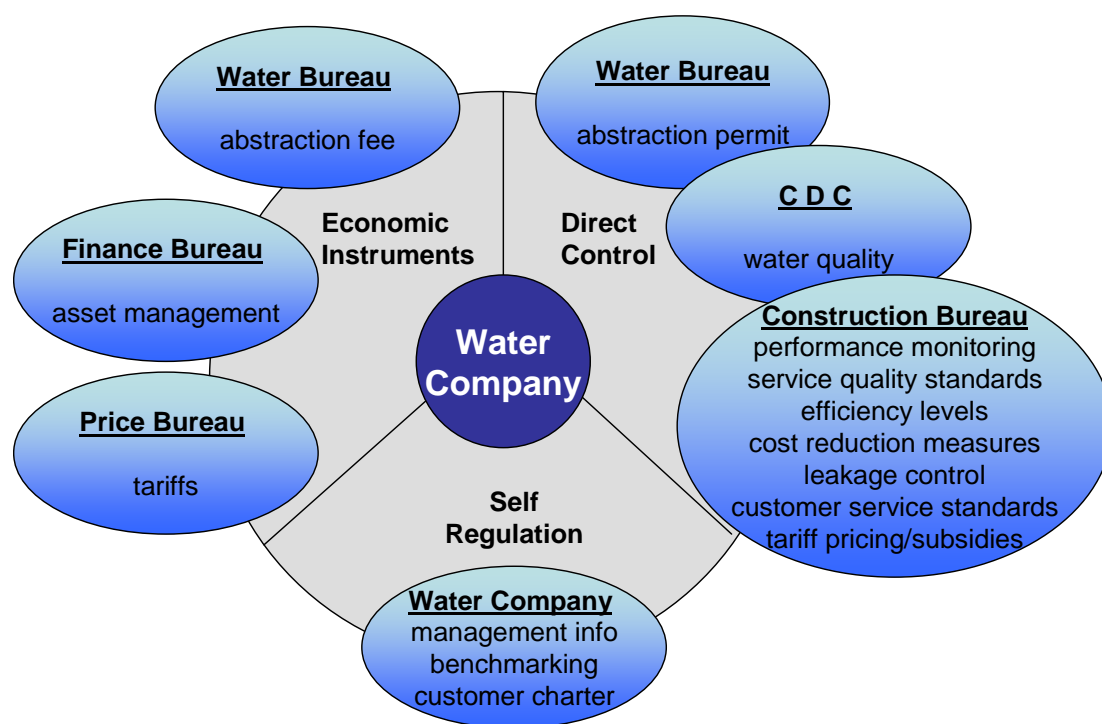


China – UK, WRDMAP Integrated Water Resources Management Document Series

Thematic Paper 4.3: Regulation of Small and Medium Sized Water Supply Companies

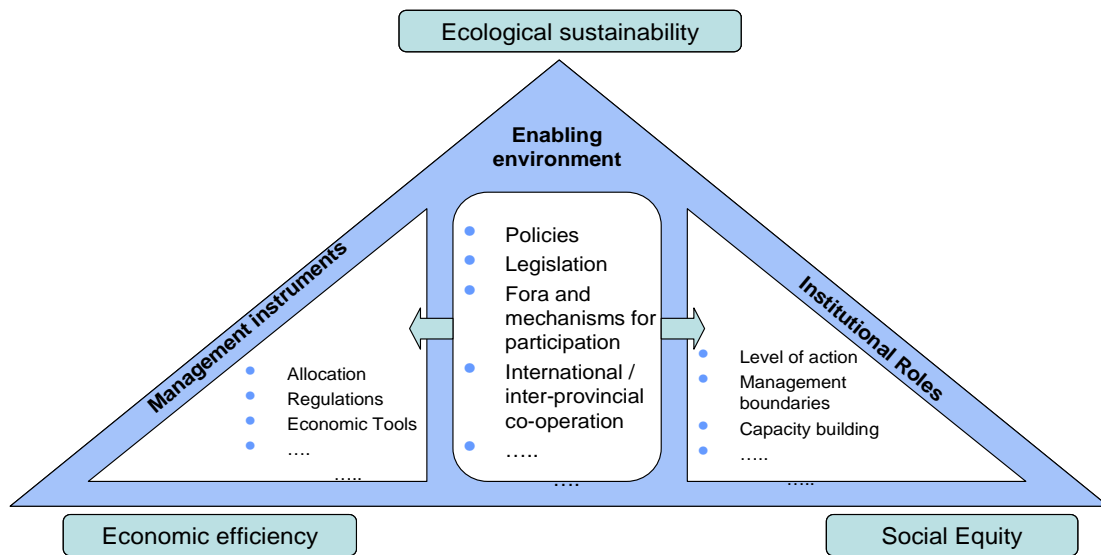
May 2010

4.
Permitting

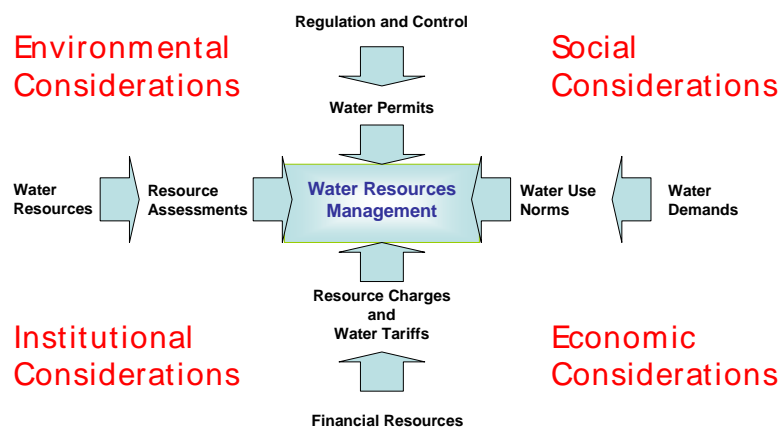


Integrated Water Resources Management (IWRM)

(Basics after Global Water Partnership)



Driving Elements of Integrated Water Resources Management



(Second figure after WRDMAP)

Summary: Internationally, the regulation of water supply service organisations is a vital component in ensuring good service delivery, the progression towards full cost recovery, and ensuring water demand management is effectively implemented.

This paper presents an overview of the steps which need to be taken to support the commercialisation of water service providers in the smaller towns and cities throughout China. It examines the policy and legislative background related to water supply and the existing regulatory arrangements. It also examines the present use of regulatory instruments (direct control, economic control and self-regulation) and assesses their effectiveness.

Recommendations are presented for the formation of a Provincial Regulator to drive forward the commercialisation of water companies and the development of a customer focused industry. It concludes by presenting an outline of the structure, tasks and skills associated with the creation of a Provincial Regulator.

