

[Korea's Sewage Policies and Private Investment]



Republic Of Korea
Ministry of Environment
(www.me.go.kr)

Index



The subject and the condition of sewerage policy in Korea



Accomplishment of financial investment and the Direction
Of a investment in future



The plan in future and the presentation of the Private
investment

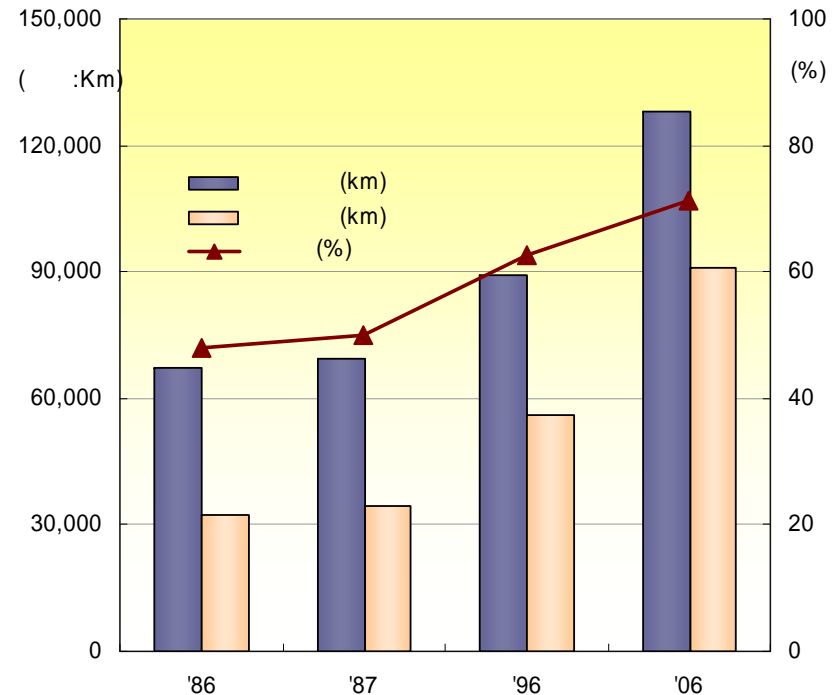
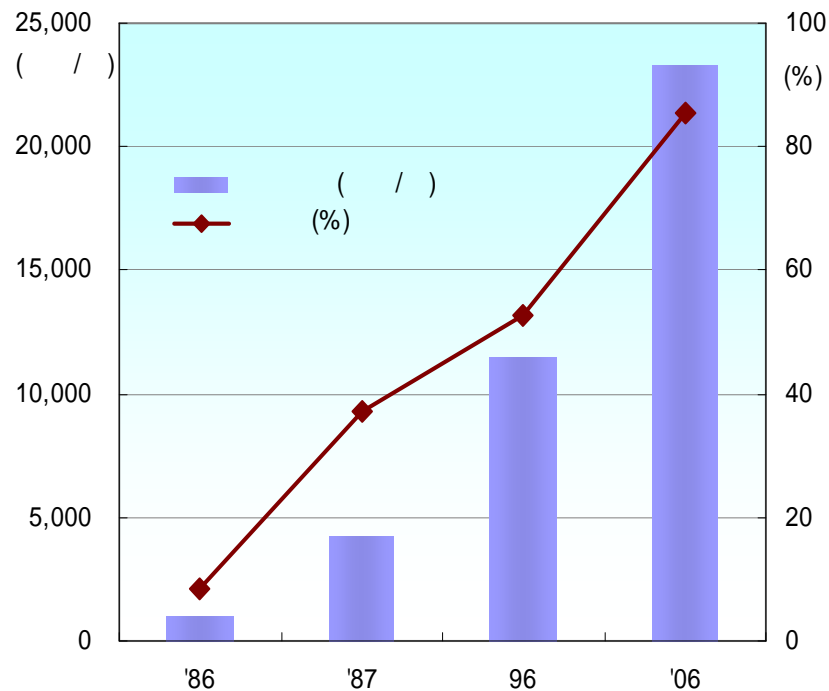
- 1. The policy of a Sewerage Course

