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NORTHWEST PACIFIC
ACTION PLAN

Marine litter

in the

Northwest Pacific Region

UNITED NATIONS ENVIRONMENT PROGRAMME



**Regional
Seas**



NOWPAP

Northwest Pacific Action Plan

Marine Litter

in the Northwest Pacific Region



A report by the Northwest Pacific Action Plan (NOWPAP),
United Nations Environment Programme

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Marine Litter in the Northwest Pacific Region

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Preface

This publication is intended to provide information for the general public, governments and private sector on the marine litter problem and its solutions in the NOWPAP region. The publication consists of two parts (which were published separately by NOWPAP in 2007):

- Part I: Regional Overview of Marine Litter in the NOWPAP Region; and
- Part II: NOWPAP Regional Action Plan on Marine Litter.

The regional overview has been prepared based on national inputs provided during the implementation of NOWPAP Marine Litter Activity (MALITA) in 2005-2007. As one of the outcomes of MALITA, the NOWPAP Regional Action Plan on Marine Litter (RAP MALI) was approved by the NOWPAP member states in March 2008 and has been implemented since then. The workplan and budget provided in Part II is for the 2008-2009 biennium, but the efforts to address the marine litter problem will be continued as long as NOWPAP member states (People's Republic of China, Japan, Republic of Korea and Russian Federation) consider this issue as their priority for action.

While implementing MALITA and RAP MALI, each NOWPAP member state designated Marine Litter National Focal Points to coordinate their national efforts:

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Part I
Regional Overview of Marine Litter in the
NOWPAP Region

1. Introduction

Marine Litter, also known as marine debris, is defined as any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment. It can enter directly (e.g., from a ship) or indirectly when washed out to sea through rivers, streams and storm drains. Marine litter causes a complex and multi-dimensional problem with significant implications for the environment and human activities.

Recognizing the severity of marine litter issues, the United Nations General Assembly adopted resolution (UN GA Resolution A/60/L.22) in November 2005 calling for global and regional actions to address the problem. In response to this resolution, UNEP has developed a global initiative on marine litter. Twelve Regional Seas Programmes currently participate in this UNEP global initiative and NOWPAP is one of them. The geographic scope of NOWPAP is shown in Figure 1.

NOWPAP Marine Litter Activity (MALITA) has been initiated since its approval by the Tenth NOWPAP Intergovernmental Meeting in November 2005 with the overall goal of the