The document covers the following topics:

- Introduction
- Legislative and policy background
- Regulation
- Regulation in other countries
- Current regulatory practices in China
- Models for effective regulation
- Office of the regulator

The Ministry of Water Resources have supported the Water Resources Demand Management Assistance Project (WRDMAP) to develop this series to support WRD/WAB at provincial, municipal and county levels in their efforts to achieve sustainable water use.

1 Introduction

Internationally, the regulation of water supply service organisations is a vital component in ensuring good service delivery, the progression towards full cost recovery, and ensuring water demand management is effectively implemented.

In China the central government has embarked on a series of reforms to achieve the nation's environmental and public health objectives. To give direction to these reforms the State Council (SC), National Development and Reform Commission (NDRC), Ministry of Housing & Urban-Rural Construction (MH&URC), State Environmental Protection Agency (SEPA) and other national government agencies have issued a variety of policy directives on water pricing, utility regulation, wastewater treatment, private sector participation, and other reform priorities.

Through these policies a vision of the sector is emerging where water supply and wastewater services are provided by utility companies operating under an effective regulatory system. These companies will generate revenues through user fees set at cost recovery levels, access capital markets for finance, and perform at high levels of efficiency. The vision entails the provision of safe and reliable drinking water to all residents, economically efficient storm water drainage, and the collection and treatment of all municipal wastewater.

China's water utilities face great challenges as they confront the reform process as they must provide services within a complex mosaic of policies and regulations provided by national and provincial governments. In China, as throughout the world, water is also

a sensitive social and political issue. Governments are keen to provide good water service, but are also attuned to the need to ensure that tariffs are socially acceptable.

Against this background municipal governments are responding to the challenge of improving the performance of urban water utilities by:

- ensuring that service standards, tariffs, and fiscal support are properly balanced to allow utilities to recover their costs
- putting pressure on utilities to consistently lower their operational costs and improve service delivery

It is envisaged that in the larger towns and cities the private sector could play a role in providing financial resources and expertise to support these reforms but in the smaller cities the reforms will focus on the commercialisation of existing state owned water service providers.

This paper focuses on the changes that need to be made to support the commercialisation and autonomy of service providers in the smaller towns and cities (population <500,000). It examines the policy and legislative background and the existing regulatory arrangements. It also examines the present use of regulatory instruments (direct control, economic control and self-regulation) and assesses their effectiveness. Recommendations are presented for strengthening of the regulatory regime with a view to driving forward the commercialisation of existing service providers and to preparing the way to perhaps attract private sector participation in the water supply sector.

2 Legislative and Policy Background

2.1 Introduction

The Water Law of 2002 provides the framework for a variety of policy papers issued by different ministries with responsibilities for various aspects of water supply. The protection of drinking water sources was strengthened in the Water Pollution Control Law 2008.

The State Council, the highest body of state administration, issued a Circular on 'Strengthening Urban Water Supply, Water Saving, and Water Pollution Prevention and Control' in 2000 which provides guidance for improving water and wastewater services.

The Ministry of Housing and Urban-Rural Construction, which has responsibility for overseeing development of the urban water infrastructure, has issued several policy papers relating to the regulation of water and sanitation utilities. The most significant of these are:

- Accelerating the Commercialisation of Public Utilities (MOC Policy Paper No.272, 2002)
- Measure on Public Utilities Concession Management (MOC Policy Paper No.126, 2004)
- Opinions on Strengthening Regulation of Public Utilities (MOC Policy Paper No.154, 2005)

A brief review of the main parts of these documents which relate to the regulation of water service providers is presented in the following sections.

2.2 Water Law

The Water Law was adopted by the National People's Congress in August 2002 and came into force in October 2002. Article 1 which describes the purpose of the law is shown below.

Box 1 Water Law 2002

Article 1: This Law is formulated for the rational development, utilization, preservation, and protection of water, for the prevention and control of water disasters, and for the sustainable utilisation of water resources in order to meet the needs of national economic and social development.

Whilst the Water Law's primary purpose is the rational and sustainable utilisation of water resources it does place a number of controls and obligations on local governments and water supply companies. Article 21 gives priority to allocation of water for domestic use of urban and rural inhabitants while Article 48 places an obligation on abstractors to obtain an abstraction licence and to pay the appropriate water resources fee. Article 52 requires water supply enterprises to strengthen the maintenance and management of water supply facilities and reduce the leakage and loss of water while Article 54 places an obligation on the people's governments at various levels to take active measures to improve the conditions of drinking water for urban and rural residents.

While none of these provisions has a direct bearing on the management and regulation of water supply companies, they do set broad parameters on the access to water sources and the provision of drinking water to households and industrial users.

2.3 Strengthening urban water supply and water saving

A circular on 'Strengthening Urban Water Supply, Water Saving and Water Pollution Prevention & Control' was issued by the State Council in November 2000. This historic circular sets the agenda for the period 2000–10 and calls for China to:

1. improve water supply planning and promote water conservation
2. enforce the existing "Law on Water Pollution Prevention and Control" and aim to achieve at least a 60 percent urban wastewater treatment rate by 2010
3. promote market-oriented tariff reforms to help attract private capital
4. improve sector governance and regulation

In particular, the circular confirms that urban water use shall have first priority in the allocation of water resources and that medium and long term plans should be prepared taking into account water demand and supply. Furthermore the circular calls on local governments to gradually increase the price of water and to reduce leakage in urban water supply distribution networks.

2.4 Accelerating the commercialisation of public utilities

The policy paper on Accelerating the Commercialisation of Public Utilities was issued by the then Ministry of Construction in 2002. The paper sets out to promote the development of urban public utilities through

franchising of water services either to the private sector or to existing state-owned enterprises. It presents a list of the key features to be included in any franchise contract which includes the quality of services, prices and fees, assets management and performance guarantees. The policy paper also stipulates that municipal utilities participating in business enterprises should get a reasonable return on investments, achieve operating profits and be truly autonomous and self financing.

The paper also states that where it is in the public interest for services to be provided at below cost the government should provide appropriate subsidies. The paper also recognises that there is a need to provide relevant legislation so that the responsibilities of investors, operators and managers are clearly defined.

In summary the paper sets out government's belief that public utilities, including water supply, should be managed efficiently and provided on a cost recovery basis and that this can be achieved by introducing competition in the provision of these services.

2.5 Measure on public utilities concession management

The 'Measure on Public Utilities Concession Management' was issued by the Ministry of Construction in February 2004 and came into effect in May 2004. The purpose of the paper was to 'accelerate the market, regulate municipal utilities franchising activities and enhance market supervision, social protection of the public interest and public safety, and promote the healthy development of municipal utilities'.

In essence the document sets out the procedures to be followed and the factors to be considered when awarding franchises for public utilities, including water. The factors include service standards, determination of prices, performance guarantees and customer complaints. These provisions provide a good guideline as to the standards of services expected of utility providers whether they be a private or public enterprise.