1966	Enact the Sewerage law (In 1976, Chung Ge sewage treatment plant - 15 thousand ton/day was built at first)
1989	Making the total plan to supply clean water (The office of Premier, The relevant authorities) <small>In 1993, the total plan to supply clean water. In 1996, the total plan to control water. In 1999 the total plan to control for 4 Big River</small>
1990	Transform the duty (Ministry of Construction => Environment)
2001	Feasibility study of the sewer pipe for improvement in whole nation (completion in 2004, A bad spot at each 8.6m]
2002	The proclamation of a sewer pipe improvement for starting And Turned to with a will
2005	Starting BTL business, Expansion of a sewerage at an upper stream
2007	Amendment of the Sewerage law (unify Sewerage law and 07.9.28)

-2. The change of Sewerage index

■ The number of Public sewerage

Sewerage	8.5%('86)	37.0%('87)	52.6%('96)	85.5%('06)
Pipe	48.3%('86)	49.5%('87)	62.6%('96)	71.2%('06), Separated 46.3%



-2. The change of Sewerage index

■ The number of Individual Sewerage

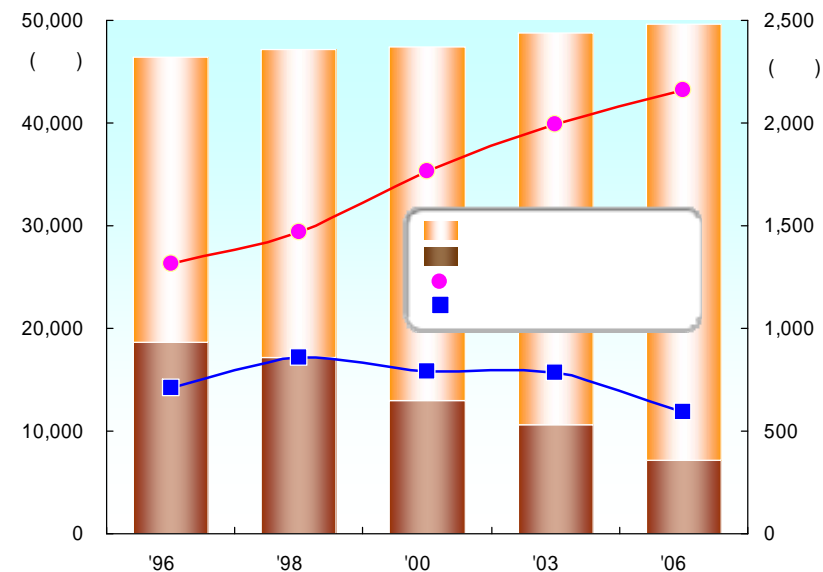
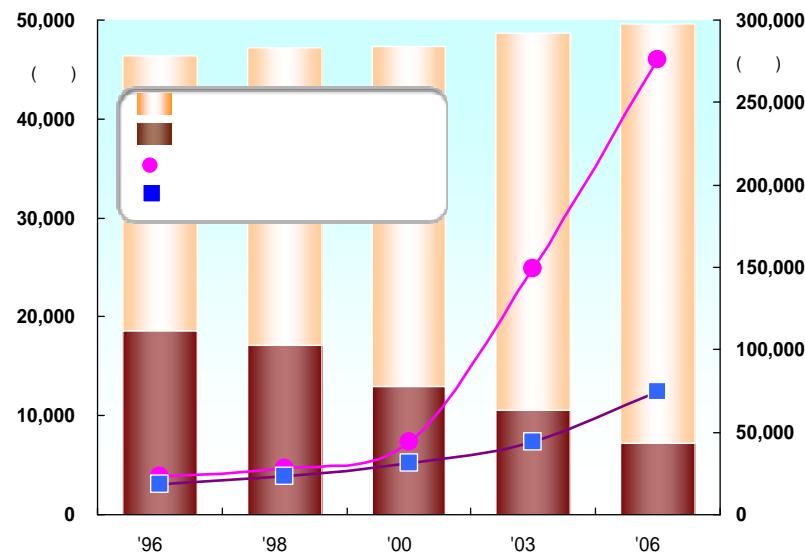
Unit : thousands

A sewage
treatment
plant

41.5 ('96) 351.1 ('06), The average annual rise 23.8%
- In the Zone : 44.0%('96) 21.3%('06), The average annual
decrease 7%