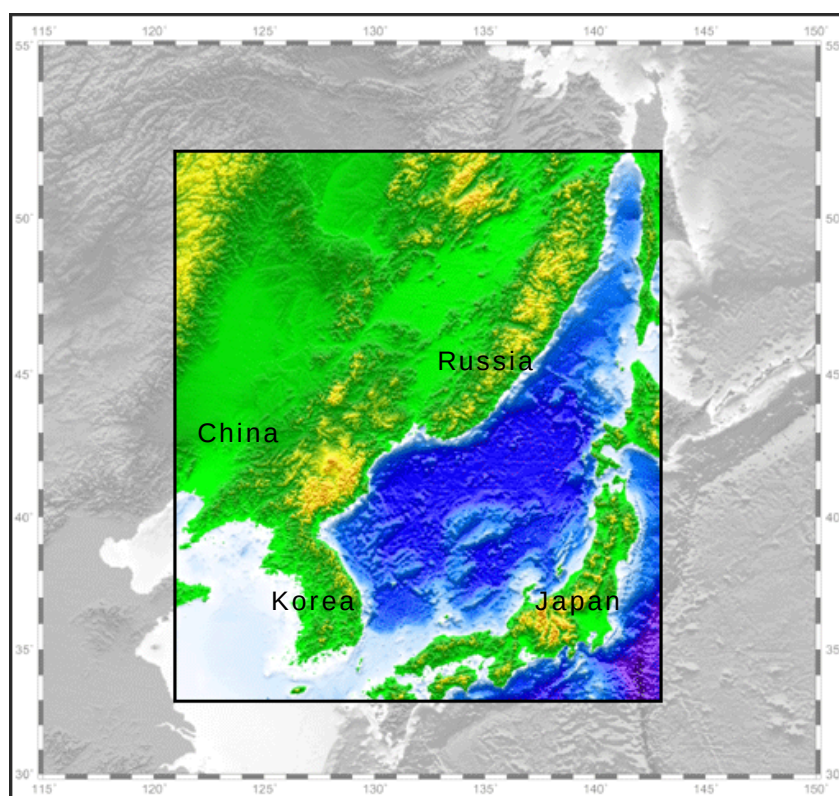


Figure 1. Geographic scope of the NOWPAP region

development of a NOWPAP Regional Action Plan on Marine Litter (RAP MALI). Since then, several MALITA components have been successfully implemented. First, marine litter-related data and information available in the region were collected and analyzed. On the basis of collected data and information, a NOWPAP marine litter database (<http://dinrac.nowpap.org>) was established. Second, a regional overview on legal instruments, institutional arrangements and programmes related to marine litter was prepared (DINRAC 2007a). Third, monitoring guidelines for marine litter (found on beaches and shorelines as well as on the seabed) and sectoral guidelines focusing on fishing, shipping and tourism were developed (CEARAC 2007a, b; MERRAC 2007a, b, c, d, e, f). Fourth, brochures, leaflets and posters were published in English to increase the public awareness on the marine litter problem as a whole. Some of them were translated into national languages of the NOWPAP member states to facilitate and promote their practical use. Finally, a draft NOWPAP RAP MALI was developed, further discussed at the Twelfth NOWPAP Intergovernmental Meeting (October 2007) and finalized at the NOWPAP RAP MALI meeting (November 2007). The RAP MALI was approved by the NOWPAP member states in March 2008 and is now integrated into the NOWPAP Programme of Work (together with the existing work on harmful algal blooms, oil spills, integrated coastal area and river basin management, etc.).

While implementing the two years' project of MALITA, NOWPAP has prepared this regional overview on marine litter based on data and information available in the region. The objective of this overview is to assess the current situation of marine litter in the region in order to assist the NOWPAP member states in the development and formulation of the necessary measures for environmental protection and sustainable management of marine litter. This overview contains review of available data and information on marine litter; existing legal instruments, institutional arrangements, programmes and initiatives; gaps and needs in coverage of marine litter management; and proposals for changes and recommendations.

2. Assessment of the Current Status of Marine Litter

Our seas and waterways are constantly polluted with a wide variety of marine litter ranging from plastic bottles to derelict fishing gear. Despite alarming evidences on the marine litter problem, our current knowledge about the overall situation of marine litter is still not enough. Data and information on marine litter will definitely provide a solid basis for actions to be taken to deal with the litter problem as a whole at the regional and national level.

Data to assess the regional situation of marine litter are very unevenly distributed geographically in the Northwest Pacific region. Recognizing the urgent necessity of dealing with the marine litter problem, however, several national initiatives to collect data have already been undertaken by the NOWPAP member states. In addition to data on marine litter provided in this overview, some national information is available at the NOWPAP marine litter database (DINRAC 2007b).

The best data available for the NOWPAP region can be, at present, obtained from the research results of the Northwest Pacific Region Environmental Cooperation Centre (NPEC), Japan (NPEC 2003, 2004, 2005, 2006). NPEC has initiated a research on washed-up driftage on the coasts on the Northwest Pacific region since 1996 and extended gradually its survey area to the neighbouring countries such as Republic of Korea, People's Republic of China and Russian Federation (Table 1). The research was carried out once a year using the relatively unified methods.

Table 1. The number of survey locations in each of the NOWPAP member states (NPEC, 2002-2005)

Year	Number of survey locations				
	Japan	Korea	Russia	China	Total
2002	26	9	5	0	40
2003	26	5	5	12	48
2004	26	6	5	14	51
2005	44	6	6	14	70

2.1. Amounts of Marine Litter

2.1.1. Japan

In the NPEC research, marine litter was classified into eight categories: plastics, rubber, polystyrene, paper, cloth, glass and ceramic, metals, and others (NPEC 2003, 2004, 2005, 2006). According to the results of the 4 years' research, plastic litter was most prevalent along the coastal areas of Japan, accounting for 76.2% of the total collected litter in number and 51.3% in total weight (Figure 2). The next dominant item was polystyrene in the total number collected and glass and ceramic in the total weight collected.