2.6 Opinions on strengthening regulation of public utilities

'Opinions on Strengthening Regulation of Public Utilities' was issued in 2005 to '*speed up the municipal utility market and promote the healthy development of municipal utilities*'. The document noted that in order to safeguard the interests of the people and ensure the safe operation of municipal utilities, municipal governments must effectively strengthen supervision of these enterprises. Features which were identified as needing regulation included: market entry and exit control, safety supervision, quality of products and services, prices and fees.

Although the focus of the document appears to be on the role of local governments in the regulation of franchise holders, it emphasised the need for local governments to establish a sound monitoring system so that they could strengthen their supervision of public service providers. The document, therefore, provides further guidelines on what features of service provision should be regulated.

2.7 Summary

Although neither the Water Law nor the State Council and MOC policy papers define in detail the regulatory regime necessary to promote the commercialisation of water services either through private sector participation or by state owned enterprises, they do describe government's vision of how commercial interests can be harnessed to improve service delivery. In addition, by stressing the need for cost recovery, waste reduction and supervision of public service providers, the documents provide a foundation on which proposals for the regulation of water companies can be developed.

3 Regulation

3.1 Purpose of regulation

Water, like most network industries is a natural monopoly i.e. it is more economical to have a single supplier rather than duplicating expensive infrastructure. In a monopoly situation there is no competition to force the supplier to operate efficiently and so economic regulation is necessary to protect consumers from excessive pricing.

At the same time, where prices are controlled by regulation rather than competition, the financial viability of the provider needs to be assured with the ultimate goal being to guarantee a realistic return on investments so that the company is financially sustainable and, in some cases, attractive to the private sector.

Furthermore, it is increasingly recognised that water services are a political good and that it is unrealistic to expect water providers to be completely isolated from the political

realm although it may be necessary to moderate political interference. Regulation by government appointed agencies is generally accepted as an appropriate means of isolating service providers from day to day interference by political masters.

In addition, as competition for water resources increases and the demand for good quality water outstrips supply, controlling demand and providing incentives for demand management become increasingly important. Regulatory instruments provide a useful set of tools for managing demand.

There are many forms of institutional arrangements for regulating water services in place in different parts of the world. To succeed, the regulator must be not only competent but also fair. To ensure that this impartiality is visible, the regulator should be free from direct government control and the decision making procedures transparent.

These principles are inherent in the MOC Policy Papers discussed in the previous section.

3.2 Regulatory instruments

A wide range of regulatory instruments are at the disposal of authorities when setting up water management structures and procedures. These commonly fall into three main groups: direct controls, economic instruments and encouraged self regulation. In practice, authorities typically need to employ a mix of instruments to achieve effective and low-cost regulation of water use.

Until recently, most governments have focussed primarily on direct regulation in the water resources management sector. However, economic

instruments offer several advantages such as providing incentives to change behaviour, raising revenue to help finance necessary investments, establishing user priorities and, in many cases, achieving management objectives at the lowest possible cost. Encouraged self regulation promotes the use of good management practices to improve technical and financial performance

Direct control

Direct control is achieved by government bodies or independent regulatory agencies establishing laws, rules or standards which water and land users and water service providers are required to follow. This is often known as command and control regulation. Such regulations might, for example, include the specification of drinking water quality standards; controls over land use and development within catchments and flood plains; controls over the quantity and timing of private water abstractions; and controls over the quantity, quality and timing of waste discharges into the water environment.

Direct regulation can only be effective if the agency involved has enforcement capacity and the regulations are regarded by the regulated and the general public as necessary and appropriate. Over-stringent regulations which impose high costs on the regulated utility can lead to non-compliance or evasion, so undermining the whole regulatory endeavour.

Typical rules and standards used as direct control in the water supply sector include regulations for:

- water quality – standards to ensure public health and prevent the spread of water borne diseases

- water quantity – minimum standards of availability and pressure of supply
- service levels – hours of supply, planned and unplanned interruptions
- non-revenue water - acceptable levels

In addition, performance targets may be set to encourage and reward improved efficiency and service delivery.

Economic instruments

Economic instruments such as tariff control are often employed in conjunction with direct regulations to influence the performance of water service providers. They can also be used to influence the behaviour of water consumers with stepped tariffs which discourage misuse and a lifeline tariff which protects the poor from paying unaffordable prices.

In general, water services should be priced to ensure full cost recovery. However, as water service providers, whether a government agency or a privatised entity, mostly operate in a monopoly situation there is a need to ensure that they are competently managed and costs are not allowed to rise due to technical or management inefficiencies. Regulatory control over prices can allow for price changes to be linked to improved performance, e.g. active leakage control, with savings shared between the service provider and the customer.

Self-regulation

Self regulation is closely associated with ensuring that the utility provider adopts best practice management throughout the company. Best

practice management includes aspects such as:

- a robust management information system integrating business processes and information across the entire business chain (suppliers, internal departments, customers, etc.) so that information is reliable and readily available to support management in decision making
- benchmarking activities or outcomes against peer group service providers to highlight areas of poor performance
- customer focused service delivery to ensure that the utility is geared to meet the needs of customers rather than the workforce - often expressed through a Customer Charter or Code of Practice
- twinning or partnering with a successful water provider for exchanging experiences and perhaps capacity building programmes.

4 Regulation in Other Countries

Throughout the world there is a wide divergence on how water services are provided. In many countries services are provided at the local level directly by the local authority or a publicly owned utility company while in others the private sector plays a major role. The UK alone has adopted three different approaches to satisfy local political, social and economic considerations in each of the nations: England (full privatisation of assets and operations), Scotland and Ireland (state ownership and full cost recovery), Wales (community ownership and not for profit operations).

In former centrally controlled economies like Russia, Romania and Ukraine most local authorities provide water services through parastatal companies (Vodokanals/Regie Autonoma) whose operations are generally subsidised. In developing countries services are often provided by national or regional parastatals (Uganda/Tanzania) or municipality owned companies (Zambia). Asia and South America have also adopted a range of approaches but have largely favoured municipal level operations and regulation.

In summary, each country has developed a different approach to service delivery which takes into account their social, political and economic attitude to asset ownership, management style, private sector interest, cost recovery and subsidies.

This wide variety of service delivery mechanisms has given rise to an equally wide variation in the forms of regulation. In general, the more progressive and liberalised the economy the more likelihood there is of price and quality of water services being regulated by someone other than the service provider. Successes and failures in OECD countries indicate that effective regulation requires that: responsibilities of sector institutions are well defined; national quality and environmental standards are established; monitoring and evaluation capacities are well developed and, above all, transparency and independence are clearly visible.

These scenarios indicate that to be successful any changes in the way that water services are delivered and regulated need to take into account local history, politics, economics and cultural preferences.

