. ***How have municipal governments financed China's rapid urbanization over the past two decades? Is there a divergence in strategies pursued by coastal and western cities? Has past infrastructure investment met the needs of China's rapidly growing urban population? How, if at all, has the fiscal burden on cities impacted the level of services, healthcare, and education of its urban citizens?***

Infrastructure financing at the local level in China is fundamentally different from that in most other countries. The common sources include borrowing from banks (instead of through capital markets) by local government financing vehicles (LGFVs), and local governments' own taxes and fee revenues (though not in the form of property taxes commonly levied in the West). Budgetary allocation from central and local governments has become a less important source. Given that expenditures have exploded while revenues have not kept pace since the 1994 tax reform, local governments cope with funding shortfalls through a variety of off-budget or extra-budgetary mechanisms, particularly through the collection of land lease/transfer fees.[1] An additional problem is that local governments may not establish taxes or issue bonds – save the ten cities and provinces now permitted to issue bonds under a pilot program initiated in 2014.

On an aggregate level, China has made significant progress in infrastructure services since 1979. Most urban residents have access to faucet water, cooking gas, and public transportation.[2] Yet the continuity of service and especially the quality of tap water remain a major concern. While

[1] In 2010, for instance, receipts from land lease/transfer accounted for an estimated 35 percent of comprehensive fiscal revenues for prefectural-level cities, compared with just 30 percent from tax revenues. See Christine Wong, "Some Suggestions for Improving China's Municipal Finance for the 21st Century." Paulson Policy Memorandum, the Paulson Institute (2012).
[2] Water supply coverage reached 98 percent in urban areas in 2015, according to the World Bank. Another area of significant progress is the treatment of wastewater, the rate of which more than doubled between 1996 and 2006, from 23.6 to 55.7 percent. Now, this rate is estimated to be around 77 percent (http://chinawaterrisk.org/).

demand is tremendous and growing, water resources are so limited and/or polluted that they cannot meet the demand, especially in northern cities. There are noticeable differences in nearly all available aggregate indicators of urban infrastructure services across the three broad regions (eastern, central and western). Cities in the eastern region uniformly enjoy higher levels of service in all sectors. In many inland provinces, utility services, such as public transportation, roads, streets, water supply, and waste treatment, are in poorer conditions. Some of the poorest provinces, primarily in the central and western regions (such as Anhui, Henan, Hubei and Gansu), continue losing ground in their capacity to finance urban infrastructure. Cities in the western region, in general, have much less the ability to raise funds from extra-budgetary sources. Instead, they rely much more on fiscal allocation and borrowing.

Access to other urban services, particularly education and health care, continues to be shaped by the long-standing urban-rural divide that persists even within urban jurisdictions.[3] For the more than 200 million migrants living in cities (particularly those from rural origins), their situation is not on par with urban residents with local household registration (*hukou*); in a similar fashion, local residents with rural *hukou* also lag behind their urban counterparts. There has been limited attempt to integrate rural areas into the new social insurance system that includes pension, medical insurance, and unemployment insurance (as well as maternity insurance and occupational injury insurance). Rural residents by and large are left out of social insurance, perhaps with the exception of health insurance since the late 2000s that offers basic benefits. The limited fiscal transfer scheme also offers no incentive for destination cities to provide services to migrants. Research based on the 2005 mini census (1 percent survey) data for Beijing and Shanghai shows that for both migrants and local residents, having a rural *hukou* is disadvantageous, particularly for pension and unemployment insurance.[4]

2. ***Describe China's New-Type Urbanization Plan and its key targets. What policies has the Chinese government pursued to achieve these targets? How much financing will be required to finance public services and provide basic infrastructure for its growing population? What, if any, fiscal reforms were announced in the 13th Five-Year Plans?***

The plan, proposed for the period of 2014-2020, emphasizes a "human-centered and environmentally friendly" path to urbanization. It is a comprehensive blueprint, ambitious in scope but brief on details as implementation is largely left to local governments. Five themes constitute the broad framework: integrating rural migrants into urban society, improving the

[3] Chinese cities, particularly the large ones (the so-called prefecture-level cities), encompass both a central city and surrounding areas. Many also embed considerable rural territory. Within a city's jurisdiction, there are both non-agricultural (with urban *hukou*) and agricultural (with rural *hukou*) populations. A prefecture-level city may contain multiple urban districts, counties, county-level cities, or other similar units. It can be considered as the Chinese version of the term "metropolitan area" as used in the U.S. See Weiping Wu and Piper Gaubatz, *The Chinese City*, New York and London: Routledge (2012).

