

## **PART I**

### **KEY ISSUES AND RECOMMENDATIONS**

## **Introduction to ADB TA**

### **Objectives of TA**

In order to assist the government of the People's Republic of China (PRC) with its ongoing policy reform in urban infrastructure financing, construction and operation, the Asian Development Bank (ADB) created the TA NO. 4095: Policy Reform Support (TA).

The TA has two objectives: (i) to provide a quick response mechanism that allows ADB to react quickly to support policy reform initiatives at a time when the Government is ready to deal with the issue; and (ii) to stimulate discussions of policy reforms that will have major implications for the PRC's transition to a market economy.

Through the ADB's process of selecting consultants, one international and two domestic consultants have been retained to conduct the TA.

### **Scope of TA**

The TA is a collective of three consultants' work. While the three consultants will work closely towards the deliverables, each consultant takes ultimate responsibility for his own work. The international consultant will be responsible for putting together the final report which will incorporate the outputs of the two domestic consultants.

Since solid waste management in China is still in its infancy and the structure of PPP projects in solid waste and water are quite similar, and they are facing the common issues in China, consultants and the ADB and MOC agreed, at the tri-party meeting on 19 May, 2004, that this TA will only concentrate on the water sector. Based on discussions among consultants engaged by the ADB for the TA mentioned above, a revised scope of services is set out below. This has been approved by the ADB and the Ministry of Construction of PRC.

#### *Part I: Drafting the working paper*

Consultants will draft a working paper on major issues that limit private investment in Chinese water projects. The paper will, through analysis of a number of cases, address issues arising from the legal framework, financial market, accounting and government's capability of regulatory enforcement and monitoring the projects with private investment. The working paper should also include recommendations on the draft national standards concession document for wastewater treatment project being prepared by MOC.

#### *Part II: The Government Regulatory Framework for PPP in Water Sector and comments on the Regulation for Chartered Operation of Urban Infrastructure Facilities*

The Consultants will develop the Regulatory Framework in Water Sector (the Framework) to promote private investment and PPP implementation. The

consultants also will provide comments and recommendations on the Regulation for Chartered Operation of Urban Infrastructure facilities enforced on 1 May 2004.

*Part III: Assisting MOC in organizing an international seminar to discuss the TA findings*

Consultants will assist MOC in organizing a seminar which international and domestic experienced practitioners will attend to discuss the out come of the TA work.

**Schedule of TA**

The TA was officially launched on 8 March, 2004 and the Inception Report was submitted to and subsequently approved by the Ministry of Construction and the ADB. The draft working paper is to be provided to the MOC and the ADB at the end of July, 2004. An international seminar will be organized early September, 2004. Two weeks after the seminar, the working paper will be finalized and submitted to the MOC and the ADB.

## **I. Overview of the development of BOT/PPP in China**

### **Water industry in China**

The water industry in China is regulated by the Ministry of Construction together with other government bodies including the National Development and Reform Commission, the Ministry of Water Resources and the National Environment Protection Bureau. Water like other public services/products, was offered by the government to general public at nominal price under the planned economy system. The government used to be the only party that was responsible for design, construction, financing and operation of water companies. After more than 10 years of economic reform that started in late 70's, the water industry has gradually opened to private investment. To date, most water companies are still owned by the municipal governments. Water treatment and distribution are separated from water processing as a result of corporatization of water industry which split water and waste water from the former government agency that oversaw the integrated water industry.

China's water resources are unevenly distributed. In general, water supply is short of the demand. North China has been experiencing severe shortages of water supply in past years and water supply has become a bottleneck to further development of the economy in the region. The shortage of water is due partly to the lower average water availability per capita. The growth of population and the economy together with accelerated urbanization contributed further to the shortage of water. Leakage in the distribution networks, as high as 30-40% in some old urban water systems, is seen as another reason that worsens the situation of short supply of water.

The need for more and sustainable sources of water has become stronger. Given the fact that China has scarce resources of water, more emphasis should perhaps be put on recycling water so that total demand of natural water can be reduced and sustainable water resources can be better protected.

To cope with the growing demand of water and to better protect the environment by building up sustainable water resources, massive investment is required in expanding distribution network, particularly for recycled water. According to the government's Tenth Five Year Plan, more than US\$11 billion will be invested in water supply and US\$15 billion will be invested in infrastructure for waste water treatment. If investment in building recycled water systems is counted, the required funding will be much more.

The government now realizes that it alone cannot support such huge capital investment in the water industry and therefore has to find other ways to finance the investment needed. A number of ways can be used to raise capital. One way is to increase tariffs on water. The second way is to raise funds based on water companies' balance sheet and the third way is to attract private investment, just name a few. Tariffs have been increasing steadily in past years. But due to social concerns, such increase cannot even make full costs of production recovered. Since most water companies are not financially strong, using those companies' balance sheets to raise funds appears to be a limited prospect. To attract private investment, the government has been trying different models. From the first negotiated BOT water project,

Shanghai Dachang water project, to the first competitively bid BOT project, Chengdu No.6 water plant, these pilot projects generated mixed results.

### **Footprints of Chinese BOT/PPP project developments**

The history of BOT/PPP water projects in China is not very long. It started about 8 years ago in 1996 with the British Thames Water Company and two French companies in the early 90's, Vivendi (now called Veolia Environment) and Suez Lyonnaise de Eaux (now called Odeo). Thames water was responsible for providing water to Dachang, Shanghai; Vivendi was for Chengdu, Tianjin, and the Shanghai Pudong area, and Suez was for projects in Guangdong and Jianxi Provinces.

Dachang water plant was built at a cost of US\$ 73m for a concession of 20 years. It was done based on private negotiation between private investor and the government. This model has been copied to other water projects and a considerable number of water projects done in China up to date adopted this model.

Chendu No.6 BOT water project was built by Veolia at a cost of US\$105 million for a concession of 18 years. It was the first competitively bid water BOT project and has been awarded the Best Deal of the Year by Project Finance International. It was particularly exciting since the project had reached financing close right after the Asian financial crisis. The second trial of this BOT model, the Beijing No.10 water project, however, was not successful due to various reasons.

Shanghai Pudong water company was the first foreign invested water company that was allowed to operate a distribution network. Veolia paid US\$245 million for a 50% interest in Pudong Water Company. The government has granted the Pudong water company 50 years concession to supply water to Pudong Area. The intention of the government from this project is to collect cash from selling assets and to increase efficiency of water company's operations.

More recently, Shenzhen Municipal government sold 45% of its water company, Shenzhen Water, to private sector. A joint venture between Beijing Capital Group and Veolia bought 40% and Veolia bought 5% at a total cost of about US\$400 million. Shenzhen Water has concession right to supply water and to treat waste water in Shenzhen Special Economic Zone. Shenzhen Water presents another model for the industry in that the government still retains control over strategic assets while private sector can bring in additional capital and management expertise.

In contrast to water treatment, not much activity has been seen in waste water treatment. Waste water treatment can be split into two major groups, one is dealing with industrial waste water and the other is dealing with urban waste water. Only about 30% of waste water in China has been treated at moment. The rapid industrialization and urbanization has made both the government and the general public more concerned about pollution caused by discharges of untreated waste water. For industrial waste water, the biggest problem faced by the government is how to balance interests of local economic development and environmental protection. Factories in many regions are important sources of fiscal revenues and they create jobs. The full costs of cleaning waste water from many factories are not affordable to

those factories. If these factories were forced to meet the stringent environmental protection requirements, products of these factories would not be able to compete on the market. As a result, local government will lose fiscal revenues and some jobs would have to be eliminated. The biggest challenge for urban waste water, however, is the inadequate collection systems and a supply network for the treated waste water. Currently urban inhabitants pay a waste water treatment fee on each cubic metre of clean water they consume. The fee ranges from RMB0.30 to 1.20 yuan per cubic metre of water. Such fees could perhaps only cover the processing costs. If the capital investment required for the collection systems is added, fees collected will never pay back the required investment. In the short term, the government has to bear a significant part of the costs the waste water network requires and only leave private investors to build processing plants.