5 Current Regulatory Practices in China

5.1 Local government agencies

Provision of water services is the responsibility of local level governments. Typically, water services are provided by an Undertaking Unit (UTU) or a State Owned Enterprise (SOE), both of which are government enterprises operating as semi-autonomous agencies and are expected to finance all or part of their operations with revenue raised from customers. A UTU is often supported by direct or indirect subsidies (such as staff salaries paid by the local administration or annual budget support) but a SOE is expected to be financially self sufficient with regard to operations and maintenance costs. In both cases development costs are financed from local, provincial or national government sources. In practice many water companies

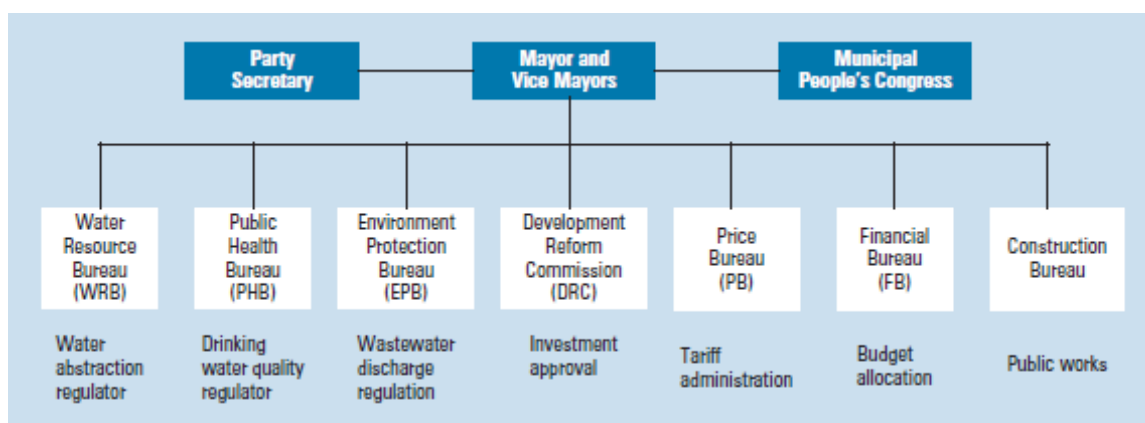
operating as SOEs fail to generate sufficient revenue and have accumulated considerable deficits.

Water companies are supervised by a parent bureau, often the Construction Bureau but also commonly the Water Resources Bureau (in some areas called the Water Affairs Bureau). The role of the supervisor is generally considered as being to coordinate the activities of the water company with other government agencies and bureaux rather than to 'regulate' them in the sense of ensuring quality service delivery and encouraging efficiency.

Other government bureaux also have a supervisory or regulatory role. The agencies associated with supervision of the various activities related to water services are shown in Figure 1 for a typical local administration.

The general functions of the various agencies are outlined in Box 2.

Figure 1: Local Administration Agencies



Box 2 General functions of key Municipal Agencies

Construction Bureau (CB)

The Construction Bureau is responsible for overseeing the provision of basic infrastructure for a city, including roads, parks, water, wastewater, solid waste, gas, heating, etc. It also often plays an important role in guiding real estate development. There are usually departments for public works such as roads, parks, drains, solid waste, and utility companies for water, wastewater treatment, and heating. There is a wide variety in the ways cities are organized to provide infrastructure services. In large cities, a construction commission may be responsible only for policy and planning, while a construction bureau (the terms urban management bureau or municipal engineering bureau are also used) is responsible for construction and management.

Development and Reform Commission (DRC)

DRC evolved from the former Planning commission, and is responsible for approving all municipal government investment proposals and leading the reform from a planned economy to a market economy. All major infrastructure investments must be reviewed and approved by the DRC. The DRC also takes a leading role in allocating and managing investment funds for government-sponsored investment projects, including foreign-funded projects.

Municipal Finance Bureau (MFB)

The bureau is responsible for overseeing the financial affairs of the city, including taxation, budget allocation and control, and disbursement of foreign funds. It provides equity contributions for water and wastewater investments, as approved by the DRC, and in some cases allocates operating budget support for urban water utilities.

Price Bureau (PB)

In the past, the bureau administered the pricing system for all goods and services. Its role has been gradually transformed to administering public utility prices and managing local inflation. In many cities, the PB has been incorporated into the DRC, acknowledging that economic reform requires market forces to determine prices.

Environmental Protection Bureau (EPB)

EPB is responsible for overall environmental management in a municipality, including approving environmental assessment reports, monitoring and controlling industrial discharges into both the environment and municipal drainage system, and monitoring municipal wastewater treatment plants.

Water Resources Bureau (WRB)

WRB is responsible for flood control, riverbank works, irrigation, and development of raw water supplies. Since water resources infrastructure tends to be on a large scale, provincial WRBs are generally large and well-funded. Municipal WRBs focus more on local flood control, irrigation, and intercity canals. In some cities, the municipal WRB has been transformed into a Water Affairs Bureau responsible for water and wastewater services.

Public Health-CDC

Centre for Disease Control (CDC) is an Undertaking Unit within the Public Health Bureau with responsibility for routine testing of drinking water to ensure compliance with national quality standards.

Source: Improving the Performance of China's Urban Water Utilities, Browder et al, World Bank. Washington, 2007.

In general regulation, or more appropriately supervision, is 'light touch' in that the supervisory agencies rarely set challenging targets for the water companies. Regulation is most effective in areas such as water quality where standards are clearly defined at national level and the consequences of a failure to comply could have an impact on public health. In other areas where performance or quality targets are set they are usually negotiated between the water company and the regulating agency. They are rarely challenging and do little to encourage efficiency or service improvements.

6 Models for Effective Regulation

The present light touch approach to regulation of water companies has failed to promote the commercialisation of water services envisioned in the policies of the Ministry of Housing & Urban-Rural Construction. Whether the long term goal is to attract the private sector to participate in the delivery of water service or to improve the performance of state owned water companies, there is a need to create a regulatory regime that offers incentives and rewards for efficiency improvements while at the same time ensuring quality of service delivery.

At the same time, customers have to be protected from excessive pricing while the company has to be allowed to generate sufficient revenue to recover costs. Local governments have the final say in tariff approvals and some may chose to maintain water charges at below cost recovery level and subsidise the operations of the water company. In these situations, the Regulator will determine the amount of subsidy required by the company to ensure operating costs are

covered. The involvement of the Regulator will protect the local government by ensuring that the subsidies are not being used to finance inefficiencies in the management of the company.

The core of the regulatory process will be a Performance Contract between the Regulator and the water supply company. The Performance Contract will set levels of service for a limited number of key performance parameters. Other subsidiary Regulators, such as CDC, will continue to monitor performance as at present but will report their results to the Regulator so that it can form a comprehensive picture of the performance of the water company.

