Introducing New Mechanisms into Water Pricing Reforms in China

Dajun Shen
School of Environment and Natural Resources
Renmin University of China
dajunshen@yahoo.com

contents

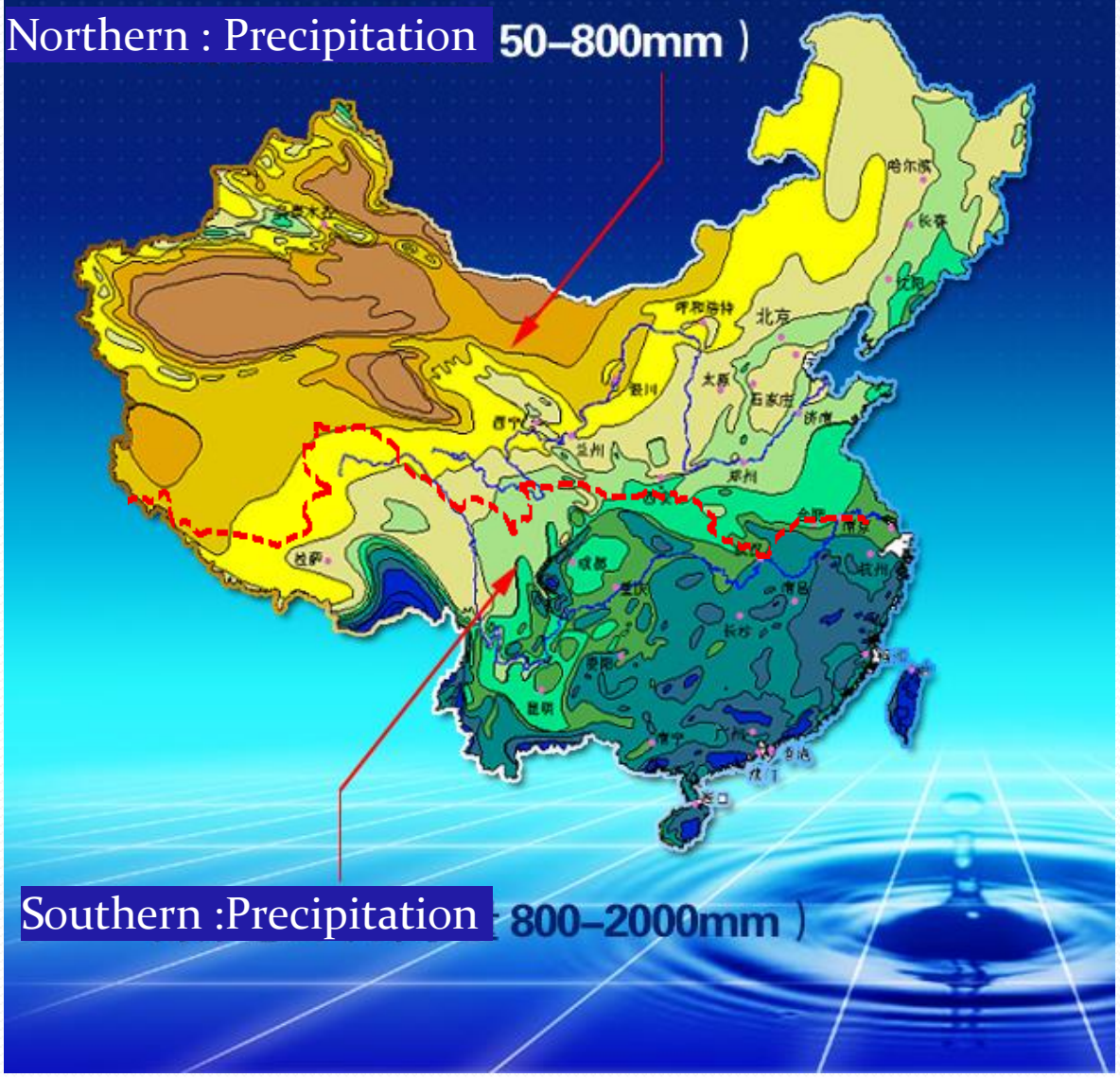
- **Introduction**
- **Water Pricing Structures in China**
- **Water Pricing Reform Process After 1949**
- **Beijing and Shanxi Cases**
- **Outlook**

