

PRC Wastewater Tariffs and Management Study

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China National Guidelines in Urban Wastewater Tariffs and Management Study

- ADB Advisory Technical Assistance Project
- ADB TA 3749 – PRC
- US\$ 700,000
- Prepared over 2002 and 2003
- Lead Consultant
 - Global Works International, USA

TA Program

- May 2002 commenced with visit CSCs
- June 2002 Inception Report
- February 2003 Interim Report
- Agreement Tariff Structures and Content Guidelines
- April 2003 Guidelines Workshop
- August 2003 DFR and Workshop
- October 2003 Submission FR
- Web site in preparation

Wastewater Treatment in China

- 667 Cities in China, in 2015 over 4,000
- 35% of all wastewater treated
- 40% cities have wastewater tariffs
- W W T Ps main requirement
- Target : 2010 at least 50% wastewater treated
 - Major cities 70%
 - Provincial cities 60%

Wastewater Sector Funding

- In the past treated as a public service
- Now encourage User Pays and Polluter Pays
- Financing and Management now a Municipal responsibility
- Limited State/Central Government support
- Estimated cost of meeting targets US\$ 20 bn
- Beijing to spend US\$ 1.1 bn by Olympics

PRC Wastewater Guidelines

Objectives to assist in Financing and Sector Management

- Identify Best International Practice
- Develop Tariff Objectives
- Develop Tariff Structures for PRC
- Develop Tariff Calculation Methodologies
- Identify Sector and Management Impediments

International Practice Review

- Different Countries selected for review
- Common themes and experiences identified
 - Policies
 - Tariff structures
 - Related Institutional & Regulatory Aspects

Countries Examined

- USA (Boston & Los Angeles)
- Canada (Vancouver & Toronto)
- United Kingdom
- Continental Europe (Germany, France, Italy)
- Singapore
- Australia (Sydney)
- Japan
- PRC (Hong Kong SAR)

Best Practice

- No single comprehensive “best practice” solution
- Various accepted policies, principles and practices
- Emerging trends (especially private sector involvement)
- “Best practice” includes taking due account of local circumstances.

Internationally Accepted Policies

- Polluter/User Pays
- Finance services through user charges not from general tax revenues.
- Full cost recovery to give financial sustainability
- Separate service provision from Government
- Effective regulation of Utility services
- Protection for the socially disadvantaged

Accepted Charging Principles

- Equity (fairness)
- Promote Economic Efficiency
- Provide Financial Sustainability
- Customer Understanding
- Administrative Efficiency
- Affordability

But these can conflict and priorities need to be set based on local circumstances

Accepted Good Practices

- Charge for wastewater based on water supply.
- Joint billing and collection
- Effective enforceability of charges
- Transparency and public consultation
- Objectivity in price setting (to give investor confidence)
- Improved service through integrated wastewater management.

International Practice- Structures

- Distinct WW tariff charging structures
- Domestic Charges based on water use
- Two part tariffs (with fixed and variable components) are often used
 - Fixed is a access or capacity charge
 - Variable is a charge based on water volume
- Industrial Charges based on pollutant loadings and volumes

Preferred Structure PRC

- Wastewater uniform charge (may not satisfy economic efficiency, but PRC water shortages, lack of metering)
 - Same for all domestic equivalent discharge
 - Based on water volumes
- Trade Effluent Charges for Industry
- Volume and treatment costs
 - Charges based on effluent characteristics

Full Cost Recovery Tariff Target

- Short term targets
 - i) Meet Cash Flow Needs (CFNs)
 - ii) Meet CRR; O&M plus Depreciation
Or O&M plus Debt Service
- Medium term target
Positive After Tax Profit
- Medium to Long term target
Meet Rate of Return of 8% on Net Fixed Assets
 - Allows adequate cash for capital replacement and expansion

CSC Wastewater Capacity and Coverage Now and Future ('000 cum / day)

Tangshan	Changzhou	Chongqing	Fuling	Zhangjiakou
404	225	48	0	0
50%	35%	7%	0%	0%
604	400	680	80	220
80%	90%	90%	90%	80%

CSC Financial Tariffs (Yuan/cum)

CSC	Current (2003)	Commissioning
Tangshan	0.64	1.01
Chongqing	0.40	1.60
Fuling	0.40	2.10
Changzhou	1.15	1.38
Zhangjiakou	0.30	1.61

Affordability of Financial Tariffs on Commissioning in Future

% HH income Water & WW fees	Average Income	Low Income
Tangshan (Dom./Ave)	1.5%/1.7%	1.8%/2.2%
Chongqing (Average)	2.6%	3.3%
Fuling (Average)	2.9%	3.6%
Changzhou (Average)	2.2%	2.9%
Zhangjiakou (Dom./Ave)	2.4%/2.8%	3.1%/3.6%

Two Part Tariffs for Industry : Volume & Treatment (COD and SS)

- Two Part Tariffs
 - Follow Polluter Pays Principles
- Flow or collection costs (yuan/cum)
 - same for all customers
- Treatment COD or SS
 - Charges vary depending COD or SS
 - Form the basis of Trade Effluent Fees.