Typical parameters which would form the basis of the Performance Contract are shown in Box 3. In determining the key parameters the emphasis should be on outcomes rather than inputs, e.g. it is not the Regulator's job to fix the number of staff employed (an input) but it is his job to ensure that the company keeps supply interruptions to an acceptable duration (an output).

Box 3 Performance parameters

Water

- hours of supply
- supply interruptions (unplanned)
- supply pressure
- leakage
- water quality

Customer Service

- complaints response time
- billing errors/enquiries
- ease of contact

The Regulator will also assess the water company's operational costs and, allowing for efficiency improvements, will determine the tariffs necessary to cover these costs. The local government will then have the choice of recovering these costs through water charges or of keeping prices at lower levels and making up the difference through a subsidy to the water company. This arrangement allows the local government to retain control over local pricing but ensures that the water company is assured of the funds it needs to operate and maintain the water system.

Likewise, the Regulator will have a role in assessing the investment needs of the water company. In some cases this will be carried out in conjunction with the local level Finance Bureau. This arrangement will prevent the water company from promoting projects while efficiency improvements could yield the same results. A typical example of this situation is where a water company prefers to develop a new water source rather than reduce water lost through leakage in the distribution networks.

Three models are recommended for the Regulator:

- Model 1 – strengthen existing local level agencies so that they are experienced in the use of regulatory instruments
- Model 2 – create a new local level agency to regulate all public utilities (water, wastewater, bus transport, gas, heating etc.)
- Model 3 – create a provincial or prefecture level agency to regulate water services throughout the province

The characteristics of each model are described in the following sections.

Model 1 – Strengthen existing agencies

In this model the existing local government agencies continue to carry out their present supervisory functions but are assisted by developing their capacity to operate as effective regulators.

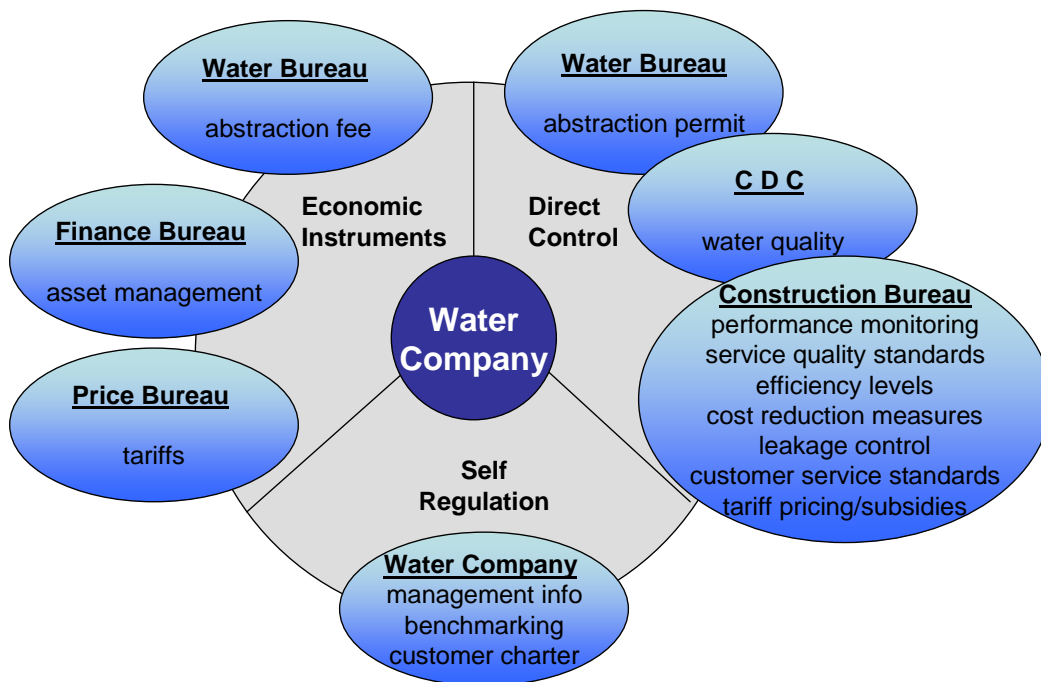
At local level the main regulators and their principal functions are:

| Agency | Principal Function |
|----------------------------|--|
| Construction Bureau | Setting performance standards Monitoring performance Monitoring leakage control Monitoring customer satisfaction Setting tariffs/subsidies |
| Water Affairs Bureau | Allocating water resources Setting and collecting abstraction fee Monitoring waste/water saving |
| Centre for Disease Control | Monitoring water quality |
| Finance Bureau | Approving asset management plans/investments Approving operational subsidies |
| Price Bureau | Administering and approving tariff changes |

As the principal Regulator, the Construction Bureau will influence and monitor the performance of the water company through a Performance Contract while other agencies will continue to monitor performance against national and other established standards.

The main functions of each Agency and the role they will play in implementing the three regulatory instruments are shown in Figure 2.

Figure 2: Model 1 – Existing local agencies



Model 2 – Create local level multi-sector agency

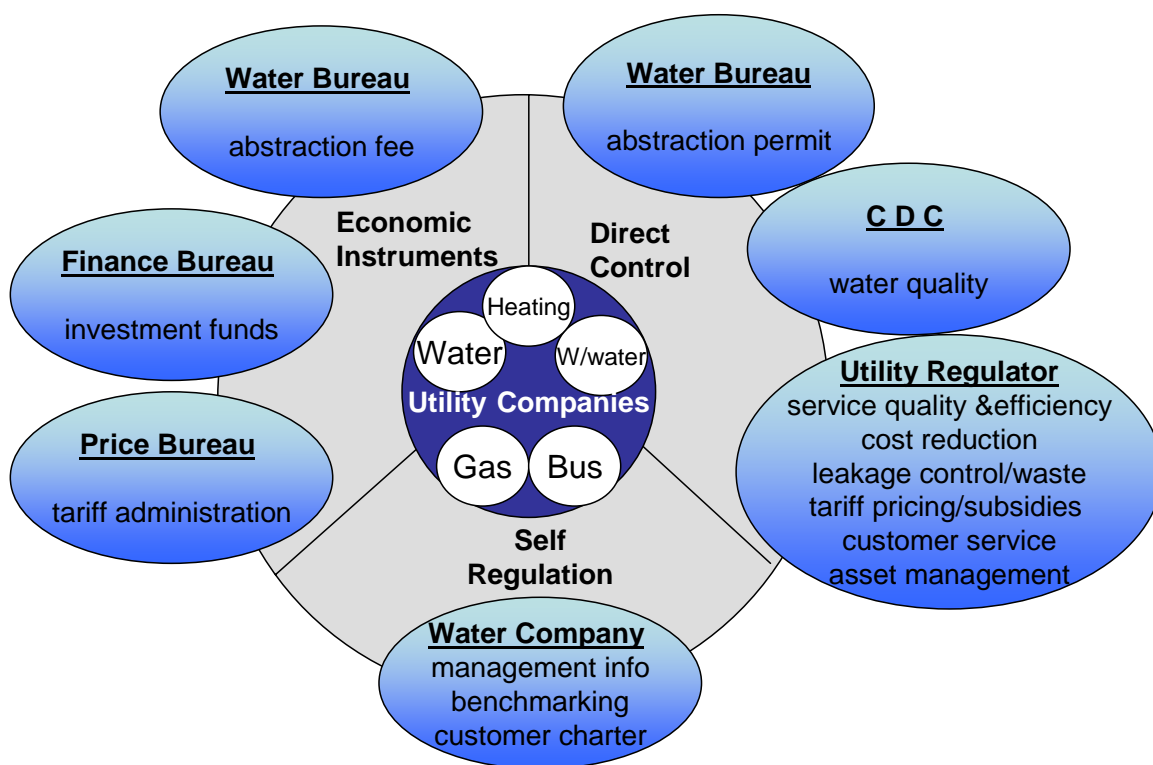
In this model a new Agency is created at local government level to act as a Utility Regulator to oversee the performance of all public utilities, i.e. water, wastewater, heating, gas, bus transport, etc. The principal function of the Regulator will be to ensure efficient management of the utilities so that the monopoly status of the utilities is not abused. The appointment of a Utility Regulator will not absolve the utilities from complying with national standards and several existing local agencies, such as CDC, will continue to supervise compliance with national standards. These local agencies will provide the Regulator with information on the performance of the utility.

