


The cost-sharing system for managing the marine litter by agreement among the administrative organizations around the capital area in Korea


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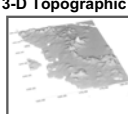
I. Introduction of ICR

Location




General description


3-D Topographic




Population



River basin-1



River basin-2




Earlier rias coast is getting short and simple due to frequent landfill and reclamation project

Incheon Coastal Region

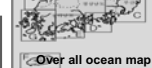
Characteristics

- Well-developed tideland and high productive coastal region by relatively great tidal range
- Seawater quality effects from coastal industrial complex and land influent
- Contamination increase in coastal region caused by ongoing development around the Capital Area


Middle of the Yellow Sea- I




Over all ocean map

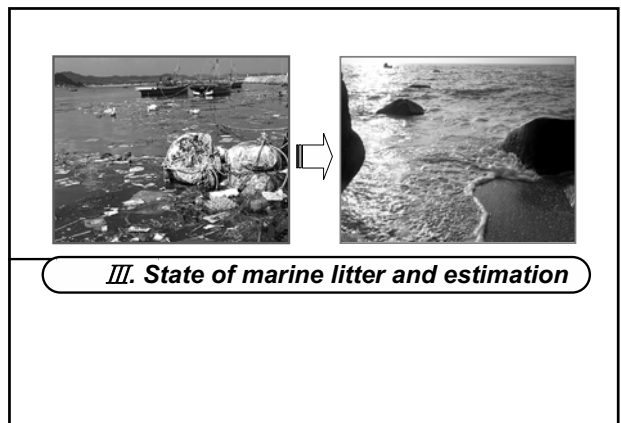
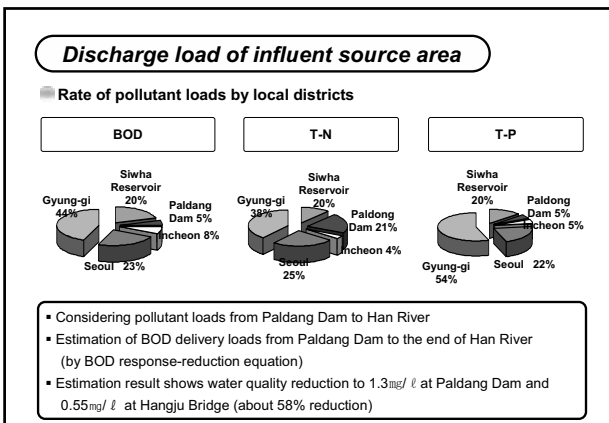
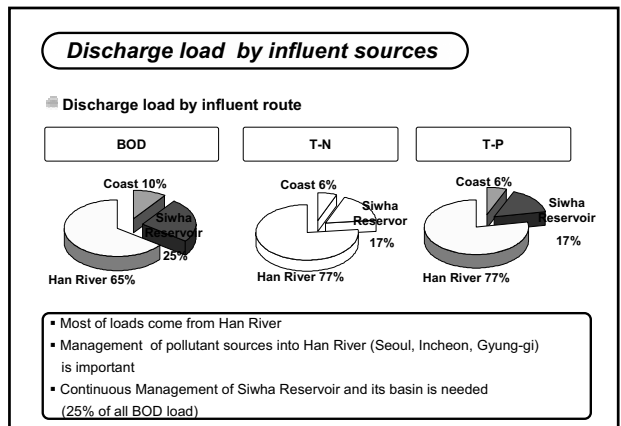
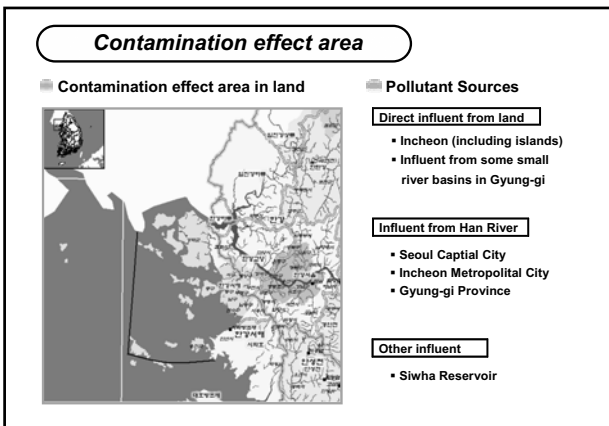
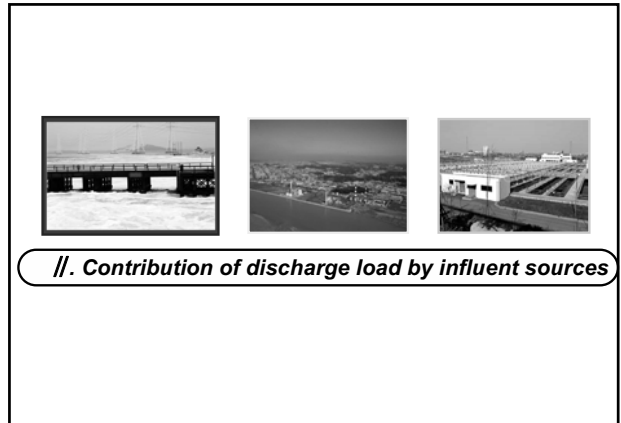
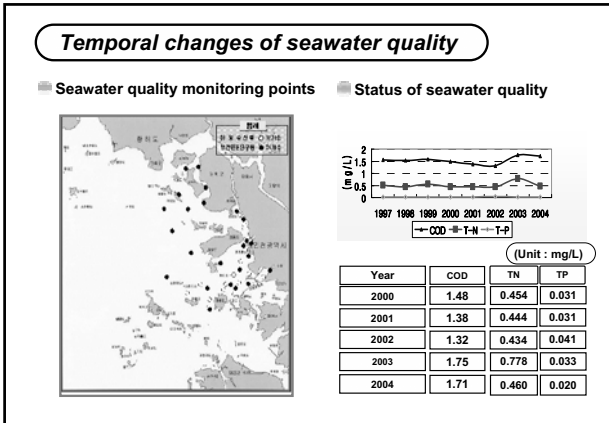