[4] For health insurance, a small share of rural migrants obtains it (16.2 percent), as opposed to most local urban residents (86.2 percent). For pension benefits, 12.7 percent of rural migrants, 38 percent of local rural residents, and 85.5 percent of local urban residents have obtained them. For unemployment benefits, the distribution is 5.6, 5.6, and 47 percent respectively. See Weiping Wu and Guixin Wang, "Together but Unequal: Citizenship Rights for Migrants and Locals in Urban China," *Urban Affairs Review* 50, 6 (November 2014): 781-805.

distribution and form of cities and towns, raising capacity for sustainable development, promoting integrated urban-rural development, and reforming urban development institutions. The Plan makes it clear that the investment-driven and land-finance-dependent urbanization path should not continue; instead, the future path needs to be more inclusive and sustainable.

The key targets of the Plan are about raising the rate of urbanization, as well as improving urban services and housing conditions.[5] Most prominently, it projects urbanization level to increase from 53.7 percent in 2014 to 60 percent by 2020, while the share of population with urban *hukou* from 36 to 45 percent. This will be achieved by a renewed focus on small and mid-sized cities and development away from the coast. In addition to urbanizing about 100 million people in central and western regions, an important element of the Plan is urban *hukou* reform, primarily in second through fourth tier cities (with population of less than 3 million), that would allow 100 million migrants to gain full urban residency by 2020. According to a large report on urbanization jointly by the World Bank and China's Development Research Center, extending this may cost on average as much as 100,000 RMB ($16,400 U.S.) per migrant.[6] Currently, except in small cities and towns, migrants have limited access to local public schools, welfare programs, state sector jobs, and affordable social housing options. The proposed *hukou* reform remains confined to small cities and towns, though committing to addressing migrant rights are a welcoming step forward.

The total estimated cost for the Plan, including urbanizing an additional 200 million people, is estimated by the Ministry of Finance at about 42 trillion RMB ($6.8 trillion).[7] How to finance this remains to be worked out, and the Plan contains only a few new proposals. The first is that the Ministry of Finance will establish a mechanism that connects fiscal transfer payments with the urbanized agricultural population. This is intended to improve the fiscal transfer payment system and promote equitable public services including social security, health care, and education. Second, allowing local governments to issue bonds and attract non-state (broadly referring to private) capital in infrastructure projects, the Plan specifically alludes to three key sources of finance: (1) fiscal allocation by central and local governments, (2) private investment, and (3) more flexible mechanisms such as municipal bonds, investment funds, policy banks, and public-private partnerships (PPPs).[8]

Obviously missing from the Plan is local property taxes that have been under discussion extensively and piloted in select cities. Unlike in Western countries, local governments cannot

[5] These include raising service levels of public transit, water supply, wastewater treatment, and waste decontamination in cities, accelerating the construction of high-speed rail and highways among major cities in central and western city clusters, and providing full coverage of basic housing and public services for shantytowns in which around 100 million people reside.
[6] World Bank and the Development Research Center of the State Council (DRC) China. Urban China: toward efficient, inclusive, and sustainable urbanization. Washington, D.C: The World Bank (2014).
[7] Reported by www.bloomberg.com (May 25, 2014).
[8] Xiaodong Ming (China's National Development and Reform Commission). "Infrastructure's Central Role in China's 'New Urbanization'." Rethinking Infrastructure: Voices from the Global Infrastructure Initiative, McKinsey, May 2014.

use tax revenue for debt obligations, leading directly to land leasing as a source of funds for repayment. Indeed, land, real estate, and natural resource-based assets have been calculated as 47 percent of the collateral put up to secure bonds at the local level and land has been earmarked as providing 37 percent of the funds needed for repayment. Yet, it is not uncommon for land leasing fees to fall short of even covering bond interest payments.[9]