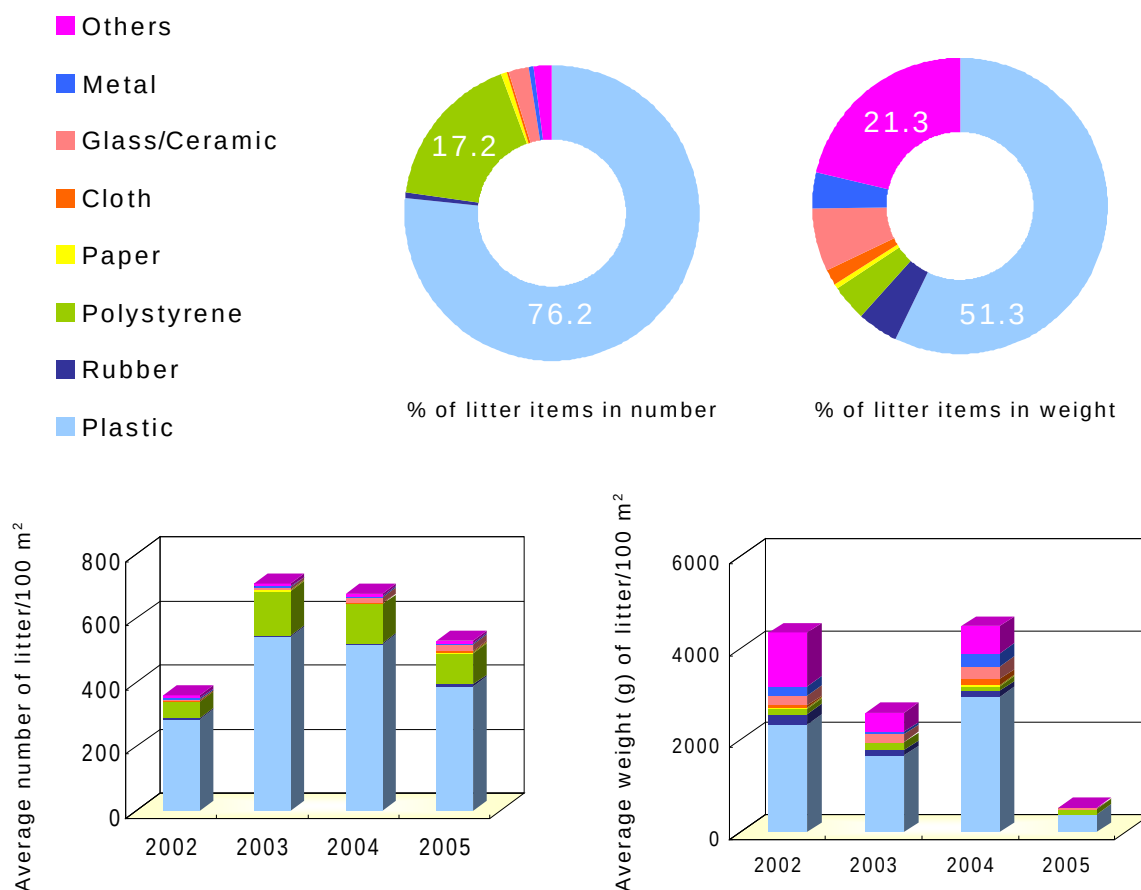


Figure 2. Composition of marine litter along the coastal areas of Japan from 2002 to 2005 (data from NPEC)

Approximately 570 pieces (3,864 g) of marine litter were, on average, found per 100 m² from 2002 to 2005 (NPEC 2003, 2004, 2005, 2006). The annual average number of marine litter

collected per 100 m² varied from 360 in 2002 to 707 in 2003 (Figure 2). The annual average weight of marine litter collected per 100 m² was between 532 g in 2005 and 4,482 g in 2004. However, these annual average values presented in Figure 2 do not represent the actual inter-annual variation in the quantities of marine litter because they can vary depending on the intensity of each survey (e.g., different number of participants), survey locations, weather conditions (e.g., before or after heavy rain or typhoon) and other peculiarities (e.g., peak season of tourism including local festivals and other events held at the surveyed beaches, the presence of other cleanup operation at the given survey location, etc.).



Figure 3. Map of survey locations carried out by NPEC, Japan, in 2003

In the NPEC research, the survey locations can be grouped into 5 areas (Figure 3, Table 2; NPEC 2003, 2004, 2005, 2006). In the area A, the average number of marine litter observed per 100 m² from 2002 to 2005 was 1,366 pieces that was up to 7 times higher than that in

Table 2. The number of survey locations in the 5 grouped areas (data from NPEC)

Year	Number of survey locations					Total
	A	B	C	D	E	
2002	4	7	7	5	3	26
2003	4	9	7	5	1	26
2004	4	8	7	5	2	26
2005	7	16	8	3	3	37

the remaining 4 areas (Figure 4). However, the annual average values in each grouped area do not directly represent actual inter-annual variation in the amount of marine litter (as previously described). This pattern might be related to direction of ocean currents such as the Tsushima current and the Kuroshio current. Further detailed research is required to identify the relation between the distribution of marine litter and the ocean currents.