The functions of each Agency and the role they play in implementing the three regulatory instruments for water companies are shown in Figure 3. In this arrangement the new Utility

Regulator could be attached to the mayor’s office.

| Agency | Principal Function |
|----------------------------|---|
| Utility Regulator | Setting performance standards Monitoring performance Monitoring waste/leakage control/water saving Approving asset management plans/investments Approving tariff calculations/operational subsidies |
| Water Affairs Bureau | Allocating water resources Setting and collecting abstraction fees |
| Centre for Disease Control | Monitoring water quality |
| Finance Bureau | Facilitating access to investment funds |
| Price Bureau | Administering tariff changes |

Figure 3: Model 2 – Multi-sector local regulator



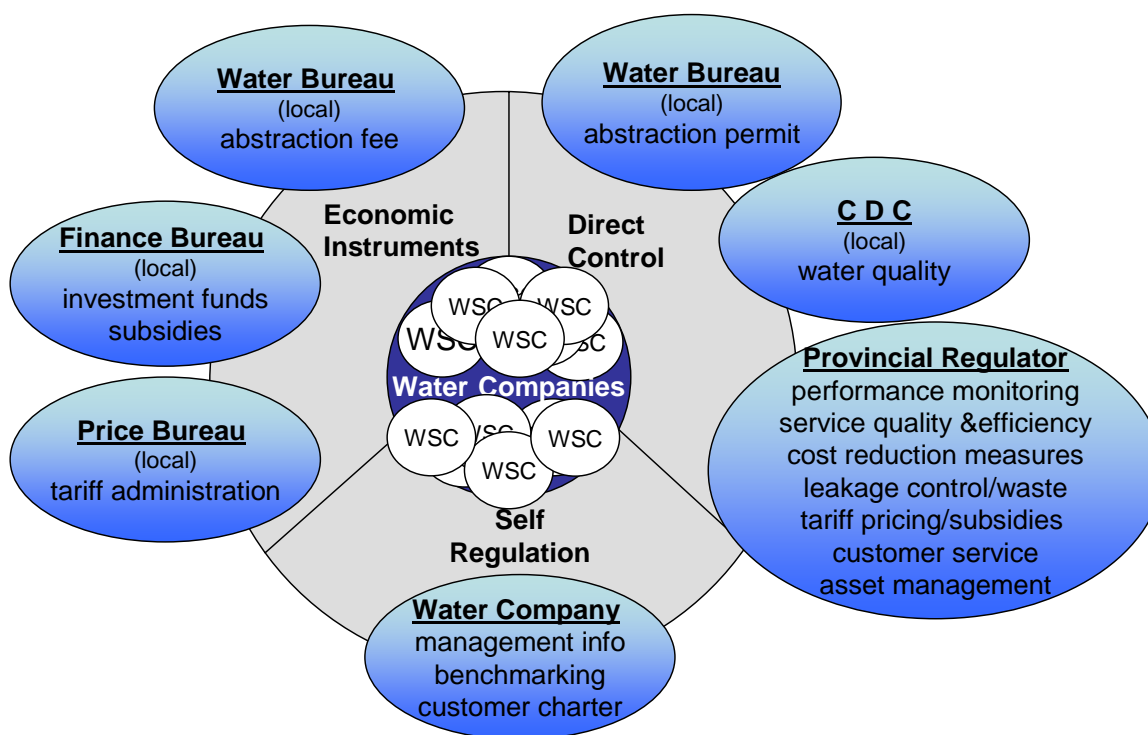
Model 3 – Create Provincial level water regulatory agency

In this model a new Agency is created at Provincial or Prefecture government level to act as a Regulator for all water utility providers in the province/prefecture. The principal function of the Regulator would be to ensure efficient management of the water companies so that the monopolistic status of the utilities is not abused. The appointment of a Utility Regulator will not absolve the companies from complying with national standards and existing local agencies will continue to supervise compliance with national standards. These local agencies will provide the Regulator with information on the performance of the water companies.

| Agency | Principal Function |
|------------------------------------|--|
| Provincial Regulator | Monitoring performance Approving asset management plans/ investments Approving tariff calculations/operational subsidies Approving franchises |
| Water Affairs Bureau (local) | Allocating water resources Setting and collecting abstraction fees |
| Centre for Disease Control (local) | Monitoring water quality |
| Finance Bureau (local) | Facilitating access to investment funds Financing subsidies |
| Price Bureau (local) | Administering tariff changes |

The functions of each Agency and the role they play in implementing the three regulatory instruments are shown in Figure 4. In this arrangement the new Utility Regulator could be attached to the DRC.

Figure 4: Model 3 - Provincial/Prefecture water regulator



Comparison of models

Implementing any one of the three models will lead to an improvement in the present regulatory regime. However, each model has particular advantages and disadvantages over the others (see Table 1).

The main disadvantage of Model 1 is that considerable effort will be required to provide existing agencies with the skills and expertise required. It is unlikely that sufficient resources will be available to develop the wide range of skills required of an effective Regulator. The main advantage of this model is that it is administratively easy to implement.

