



Policy Trend of the Korean Government toward Practical Solution to Marine Debris

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Introduction (1/3)

- Typical Approach to Marine Debris(Western Countries)
 - ◆ Coastal clean-up movements
 - ◆ Monitoring programs
 - ◆ Legislation
 - ◆ Reusing/recycling



Introduction (2/3)

- Korean Situation
 - ◆ Great demands for practical strategy to control the input from marine vessels and land-based activities in order to assess their potential impact on marine environments and fishery resources, and to remove the accumulated litters on the seabed.





Introduction (3/3)

● Korean Situation

- ◆ High density of generation and accumulation of marine debris
 - ◆ Speed of industrialization & urbanization
 - ◆ Population density near the ocean and big rivers
 - ◆ Lack of Consciousness



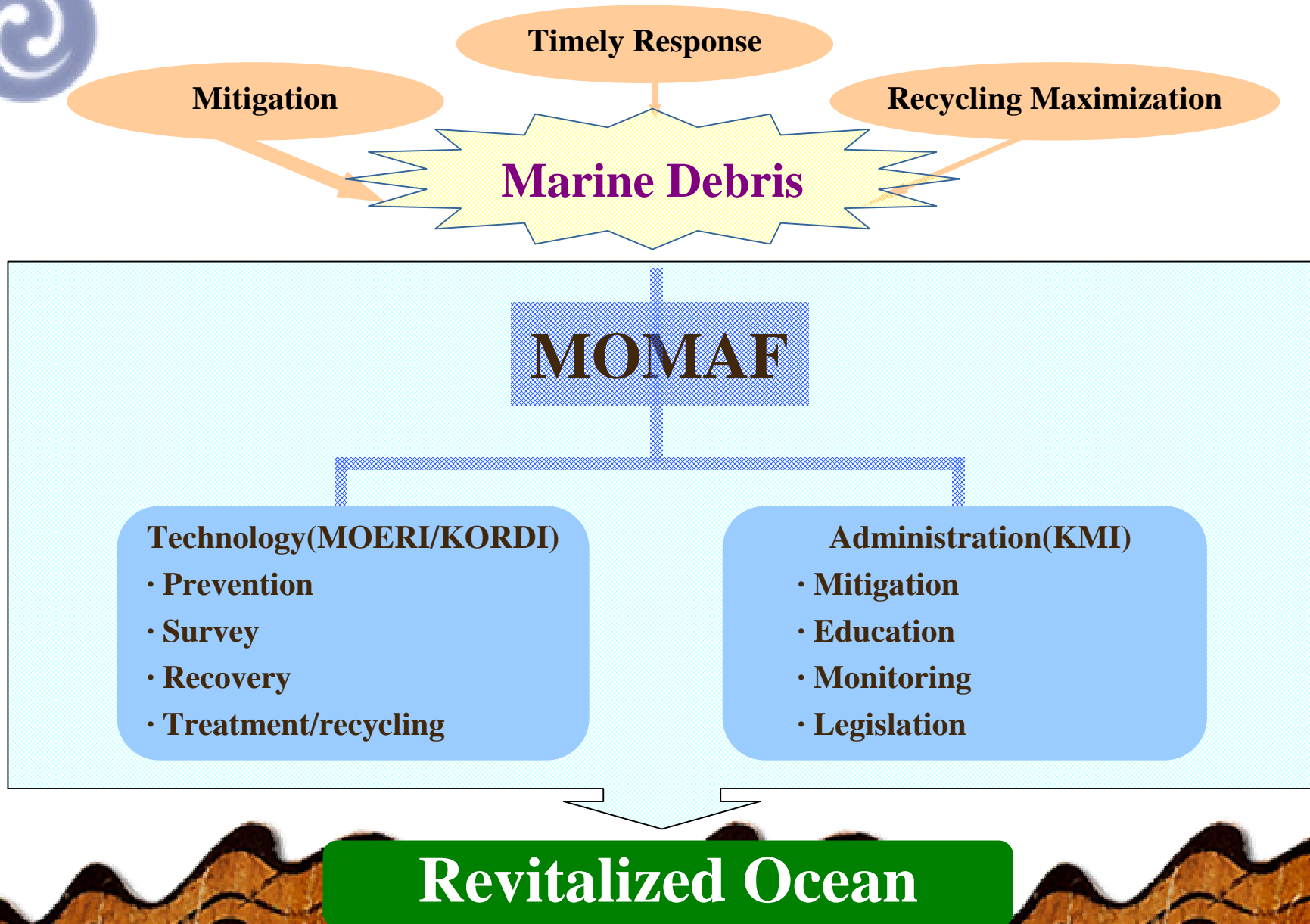


Conservation Policy

- Mitigation & Minimization
- Timely Response: Recovery
- Maximization of Recycling
- Environmentally Friendly Treatment



Integrated Policy for Marine Debris





Initiation of National Projects

- Initiation of the National Project (1999)
 - ◆ Marine debris survey
(MOERI/KORDI)
 - ◆ Integrated management strategy
 - ◆ Technology development
(MOERI/KORDI)
 - ◆ Management tools and administrative issues
(KMI)