### **General withdrawal of foreign water companies**

In past two years, the China market has seen a tide of withdrawals by foreign water companies. Notably, Thames Water sold interest in Dachang water companies and Anglian withdrew from the Beijing No.10 water project. For those like Veolia and Ondeo which are still in market, very limited investment activities have been seen recently. Japanese water companies have not been doing very much either. Several factors listed below contributed to the withdrawal and inactive foreign investment in China water sector.

- Reformation of general investment strategy which has nothing or little to do with China, Thames Water and Anglian are cases in point;
- Frustrations of investing in China water sector, coming mainly from high costs of making investments, low efficiency in managing projects and constraints from regulatory framework;
- Growth of local water companies, which assume a lower risk than the foreign ones and therefore require lower returns on their investments. The representatives of these companies include Beijing Capital Group, Shenzhen Water and others;

### **Build up of regulatory framework for Water BOT/PPP projects**

In line with political and economic reforms, China has continuously promulgated new laws and regulations of which some relevant to BOT/PPP projects are listed below:

The PRC Urban Water Price Administration Regulations (1985)

The Administrative measures for the Implementation, Calculation and Auditing of Water Price in Water Projects (1985)

The General Principles of the Civil Law (1986)

The Water Law of the PRC (1988)

The Urban Water Supply Enterprises Qualification Administrative Provisions (1993)

The Urban Water Supply Regulations (1994)

The Circular Concerning the Issues of Absorbing Foreign Investment through BOT (1995)

The Circular on Several Issues Concerning the Examination, Approval and Administration of Experimental Foreign-invested Concession Projects (1995)  
The PRC Security Law (1995)  
The Drinking Water sanitation Supervision administrative Measures (1996)  
The Water Resources Policy (1997)  
The Interim Provisions on the Administration of Project Financing Obtained Overseas (1997)  
The PRC Urban Water Price Administration Regulations (1998)  
The Urban Water Supply Water Quality Control Provisions (1999)  
The Notice on Administrative Measures on Pricing of Urban Water Supply (1999)  
The Contract Law (1999)  
The Notice on Views of Promoting and Introducing Private Investment (2001)  
The Circular on Measures of Accelerating the Development of Service Industry in 10<sup>th</sup> Five-year Plan (2002)  
The Foreign Investment Catalogue( 2002)  
The Circular on Accelerating Marketization of Urban Utilities (2002)  
The Circular on Accelerating industrialization of Urban Waste Water and Solid Waste Treatment (2002)  
The Administrative Method of Urban Utilities Concessions (2004)

## II. Common models adopted by some countries

### 1. General

Public-Private-Partnership in infrastructure is not a new concept in the international market. For example, private sector concessions for the development and operation of water supply and treatment plants have been commonplace in France for several decades. The concept proliferated during the 1980's and 1990's and was adopted by many west European and Commonwealth countries. Models that these countries adopted include:

- Privatization of regional integrated water and waste water companies that were seen in UK;
- Privatization of water companies;
- Concession type privatization used by Macau;
- BOTs for water and waste water plants which were spilt into two forms: competitively bid BOT that were adopted by Chengdu, China and Scotland, and negotiated BOT represented by Dachang, China.

The table below provides a snapshot for these options, their own characteristics and what the government could make better use of these options to achieve certain objectives.

Options	Description of Main Features	Current Status in China	Major Benefits	Major Shortfalls	Further actions
Privatization of regional integrated water and waste water companies	Privatize entire sector by not breaking integrated water business	Only Shenzheng Water adopted this model	<ul style="list-style-type: none"> <li>• Full value chain is under control;</li> <li>• Eliminating potential conflicts between water consumptions and volume of waste water to be treated;</li> <li>• Thorough commercialization of water sector;</li> </ul>	<ul style="list-style-type: none"> <li>• Require a fairly sophisticated water facilities in place;</li> <li>• Still be monopoly;</li> </ul>	Building up adequate water system; Comprehensive legal framework to supervise and monitor commercial operations;
Privatization of water companies	<ul style="list-style-type: none"> <li>• Only water treatment is commercialized;</li> <li>• Government has to arrange off take and raw water supply agreement;</li> </ul>	Shanghai Pudong	<ul style="list-style-type: none"> <li>• Focus on water processing only;</li> <li>• Small scale, easy to run;</li> <li>• Leave historical problems untouched;</li> </ul>	<ul style="list-style-type: none"> <li>• Cherry picking approach;</li> <li>• Point to point reform;</li> <li>• Limited financing;</li> </ul>	
Lease and management contract	<ul style="list-style-type: none"> <li>• No privatization of water sector;</li> <li>• Government pays management fees;</li> </ul>		<ul style="list-style-type: none"> <li>• No assets transfer;</li> <li>• Easy to find operator;</li> </ul>	<ul style="list-style-type: none"> <li>• Limited risk transfer;</li> <li>• No financing involved;</li> </ul>	

			<ul style="list-style-type: none"> <li>• Leave historical problems untouched;</li> </ul>	<ul style="list-style-type: none"> <li>• No solution to sector wise problems;</li> </ul>	
PPP/BOT models	<ul style="list-style-type: none"> <li>• Project based;</li> <li>• Need off-take and supply contract;</li> <li>• Technical competency is critical</li> </ul>	Chengdu, Beijing No.10; Dachang;	<ul style="list-style-type: none"> <li>• Single project;</li> <li>• Limited recourse finance;</li> <li>• Significant risk transfer;</li> <li>• Promote government's image in managing complicated projects;</li> <li>• Leave historical problems untouched;</li> </ul>	<ul style="list-style-type: none"> <li>• Complicated development process;</li> <li>• Expensive financing;</li> <li>• Higher requirement of government institutional capacity;</li> <li>• Lengthy process;</li> </ul>	

BOT/PPP models can bring benefits to public sector if they are structured in a proper way. Whether or not a BOT/PPP project should be launched depends upon an outcome of careful considerations on the objectives the public sector wants to achieve, the market condition, the project's economics and the environment in which the project is to be implemented.

A critical process for the government to consider various options available for decentralization of the industry must be run through to address some key issues such as what the government wants to achieve, both immediate and in the long time; does the government look mainly for additional funding? Or its focus would be on the improvement of efficiency? Or its purpose is to match the growing demand on water through capacity expansion. In this process, some industry specifics will also have to be carefully assessed. For instance, the government should seriously consider whether to combine water and waste water into one business. The private sector is profit driven. They will make the best efforts to maximize return on investment through increasing revenues and improving efficiency. In a situation of water and waste water business is run separately, a waste water treatment operator will not be willing to see lower consumption of water as a result of higher tariff or more use of recycled water. And likewise a water treatment operator will be reluctant to see more recycled water being used by consumers since this would potentially reduce the amount of waste water to be treated.