Tidelands



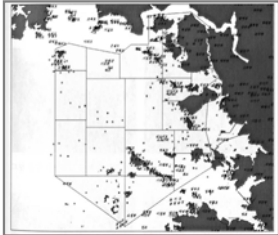
Ocean conservancy area





Estimation Result

- Distribution of submerging litter
- Estimation



Floating litter

- Through the amount of collected litter, Floating litter is estimated at 191,271 m³

Submerging litter

- Submerging litter effected from Han River is estimated at 194,000 m³ in Incheon Coastal Region

- Green area : where amount of submerging litter per unit area is less than 0.1Kg/m²
- Red area : where amount of submerging litter per unit area is over 0.1Kg/m²

Analysis of marine litter

- Amount of incoming litter in a year (floating litter)

Composition	Total	Vinyl and Plastics	Waste-nets	Bottles	Waste-rubber	Styrofoam	Wood-pieces	ETC
Influent(m ³)	191,273	52,059	7,047	3,375	6,633	8,001	106,059	8,099
Rate(%)	100.0	27.2	3.7	1.8	3.5	4.2	55.4	4.2

- Compositions of floating litter
 - Vinyl & plastics are the most in ordinary season and wood-pieces are the most in rainy season.
 - In average, wood pieces are the most (55.4%) and vinyl & plastics are the 2nd (27.2%).

IV. Cost-share factors for seawater quality improvement in ICR

Weight by share factor

- Principles of cost-sharing
 - Polluter Pays Principle : PPP
 - Beneficiary Pays Principle : BPP
 - Ability-to-Pay Principle : APP
- According to Commonsense that pollutants in ICR continuously come from Han River Watershed, PPP was accepted as 1st principle.

