



Water Pricing and Cost Sharing for Water Resource Protection in Korea

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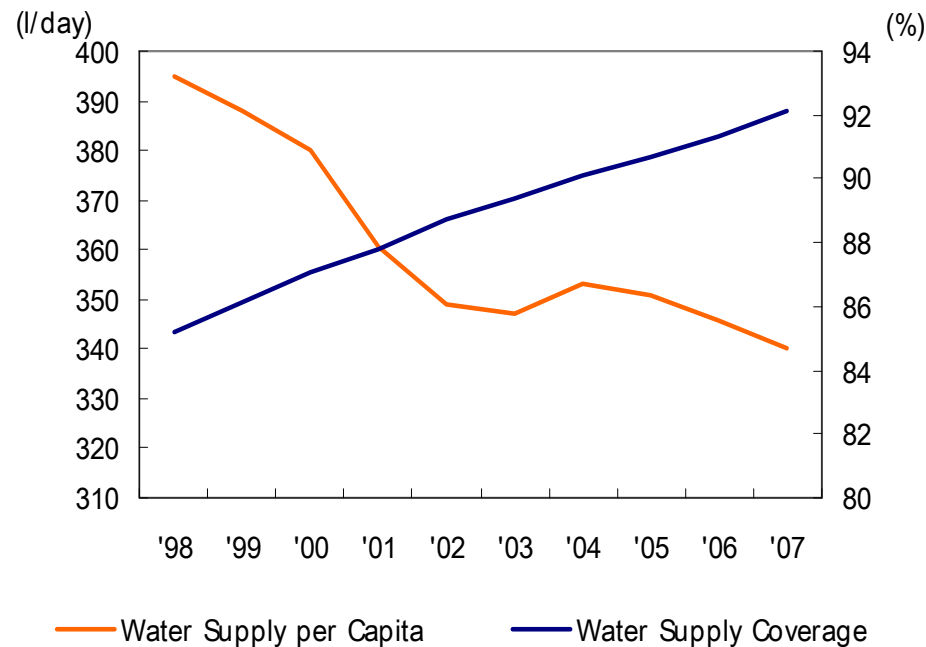
Water Resource and Water Pricing

- There is an emerging problem of water scarcity in growing cities. It is associated with population growth; pollution increase; failure in demand-side management of water use as well as in management of water availability, among others.
- **Water pricing** is one of the efficient and effective measures to manage the water demand as well as for management of water resources.
- Practices in water pricing and cost sharing for water resource management in Korea have implications to countries in EAS region.



Pricing Policies and Practices of Public Water Supply

- Public water supply in Korea has been expanded from 85.2% of coverage rate in 1998 to 92.1% in 2008. But with strong policies for water conservation including water pricing policies, water consumption per capita has been decreased from 395 to 340 l/day during 1998-2008.
- Water Supply in Korea



Pricing Policies and Practices of Public Water Supply

▪ Pricing of Water Supply Services

- Water Pricing for public water supply in Korea has the strong structure for inducing water conservation

- Pricing Policies (Tariff Setting Criteria)

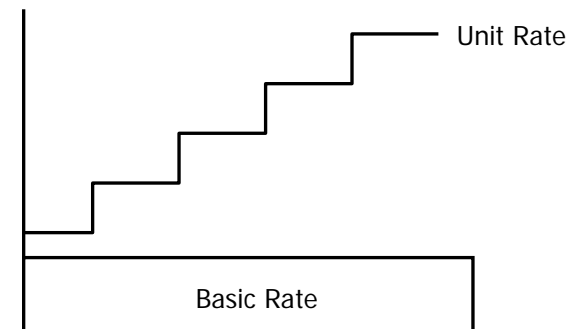
- Based on 'User pays principle'