3. ***How, if at all, does China's New-Type Urbanization Plan and land reforms impact China's fiscal policies? How does local governments' dependence on land sales and local government financing vehicles (LGFV) impact the Chinese government's ability to address its property bubble?***

While the Plan recognizes that the current investment-driven style of urban development is unsustainable in both fiscal and environmental terms, it contains few new proposals for furthering urban land reform. One exception is to move forward with ensuring that rural land rights can be transferred and traded, which is just short of privatizing. Land features central in local finance, particularly for LGFVs. Behind China's impressive urban growth lies a potential fiscal crisis that did not come to light until a 2010 report by the National Audit Office warning of the risks inherent in a RMB 10 trillion-plus local debt burden.[10] Barred from borrowing directly, local governments have set up more than 6,500 LGFVs (corporate platforms) to raise funds for infrastructure and other public projects. The culmination of local debts stems from a confluence of factors, primarily institutional in nature, including the expenditure-revenue mismatch, acceleration of debt buildup by the stimulus package to ease recent financial crisis (and loosened credit policies), a complacent state-controlled banking system willing to accommodate wishes of local governments, and a so-called "land-infrastructure-leverage" strategy to tap the windfall from land development.[11]

LGFVs perform four common functions: (1) as a financing platform, raising funds for needed infrastructure projects; (2) as a public sector investor, managing and operating the local government's assets; (3) as a land development agent; and (4) as project sponsors/owners. Aside from their role in infrastructure, many LGFVs also make large investments in two other lines of business: real estate (particularly residential development and construction but also a variety of commercial development) and financial services (investment banking, private equity, loan guarantee, and mergers and acquisitions). The principal backing asset for LGFVs is land, for engaging in heavy borrowing via various methods including bank loans, bond issuance, initial

[9] See Yang He, Kun-Chin Lin and Ran Tao, "The Local Government Fiscal Imperative and Debt Financing in China," in Philip Arestis and Malcolm Sawyer (Eds.), *Fiscal and Debt Policies for the Future*, Basingstoke, Hampshire, UK: Palgrave Macmillan (2014): 195-236; Brent W. Ambrose, Yongheng Deng and Jing Wu, "Understanding the Risk of China's Local Government Debts and its Linkage with Property Markets," SSRN working papers series, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2557031 (2015).

[10] This debt was equivalent to 27 percent of the country's GDP in 2010, and now close to 30 percent. About 8.5 trillion of the outstanding liabilities came from bank loans, primarily from state banks. See Meng Li, "China's Local Government Debt Crisis," *SERI Quarterly* April 2012: 33-39.

[11] Kai Yuen Tsui, "China's Infrastructure Investment Book and Local Debt Crisis," *Eurasian Geography and Economics* 52, 5 (2011): 686–711.

public offerings, and even trust loans through shadow banking activities. While procuring funds from capital markets was not allowed for local governments, as corporate entities, LGFVs could raise funds from equity and bond markets.[12]

Local governments have a powerful incentive to place local banks' excess liquidity into real estate, which would expand the local housing market and their bottom lines. They have a direct interest in seeing land and construction prices rise, which are significant parts of housing prices, to increase government revenues.[13] The property sector also is a huge employer, accounting for about one-fifth of the country's economic output. In general, national-level regulating agencies lack effective clout – political as well as economic – over local interests. As such, cooling the housing market has proved to be more difficult than anticipated. Even the recent global economic recession (2008-2009) failed to make a significant dent in China's property boom. Housing prices dropped sharply in mid-2008 but went back up within a year. They rose between 10 to 15 percent in the first quarter of 2010 in such cities as Beijing, Hangzhou, Shanghai, and Shenzhen.[14] It was not until the late 2011 were there signs of the "housing bubble losing air"

4. ***Describe the role of public-private partnerships in financing urbanization in China. How are they structured? How are they implemented? What incentives are utilized to attract private capital and participation? How effective are these partnerships in providing public services or constructing infrastructure?***