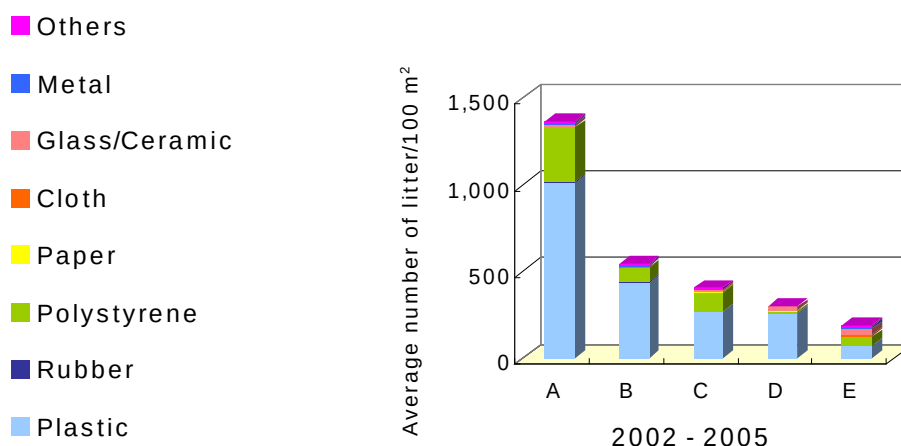


Figure 4. Amounts of marine litter collected in 5 survey areas of the west coast of Japan (data from NPEC)

2.1.2. Republic of Korea

According to the results of the 4 years' NPEC research, the most prevalent litter item along the coastal areas of Korea was plastic, accounting for 53.6% of the total collected litter in number and 33.7% in the total weight (Figure 5; NPEC 2003, 2004, 2005, 2006). The next dominant item was metal in the total number collected (21.5%) and the glass and ceramic in the total weight collected (14.4%).

Approximately 30 pieces of marine litter were, on average, observed at every 100 m² of the NPEC survey areas along the coastal zone of Korea from 2002 to 2005 (Figure 5; NPEC 2003, 2004, 2005, 2006). The annual average number of marine litter collected per 100 m² varied between 20 in 2005 and 53 in 2004. The annual average weight of marine litter collected per 100 m² was from 20 g in 2005 to 269 g in 2003. However, these average values do not represent the actual annual fluctuation in quantities of marine litter (as previously described).

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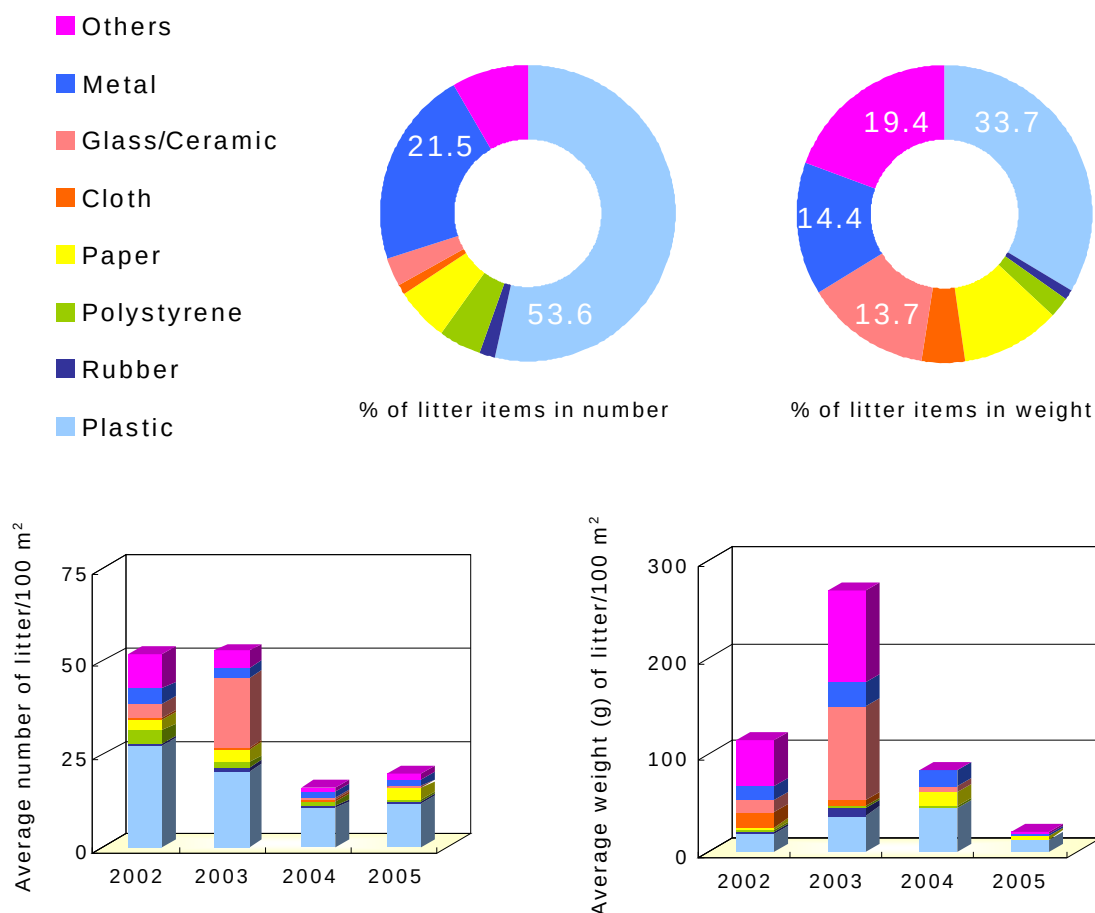