1 introduction

Importance of water in China

- “water is with benefits and harms”, Grand Histroy, 2200 years ago
- Governing water is to govern state
- the source of life, the element for production and the basis for ecosystem, 2011

Water resources in China



northern :

Population: **47%**

Cultivated land: **64%**

GDP: 45%

Water resources: 19%

southern:

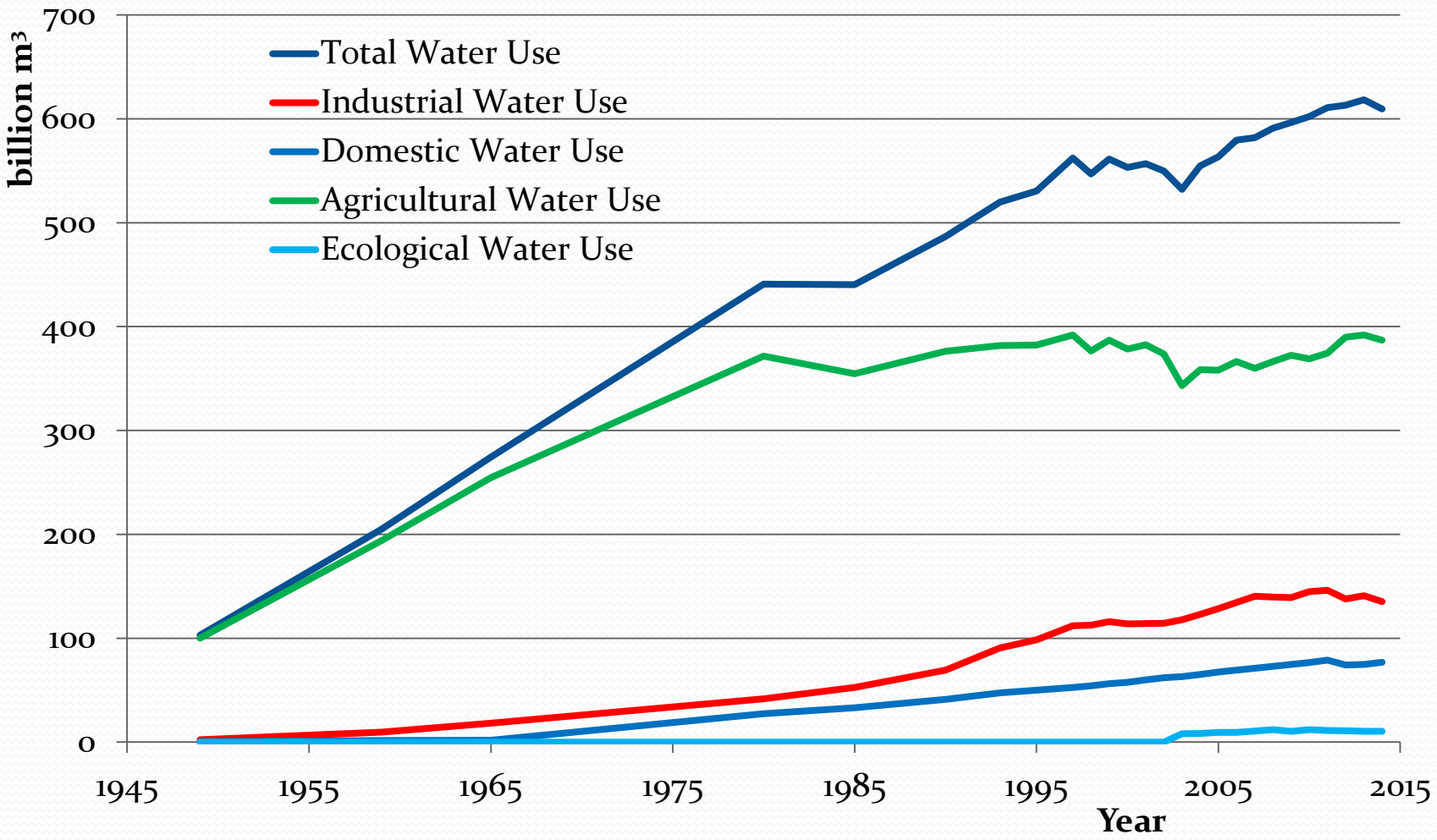
Population: **53%**

Cultivated land: **35%**