In the process of assessing which model/option to be used, the government will have to factor in what resources are available to deliver the objectives set by the government. This is particularly critical for the government to choose right model/option given the fact that limited special implementation capacity i.e. not too many investors with the financial resources and industry expertise.

Most common drivers to BOT/PPP project include:

- Improvement of efficiency, the number one reason for initial privatisation in UK. But it is difficult to "prove" savings to be achieved before actually doing it. But most privatizations have, with hindsight, shown big savings;

- Reduction interest holdings of the government, a policy issue which could be required by the decentralization of the industry, but it is often driven by financial constraints;
- Financial constraints, which means insufficient funds because of either significant capital expenditures needed in the industry in question or a need for funds in other parts of the government investment;
- Catalyst for change, used as a means of persuading the industry to change its operational approach, basically by having the private sector set an example.

Assuming that some or all of these drivers are in place, the next issue is to determine how best to try to involve the private sector in the industry. This needs a study of the options for the industry, the various issues that might affect the choice and the risks associated with each option. In addition, there is the need to look at the market to see what the private sector is prepared to offer and whether there will be sufficient competition.

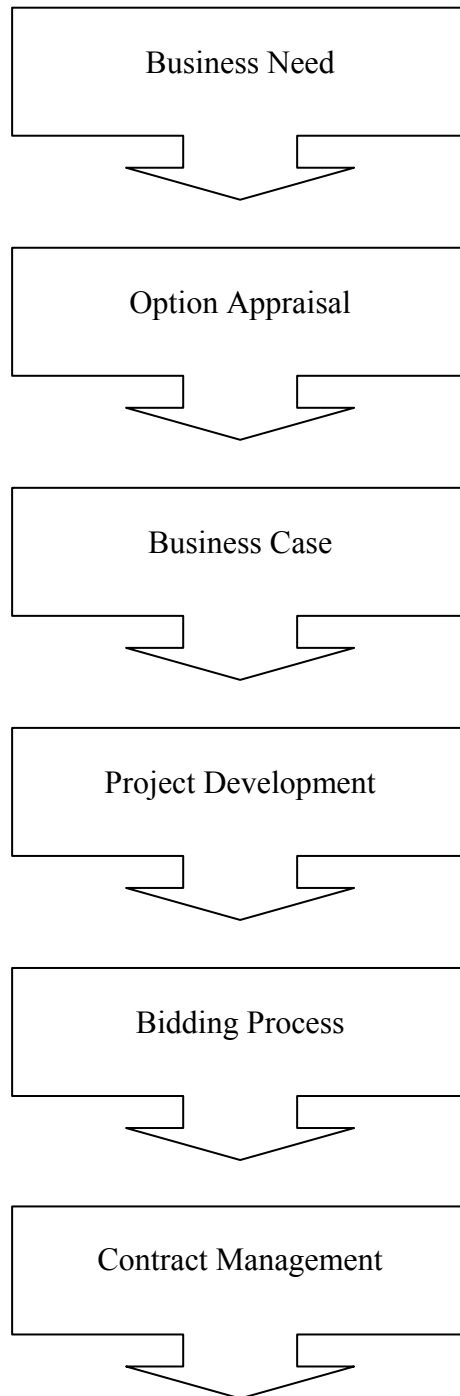
The outcome of this type of study should be whether to go for industry wide solutions, for example to privatize existing utilities or to restructure the industry to create a competitive market combined with privatization of utilities, or to take on piecemeal privatisation. Use of concession or project specific involvement can also be options.

If a conclusion reached through this process recommends a BOT/PPP model, then a formal procedure of project implementation must be followed. If the concession model is suggested, a different process will be adopted. The section below provides a general description of a BOT/PPP project implementation.

## **2. Typical Process of the Development of a PPP Project in International Market**

A typical cycle of a PPP project, though might be slightly different in specific steps, is as follows:

## Steps in Infrastructure Development and Implementation



#### a. Business Need

The first step of an infrastructure project development is for the responsible government agency to assess the situation of a public service in a certain region and decide whether a change needs to be made. A need of change may be identified when, for example,

- The lack or short in capacity of a public service to meet the community needs, e.g., wastewater treatment capacity is short
- The service level may be low and improvement is necessary
- The risk of service level falling in the near future and it merits an action now
- Operating efficiency of facilities may be low

#### b. Option Appraisal

Having established a need for change in a certain public service, the government agency should then identify and appraise various options available to it to fulfil the need, guided by relevant government policies on infrastructure investment. The outcome of the option appraisal is a preliminary assessment of whether a PPP structure is a feasible option and merits further and more detailed assessment.

The option appraisal may be carried out in two steps:

Step 1: identify delivery solutions, which may include:

- Non-asset solutions. Needs may be met without creating additional assets, through reconfiguring means of service delivery, developing initiatives to manage demand more effectively, or increasing use of existing assets;
- Existing asset solutions. This may involve upgrade or refurbishment to bring the existing infrastructure to the required standard;
- New asset solutions. When the needs can not be met by the abovementioned two options, new infrastructure may be developed

Step 2: a preliminary assessment of the available options. This involves outlining and analysing the advantage and disadvantages of each possible traditional government procurement and various PPP forms as described previously. A high level assessment is made with regard to the potential for a Public-private-partnership to deliver improved value for money when compared with traditional procurement.

The option analysis is not intended to form a final view on the most appropriate procurement structure. If a PPP option appears to be feasible, a business case is developed to further analyse the option in detail.

#### c. Business Case

Having appraised the available options and preliminarily decided that a PPP structure is feasible, the responsible government agency should develop a business case of the project. Business case is a thorough assessment of the potential of PPP to deliver value for money when compared with traditional procurement and is a key document

for government approval. Developing a business case primarily involves the following:

- Scope of the project. Full range of service outputs and support service outputs delivered by a project should be identified and defined;
- Project structure. At least an indicative project structure should be proposed with an analysis of why a particular option is preferred.
- Risk analysis and mitigation. All material risks associated with the project should be identified and the optimal allocation of the risks between private sector and government should be proposed. This is a key area of business case as the optimal risk allocation is the fundamental driver of value for money.
- Indicative costing. A preliminary full costing of the project should be conducted.
- Preliminary Public Sector Comparator (PSC) and cost-benefit analysis. PSC is a hypothetical risk-adjusted costing if a project were to be financed, owned, and implemented by government based on the most efficient forms and means of government delivery. The full cost-benefit analysis of the project against the PSC should be conducted to demonstrate that value for money is achieved for a PPP structure.
- Government funding and other commitments. Funding or other commitments from government to make the PPP viable should be proposed.
- Market sounding. The responsible agency should conduct market sounding to examine if the private sector has the capability and appetite to participate the project with a PPP structure.

The analysis mentioned above should be documented and submitted to higher authority for endorsement.

#### d. Project Development

Following the government endorsement of the PPP structure, the responsible agency can start developing the project up to the bidding process. This involves:

- Develop the team. Develop the procurement organization is the first step. Normal a procurement team is assembled, led by a full time project manager, who reports to a steering committee. The special expertise required for the project includes financial, legal, technical, operational, etc. These expertise could be drawn in-house or from outside professionals;
- Project planning. Detailed project plan should be developed with timetable, specifying such issues as how many stages are in the tender process, what is the intended to be achieved at each stage, when to initiate negotiation, etc.
- Consultation. The responsible agency may contact the prestigious advisors, associations, key companies and other major market player of the commercial principles at this stage for consultation and improvement of project structure.