Figure 5. Composition of marine litter along the coastal areas of Korea from 2002 to 2005 (data from NPEC)

The Ministry of Land, Transport and Maritime Affairs (MLTM, formerly Ministry of Maritime Affairs and Fisheries), Korea has implemented national marine litter monitoring surveys since 2000. This overview used the data obtained from the two years' survey only (Figure 6). The data used are available on the NOWPAP Marine Litter Database (<http://dinrac.nowpap.org>). Polystyrene was the most prevalent item in the total number collected while plastic litter in the total weight collected (Figure 7). A significant proportion of wood was also found in both the total number and weight collected.

According to Figure 5 and 7, there are some differences in the survey results provided by NPEC (Japan) and MLTM (Korea) regarding the amount of collected marine litter and the dominant litter items. These discrepancies are mainly due to different survey areas (in addition to factors previously mentioned such as the number of participants and their expertise, weather conditions, previous cleanup activities, etc.). In case of the NPEC

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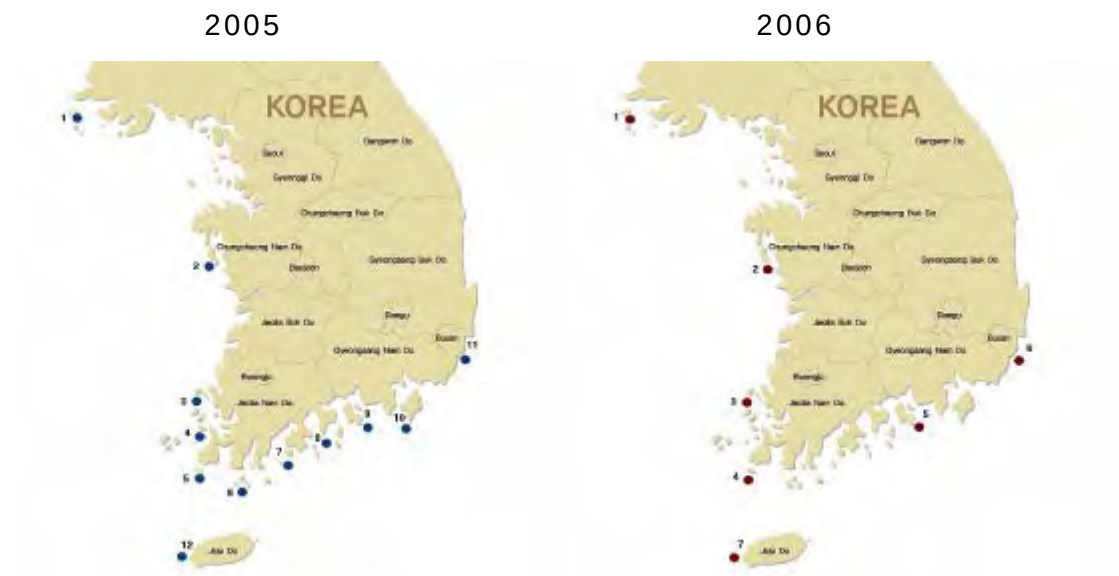