In China, PPP projects were first introduced in the late 1970s and have become more widespread since the 1990s. Many of the more successful projects were in the water and transport sectors (see Table 2). But the scope and number were limited, and some were not typical PPPs as perceived in the West since many domestic "private" service providers and operators had some elements of state involvement. Earlier steps to promote private participation focused on developing the legal and regulatory frameworks at the national level, which left the execution to local governments to the effect of significant variation. During 1990s to the early of 2000s, many PPP projects were contracted with either flexible rate or fixed investment return rate with local governments. But the central government opposed and curbed the tendency for fixed-rate returns, issuing a directive in 2002.[15] This policy reversal was

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[12] In fact, shadow banks – trust, securitization, insurance, and leasing companies, and other non-bank financial institutions – hold large amounts of bonds issued by LGFVs that in total amounted to about 5 trillion RMB outstanding by the end of 2014. It also has been estimated that up to 76 percent of LGFV loans may be at risk of repayment problems because the infrastructure projects they are created to support do not generate sufficient cash flow. See Kunyu Tao, "Assessing Local Government Debt Risks in China: A Case Study of Local Government Financial Vehicles." *China & World Economy* 23, 5 (2015): 1-25.

[13] As much as 40 percent of local government revenues are tied to property development. See Neil Gibson, "The Privatization of Urban Housing in China and its Contribution to Financial System Development." *Journal of Contemporary China* 18, 58 (January 2009): 175–184.

[14] See Xinzhen Lan, "Toil and Real Estate Trouble," *Beijing Review* April 15, 2010: 28-29.

[15] Specifically, the State Council specially issued the Notice on Appropriate Handling of Existing Problems in Guarantee of Foreign Investment Fixed Return Projects on 10 September 2002 (State Council General Office's No. 43 Decree). This policy led many foreign invested PPP projects to be renegotiated to replace fixed return with a legitimate proceeds allocation method such as 'return of investment' or acquired by local government. On balance,

followed by rounds of intense debates, particularly within the Ministry of Finance, about the nature and application of PPP, accompanied by a substantial wane of private investment in the wake of global recession. In 2014, a set of new central directives were issued to encourage PPPs, for at least two reasons: the high level of debt among local governments and the substantial investments local governments require for infrastructure. Current incentives include offering major infrastructure projects generous tax incentives by local governments, including a tax holiday and corporate income tax rate reduction to 15 percent, although details on qualified projects are elusive.

BOT (build-own-transfer) has been the most common form of PPPs in China, requiring large investment and long duration. It is a kind of integrated solutions approach, a collective offering of goods, services, knowledge, support, and self-service for customers. BOT approach with foreign private sector participation generally falls into five types: Cooperative Joint Venture BOT, Equity Joint Venture BOT, Non-official Wholly Foreign Owned BOT, Official BOT (a specific project institutional arrangement and legal structure being developed by the central government under a "National Experimental BOT Program"), and BOT Variant (e.g., Transfer-Operate-Transfer). Other forms of PPP implemented in China includes BT (build-transfer) and BOO (build-own-operate). Overall, most PPPs involve the building of new facility, or the so-called greenfield projects, and are often perceived as carrying higher risks by private investors. By contrast, other forms of PPPs, such as service and management contracts, concession, and divestiture, are less common in China.

There are a number of challenges – some are institutional while others are operational. Research shows that many risk factors for PPPs in China are related to or affected by government in one way or another. Among these, the following deficiencies in the legal and policy framework require serious attention: fragmented legal and administrative decisions at central and local levels, lack of institutional capacity and skill set required to support PPPs, lack of appropriate and enforceable dispute resolution systems, and lack of level playing field between state-owned enterprises and independent providers. In particular, there is a complex legal situation because of different ways of PPP implementation in different places. On balance, the rise of PPPs in China seems to have generated higher transaction costs, particularly as related to organizing tendering, evaluating and selecting bids.[16]

5. ***What, if at all, is the role of the private sector in filling those gaps in the level of services, healthcare, and education of its citizens? What, if any, are the potential opportunities for domestic and U.S. insurance and banking firms?***

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this ban also was a reaction on the part of the central government to curb over-promises by some local governments and subsequent financial losses. See Jae-ho Choi, Jinwook Chung and Doo-Jin Lee. "Risk perception analysis: Participation in China's water PPP market." *International Journal of Project Management* 28, 6 (August 2010): 580-592.