Weight value by share factor

- Weight value by share factor

C ₁		Polluter share	
		Direct Benefit (Incheon City share)	Indirect Benefit (Joint share)
Central government share	Incheon city share	Joint share(C ₂)	

- Weight value by the principles of cost-share

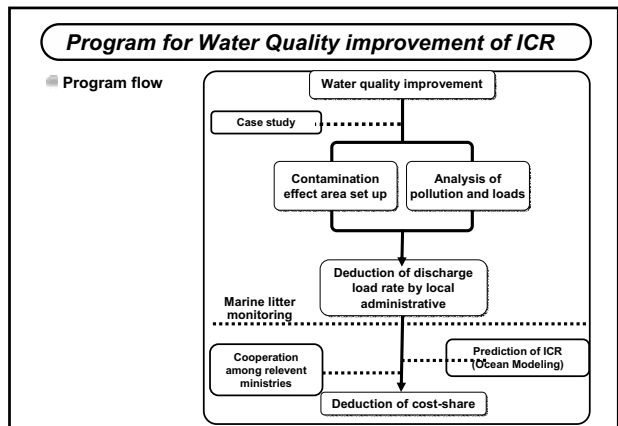
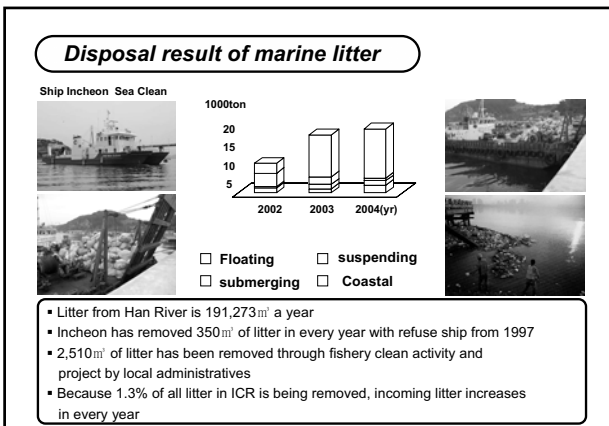
	Convenience benefiter (α)	Polluter (β)	Ability (γ)
Weight	0.3	0.7	No regards

Estimation of cost-share rate

- Estimation from research result
 - Seoul and Gyung-gi is considered as non-convenience benefiter. And Incheon pays the most expenses.
 - Method 1 : 50% of population in the watershed is considered between BOD discharge and Marine loads.
 - Method 2 : 50% of watershed area is considered between discharge and marine loads.
 - When the litter appears in portion of population, share rate for Seoul increases up to 35% due to high density of population.
 - When the litter appears in portion of watershed area, share rate for Gyung-gi increases up to 39% due to relatively large watershed area.

V. Agreement and fulfillments

Agreement	
Subject title	•Cost-share agreement for litter disposal in ICR and Han Watershed
History and Background	•Established for cost-share of the expenditure of litter disposal in ICR and Han Watershed in April, 2001
Subject of the Project	•Investigation of marine litter distribution, removal, disposal, and management of refuse ship
Project Period	•2002~2006
Project Expenses	•5billion won(\$5,000,000) a year Total expenditure is granted 25billion won (\$25,000,000)
Cost-share rate	•22.8% for Seoul, 50.2% for Incheon, and 27.0% for Gyung-gi



Program for Water Quality improvement of ICR

Area

Temporal Area

- Period
 - Sep. 2005 ~ July 2006
- Basic Period : 2003yr, Final Period : 2011yr

Spatial Area

- Land : Contamination effect area of ICR
- Ocean : Incheon Coastal Region

Purpose

- To find dominant factors of seawater quality in ICR
- To suggest a basis of re-estimation cost-share rate for improvement of seawater quality in Incheon Coastal Area

Program for Water Quality improvement of ICR

Main concept of this Program

1. To establish new plan of various projects to abate and manage the issues related to the coastal and marine environment of ICP including marine litter,
2. To make central and local governments cooperate with granting funds, such as ocean pollution charge or water use charge.