Although Model 2 will also require considerable effort in capacity building it has the advantage over Model 1 in that the expertise will be concentrated in one agency and will be more widely used as the Regulator will be responsible for a number of utilities. A particular advantage of Model 2 is that

it allows water sector reform to be integrated with other sector reforms within the local administration. The main disadvantage is that creation of a new agency will be difficult to implement and may meet resistance from existing agencies who will jealously guard their present roles.

Model 3 requires the most far reaching changes and may well generate considerable resistance from local administrations who feel that they are losing control over an essential service. The main advantage of this model is that a Provincial agency will be of a size that justifies the creation of a highly skilled multi-disciplinary team with the range of expertise necessary for independent and effective regulation. Furthermore, a Provincial agency will have direct access to data from many water supply companies thus facilitating the performance benchmarking system, a key tool used by the Regulator to identify areas for individual company performance improvement and efficiency savings.

Table 1: Comparison of Models

| Model | Advantages | Disadvantages |
|---|--|---|
| Model 1: Existing local agencies | <ul style="list-style-type: none"> • Uses existing agencies and so can be implemented with relative ease • Develops capacity of existing agencies to the benefit of other sectors • Maintains control within the local administration which should limit political resistance • Allows local factors and conditions to be fully recognised • Integrates water with other sector reforms | <ul style="list-style-type: none"> • Requires considerable capacity building to provide necessary expertise • Requires cooperation from several agencies • Limits perceptions of independence for Regulator • Requires considerable sharing of data and other information |
| Model 2: Local Multi-Sector agency | <ul style="list-style-type: none"> • Integrates water with other sector reforms • Introduces new agency with fresh approach • Concentrates capacity building needs in one agency • Maintains control within the local administration which should limit political resistance • Allows local factors and conditions to be fully recognised | <ul style="list-style-type: none"> • Requires creation of new agency which may cause delays in implementation • Creates potential for resistance from existing agencies |
| Model 3: Provincial/Prefecture Water Regulator | <ul style="list-style-type: none"> • Promotes reform throughout province • Allows consistent approach throughout province • Introduces new agency with fresh approach • Concentrates capacity building needs in one agency • Supports independence of Regulator | <ul style="list-style-type: none"> • Requires creation of new agency which may cause delays in implementation • Creates potential for resistance from existing agencies • Reduces local participation |

The preference would be for regulation at provincial rather than prefecture level as this would enable the Regulator to be well staffed and resourced at the minimum cost. The large number of prefectures (287) and the limited amount of regulatory and oversight expertise available would make the creation of prefecture level regulatory agencies expensive and difficult. The remit of the 30 or so provincial level Regulators would cover urban populations of some 12 million on average which would make them equivalent to national level regulators in many countries. Furthermore, provincial level regulation would be consistent with MH&URC policy which states that provincial construction agencies should be responsible for guiding and supervising municipal public utilities within their jurisdiction.

7 Office of the Regulator

Experience in other countries indicates that it can take 5 to 10 years for the Regulator to develop sufficient capacity and experience to establish a regime that is effective in promoting economic efficiency while at the same time protecting the interests of consumers and the financial viability of efficient suppliers. This section describes in outline the structure and main tasks of a potential provincial level Regulator (Model 3) together with a description of the tools it will require. It is anticipated that the office of the Regulator will begin as a small unit, initially supervising a few water companies, and adding staff and expertise over a period of time as additional companies are brought under the supervision of the Regulator.

Table 2: Provincial Regulator (Model 3) - Tasks and Skills

| Department | Tasks | Skill Sets |
|------------------------------------|---|---|
| Corporate Affairs & Administration | General administration Financial administration External relations Policy coordination Legal services Human resources Documentation archiving Information management | Management Administration Financial management Accounting Public relations Media relations Legal Personnel Management Archivist Computer |
| Regulatory Finance | Business affairs Financial modelling Pricing/tariffs assessment Investment strategies Enforcement | Management Financial management Economics Strategic planning |
| Network Regulation | Performance contracts Monitoring/ benchmarking Asset management strategies Efficiency improvements Water savings/leak reduction measures | Water management Asset management Economics |
| Consumer Protection | Service provision monitoring Complaints and dispute resolution Water charges/affordability | Economics Consumer law Dispute resolution |

7.1 Staffing

Creation of a Provincial level regulator will enable the office of the Regulator to be adequately staffed with the required mix and range of skills necessary for effective regulation. Based on models adopted internationally a Provincial regulator will require a staff of about 40 to 50 people to supervise all water supply companies in a province.

An outline of the tasks to be carried out and the skills sets required is given in Table 2 to demonstrate the diversity of expertise which will be required.

7.2 Performance contracts

One of the main tools of the Regulator will be a Performance Contract entered into between the Regulator and individual water companies. As described in Section 5 - Models for Effective Regulation, the Performance Contract will set levels of service for a limited number of key performance parameters. The number of performance indicators should be limited and should focus on parameters that have a direct impact on the quality and cost of services. The tendency to micro-management the water companies by defining inputs rather than outputs must be resisted. It is not the role of the Regulator to force companies to conform to some arbitrary norm and they should be encouraged to develop their own individual management styles.

The Key Performance Indicators (KPIs) should focus on service delivery outcomes rather than the means of producing the outcomes. KPIs need to

be assessed individually for each water company and should be challenging but not unachievable. KPIs should be used to monitor the overall performance of the company and not the individuals employed in the company. They should not be used to determine staff payments or bonus as is reportedly the practice with current targets. Monitoring and rewarding staff performance is the responsibility of the water companies not the Regulator.

Typical KPIs that embrace the crucial financial and service outcomes are given in Table 3.

In setting the KPIs the Regulator will need to take into account the resources available to each water company. In particular, when setting the hours of supply, recognition should be made of any water resource constraints which prevent a company from providing the required level of service. Moreover, when setting the population served, the Regulator may need to take account of the financial resources needed to extend the distribution network into new areas before a company can increase the number of customers.

Using the above KPIs to monitor compliance does not prevent the Regulator from collecting other information (such as staff/1,000 connections, meters installed, etc) to enable him to assess the management efficiency of a water company, but these should not be used to measure compliance with the performance contract. They may, however, be used in determining whether the company's tariff proposals are to be approved.