→ Encouraging water conservation, reflecting costs, social consideration

- Pricing Structure

- Two-part tariff, increasing block rate

- Full-cost pricing is encouraged



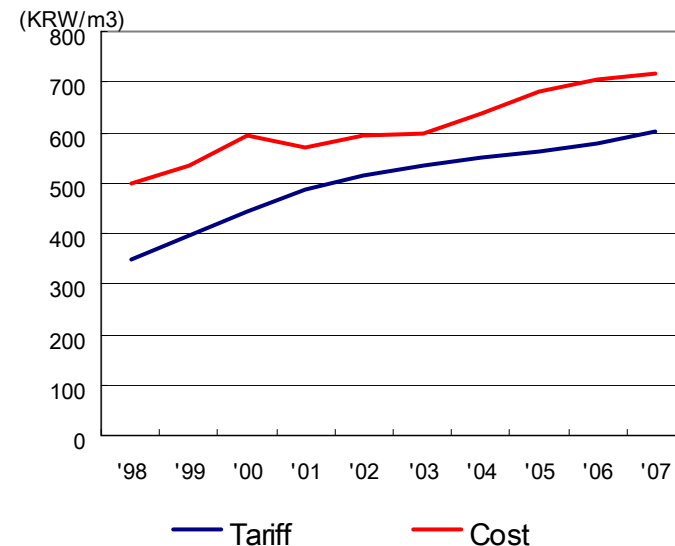
Pricing Policies and Practices of Public Water Supply

- The full cost pricing is encouraged and the water prices have been continuously increasing to cover production costs and to give users the right signal of service value

* average tariff KRW 316 (1997) → KRW 604 (2007)

- With the pricing structure for inducing water conservation and other demand side management policies, water consumption per capita has been continuously decreased.

- But the price level that still does not cover the production cost decreases the incentive of water saving, affects the financial accountability of water utilities.



Pricing Policies and Practices of Public Water Supply

▪ **Affordability and Stable Accessibility of Service**

- Even with low price level, there could be the people not affordable for enough water use for life.
- Social considerations of affordability for water / Guarantee stable access to water supply services for citizens



▪ Life-line tariffs

▪ Supporting scheme for the lower income users

: Tariff reduction and exemption provisions (136 local governments)

- The city of Seoul provides a support on the basic rate of water bill to the lowest income group.
- The city of Taejeon supports the 10m³/month of fundamental use of water for the lowest income group.

Cost Sharing for Water Resource Protection

- **Conflict between the upstream and downstream residents of each river basin has recently intensified in Korea**
- **The introduction of a metric-based surcharge for piped water, coupled with environmental regulations, aims to resolve these conflicts**

▪ **Designation of Zones for Water Source Protection**

- For improving the availability of clean and safe source water for water supply, the area around the water abstraction sources can be designated as special management zone intended to prevent soil erosion and contamination of water sources by human activity.
- While identifying protected zones is essential for water source protection, their implementation is cumbersome to local managers and citizens. Local government (for fear of constraining economic development in their district) and individual citizens (who view the zones as fettering their private property rights) at times oppose the imposition of these zones.

→ Conflict between the upstream and downstream residents of river basin

Cost Sharing for Water Resource Protection

- **Designated Zones for Water Source Protection**
 - With strong regulation for pollution discharge and land use

Type	Act, lead agency and purpose	Surface area designated
Protection Areas	Water Supply and Waterworks Installation Act; MoE to regulate the construction of major point sources of pollution upstream from drinking water sources Regulation on pollution discharge and activities	1,280 km ² (covering 348 sites)
Special Measure Zones	4-River Watershed Acts; MoE; more stringent effluent limits apply restrictions in land use and facilities construction	2,097 km ² (Paldang reservoir) and 700 km ² (Daecheong reservoir)
Restricted Areas	4-River Watershed Acts; MoE; restrict the construction of industrial facilities that discharge any of 17 contaminants such as heavy metals, chemicals into major watersheds	14,114 km ²
Buffer Zones	4-River Watershed Acts; MoE;	1,200 km ² (of which 8 km ² purchased)

Cost Sharing for Water Resource Protection

▪ Cost-Sharing for Water Source Protection – Water Use Charge

- Conflict between the upstream and downstream residents
 - Introduction of surcharge for piped water: **Water Use Charge (1999)**
- Charge is levied on all end-user of water along the rivers in proportion to the amount of water use (* In the case of the Han River, the charge only applies to downstream residents)
- Charge levels are different in each river basin
- Setting of charge level is based on the fund requirement for protecting water source and relevant water quality management activities