#### e. Bidding Process

The bidding process is, to the public and private sector participants, the most visible part of the entire PPP procurement. For an infrastructure with average scale and complexity, this involves the following stages:

- Call for Expression of Interest (EoI). The formal procurement begins with publication of the contract notice in media requesting the response of private companies who are interested in the project. The EoI document should contain sufficient information to allow the potential bidders to form a view on whether they have the necessary capability, the parties they may need to join with to develop a viable bid, and the likely project risks.
- Prequalification of bidders. The private companies or consortia who are interested in the project would respond to the Call for Expression of Interest by providing information requested by the EoI documents. The responsible agency then assesses their financial strength and technical capabilities and arrives at a list of suppliers who are qualified for consideration as bidders in the next stage. The purpose of this exercise is to assess the competence of the interested suppliers but not cover the specific proposals for the project.
- Refine the project structure. Normally at this stage the original appraisal of the project should be revisited, drawing on the knowledge gained during the procurement to date. Project contract should be prepared for issue to bidders at the Invitation to Tender stage. The Business Case and PSC should be further refined, to reflect the more accurate economic substance of the project, in the light of new information available.
- The Invitation to Tender (ITT). The Invitation to Tender is then issued to the pre-qualified companies or consortia, soliciting specific proposals for the project. Necessary documentation, including the contract and sometimes the Business Case and PSC if the agency thinks them helpful to the process, should be made available to the bidders. The bidders are encouraged to raise questions to the ITT document and information sessions are normally held for the agency to discuss some common concerns of the bidders.
- Evaluation of bids and identification of preferred bidder(s). Upon receipt the project team evaluate the bids in accordance with the principles and criteria set out in the ITT with necessary clarification obtained from the bidders if necessary. Ranking of bids are made and preferred bidder(s) are then identified and invited to final negotiation. The final negotiation should be limited only to fixing the final details of the transaction. Sometimes a preferred bidder and a reserve bidder would be nominated to place pressure on the preferred bidder to complete the contract within predetermined timeframe.
- Contract award and financial close. At this stage the responsible agency should complete and execute the documentation with the preferred bidders. In the meanwhile, the preferred bidders completed the commercial terms with its lenders and sub-contractors. The project then achieves final close.

#### f. Contract Management

After the contract is awarded, the project enters into construction and implementation phases, when the private sector is making major investment and operates the infrastructure. Typically the concession period will last for more than 20 years. While the private sector is responsible for day-to-day operation of the facilities and delivering the output, the government has responsibility to monitor the performance

of the project and ensure the availability and service level of the output. These should all be specified in the contract.

### **III. Major issues faced by private investors**

#### **1. Approvals**

##### **a. General**

- i. In all countries the process of securing permits and approvals for infrastructure projects is complex and time consuming. In this respect the regulatory process in China is much the same. The major difference with many countries is that China is known for its obscurity and uncertainty in business decision-making process. This makes the process of securing approvals more difficult since it is not always clear what approvals that are needed, from whom and when.
- ii. A further complication is that the processes to be applied and the approvals required often vary significantly depending upon the way in which a transaction is structured even if the underlying project is the same. For example, if a project is structured as a Sino-foreign joint venture then the approvals required to set up the joint venture are different from those required if the project is structured using an entirely Chinese owned company.

##### **b. Too rigid project approval processes**

- i. The biggest difficulty facing private investors in their contemplating investment in infrastructure projects is how to get approvals for a project that can enable the project to be developed in a sensible manner.
- ii. The difficulty is that once an initial approval application has been submitted to the authorities, the nature and size of the project has to have been agreed and it is then difficult to change even if it makes much more commercial sense to do so. At the time the initial applications have to be made it is often the case that highly detailed feasibility studies have not been completed. If those studies identify issues that require significant changes to the nature or cost of the project, the developer is left with the options of spending a huge amount of time seeking changes to the approvals given or ignoring the original approvals and putting the project at risk.
- iii. Subsequent approvals compound this issue. Once the project is fully planned and has obtained all its approvals, if the developers then find ways of reducing the cost of the project they are unable to reduce the amount of capital that is required to be put into the project company. It is quite common for the cost of large infrastructure projects to vary significantly from the original plans.
- iv. The laws also require that the parties invest their capital within a relatively short time. With most large infrastructure projects the funding for the project is only required in stages over quite a long time. By being forced to

tie up capital in a project before there is a commercial need for it means that projects end up costing more than they would otherwise do.

c. Approval processes drive project arrangements

In China an infrastructure project will have to get approvals from a number of agencies including the Development and Reform Commission (depending upon the size of the project, national or provincial DRC will have to be involved). The difficulty is that it is usually much easier and quicker to get approval for a project from the provincial agencies. As a result it is quite common to see projects structured so that they can avoid the need for approval from national agencies. This often puts the project at risk in that it may later be shown that the structure used is not legal.

Such approving process increases the level of uncertainty to investors. And this uncertainty will be translated as additional risk which will be ultimately reflected in a form of add-on cost to the total costs of the project.

When multiple agencies are involved in approving process, responsibilities among these agencies should be made much clearer. For a water project, the Ministry of Construction(MOC), the National Development and Reform Commission(NDRC), the State Environment Protection Bureau(SEPB), the Ministry of Water Resources (MWR) will have to be involved in the approval process. If the project involves the transfer of state-owned assets, the State-owned Assets Supervision and Administration Commission will have to approve the sales. Each government body will be responsible for one or more aspect of a water project. For instance, MOC will primarily be responsible for urban infrastructure planning including utilities, the NDRC is in charge of large scale investment activities, SEPB sets standards for water discharged, and MWR looks after anything that is discharged to rivers, lakes or seas. In some cases, the Ministry of Hygiene will also be involved. Ideally clear guidance about how and when to obtain approvals from agencies involved should be provided. Otherwise, investors will have to spend ages to understand which agency they should go to in order to get their projects properly approved.

d. Vague, inconsistent laws and regulations

The government has been making efforts to adopt a more market-oriented economy through the improvement of legal and regulatory environment. While new rules are constantly enacted, attention needs to be paid to ensure that different pieces of laws and regulations will not only address new situations, but are also consistent with the existing regulations. For instance, the Ministry of Communications' regulation specifies that awarding a concession contract for a toll road which is a part of the National Trunk-Roads will have to be approved by the ministry. But this does not address the concession contracts that had already been awarded by the Provincial or Municipal government before and even after the Ministry's regulation is promulgated.

2. Acquisition of existing assets
  - a. Conflicts with the Bidding Law

In 2000, China enacted the Bidding Law which was designed for tendering process of engineering procurement. In an engineering procurement, bidders are not responsible for the provision of financing. The tendering document sets concrete technical specifications and will normally leave a price for bidders to bid. But the tendering process for a PPP project is different. Bidders for a PPP project will have to come up with financing, construction, operation and maintenance plans for the project. This makes a PPP tender complicated in a sense that comprehensive assessments on bidders must be done in order to determine a winner.

Because the law is based on the nature of an engineering procurement, the Chinese Bidding Law prohibits any material amendments to the terms and conditions specified in the bidding document. It also prohibits any form of negotiation after bid evaluation has been completed. A PPP project involves a variety of parties bound together by a set of contracts in which risk sharing mechanisms among parties are defined. These are complex arrangements and it is difficult to ensure that all matters have been properly dealt appropriately in the contracts. There is therefore a need for some flexibility in the Bidding Law.

While the Bidding Law is needed in order that China can comply with its WTO obligations, the current application of the rules does not provide sufficient flexibility for resolving differences and issues that might arise during the bid process. It's a common practice in other countries that a PPP contract can only be awarded after a reasonable level of negotiation with the preferred bidders.