[16] Rui Mu, Martin de Jong and Joop Koppenjan. "The rise and fall of Public–Private Partnerships in China: a path-dependent approach." *Journal of Transport Geography* 19, 4 (July 2011): 794-806.

Compared to other emerging economies, such as Brazil, India, and South Africa, China is still at an early stage of developing the institutional sophistication for engaging the private sector in infrastructure.[17] Trends in the past two decades show that significant private investment in China's infrastructure is South-South investment (from other developing countries) and domestic in origin. Private providers are more common in water, power, and road projects. Going forward, the opportunities for private and global investors will likely materialize in the following infrastructure services:

Water & Sewerage

Water (including desalination) and wastewater projects look particularly promising for global investors. Low sewerage coverage, inadequate treatment facilities, and low water discharge fees all have contributed to contaminated groundwater and polluted surface water that further aggravate urban water shortages in urban China. Most attractive has been water production and distribution services with a number of large multinational providers (e.g. Suez Group, Veolia Environment), and wastewater treatment plants with a maturing set of domestic private providers. Such projects demonstrate solid fundamentals and sound demand.

Energy

Renewable energy projects have been growing fast. However, the scale of these projects tends to be smaller than conventional power projects. Most are located in coastal provinces except for wind farms and hydro power projects. Renewables are interesting to investors because they are part of a larger, and conscious, shift by the Chinese government toward lower-carbon sources of energy.

Airports and Ports

Airports remain high on the government's agenda.[18] But for global investors, airports are a mixed target. A key issue relates to the regulatory environment as the air space is completely controlled by the Ministry of Defense, not by a regulatory body. In contrast, port operators experience less monopoly and there is more space for private participation. There are also a sizeable number of ports along the coast to offer choices for interested investors. Firms from Hong Kong, Norway, Singapore, Spain, and UK have been operating in China.[19]

Toll Roads

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[17] Between 1990 and 2012, China had more than 1,020 transactions with private participation for a total value of US$114 billion, in transport, energy, telecom, and water and sewerage sectors. By comparison, Brazil had $398 billion and India $303 billion during the same period. Based on World Bank Private Participation in Infrastructure Database.

[18] The central government announced that it would build 82 airports and refurbish a further 101 by 2015. This will take the number of airports in China to around 230. The flagship project is Beijing's second airport with capacity of up to 72mn passengers by 2025 (Business Monitor International 2014).

[19] Hong Kong-based Hutchison Whampoa Ltd., for instance, has been one of the largest global investors in China's infrastructure. Between 1990 and 2012, it was involved in 17 different seaport projects, spanning from Xiamen in southeast China to Dalian in the northeast and all the way in between.

The highway sector was among the earliest open to private and foreign investment, and since the 1990s toll road PPPs have proliferated. But investment performance is mixed, due to a mixture of unreliable demand forecast, drivers avoiding tolls, and political interference in rate setting. Investment in the sector also illustrates the complex regulatory environment investors may encounter.[20]

Outside of the infrastructure sector, the scope of private participation is limited in health care and education and foreign providers tend to be limited to the upper segments of the market (e.g. foreign hospitals and medical offices). Regulatory hurdles, particularly those restricting foreign ownership, also have kept foreign presence in the insurance market to a minimum. However, recent central directives (issued around 2014-15) seem to encourage private investment in senior care business (given the rapidly aging population) and hospital development.[21] Similar to the infrastructure sector, domestic providers, especially public sector providers, continue to dominate and crowd out private participation to some extent.

6. In your view, what are the critical reforms necessary to address the fundamental challenges of China's municipal fiscal issues, and how should the Chinese government sequence these reforms?

Local governments in China have neither sufficient tax resources nor sufficient authority to leverage capital markets. In borrowing from domestic banks to finance infrastructure, local governments face virtually no limit and little accountability. State banks also are ill-equipped to provide the discipline expected from capital markets. It is unlikely for local governments to count on revenue from asset sales (mainly land) as a major, lasting source of funding to expand infrastructure construction and maintenance. At least two sets of reform measures are called for to address the fundamental challenges.