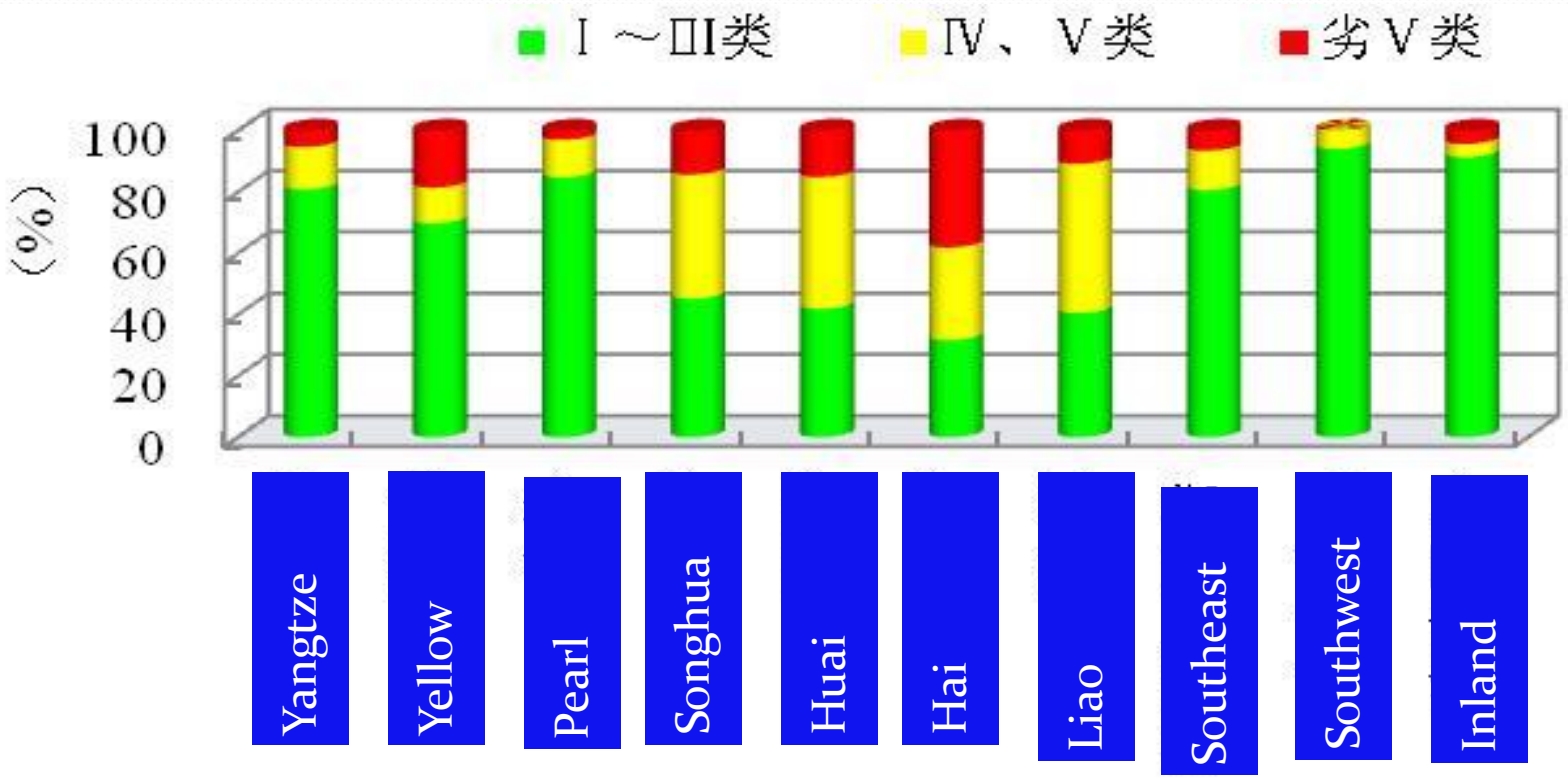
GDP: 55%

Water resources: 81%

Water use increase in China



Water Pollution in China



2011 water function zone assessment result

2 Water Pricing Structures in China

Water Pricing Structures in China

- (1) water resources fees
- (2) water supply tariffs from hydraulic engineering
- (3) urban water supply tariffs
- (4) wastewater collection and treatment tariffs
- (5) pollutant discharge fees