A sewage
disposal
facilities

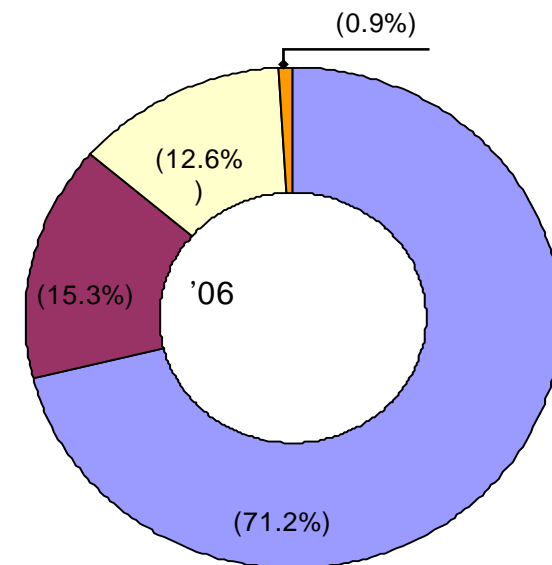
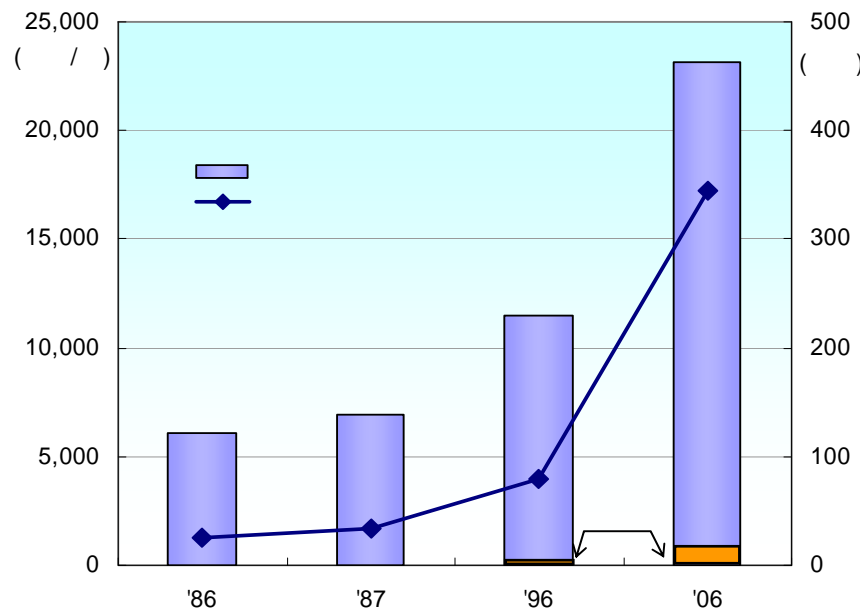
3,475.8('96) 2,752.4('06), The average annual decrease 2.3%
- In the Zone : 37.9%('96) 78.4%('06), exemption of a sewage
treatment plant



-2. The change of Sewerage index

■ The production and Disposal of sewage dregs

Production	3,557ton/day('96) 7,446ton/day ('06), The average annual rise 7.7% - The Size : 79(11.5 millions ton/day) 344(23.3 millions ton/day)
Disposal (2006)	Ocean disposal 5,306ton/day, Recycling 1,139ton/day, Incineration 937ton/day, Reclamation 64ton/day