Figure 6. Maps of survey locations carried out by MLTM, Korea

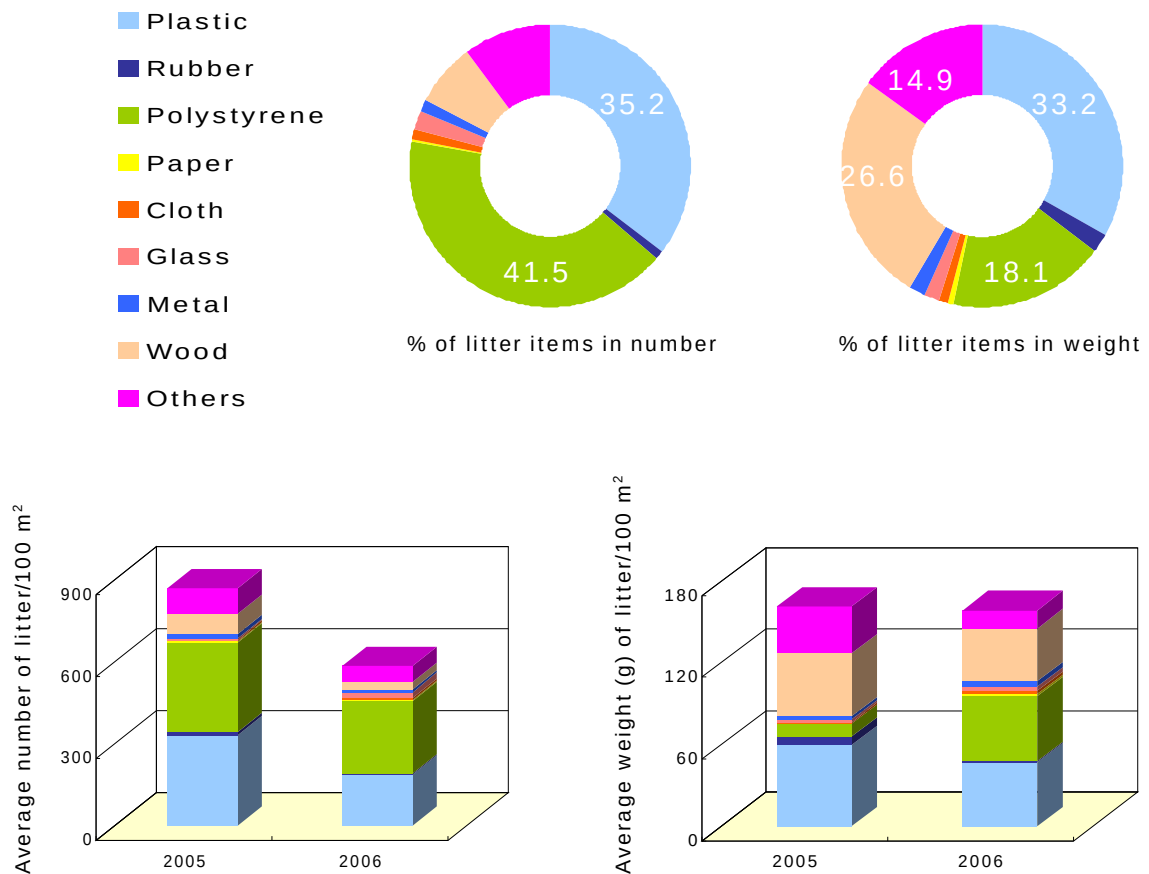


Figure 7. Composition of marine litter along the coastal areas of Korea (data from MLTM)

surveys, the local volunteers collected litter mainly in the public beach areas, while the MLTM surveys were carried out mostly by researchers (familiar with litter hot spots around fishing grounds). Therefore, in the MLTM surveys, high percentage of polystyrene possibly indicates intensive fisheries-related activities around the study areas.

2.1.3. Russian Federation

In the Russian Far East, there were no national data available for this overview. However, the NPEC surveys provide limited data on marine litter in the three coastal provinces of the Russian Far East between 2002 and 2005 (Table 1, Figure 3; NPEC 2003, 2004, 2005, 2006). Plastic litter was most dominant in the total number of marine litter collected while glass and ceramic litter in the total weight collected (Figure 8).