One of the biggest advantages of PPP structure is that the tender is designed to provide bidders with certain flexibility to come up with innovative proposals which will create additional value or save project costs. This potential benefit is a key element when assessing the feasibility of a PPP project. Flexibility given to bidders will leave some room for the negotiation. It is therefore very difficult for the government not to open a negotiation with bidders after the evaluation process.

Laibin Power Plant and Chengdu No. 6 Water Plant projects were tendered before the Bidding Law went to effective. However, the Beijing Municipal Government faced great challenges when it ran the tendering for Beijing Olympic Venues PPP projects.

While some flexibility is important, it is fair to say that in many bid processes in China a major difficulty has been that insufficient planning and development of the contracts has taken place prior to the bid process. While there is a need for more flexibility than is presently allowed under the Bidding Law, it should not be that so much flexibility is given such that there is

insufficient pressure to encourage the preparation of proper bid documents and contracts.

b. Limitation of sales of state-owned assets

Most infrastructure projects involve state-owned assets. The government is very concerned about the loss of state-owned assets. As a result, the Government has issued a number of Circulars to regulate sales of state-owned assets. Most recently, the government issued a Circular which requires all transactions, in which a controlling interest is owned by a state-owned company, will have to go to a designated market for trading. Trading can be done in one of three ways;

- public competitive bidding,
- bidding by invitation, or
- by public trade.

Although the intention of establishing such market arrangements is to protect potential loss of state-owned assets, non-market driven procedures and lack of relevant supporting regulations create significant risks. In practice, most transactions closed in the markets have already been previously negotiated between buyers and sellers. They go to the market only because it is required by the Circular. This new regulation, at least at time being, is creating additional steps in the transaction without significant benefits to both the government and the private sector.

c. Valuation of state owned assets used in private projects

When state owned assets are injected into a private business there is a requirement for the assets to be valued by a registered state asset valuer. Once the valuation has been completed, it is very difficult to adjust the price if during subsequent negotiations it becomes apparent that the value of the assets to the business is different from the asset appraisers valuation. Given that the asset appraisers valuation has to follow specific rules about the methodology to be used and the methodologies are not consistent with international business valuation methodologies, it is quite common that very significant differences in value arise.

3. Tariffs

a. Tariff approval

For most infrastructure projects the price that the project can charge requires the approval of the price bureau. The process for setting prices is not transparent, as a result there is a significant risk to investors in such projects that the tariffs will not increase with rising costs of the project. This is a particular risk for infrastructure projects where the operating costs relative to the initial capital cost are low. There seems to be a tendency for the price bureaux to look at the cashflows independently of the capital investment and the return required on that. As a result, it is often the case that the tariffs are

not allowed to increase to a level that provides the appropriate returns to the investors.

A further issue is that the government has already adopted the practice that a public hearing is required for tariff increases on public services and products. Although the result of public hearing is not decisive, it does make tariff increase more difficult and time consuming.

b. Tariff support

The government controlled tariff and the absence of a clear risk sharing mechanism has already put some projects in trouble. A waste water treatment plan in Shenzhen developed by a private company has been operating in the red just because the tariff set by the government is too low.

Where the private sector is or would like to be an investor in a utility there are issues about the level of the tariffs or, alternatively, the need for a subsidy. If services or products have to be priced lower than the market price, the government has to provide subsidies to the provider of services and products to compensate for the difference between the government decided price and market price.

Amount of the government subsidy that is required will depend upon the economics of the project. Legal and regulatory risks i.e. political risks will also be assessed by parties involved in the project, particularly by lenders.

c. Ability to pay

A major issue with many infrastructure projects that provide a service to a single customer is the issue of whether the customer can afford to pay for the service. This is a particular issue for water treatment plants and waste water treatment plants where the tariffs charged to end users by the distribution companies are often lower than the full cost of providing the service.

Often the issue is that there is no proper analysis of the likely cost of the service to be provided by the private sector project compared to the water utilities ability to pay for it. Alternatively, assurances are given that the end user tariffs will be increased but, subsequently, it is not possible to do so.

4. Risk allocation

Depending upon economics of the project, the government's objective, the market initial response to the project, an appropriate project structure that is capable of sharing risks among parties involved will need to be designed. However, this principle has not been well understood by various government agencies in China.

When a PPP project is launched, the government is normally so reluctant to take on any risks even though it is in the best position to mitigate such risks. The government sometimes ignores the fact that it is the government that has ultimate responsibility of providing public services. Regardless to whom the concession is awarded, the government cannot avoid such responsibility.

An imbalance of risk allocation will result in an increase of overall risks for private investors, hence adding on additional costs. This reflects the need that the government should study more on PPP scheme and understand what PPP scheme can help and what it cannot help.

## 5. Performance evaluation

A PPP project usually has a life span of more than 15 years during which economic, political, demographic conditions could change dramatically. In so far as is reasonable and possible, the contractual arrangements agreed at the time when concession is granted will have to take account these possible changes, particularly the adverse changes on the projects. Many of these changes are likely to require adjustments through the pricing mechanism or formula agreed and written in the concession contract. The government will also be keen to ensure that the quality and quantity of services and products provided by private investors continue to maintain their performance to meet the government requirements.

The performance evaluation process has not been given enough attention. This could potentially lead to a badly structured PPP project in which the government merely wants short-term benefits to satisfy public interests. As an example, it has been popular in the past to allow cost-plus pricing arrangements for some projects. This does not provide incentives to operators to run the project efficiently. Nor does it distinguish good and bad operators either. It is therefore necessary to establish a system to benchmark the performance of a particular project. Using a benchmark can substantially reduce objectivity in assessing operator's efficiency.

## 6. Continuity of contract execution

### a. Changes to industrial structures

This particular point is quite relevant to China at this moment since its economy and politics is in a transition. During this process, China will undertake significant changes in re-alignment of policies and in re-organization of industries.. These changes could sometimes bring great impact on on-going PPP projects. For instance, the granting agency or industry could be merged into another agency or being converted into a corporation which does not have an administrative function at all and whose credit strength could be very different to a government owned entity.

Changes in some industries have created significant problems for existing private projects. The two most obvious examples being the electricity and telecoms industries. In both of these the original models were to have private

invested projects whose only customer was the government owned utility. In both cases when decisions were made to restructure the industry there were considerable problems dealing with the private projects.

The reform of the Chinese electricity industry can illustrate this point. Some power BOT projects in operation have the formal provincial power bureaux as electricity purchaser. As part of the reform, power bureaux were split into generating companies and grids companies. How the obligations and responsibilities under the power purchase agreement can be assumed by a competent party will be of primary concern of private investors in these power projects.

In the case of the telecoms projects, in order to allow China Unicom to be listed it was necessary for the existing joint projects with the private sector to be bought out. Since these were forced buy outs this created considerable concerns for the existing investors and raised the risk profile of all similar projects in other industries as well as the telecoms industry. It also caused a significant cost for China Unicom. The difficulties could have been avoided or minimised if there had been more consideration of the likely development of the industry had been given before any of the projects had been let.