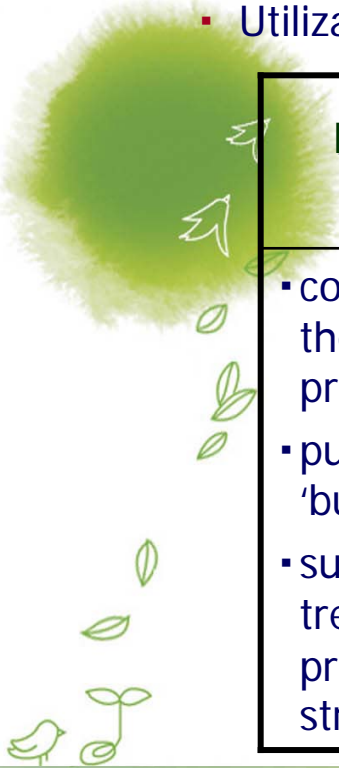
* Han River Basin

Year	'99-'00	'01-'02	'03-'04	'05	'06	'07	'08
(KRW/m ³)	80	110	120	130	140	150	160

Cost Sharing for Water Resource Protection

- **Shared Cost through Water Use Charge**

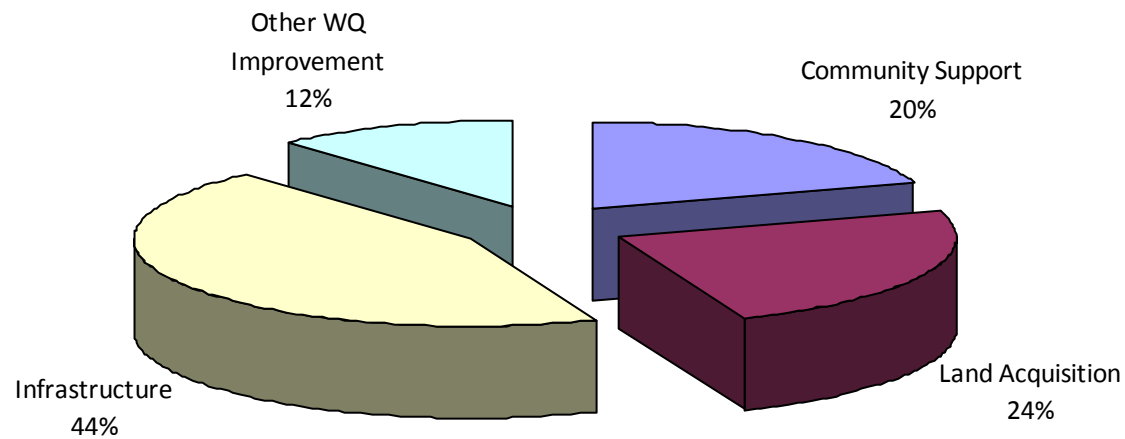
- Increased infrastructure investment in wastewater treatment and other expenditure for source water quality improvement
- Projects and provisions for encouraging participation of residents and compensating the regulatory burden
- Utilization of fund from charge



Expenditure for protecting the water source	Supporting of various water quality management activities in water source protection area
<ul style="list-style-type: none">▪ compensation to the residents for the regulation of water source protection area▪ purchasing of land for establishing 'buffer zone'▪ subsidies for wastewater treatment of water source protection area under strengthened regulation	<ul style="list-style-type: none">▪ dredging of reservoir, cleaning activities along the river▪ water quality monitoring and protecting activities▪ water pollution prevention activities▪ research and investigation activities