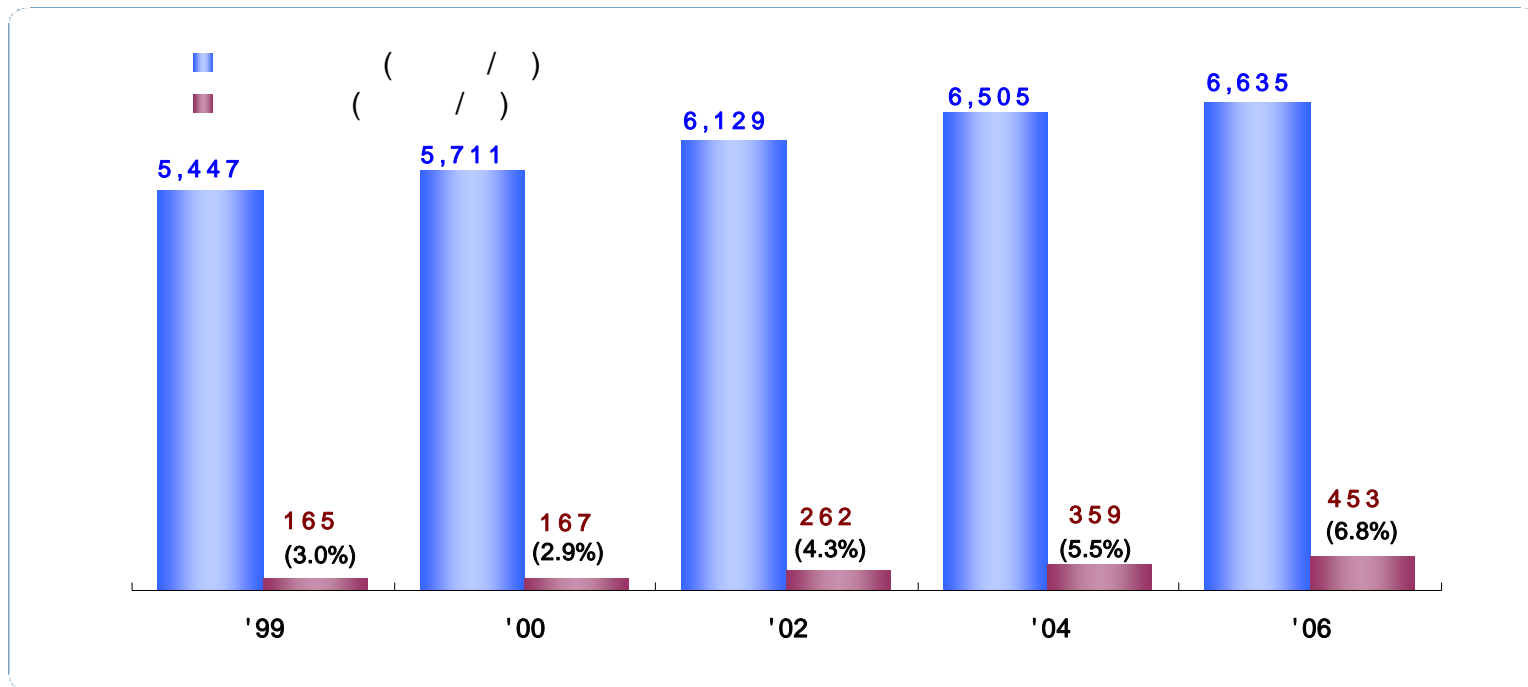


-2. The change of Sewerage index

■ The recycling of treated water

The number of treating sewage	5,711millions ton/year('00)	6,635millions ton/year ('06)
The number of recycling	167millions ton/year(2.9%)	453millions ton/year (6.8%)

The duty of recycling : More than 5,000 ton/day, more than 5% ('07.9)



-3. Total Evaluation and Implication

Result

Rise the diffusion rate, Improve the quality of water,
Improving policy· institution· technique

Problem

Insufficiency of a sewerage infrastructure, rising demand of
new policy

Service balance

The diffusion rate of a farming and fishing village is 42.9%(city 90.1%)

The diffusion rate Of sewage pipe

71.2%(treatment rate 85.5%)

Sludge disposal

Ocean disposal dependence 71%(From 2012, limited)

Management of Sewerage

The rate of difference between operating cost and fee is 58%
The ability of operation is low

The demand of policy

The recycling of resource, non point pollution

The finance of a sewerage

Repay of the rent from 2005 BTL (financial problem)

Implication

Expansion of the sewage system, solving problems, efficacy of operation
Developing technique, absorbing a new policy demand are needed

-1. The result of investment for sewage Business

- A concentrated investment for a sewage system after '88 Olympic,
The total plan to supply clean water

● Before 2002, A sewage treatment plant was expanded and became bigger

● In 2002, The proclamation of a sewer pipe improvement ,
Invest for sewage system and expand sewerage treatment plant

- Invest 35.4 trillion between 1993 and 2006(rapidly rising of sewerage diffusion)

section		'93~'95	Until '00	Until '06	'06/'95
Total amount (trillion won)	total	8.7	19.2	35.4	increase 4.1 times
	Plant	4.9	11.2	21.4	increase 4.4 times
	Pipe	3.8	8.0	14.0	increase 3.7 times
Facility (spot, thousand Km)	Plant	71	172	344(1,681)	increase 4.8 times
	Pipe	52.8	68.2	91.1	increase 1.7 times

-2. The Evaluation of investment for sewage Business

■ Improving of the quality of water, making clean life environment

The diffusion Of Sewerage(%)	45.4 ('95)	85.5 ('06)
The size (million ton/day)	965 ('95)	2,357 ('06)

- The effect of the quality of water (BOD mg/L : '95 '06)

Han River (Pal dang)	1.3	1.2	Nag dong River (Mul Kum)	5.1	2.7
Kum river (Dea Chung)	1.2	1.1	Young San River (Na Ju)	7.0	4.8