A similar problem is potentially developing in the water industry. It is highly likely that at sometime in the future the approach to the water industry will be to privatise the industry either through concessions to run the whole utility or by listing of the utility. In either case it will create significant problems if the utility has contracts with independent and privately owned water treatment plants. The plant owner will be concerned about changes in the ownership and creditworthiness of the utility. The investors in the utility may be concerned about the contract terms with the project.

b. Honouring of contract terms

An important concern of many investors in PPP projects is whether the other parties to the contracts will continue to honour the terms of the contracts that have been put in place. This has been a major concern on a number of projects in China. The difficulties seem to arise for a number of reasons including:

- poor understanding of the contract terms and their consequences when the contract is let. This is often due to the lack of proper financial analysis by the government or utility side before the contract is let.
- resentment over the levels of cashflows being generated by the private project. This is often because of the lack of understanding of the need to provide the appropriate returns to the equity investors.

7. Enforcement of regulations

A significant concern of most private projects is that regulations are generally enforced more rigorously on private projects than they are on state owned businesses. In some respects it is inevitable that where businesses are owned

by the same agencies that are responsible for the enforcement of regulation, there will be much pressure to enforce the regulations much less forcefully on those businesses. The consequence though is that it creates situations where the risk profile and therefore the costs of the private project can be significantly different to a state owned one and therefore it is hard for the private plant to compete.

There are some moves to rectify this situation in that the regulation and ownership of many industries are being separated. However, there is still a significant difference in the way those industries that still remain in state ownership or that have close ties to the state are treated compared to the way the private projects are treated. This is especially true for the enforcement of environmental regulations.

8. Financing structure

a. Imbalanced financing structures

Whilst most PPP projects in other countries were financed through non- or limited-recourse loans, financing structures adopted by PPP projects in China have mainly been financed by conventional bank loans. There has been very few innovations seen in the financing structure of Chinese PPP projects. This substantially undermines advantages of PPP projects. It also limits private investors' capability of taking on PPP projects because their own balance sheet can only support a few projects.

Most debts the Chinese companies raised are conventional banks loans. Over 90% debts financing relies upon credit loans provided by banks. Financing through other forms of financing only accounts for less than 10% of funds raised, compared with nearly 50% in developed economies.

This is partly because the Chinese banks prefer balance sheet lending. Chinese banks have not been comfortable only to look at project economics. Another reason perhaps is the government control over the issuance of bonds. In practice, getting approvals for selling bonds is even more difficult than that for offering shares to public. This is particularly true for non-state-owned enterprises for whom it is extremely difficult, if not impossible to obtain approval for issuing corporate bonds.

b. Limitations on debt levels

China still requires that at least 30% of total investment will be equity finance in a larger scale project (most infrastructure project will be fall into this category). This requirement can be a burden for many private investors. Chinese PPP projects are still heavily reliant upon the sponsors' own balance sheet. Given the fact that most infrastructure projects are capital intensive, putting up to 30% of total investment as equity will significantly limit the number of projects that investors can take on. Another shortcoming of requiring a big portion of equity from investors is to increase project costs

because rates of return on equity capital are much higher than borrowing rates on project loans.

c. Improvement of security package design

The forms of security used as collateral against loans that can be accepted by Chinese banks need to be broadened. In the absence of government guarantees (which are forbidden by the Guarantee Law), assets that can be mortgaged are the main focus of the Chinese banks. Most of these assets are property and land. Banks in China are sceptical about other forms of security, for instance, the contractual rights associated with the project.

In other countries, banks substantially rely on the expected cashflows of the project and a strong security package which includes the creditworthiness of the offtakers. Depending upon the credit rating of the offtaker, a project company can raise capital at much lower costs. Security package should be designed based on analyses of the risks of the project using a risk allocation matrix. The comfort given to the lenders as part of the risk allocation and mitigation would typically include a turn-key engineering contract undertaken by a reputable and experienced company, strong services/products purchase agreements (normally between the borrower and the government), operation and maintenance agreement (also undertaken by reputable, experienced company), performance bond and any credit enhancement provided by investors and/or the government.

In China, the implementation of such a security package for a project brings little benefit in terms of better lending. This, to certain extent, limits the number of projects an investor can make.

d. Limitation of debt tenor

Infrastructure projects have common features of being capital intensive, having long pay back periods, long life spans and reasonably steady cashflows. The use of long term debt can help to achieve financing efficiency, thus lowering the costs of the project.

For many international projects it is common for infrastructure projects to have loans as long as 15-20 years depending upon the nature of the project's cash flows during the operation.

However, financing products with longer term debt is currently not common in China. Commercial banks usually lend on terms of no more than 10 years. It is possible in some instances for the term to be extended to 12 years or so.

Pension funds and life insurance companies have just emerged in China and are currently still facing many restrictions on investments. It will take some time for these companies to develop a sophisticated investment scheme. The bond market is also small and it is very difficult to get approval for issuing bonds.

e. Refinancing techniques to be developed

Because of the long life span of infrastructure projects, refinancing also plays an important role, especially when the economic situation fluctuates greatly. Refinancing can be used to reduce the debt burden by taking advantage of lower interest rates that may be available at different times during a project's life. When a project moves into normal operation, the project risk profile will reduce since a significant risk in most infrastructure projects is the construction risk.. Because of restricted debt instruments, refinancing in China is mainly restricted to revolving loans. This will reduce potential benefits that can be gained through refinancing.

f. Interest rate hedging

The current regulations in China mean that it is not possible to borrow on fixed interest rates and it is not possible to hedge the risk of interest rate fluctuations. The consequence of this is that the offtake agreement has to incorporate a mechanism to pass through interest rate changes. Alternatively, and quite commonly in China, the project is expected to take on the interest rate risk. The consequence of this is that the pricing of the service is higher than it would otherwise be.

g. No fair play between JV and domestic companies

China treats foreign investors differently as it does to domestic investors. The motive is for the government to attract more foreign investment and it proved to be very effective. Following the WTO entry, the government is taking steps to eliminate privileges given to foreign investors. But at moment, foreign investors are still getting more favourable conditions on their investment. Foreign invested projects benefit from reduced tax liabilities and, under cooperative joint venture structures they benefit from some flexibility in equity capital injection schedules and early payback of capital investment.

h. Constraints on capital injection

While foreign invested projects do obtain some advantages in terms of having some flexibility in the timing of equity investment, there are still considerable constraints on how capital needs to be injected into a project. Under current regulations the full amount of the capital investment in a project has to be invested within a fixed and relatively short period. Given that the capital expenditures for most infrastructure projects are required over a relatively long period, it is unusual that most of the capital is required at an early stage of the project. The net result of having to invest all the funds before they are actually needed is that it adds to the costs of the project.

In projects in most countries there is more flexibility in the timing of the injection of capital. This helps to reduce the costs of the project.

i. Foreign exchange risk

As long as Renminbi is not freely convertible, infrastructure projects involving foreign investment will be exposed to foreign exchange risks. This is because most infrastructure projects in China only generate revenues denominated in local currency. Foreign exchange risk can be split into two:

- one is the ability to convert Renminbi into hard currencies, and
- the other is the depreciation of Renminbi towards hard currencies.

As Chinese foreign reserves has been continuously increasing in past years there are less concerns by foreign investors as to the convertibility of the currency. However, the process of securing the approvals to convert currency is still a significant risk, particularly in respect of delays in obtaining the approvals. With regard to depreciation of local currency, the common practice allows the investors to pass this risk onto the government side whereas in many other countries the risk is dealt with by the use of hedging mechanisms within the financial markets.

j. Cash traps

Most infrastructure projects involve significant capital expenditures at the beginning of the project. During the operation of the project the project company generates greater cashflows than profits since the profit is determined after the deduction of depreciation, a non-cash expenditure. The project company is in most instances restricted from distributing more cash to its shareholders than its profits. Therefore, it is quite common for projects to build up significant cash balances during the life of the project. This situation is common in other countries as well, however, in most countries the project company is able to lend the surplus cash to the shareholders. In China it is not possible for project companies to lend the funds back to shareholders, in particular, it is not possible to repatriate the funds to foreign investors.