Table 3: Typical Water Supply Performance Indicators

| | KPI (unit) | Calculation | Measures |
|-----------|--|---|--------------------------------------|
| Financial | Collection ratio (%) | Collections/billing | Collection efficiency |
| | Working ratio (%) | Operational expenses/income | Overall financial situation |
| | Arrears (months) | Billings outstanding/monthly billing | Outstanding debt |
| | Distribution and sales cost of water (RMB/m ³) | Cost of distributing and selling water/water sold | Administration and overhead costs |
| Service | Interruptions to supply (hours) | Nr. of hours supply available | Reliability of service |
| | Population served (number) | Count of population served | Extent of service coverage |
| | Failures to meet water quality standards (%) | Number of samples failing to meet the specified standard/total nr. of samples tested for each parameter | Effectiveness of treatment processes |
| | Unaccounted for water (%) | Total sales/water produced | Overall efficiency |
| | Population served | Number | Extent of service coverage |

7.3 Benchmarking

The terms performance indicators and benchmarking are often loosely used and commonly interpreted to mean the same. Although they frequently measure and record the same parameters, indicators and benchmarks are two distinctly different management tools that are used for different purposes. It is important to distinguish between the two:

- **Performance indicators** are a measure of how well an activity is being performed against an established target and, in the utilities sector, a range of indicators is often used by the Regulator to assess how efficiently and effectively a utility is performing against targets set in an operators licence or performance contract.
- **Benchmarking** is a continuous structured process of identifying, understanding and adapting best practices of industry leaders in order to help an organisation improve its performance.

Benchmarking and knowledge of best practice is important for all water and sanitation utilities as it:

- helps managers to understand the performance of their utility relative to others
- facilitates the sharing of best practice information
- supports decisions to improve performance

The Regulator will make use of both Performance Indicators and Benchmarking. As described above the KPIs will be used to monitor compliance with the Performance Contract. The Regulator will use benchmarking to assess the performance of companies in relation to each other to assist in identifying good practice and opportunities for efficiency savings.

The International Benchmarking Network for Water and Sanitation Utilities (IBNET) is supported by the World Bank and 37 water companies in China already participate in sharing information. Initially the Regulator and

the water companies can participate in the IBNET programme but ultimately the Regulator should develop his own database so that confidential and sensitive information can be securely stored.

The core benchmark indicators collected by IBNET are shown in Box 4 and serve as a sample of the types of information the Regulator should collect to assess the efficiency of individual water companies.

Box 4 IBNET Benchmark Indicators

- Service coverage
- Quality of service
- Water consumption and production
- Billing and collections
- Non revenue water
- Financial performance
- Metering practices
- Assets
- Pipe network performance
- Affordability of service
- Cost and staffing
- Process indicators

7.4 Pro-poor regulation

The drive for commercialisation of water supplies can lead to the poorer sectors in the community receiving sub-standard services - often at high cost. To ensure that the poor are adequately provided for, the regulatory framework should be designed to increase access to services and

improve the availability, affordability, and sustainability of these services.

This can be achieved by:

- creating incentives (or obligations) for operators to improved access by extending services to poor areas
- allowing a flexible approach to service quality to encourage experimentation while respecting basic quality requirements
- establishing tariff levels and structures that encourage access to services without jeopardising financial stability

In establishing appropriate tariffs the Regulator needs to ensure that any sub-economic pricing is closely targeted at the needy rather than having everyone benefit. Alternative forms of subsidy for the poor, which take into account ability to pay, should be explored in consultation with the Price Bureau and other sector bodies.

7.5 Consumer consultative council

One of the roles of the Regulator is to represent the interests of consumers. In other countries this is fulfilled through the formation of a Consumer Consultative Council or similar body. In the initial years the Regulator could gather customer views and opinions through the local Consumer Protection Associations but, in later years as customer expectations rise, it may be appropriate for the Regulator to support the creation of local or regional Water Consumer Consultative Councils.

Document Reference Sheet

Glossary:

| | |
|---------|--|
| CB | Construction Bureau |
| CDC | Centre for Disease Control |
| DRC | Development and Reform Commission (Municipal agency) |
| EPB | Environmental Protection Bureau |
| IBNET | International Benchmarking Network for water and sanitation utilities |
| KPI | Key performance indicator |
| MEP | Ministry of Environmental Protection (formerly State Environmental Protection Agency - SEPA) |
| MFB | Municipal Finance Bureau |
| MH&URC | Ministry of Housing & Urban-Rural Construction |
| MOC | Former Ministry of Construction (now the Ministry of Housing & Urban-Rural Construction) |
| NDRC | National Development and Reform Commission |
| OECD | Organisation for Economic Cooperation and Development |
| PB | Price Bureau |
| SC | State Council |
| SOE | State Owned Enterprise |
| UTU | Undertaking Unit |
| WAB/WRD | Water Affairs Bureau/Water Resources Department |

Document Reference Sheet

Bibliography:

Improving the Performance of China's Urban Water Utilities, Browder et al, World Bank, Washington, 2007

Taking Account of the Poor in Water Sector Regulation, Water Supply & Sanitation Working Note 11, World Bank, Washington, 2006

Review of Regulatory Reform in China - Defining the Boundary between the Market and the State, OECD, 2009

Regulation of Public Services in OECD Countries, OECD, Nov 2007

Private Funds for Cleaner Water—BOT Applied in the Chinese Wastewater Sector, Duenas, Asian Development Bank, Feb 2007, [<http://www.adb.org:80/water/actions/prc/private-funds.asp>]

Briefing Note 4 in the China Water Sector Briefing Note Series, DFID/MWR, 2006

Integrated Water Resources Management Toolbox, Global Water Partnership

Water as a Political Good: Revisiting the Relationship between Politics and Service Provision, Klaas Schwartz and Marco Schouten, Water Policy Vol 9 No 2 pp 119–129

IBNET <http://www.ib-net.org/>

Related materials from the MWR IWRM Document Series:

| | |
|--------------------|--|
| Thematic Paper 3.2 | Urban Water Supply Demand Management |
| Thematic Paper 3.3 | Active Leakage Control as a Key Component in Increasing Efficiency in Urban Water Supply |
| Advisory Note 5.4 | Tariff Setting for Small to Medium Size Water Supply Company |
| Advisory Note 5.5 | Willingness to Pay Surveys (Urban Water Supply) |
| Thematic Paper 5.7 | Financial Management and Modelling in Small and Medium Water Supply Companies |

Where to find more information on IWRM – recommended websites:

Ministry of Water Resources: www.mwr.gov.cn

Global Water Partnership: www.gwpforum.org

WRDMAP Project Website: www.wrdmap.com

China – UK, WRDMAP

Integrated Water Resource Management Documents

Produced under the Central Case Study Documentation Programme of the GoC, DFID funded, Water Resources Demand Management Assistance Project, 2005-2010.

Documents will comprise of:

Thematic Papers

Advisory Notes

Manuals

Examples

Training Materials

4.
Permitting

IWRM Document Series materials, English and Chinese versions, are available on the following project website

WRDMAP Project Website: www.wrdmap.com

Advisory Services by : Mott MacDonald (UK) leading a consultancy team comprising DHI (Water and Environment), HTSPE (UK), IWHR, IECCO (Comprehensive Bureau), CIAD (China Agricultural University), Tsinghua University, CAAS-IEDA, CAS-CWRR, Gansu WRHB and Liaoning WRHB.