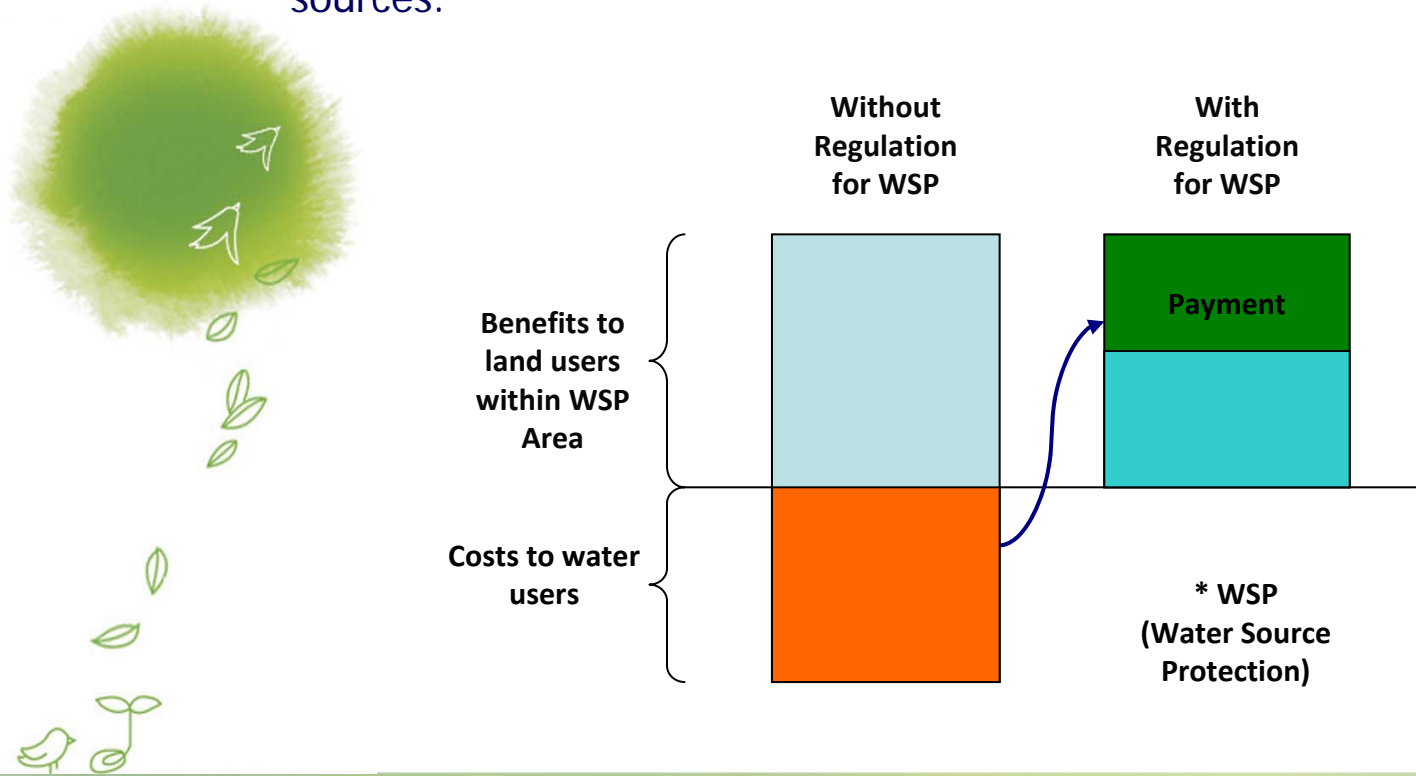
Cost Sharing for Water Resource Protection

- Recent annual revenue came to the equivalent of 470 million Euro in one year, and roughly 60% of this was used for infrastructure and other water quality improvement projects, 20% on land acquisition (e.g. for example purchase of riparian zones for conservation purposes) and 20% on community support programs related to water.



Cost Sharing for Water Resource Protection

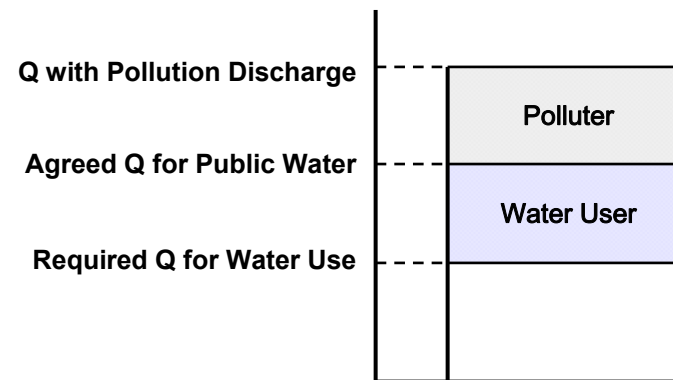
- The community support programs are in the form of 'Payments for Environmental Services (PES)'.
 - Under the principle of compensation recognized under Korean law, revenues collected from downstream beneficiaries are used to compensate upstream residents for losses due to land use regulation with beneficial impacts on water sources.



Cost Sharing for Water Resource Protection

▪ Implication of Korean Case

- The water use charge system is both to collect revenue via a levy and to achieve a win-win situation for both upstream and downstream users through two major policy measures: increasing infrastructure investment in wastewater treatment and providing subsidies to upstream residents to compensate for the losses imposed by environmental regulations.
- The case of water use charges in Korea indicates the possibility of a cooperative solution to the conflict between upstream and downstream residents under the consensus of a cost-sharing principle. The central government played a key role in resolving the conflict, aiming to both strengthen environmental regulations and provide a cross-subsidy for affected residents.





Thank You !

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