There is one option that is available to foreign invested projects but it is not available to locally invested ones. That is that a foreign invested project can, in some circumstances, be set up as a contractual joint venture. Under such a structure it is possible to distribute the surplus cash, however it is becoming increasingly difficult to secure approvals for a contractual joint venture arrangement.

Summary of issues

The table below illustrates to what extent the government is aware of these issues and what measures taken or to be taken by the government to tackle these issues, and what the government should go in future with regard to issues identified.

Issues Identified	Government Awareness	Current actions	What next
Approval process	Government is fully aware of its complicated, lengthy project approval	<ul style="list-style-type: none"> <li>• The central government has been delegating more power to local government to</li> </ul>	<ul style="list-style-type: none"> <li>• Current filing mechanism should not be another hurdle for project approvals;</li> </ul>

	process	<p>approve projects;</p> <ul style="list-style-type: none"> <li>• The government is concentrating on project utilizing public funds;</li> </ul>	<ul style="list-style-type: none"> <li>• Government needs to set up a “green channel” type of project approval process, leaving investors only deal with one agency;</li> </ul>
Acquisition of existing assets	Government has not paid attention to potential problems for acquisition of state-owned assets;	No actions taken by the government;	<ul style="list-style-type: none"> <li>• Government should distinguish utility assets from profit making assets, creating special policy for acquisition of utility based assets;</li> <li>• Government should study bidding laws’ impact on PPP project tendering;</li> </ul>
Tariffs	Government is aware of this issue, but has not studied carefully;	Government allows tariff increase gradually; Relevant regulations on setting tariffs for utilities are in place;	<ul style="list-style-type: none"> <li>• Government should not only look at tariffs as single means of protecting investors’ interests, it should also look for other forms like government subsidies;</li> <li>• Form a single agency that can make all decisions on utility projects, for instance, tariff setting should be a responsibility of the agency that is in charge of PPP project development;</li> </ul>
Risk allocation	Government has not fully understood the concept of risk allocations;	No actions taken by the government;	<ul style="list-style-type: none"> <li>• The government should study risk allocation theory and acquire adequate knowledge of risk mitigation;</li> <li>• This is an education process which needs effective communication between all decision makers;</li> </ul>
Performance evaluation	The government is aware of this issue;	Utilizing TAs from multilateral agencies to study benchmarking;	<ul style="list-style-type: none"> <li>• A dedicated team must be formed;</li> <li>• Benchmarking should pay more attention to accuracy of data on which benchmark is developed;</li> </ul>

Continuity of contract execution	Not sure if the government is aware of this issue;	Not action taken;	<ul style="list-style-type: none"> <li>• The government should start to build up its creditability in front of investment society;</li> <li>• Establishing a track record for PPP project development will mutually be beneficial to the government and investors;</li> </ul>
Enforcement of regulations	This issue has been recognized;		
Financing structure	Some issues are fully noticed;	<ul style="list-style-type: none"> <li>• Government has been trying to create a good capital market;</li> <li>• Moving towards easing investment restrictions for pension funds and insurance companies;</li> <li>• In consideration of eliminating gaps between international and Chinese accounting rules;</li> </ul>	<ul style="list-style-type: none"> <li>• The government should pay more attention to establishing companies credit rating system;</li> <li>• Lower equity portion of infrastructure projects based on credit rating of developer;</li> <li>• Loosing equity injection time for infrastructure projects;</li> <li>• Allow flexible pay back mechanism to reduce cost of financing;</li> </ul>

## Recommendations

One of objectives for this TA is to provide MOC with suggestions on how to improve further the commercialization of the Chinese water industry. This commercialization process will inevitably touch areas such as policy-making, administration, market conditions and others. To improve overall environment for PPP projects, a lot more needs to be done in the future.

1. Set objectives which the government wants to achieve for the industry immediately and in the long term

Objectives along the timeline for the development of the industry should be clearly set by the government through a thoughtful process of reviewing and assessing the overall political and business environment. Different options should be adopted to achieve certain objectives. For instance, an assets sale would help the government exit from certain industry and a management contract arrangement will have a potential to increase efficiency. Objectives could change along the timeline, but it has to be crystallized before any options being chosen.

Clearer objectives also helps to choose the right private investors. Failure to do this could endanger the success of commercialization of water industry. There are basically two groups of investors, strategic and financial investors. Strategic investors are those who have been in the same or similar industry whilst financial investors are those who do not have in depth industrial knowledge and look only at monetary returns (and usually within a shorter period). Strategic investors can normally bring in technology, management expertise, or other knowledge that can enlarge a company's value. With regard to origin, domestic and foreign investors are also different in respect of risk taking, financing and way of operation. Domestic investors will often take more risks because they understand the Chinese business environment better, but they generally lack technology and management expertise. Foreign investors can bring in good technology, management expertise and contribute to establish a good business environment which is certainly needed for China. However, they are usually more risk averse and they strictly follow procedures, making the process lengthy. And they will usually ask for a higher return on investment but often are more efficient therefore requiring lower tariffs. Recently some state-owned water companies became active in acquiring water companies. Beijing Capital Group and Shenzhen Water appear to be pioneers. The benefit of this trend is that larger water companies will emerge after some time which will help the commercialization of the water sector. The potential problem of this action is two fold: 1) these companies do not have advanced technology and the management expertise; 2) these companies are still influenced by the government, hence they are quasi-government companies which, due to whatever reason, could delay the commercialization process of water sector.

2. Establishment of a formal procedure for PPP projects

Infrastructure projects had been built traditionally by the government. This model did not allow other types of entities to develop their expertise in developing infrastructure projects. Since the project developer was exclusive, there was no need to create a standard procedure for the development of infrastructure projects. When this sector

was opened to private investment, developers rushed to secure projects. Authorities were sometimes motivated by selling off infrastructure projects to make obvious progresses in reform.

To avoid un-guided project development like this, a standard procedure for undertaking a PPP project should be established at the central level of the government to provide a guideline on infrastructure project implementation. The procedure should set out the steps that a PPP project has to go through in order to assess its suitability and feasibility to be a PPP project. The procedure should also define general criteria including project economics, public service comparator, risk allocation mechanism as well as model concession agreement. Once the procedure is developed, every infrastructure project taken has to follow the procedure in order to get approval from the authority. Projects that don't go through the procedure or that don't use criteria set in the procedure will not be approved by the authority.

### 3. Set up Dedicated Department to Develop, Negotiate and Monitor PPP project

A PPP project involves design, construction, operation and financing which will be structured in a complex way to best mitigate risks associated with the project. The government has to dedicate a department to manage the entire process. Experience gain in other countries showed that knowledge and skills of developing PPP projects are evolving in line with the development of the industry and the market, and with changes in political and economic situation. A dedicated department is needed to follow up these developments and to revisit the government objectives so that the project can be structured to achieve the optimal results.

Another reason of having a dedicated PPP department is that the government must keep track on the performance of a PPP project. A PPP project has lifespan of over 15-20 years during which public services will be offered by private investors. The government has to closely monitor and supervise the project operation to ensure that public services requirements are met by the private sector. The government has to understand that the government is ultimately responsible for the quality and quantity of such public services despite the fact that private investors are obligated to provide the required services under the terms and conditions specified in the contract signed.