Water resources fee

- Resources charge
- Collected for industrial, domestic, and hydropower use
- Agriculture exempted
- Real water use, based on water abstraction permit

water supply tariffs from hydraulic engineering

- Service charge for water supply for hydraulic engineering
- Agricultural water supply: costs and expenditures
- Non-agricultural water supply: costs, expenditures, taxation and profits

urban water supply tariffs

- Service charge for water supply from urban water supply company
- Cost-recovery
- Cost, expenditures, taxes and profits
- Household, non-household, special water use

wastewater collection and treatment tariffs

- Service charge for wastewater collection and treatment
- Not be lower than normal operation cost
- Subsidies if not cost-recovery

pollutant discharge fees.

- Environment charge
- Polluter discharges directly into environment
- Collection based on the concentration and volume of the key pollutants
- Fixed unit fee (reforming to a flexible one in 2014)

3 water pricing reform process after 1949

No charge era (1949-1965)

- Focusing on project construction
- Covered by government subsidies
- Very few tariffs or some grains or farmer labor inputs

Lower service charge from 1965

- 1965, water tariff collection from beneficiaries
- “self-financing” and “with reasonable accumulation (of profit),” considering the benefits of beneficiaries and economic circumstance (ability to pay) at the same time
- very difficult to collect , too small to cover the costs
- 1985, 2003 methods
- impacted by many factors
- the collection standard never meeting the requirements of these regulations and methods

Introducing Resources Charge in the 1980s

- deal with the emerging water shortage in cities in northern China and coastal regions in 1980s
- Self-supply sources is a management blank
- 1988 water law, urban self-supply groundwater
- 1997 Water Sector Industrial Policy, 2002 Water law: all sources
- 2009 full coverage of the provinces
- Fast increasing standard

Charging Wastewater Collection and Treatment Fees Since the Late 1990s

- fast-growing economic development
- lagging urban wastewater collection and treatment infrastructure
- a few cities, collected with urban tariffs, low standard
- 1999-2013, trying to cover the operation and maintenance , and with profits.
- 2013, difficulty in cost-recovery and subsidizing

Implementing Comprehensive Water Pricing System After the 2000s

- Complicated, not decided by water sector
- Problems in pricing mechanism and management institution

Implementing Comprehensive Water Pricing System After the 2000s

- Increase the hydraulic engineering water supply tariff to a reasonable level by clarifying costs and expenditures of water projects based on its functions. The costs and expenditures with public interest could be covered by governmental resources and with non-public interest should be covered by tariffs.
- Reform the urban water supply management institution and regulate supply and treatment tariffs. self-financing, separation of network and plant, regulating wastewater treatment tariff
- Reform rural water supply systems, improving canal systems to reduce leakage, improve metering facility to implement volumetric charge, and reduce the additional charges.
- Develop a water pricing system to promote water savings by increasing water resource fees, implementing quota-exceeding, increasing block tariff structure and capacity, and a two-part volume tariff

Implementing Comprehensive Water Pricing System After the 2000s

- 2009
  - improving pricing regulation procedures, such as cost auditing and public hearing;
  - improving metering to introduce the block tariff for household use and quota-exceeding, and increasing the block tariff for non-household use;
  - simplifying the water tariff groups; consider the ability-to-pay
- 2011, agricultural water tariff comprehensive reform
  - promoting water saving
  - reducing famer's expenditure on water
  - guaranteeing better operation of irrigation and drainage infrastructures.