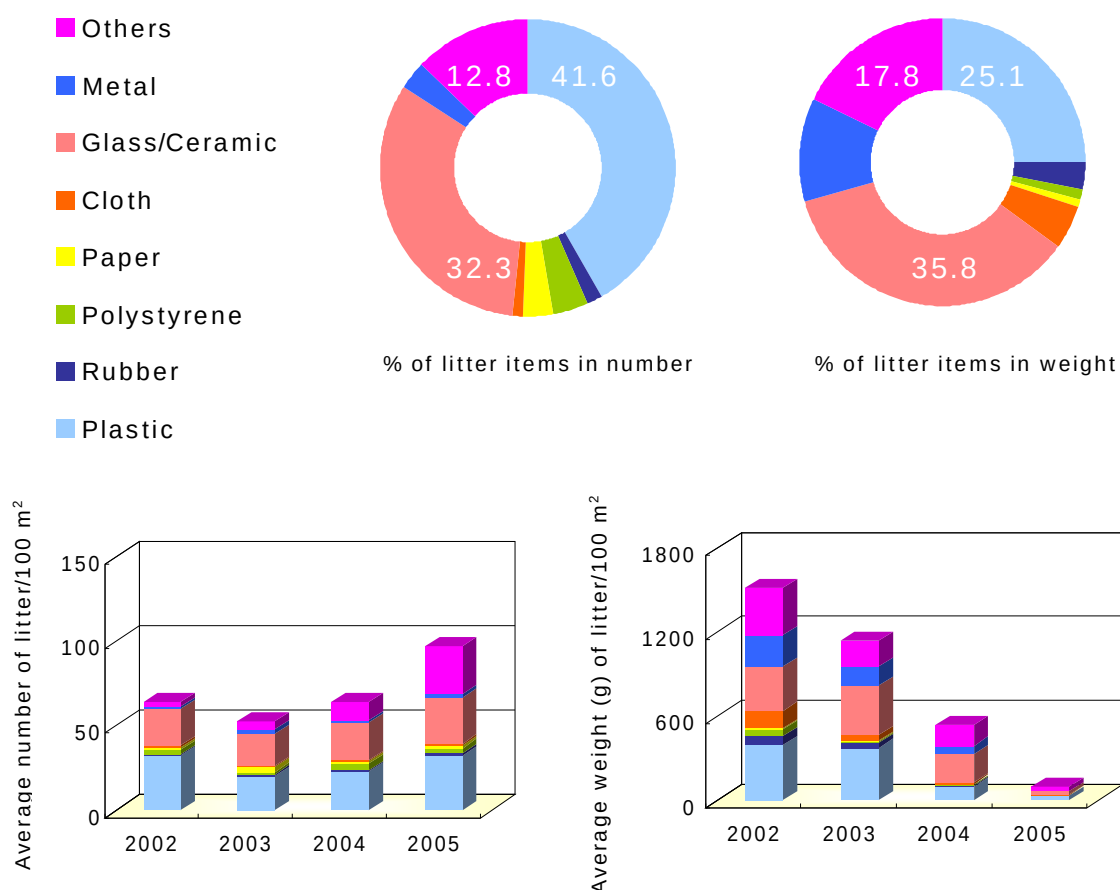


Figure 8. Composition of marine litter along the coastal areas of the Russian Far East from 2002 to 2005 (data from NPEC)

According to the NPEC surveys, approximately 70 pieces (822 g) of marine litter were, on average, found per every 100 m² of the coastal areas of Russian Far East from 2002 to 2005 (Figure 8; NPEC 2003, 2004, 2005, 2006). The annual average number of marine litter collected per 100 m² ranged from 53 in 2003 to 98 in 2005. The annual average weight of marine litter collected per 100 m² was between 97.4 g in 2005 and 1,515.1 g in 2002. These variances do not represent the actual increase or decrease in the quantities of marine litter in the given survey locations (as previously explained). According to the NPEC data, the proportion of glass and ceramic litter is higher than that in Japan and Korea,

2.1.4. People's Republic of China

Since very little is known about marine litter in China, no national data were available for this overview. The NPEC surveys cover the east coastal areas of China (Table 1, Figure 3; NPEC 2003, 2004, 2005, 2006). Glass and ceramic litter was most prevalent in the total number collected, while polystyrene in the total weigh collected (Figure 9). A significant