### 4. Providing technical support to strengthen the government's capacity in regulating and monitoring PPP projects

Launch of pilot project with technical support from the MOC will help the government officials better understand PPP projects. The pilot projects should be carefully selected to reflect common nature of current PPP projects, thus ensure the pilot project model can be copied in practice.

Technical support provided through PPP professionals is critical to a successful PPP project. Other countries have already accumulated some good practices in developing a PPP project and these should be carefully studied and tailored to China situation. Interactive communications between the government officials and experienced PPP professionals in developing pilot PPP projects can bring benefits to the Chinese PPP projects development in following areas:

- a. Assist in setting up a good practice;

Through PPP professionals, good practices found in other countries can be copied to China and lessons learned in PPP project development can alert PPP projects to be developed in China.

- b. Win trust from private investors;

The involvement of PPP professionals can be a positive indication to potential investors and increase their confidence in projects. Truly independent professionals would ease investors' concerns over the fairness, openness and transparency of the project development.

- c. Training officials to work on PPP in the future;

Government officials, through working together with PPP professionals can improve their understanding of PPP projects and learn the procedure of developing a PPP projects. The pilot project will also provide a training ground for the government officials working in this area. These officials can be good candidates for the dedicated supervision and monitoring team to be formed by the government.

5. Establish a transparent mechanism to determine price for services and products

One of the difficult issue for the private sector to participate in infrastructure projects is to understand how the government is to set tariffs for public services and products. One pricing model adopted by some countries for this type of services and products distinguishes capital costs from operating costs. Capital costs represents the costs arise from added on new capacity and the operating costs is consists of costs of production and return on investment. Such model provide the private sector a clearer indication on what and how they can get paid to compensate for risks they have taken.

Another pricing model could be to use industry benchmark to assess reasonableness of price level for services and products provided by a specific project. The problem of this model is how such an industry benchmark can be established. Without a well recorded statistics on operations and an active market in which services and products being traded, it is very hard to set a benchmark.

6. Streamlining laws and regulations

China has made considerable improvements in streamlining project approvals. For instance, project approvals in some industry have been waived and the provincial governments have been given more power to approve projects. Despite this positive movement, further improvement of project approval is needed to reduce uncertainties that the private sector has regarding project approval process.

Concentrating power of approving authorities and streamlining pieces of laws and regulations can help PPP project development. Firstly, legislation on approvals should

be tightened. All projects that try to win the post-award approvals must be put through a stringent process of scrutiny. Secondly, approval requirements should be made more transparent and approval procedure should be standardized. Thirdly, responsibilities between central and provincial government should be clarified. And last but not the least, method and basis used to approve project feasibility study should be revisited to reflect true economics of project and public interest in the project.

#### 7. Development of financial products suitable for PPP projects

Debt market, particular long term debt market needs to be developed so that PPP project financing can be structured to gain maximum benefits. In recent move, Chinese government has already allowed pension funds and life insurance companies to investment in stocks and more freedom could be given to these financial institutions to stimulate their interests of investing in infrastructure projects. With greater involvement of various types of funds, lending risks can be diversified among commercial banks, pension funds and life insurance companies. This will create more available funds to be solicited for PPP projects.

### **IV. Proposed action plan**

In line with recommendations suggested above, an action plan which contains both short and long term goals for the government is proposed. The short-term action plan aims at providing a solution for MOC to tackle some issues such as absence of concrete guidelines for PPP projects, lack of institutional capacity in government at different levels and disciplining water project development activities. The long-term action plan, presented in this paper, serves the purpose of bringing the issues to the attention of relevant government agencies. Due to the complexity of overall political and economic reform in China, one cannot expect a sophisticated legal framework and an investor- friendly business environment to emerge in the very near future.

#### *Short-term plan*

In the short-term the Government should take at least the following measures in order to improve the commercialization of the water sector.

- a. Set out objectives for the water sector, reflecting needs in different stages;

The government has to be clear on its objective in particular industry and the objective could meet specific or interim requirements along the entire process of sector reform. Objectives can be different to reflect levels of priority the government has for sector reform. For instance, the government could set its objective as increased operational efficiency while maintaining control over water supply and treatment. The government could also set attracting financing as its objective while increasing tariffs to the extent that is possible. It's also possible that the government wants to exit from the sector through the sale of water assets, but in this case, the government has to be prepared to handle the potential challenges arising from profit-driven operators offering services that the public has no choice to refuse. Without a clearly established objective, it's difficult for the government to choose between the various options available for commercialization of the water sector.

b. Develop concrete guidelines for PPP project development

General guidelines will not help very much for the government to regulate water sector. It is simply because the governments at different levels may have their own understanding of how these guidelines should be implemented. Based on the fact that institutional capacity varies from one government to another, it's necessary for MOC to develop fairly comprehensive and detailed guidelines for the sector.

c. Agree with other relevant agencies on approval processes for water projects

Coordinated government activities will be a great boost to investor's confidence. The State Council recently issued a directive of further reforming investment mechanisms which streamlined project approval process for most projects. But it still requires the project developer to file with relevant agencies which is still a considerable burden to investors. MOC should try to work out a special arrangement with most influential government agencies to create a single point of contact between the government and investors. When NDRC launched its BOT pilot program, there was a BOT Circular in place and NDRC was the main contact point on the government side. This was viewed as one of factor that helped make Chengdu water BOT project successful.

d. Select pilot programs tailored to specific situations

China is a large country in which imbalanced economic development is inevitable. A general guideline or one pilot program is therefore not able to cover unique needs of a specific region. Also, the government may have different objectives for different regions. For instance, in more developed regions, the government may want to get more cash through the sale of assets whereas in other regions the top agenda of the government is to install new capacity to process water. Different models should be created to tailor to regional government's specific requirements.

e. Form a dedicated task force

PPP project is very complicated even in a well-established business environment. A dedicated task force from MOC is needed to be responsible to design, develop, supervise and monitor the process. Without such a task force in place, institutional capacity of the government would hardly be strengthened.

*Long-term action plan*

a. Consolidating pieces of laws and regulations for the water sector

Comprehensive legal framework signals sophistication of a government. The government should set a target for bringing its pieces of laws and regulations together. Towards this target, a task force should be formed to work together with relevant agencies on a continuous basis. Regular communications among these agencies are critical to achieve the target.

b. Develop further local financial market

The variety of financial products available for PPP financing will have an impact on financing costs of PPP projects. Lending risks can only be diversified and allocated through a combination of financial products with different risk exposures. This is one of the key features of PPP projects.

c. Enhance the government's understanding of its role in offering public services

The government is likely to continue to be considered ultimately responsible for offering services such as water supply to a satisfactory standard and at an affordable price. This may conflict with the intention to get as much private investment as possible because private investment must seek commercial returns on its investment. The government should focus on its own full costs of offering the services, and not to speculate what costs private investors will bear. As long as the government can save costs by letting private investors offer such services, the government wins even if it has to still provide a subsidy to make the end user cost affordable.

d. Enhance creditability of the government

In past several years, particularly after the Asian Crisis, some municipal and provincial governments have defaulted in their obligations to some infrastructure projects. This has caused serious damage to the creditability of the country as a whole. To regain investor's confidence, the government needs to demonstrate outside that it is determined to honour commitments made to commercial projects. The increase of the government's creditability will help reduce project development costs, hence having general public benefit from lower price of services.