Implementing Comprehensive Water Pricing System After the 2000s

- 2013
  - household water use, to hasten the development of the block tariff structure and to develop the tariff structure before the end of 2015 for all cities.
- 2014, to develop market-oriented water pricing mechanism
  - Reflecting water shortage
  - Reflecting water supply cost
  - Supply-demand relationship
  - Environmental protection

4 Beijing and Shanxi Cases

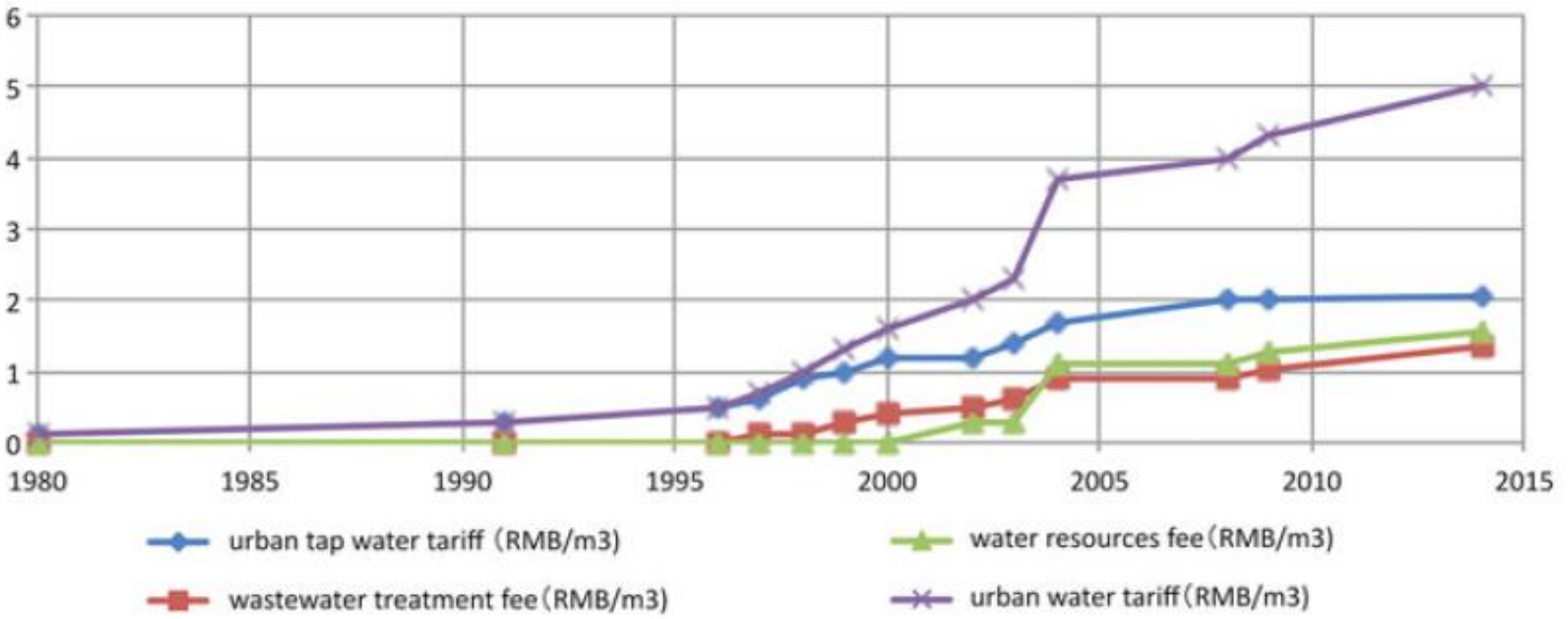
中华人民共和国


新疆维吾尔自治区
西藏自治区
内蒙古自治区
青海
甘肃
宁夏
陕西
山西
河北
北京
天津
辽宁
吉林
黑龙江
山东
河南
湖北
湖南
江西
安徽
江苏
上海
浙江
福建
台湾
广东
广西
海南
香港
澳门
云南
贵州
四川
重庆
海口
哈萨克斯坦
俄罗斯
蒙古
朝鲜
韩国
日本
印度
缅甸
老挝
越南
泰国
柬埔寨
马来西亚
新加坡
菲律宾
文莱
印度尼西亚
东海
南海
太平洋
印度洋
孟加拉湾
安达曼海
苏拉威西海
东沙群岛
西沙群岛
中沙群岛
南沙群岛
比例尺：1：29 000 000
0 290 580 870千米

Beijing

- Beijing regulates water pricing often by changing user groups, reforming tariff structures, and increasing tariff standards:
  - charging water resources fees for self-supplying wells in the 1980s and extending it to all abstraction in 2002
  - introducing wastewater treatment tariff in 1997
  - Introducing the increasing block tariff in the urban household water supply in 2014