First and foremost, the mismatch between revenues and expenditures at the local level is a fundamental problem. Addressing this requires changes to the tax and fiscal systems, particularly the tax-sharing schemes, although drastic revamping seems unlikely at present. Inter-governmental transfers can be helpful in reducing the fiscal mismatch, so is more effective use of such transfer for the intended recipients (e.g. the proposed transfer targeting migrants in the new urbanization plan). In addition, local governments may be granted more autonomy in

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[20] A road PPP project has to involve different laws and statutes: Road Law (2004), Tendering and Bidding Law (1999), Land Management Law (2004), Contract Law (1999), Regulation on the administration of toll roads (2004) if it is toll road, and Decision on Reforming Investment Scheme (2004) if it involves domestic private investment. There are also other laws and policies to address aspects of environmental protection and construction quality management, which are relevant to a road project.

[21] The National Planning Guideline for the Healthcare Service System (2015–2020) was the first comprehensive five-year blueprint targeting keys areas for development by 2020. More regions will be included in the pilot program allowing for the establishment of wholly foreign-owned hospitals. At of 2015, they were allowed only in Beijing, Tianjin, Shanghai, Jiangsu Province, Fujian Province, Guangdong Province and Hainan Province. Other than Hong Kong, Macau and Taiwanese investors, foreign investors are not allowed to wholly-own a Chinese traditional medicine hospital. See Norton Rose Fulbright, "China's New Healthcare Reform 2020." http://www.nortonrosefulbright.com/files/china-healthcare-reform_10-things-to-know-128860.pdf.

setting rates for a few select taxes (e.g. vehicle tax and license fee). The realignment of central-local fiscal relations also may help reduce local reliance on land financing. Cities can find other sources of revenue by broadening the municipal tax base and/or making more effective use of user charges.

Second, local finance needs stronger discipline, and this may require a process of moving public investment off the budget and into the capital market.[22] The central government has recently (in late 2014) issued a directive to further clear out local government debts generated through LGFVs. Part of the directive indicates that provincial-level governments can issue municipal bonds and project bonds on behalf of municipalities and counties, and the repayment of the debts must be reflected on municipal budgets. Imposing stronger discipline also includes unwinding LGFVs as pure financing platforms so that municipalities begin to borrow on their own, and their credit worthiness is based on sovereign ratings. As part of the process of shifting borrowing to capital markets, new rules and limits must be put in place, such as moving to the widespread practice of governments only being allowed to borrow for long-term, capital investments. Moreover, if local governments are expected to become more competent in managing both costs and revenues of capital investment, municipal bonds are a key component of that ultimate objective, as are the means of repaying those bonds. In addition, municipal bonds provide transparency and standardization, firmed up by the requirements of capital markets.

7. ***The Commission is mandated to make policy recommendations to Congress based on its hearings and other research. Assess the implications of China's 12th and 13th Five-Year Plans for United States. What are your recommendations for Congressional action related to the topic of your testimony?***

China's urban transformation does and will have global implications. To power its growth, urban China will account for about 20 percent of global energy consumption. Given the low per capita resource endowment domestically, most of this will be imported. For hundreds of cities, the building of mass-transit systems and new roads will continue, combined with a steady rise in demand for health care and educational capabilities. This represents an opening of opportunities for American providers and investors, much in the same way as the manufacturing sector did about three decades ago. However, China's infrastructure space continues to pose risks, in the form of regulatory, currency, demand, and general business risks.

First, we can encourage the adoption of a consistent set of policies and practices at the national level in China that conform to international norms. Market openness varies substantially across different infrastructure sectors in China. So are rules and regulations. For instance, there is a policy preference for state-owned enterprises in a number of infrastructure sectors still considered strategic, including natural gas, mining, telecom, and airports. With state monopoly, backed by government subsidies, there are significant entry barriers for private investment.

[22] For more details on this policy recommendation, see Christine Wong, "Some Suggestions for Improving China's Municipal Finance for the 21st Century." Paulson Policy Memorandum, the Paulson Institute (2012).

Specifically, in the area of PPP governance, it is essential to continue building and integrate the legal and regulatory framework.[23] At the national level, a single PPP legislation should guide approval processes across sectors and regions. Legal safeguards also need to be present in the form of effective regulatory oversight and efficient dispute resolution system. In addition, it is common for host governments to guarantee fixed returns for private concessionaires in sectors where prices for infrastructure products and services are kept low because of equity goals, including water, waste management, and public transit. If China wishes to attract more private investment in these sectors, it will need to follow 'the rule of games.'