Marine Debris Survey (1/4)

- National Survey Project in Korea
 - ◆ 1999 ~ Present
 - ◆ Ports and Harbors
 - ◆ Nearshore and Offshore
 - ◆ Providing the Basic Statistical Data for Making a Budget and Policy Formation
 - ◆ Approximately 0.3M USD





Marine Debris Survey (2/4)

- National Survey Project in Korea
 - ◆ Survey Method: Simple & Cost-Effective
 - ◆ Side Scan Sonar
 - ◆ Auxiliary tools
 - ◆ Bottom trawl
 - ◆ Corer
 - ◆ Diver





Marine Debris Survey (3/4)

- National Survey Project in Korea
 - ◆ Survey Result for Ports & Harbors
 - ◆ 1999~2000
 - ◆ 129 ports and harbors
 - ◆ 91km²
 - ◆ Statistics

Type	Auto. Tire	Syn. Rope	Wire Rope	Metallic material	Wooden material	Miscellaneous material	Sum
No. of items	6,623	5,406	2,108	1,935	552	4,388	27,618
Percentage	31	26	10	9	3	23	100
Weight-based composition	5	26	13	23	8	22	100



Marine Debris Survey (4/4)

- National Survey Project in Korea
 - ◆ Survey Result for Ports & Harbors
 - ◆ Estimation for the whole area of ports & harbors

	Western ports	Southern ports	Eastern ports	Sum	Overall mean density (ton/km ²)
Weight (ton)	12,344	10,876	11,416	34,636	112
Percentage	36	31	33	100	
Max. density (ton/km ²)	534	366	296	–	



Integrated Management (1/8)

- National Project for R & D
 - ◆ Work Period: 1999~2010
 - ◆ Title
 - ◆ Integrated Management System for Marine Debris
 - ◆ Scope
 - ◆ Technology
 - ◆ Management tools & administrative issues





Integrated Management (2/8)

- National Project for R & D
 - ◆ Budget History and Plan

	Year	Annual budget (U.S.D.)	Sub-sum (U.S.D.)	Remarks
Phase I Base Technologies	1999	489,500	7,464,000	
	2000	1,219,500		
	2001	1,955,000		
	2002	1,855,000		
	2003	1,945,000		
Phase II Practical Technologies	2004	1,732,000	11,221,000	From 2006, not yet determined.
	2005	1,989,000		
	2006	1,500,000		
	2007	3,000,000		
	2008	3,000,000		
Phase III Popularization of Developed Technologies	2009	5,000,000	10,000,000	
	2010	5,000,000		
Total sum		28,685,000	28,685,000	



Integrated Management (3/8)

- Work Scopes of R & D
 - ◆ Prevention
 - ◆ Field Survey
 - ◆ Recovery
 - ◆ Treatment & Recycling
 - ◆ Management, Education, and Miscellaneous Issues





Integrated Management (4/8)

- Work Scopes of R & D

- ◆ Prevention

- ◆ Floating Debris Containment Boom
- ◆ Dam, rivers, and channels
- ◆ Manufactured full-scale product and carried several site experiments in rivers, and channels





Integrated Management (5/8)

- Work Scopes of R & D

- ◆ Field Survey

- ◆ Deep-sea Bottom Survey Equipment: Tow-Sled
 - ◆ Underwater camera system (1,000m water depth)
 - ◆ Guide frame for towing, and mounting of the camera and video recording system
 - ◆ Position-tracking device
 - ◆ Off-line (2002~2004) vs. real-time (2005~2006)





Integrated Management (6/8)

● Work Scopes of R & D

◆ Recovery

- ◆ Multi-functional Marine Debris Recovery System
 - ◆ Surface vessel
 - ◆ Recovery devices w/ quick coupling
 - ◆ Orange grapple
 - ◆ Rake
 - ◆ Wire cutter
 - ◆ Pick-up net





Integrated Management (7/8)

- Work Scopes of R & D
 - ◆ Treatment & Recycling
 - ◆ Pre-treatment
 - ◆ RDF(Refuse Derived Fuel) Production Facility
 - ◆ Waste Polystyrene Buoys Recycling System
 - ◆ Marine Debris Incinerator
 - ◆ On-board Combined Treatment System
 - ◆ Waste FRP vessel Treatment System





Integrated Management (8/8)

- Work Scopes of R & D
 - ◆ Management, education, and Misc. issues
 - ◆ Effective Policy Formation
 - ◆ National Monitoring Program
 - ◆ Legislation
 - ◆ Mitigation Strategy
 - ◆ Education & Campaign
 - ◆ International Coastal Clean-up Activities





Concluding Remarks

- The basic statistical data for distribution of marine litters seems to be the first thing to do.
- The approach of the integrated management system is very important in dealing with the problem of marine debris.
 - ◆ Technology development should be with high emphasis on the practical use in the real world.
 - ◆ Technology must keep pace with management tools and administrative issues