Beijing water tariffs



Beijing

Table 17.1 Beijing household water tariff (Unit: RMB/m^3)

Water source	Blocks	Annual household water use (m^3)	Total tariff	Components		
				Tap water fee	Water resource fee	Wastewater treatment fee
Tap water	1	0–180	5.00	2.07	1.57	1.36
	2	181–260	7.00	4.07		
	3	260	9.00	6.07		
Self-supply well	1	0–180	5.00	1.03	2.61	1.36
	2	181–260	7.00	3.03		
	3	>260	9.00	5.03		

Table 17.2 Beijing non-household water tariffs (Unit: RBM/m^3)

Type	Tariff	User group	2004	2009	2014
Non-residential	Water resources fee	Agency	1.10	1.32	1.63
		Industry and commence	1.10	1.32	
		Hotel, catering	1.10		
	Tap water tariff	Agency	2.50	2.50	3.52
		Industry and commence	2.91	2.91	
		Hotel, catering	2.91		
	Wastewater treatment fee	Agency	1.50	1.68	2
		Industry and commence	1.50	1.68	
		Hotel, catering	1.50		
	Sum	Agency	5.40	5.80	7.15
		Industry and commence	5.60	6.21	
		Hotel, catering	6.10		
Special use	Water resources fee	Car washing and bathing			153
	Tap water tariff	Car washing and bathing			4
	Wastewater treatment fee	Car washing and bathing			3
	Sum	Car washing and bathing			160

Shanxi

Table 17.3 Water resources fees in Shanxi Province

Water source	Abstraction type	Purpose	Fee standard (RMB/m³)									
			Non-over-exploitation zone					Over-exploitation zone				
			In quota	Exceeding quota				In quota	Exceeding quota			
				Less than 20 %	Between 20 % and 40 %	Between 40 % and 60 %	Over 60 %		Less than 20 %	Between 20 % and 40 %	Between 40 % and 60 %	Over 60 %
Groundwater	Self-supply	Special use	10.00	20.00	30.00	40.00	50.00	15.00	30.00	45.00	60.00	75.00
		General use	2.00	4.00	6.00	8.00	10.00	3.00	6.00	9.00	12.00	15.00
	Urban public supply and supply from hydraulic engineering	Special use	4.00	8.00	12.00	16.00	20.00	6.00	12.00	18.00	24.00	30.00
		Industry, commence, service	1.00	2.00	3.00	4.00	5.00	1.50	3.00	4.50	6.00	7.50
		Public agency	0.50	1.00	1.50	2.00	2.50	0.75	1.50	2.25	3.00	3.75
	Mining drainage	Mining (according to drainage volume)	1.20									
Surface water	Self-supply		1.00	2.00	3.00	4.00	5.00	–				
	Urban public supply and supply from hydraulic engineering	Special use	2.00	4.00	6.00	8.00	10.00	–				
		Industry, commence, service	0.50	1.00	1.50	2.00	2.50	–				
		Public agency	0.25	0.50	0.75	1.00	1.25	–				
	Thermal power generation (tubular cooling) (RMB/kw·h)		0.002									
	Hydropower generation (RMB/kw·h)		0.005									

Shanxi

- ***Water Supply Tariff from Hydraulic Engineering Projects***
  - In order to reduce farmers' burden on water use and encourage the use of surface water from Yellow River, the compensation energy price of 0.06 RMB/Kwh and the irrigation tariff of no more than 0.25 RMB/m^3, for surface water irrigation pumping stations
  - no more than 0.30 RMB/m^3 to end users.

Shanxi

Table 17.4 The urban water tariff in Taiyuan City, Shanxi Province

Structure	Block	Monthly volume per household (m^3)	Tariff (RMB/m^3)	Note
The block tariff	1	0–9	2.30	The user with "one household, 1 meter outside of apartment"
	2	9–13.5	4.60	
	3	>13.5	6.90	
The single tariff			2.40	Not with above conditions

Outlook

- ***Struggling for the Position of Water Services in Society and Economy***
- ***Increasing Charges for Environmental Protection***
- ***Valuing Water Resources Shortages by Water Resources Fee***
- ***Increasing Tariff Standard***
- ***Improving the System to Meet Multi-objectives***

Thanks