Second, a knowledge asymmetry needs to be bridged. For global investors, China is still at the margin of their radar screen, if on it at all. Risks abound, particularly the lack of a regulatory environment with transparent, published rules, and independent of politics that may be driven by popular demand. Unfamiliarity with the business culture and local context adds further discomfort. For Chinese local governments, developing infrastructure is often a mechanism to increase land values that will lead to higher transfer/lease revenues. Bundling with other on-site development deals is often the norm, a practice unfamiliar to global investors. Aside from built-in risk tolerance, reliable local partners can hold the key to more positive outcome in sourcing viable projects and deals. Infrastructure fund managers, particularly those knowledgeable with China, also can bridge the asymmetry. For large global institutional investors such as pension funds and insurance companies, these managers help with accessing the Chinese market. They also provide the due diligence and local monitoring that investors lack about an overseas locale

Third, China can learn from effective practices elsewhere. One such practice is non-bank financial intermediaries, which can be a promising investment platform to bridge the 'investability gap' in China and especially in poor localities. Of particular relevance is the U.S. model of state bond bank.[24] Bond banks serve municipalities, school districts, fire districts, water and sewer districts, and more. They are able to provide lower-cost financing as long as they have higher credit ratings than the entities that seek to borrow. There are at least two benefits. On the one hand, investors may be reluctant to invest in municipal securities of a small town with limited resources, but eager to invest in those issued by a larger entity with significant resources like a bond bank. On the other hand, bond banks can pool together a number of small offerings to provide investors with a more attractive diversified product. The conditions for launching non-bank intermediaries for financing infrastructure are maturing in China, and there is forward movement locally (e.g. Guangdong and Shanghai) exploring the feasibility of doing so. Given that infrastructure finance has revolved around state and development banks in China, government sponsored funds hold particular promise.

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[23] In some of the largest emerging economies, including Brazil, India, Egypt, South Africa, and Turkey, special purpose legislation governing the delivery of infrastructure PPPs has been enacted.

[24] A bond bank in U.S. is a state-level entity that provides that state's smaller public entities with debt financing at a lower cost than what the small entity could obtain on its own. States operating such banks include Maine, Indiana, Idaho, New Hampshire, New York, Vermont, and Alaska. Some municipalities also operate bond banks.

Table 1. China's urbanization at a glance

	~1980	~2010	% change
Urbanization level (%)	19.4	51.0	162.9
Number of cities	193	657	240.4
Eastern region	69	344	398.6
Central region	84	218	159.5
Western region	40	95	137.5
Cities by population size			
Super large (> 2 million)	-	42	
Extra large (1-2 million)	13	82	530.8
Large (0.5 -1 million)	27	110	307.4
Small & medium (< 0.5 million)	153	423	176.5
Agriculture's share in employment (%)	64	39	-39.1
Ratio of urban-rural per capita income	2.6	3.2	23.1

Source: Weiping Wu and Piper Gaubatz, *The Chinese City*, New York and London: Routledge (2012).

Table 2. Select PPP infrastructure projects in China

	Form of PPP	***Private client(s)***	***Time frame***
Water & Sewerage			
Chengdu Water	Official BOT (build- operate-transfer)	Vivendi & Marubeni	1999 (18 years)
Pudong Waterworks	Divestiture (time-bound)	Veolia	2001 (50 years)
Hefei Wastewater	TOT (transfer-operate-transfer)	Berlinwasser International	2004-2026 (23 years)
Transport			
Beijing Metro Line 4	SPV (special project vehicle, joint venture) + BOT	HK MTRC	2004-2033 (30 years)
Shenzhen Metro Line 4	BOT (wholly foreign-owned) "Rail + Property"	HK MTRC	2005-2040 (5 years construction and 30 years operation
Hangzhou	SPV (joint venture) + BOT	HK MTRC	2010 (25 years)
Shanghai Metro Line 3	Service and Management contract	Public-Public Partnership	3-5 years