Two Part – Zhanjiakou (Yuan/cum)

Total (2010)	Flow (volume)	Treatment (COD)
1.67 (Yuan/cum)	1.19	0.48
100%	71%	29%
Assumes COD 300 gm/l		

Two part - Changzhou (Yuan/cum)

Total (2003) 2001 analysis	Flow (Volume)	Treatment (COD)
1.15	0.78	0.37
100%	67%	33%
Assumes COD 300 gm/l		

Two Part – Tangshan (Yuan/cum)

Total (2003)	Flow (volume)	Treatment (COD)
0.64 (Yuan/cum)	0.48	0.16
	74%	26%
Assumes COD 300 gm/l		

Two part – Chongqing (Yuan/cum)

Total (2006)	Flow (volume)	Treatment (COD)
1.60 (Yuan/cum)	1.29	0.31
	81%	19%
Assumes COD 300 gm/l		

Implementation of Two Part tariff

- Timetable for Implementation, vary between Municipalities
- Calculation of Volume and Effluent Charges
- Need to properly monitor strength of effluents
- Further ADB assistance would better establish calculation process and timetable in CSCs

Sector Management Issues

- Policy and Legal Framework
- Institutional Arrangements
- Corporatisation of Service Delivery
- Private Sector Involvement
- Regulation of Sector

PRC General Policy Context

- Sustainable Development
- Ongoing Economic Reforms
- Utilities to be Corporatised
 - Separate, Independently financed,
 - User Charges
- WW Full cost recovery tariffs
- Encourage water conservation

Emerging International Trends

- Integrated Water Resources Management (includes economic re-use of wastewater)
- Corporatisation of services
- Greater reliance on private sector
- Integrated water and wastewater utilities
- Greater attention to effective regulation (as a protection for both customer and investor interests).

PRC and International Practice

- PRC policy is consistent with international.
- PRC corporatisation consistent with international.
- Price regulation on right track
 - But still political influence
 - Lack of objectivity

Need for Capacity Building for regulation

Private Sector Participation

- Reinforced by Peoples Congress
- Main objective is obtain investment capital
- Also inject operational improvements

Tariffs and charges to meet full cost recovery are the key issue.

That is provide acceptable return on capital and for risk.

Billing and Collection

- Joint billing with wastewater
- One Bill two items
- Separate bills inferior collection rates
- Need for commercial agreements between water and ww companies
- Follow up of debtors and disconnection water supply threat necessary, other penalties

Financial Autonomy of WWcs

- WW fees to be passed to WWCs direct
- Fees should not be withheld or transferred via Municipal Finance Bureau
- WWC needs to have direct interest in collections by WSC
- WW charges are to be regarded as business fees
- Reuse should be dictated by economic criteria

Managerial Autonomy

- Need for greater freedom of management action
- Part of Enterprise Reform Program
- Wider than WW tariff issues

Public Awareness

- Need for greater public awareness
- Especially of costs of wastewater treatment
- Especially the Need for users to meet these costs
- Changing emphasis in PRC to user pays

Management and Incentives

- Improve management performance
- Operational incentives and penalties
- Cost control - still major issue
- Consider benchmarking, establish a data base, long term effort

Regulation of Sector

- Moving in right direction
- Price Setting Objectivity Poor at Municipal level
- Even though full cost recovery is the target difficult to achieve approval for increases
- Strengthen Existing Institutions rather than try to create independent regulators

Compatibility Water and Wastewater Tariff Guidelines

- Water Guidelines Need to be Effective
- Implementation difficulties exist
- **Not** implemented in any City or CSC since 1998
 - 3 ADB CSCs, 14 SDRC CSCs

Pricing Law and Financial Covenants driven reform in water sector financing

Urgent review of Water Tariff Guidelines required

Guidelines Layout

- Main Guidelines
- Supporting Annexes
- A : Rationale and Explanations
- B : Tariff Calculation Methodology
- C : Model Tariff Billing Agreements
- D : Penalties for Non-Payment
- E : Model Contract for Industrial Discharge

Outline Main Guidelines

- I. General Principles
- II. Wastewater Charges
- III. Collection and Adjusting
- IV. Management and Supervision of Charges
- V. Penalties
- VI. Notes

I : General Principles

- Sets out key principles
- Main Laws and Objectives
- Application all urban areas
- Polluter pays and User Pays
- Adequate Profits
- Management systems

II : Wastewater Charges

- Sets out Costs included in Tariff
- Objective Full Cost Recovery
- Basis Charges, water consumption,
- Industry move to charges on pollutant loading
- Affordability considerations
- Beneficiary contributes
- Effluent Reuse
- Contracts with WWTP for discharge

III: Collection and Adjusting

- Bill with water supply
- Procedure for tariff adjustment
- Pricing Law, hold Public Hearings

IV : Management and Supervision of Wastewater Charges

- Management of Fees where there is no WWTP
- Responsibility of Environmental Department for WWTP discharge monitoring
- Responsibility of WWTP to accept all effluent
- Municipal Construction Departments to monitor operational performance of WWTPs.

V : Penalties

- Misuse of tariff collections
- Non-Compliance of Discharge of WWTP
- Non Payment of wastewater charges, penalties

Annex A : Rationale

- Sets out more detailed explanation of reasoning behind main clauses in guidelines

B : Tariff Methodology

- Describes in detail tariff methodology.
- Provides worked example.
- Provides basis of two part tariff for volume and treatment.

C: Tariff Billing and Collection

- Sets out reasons for combined water and wastewater billing.
- Provides model contract for water and wastewater company
- Sets out information that water company should provide on billings to wastewater company.

D : Penalties for Non Payment

- Describes some of the main options available to enforce payments of wastewater tariffs.

E : Contract between waste water enterprise and industry

- The Study advocates allowing industry to discharge wastewater without pretreatment where this will cause no damage and pay higher treatment fees.
- Annex provides contract between WWTP and industry to allow discharge higher than standards and payments of fees for additional cost of treatment.

Implementation of Guidelines

- Approval by State Council First Step
- MOC requested further ADB assistance
 - Refine methodology especially two part tariffs
 - Examine issues in up to 6 CSCs