■ Revitalize the construction and the economy of a country

The business of improving the sewerage system can make clean
Environment and revitalize the economy of a county

-3. The aim and vision in future

The sewerage system makes pleasant, safe life environment

- The sewerage creates live water environment -

The service of a sewerage offers always

No smell sewerage

No over flowing sewerage when raining

The sewerage for Offering rest place to citizen

The sewerage for controlling water environment

The sewerage for making resource

-4. The plan and the direction of policy

Important index of plans

Plan	2006	2010	2015	
The diffusion rate(%)	85.5 (42.9)	90 (56)	92 (75)	() is village
Incoming water quality(%)	91	91	93	
The dregs recycling(%)	13.7	67	70	Ocean disposal Zero (2012)
Water recycling(%)	6.8	12	18	Standard of facilities

The direction of policy

- Considering of service balance (between village and city, also states)
- Total management of sewerage system and steadily separated system
- Reinforce rain control and promote water recycling
- The management of sewerage and raising sewerage industry regionally

- 1. The outline of Private investment

The type of private Investment

Section	BTO	BTL
Facility	Plant	Sewerage
Private investment(PI)	municipal	Whole expenses
Supporting time	at construction period	At operating period
Standard of benefit	3-year corporate bonds	5-year national bonds
Repay for PI	Fee	Rent, cost of operating

Decision of investor for business

Section	Government notice	Private offer
Type	Municipal notice	PI -> Government
Merit	Competitive bid	Intuitiveness of Pi

-2. BTO type

The presentation

- Attract private capital 838.2billions(1998~, 99 facilities)
 - 23 facilities were proceeded by government for example work
 - After 2000, 76 facilities were proceed by states freely
- Now(2008.8), 68 facilities are operating

The presentation of investment

Section	Number	Size (Thousand ton/day)	Expenses(0.1 billions)				
			total	National expenses	Municipal expenses		
					total	municipal	Private investment
Total	99	1,768	30,828	12,735	18,093	9,710	8,382
Government	23	332	5,975	3,075	2,900	1,530	1,370
Private sector	76	1,436	24,853	9,660	15,193	8,180	7,012

-2. BTO type

The improvement of national expenses supporting institution['07.10)

- Make counselling part for national expenses support
 - To avoid arguing about PI, local and central government discuss work in advance Minimum PI rate (More than 15% of total expenses)

Project performance and Problem

- The expansion of service
 - The diffusion rate of sewerage (%) : 52.6 ('96) 85.5 ('06)
- Revitalize local construct industry and the economy
 - Decline of road and house construction, revitalize sewage construction
- Insufficiency of finance in government by the expansion of BTO
 - Increase PI work, Burden to national finance

-2. BTL type

Background

- After 1990, a concentrated investment for expansion of a sewerage plant, insufficient investment for sewerage pipe
 - The diffusion rate of sewerage 81.4%[04], The diffusion rate of sewerage pipe 68.1%[04]
 - A bad spot each 8.6m, emergency to improve
- Stating BTL project for the expansion and improvement of sewerage

Presentation

- Invest 5trillions('05~'08), improve sewage pipe 7,170km

Section	total	'05	'06	'07	'08
Amount(km)	7,170	1,205	2,809	1,539	1,617
Expenses	49,632	9,248	17,073	11,732	11,579
Government number	77	17	29	15	16

1 trillion will be invested for 2009~2010

-2. BTL type

Project performance and Problem

- Improving condition of operation, the quality water of river, avoiding flood
 - The diffusion rate of sewerage pipe (80%) achievement in advance ('2020 — '2009), improving operation effect for plant
- introduce Private idea, make effect operation system
 - Induce to effect management for old pipe, build responsibility-operation system -> Prevent fraudulent Work
- Make new job, Revitalize local construct industry and the economy
- Make finance of Sewerage Poor
 - Repay for BTL is 389.3 billions after 2015 (Sewerage finance of total is 26.3%), Worry to work of national work
- Worry about fraudulent Work because of low price
 - A successful bid rate is 77.5%, 9 works is under 70%

-3. The operation plan of Private investment

The operation plan

- Revitalize National work , diversification of PI type
 - Revitalize National work through notice work sequence
 - Consider to change PI type from BTO to BTL
 - Get other finance to repay BTL
- Reinforce management system after PI work
 - Check field regularly to build perfect sewerage facility
 - Evaluate service content by evaluation committee
- Consider to expand PI facility
 - Recycling treated sewage, make sludge to resource

Thank You !