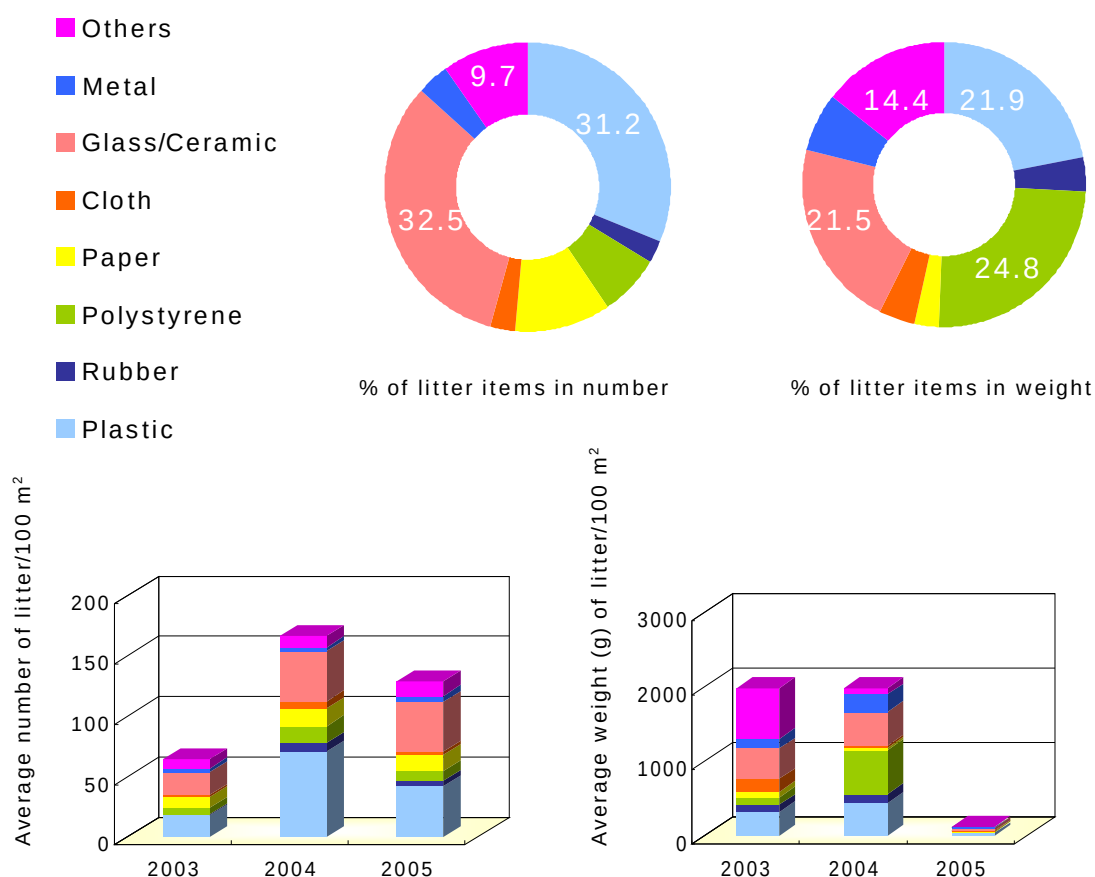


Figure 9. Composition of marine litter along the coastal areas of China from 2003 to 2005 (data from NPEC)

proportion of plastic litter was also found in both the total number and weight collected. These finding is somewhat similar to that in the Russian Far East but different from that in Japan and Korea (Figures 2, 4, 5, 7-8).

In the NPEC surveys, every 100 m² of the observed areas along the Chinese coast were polluted with 120 pieces of marine litter on average from 2003 to 2005 (NPEC 2003, 2004, 2005, 2006). The annual average number of marine litter collected per 100 m² of the survey areas was between 64 in 2003 and 166 in 2005 (Figure 9). The annual average weight of litter collected per 100 m² varied from 128 g in 2002 to 1,982 g in 2005. However, these average values do not reflect the actual annual variations in the amounts of marine litter as previously explained.

This overview is dealing only with marine litter accumulated at beaches and coastal areas because of availability of data for the time being. Marine litter can be found not only at beaches and costal areas but also floating on the water surface, mixed in the water column and sank to the seabed. For better scientifically reliable assessment on the current status of marine litter, further detailed research is needed at the national and regional level.

2.2. Sources of Marine Litter

The International Coastal Cleanup (ICC), initiated and promoted by the Ocean Conservancy (OC, an U.S.A. NGO) and known as the largest and most successful volunteer event of its

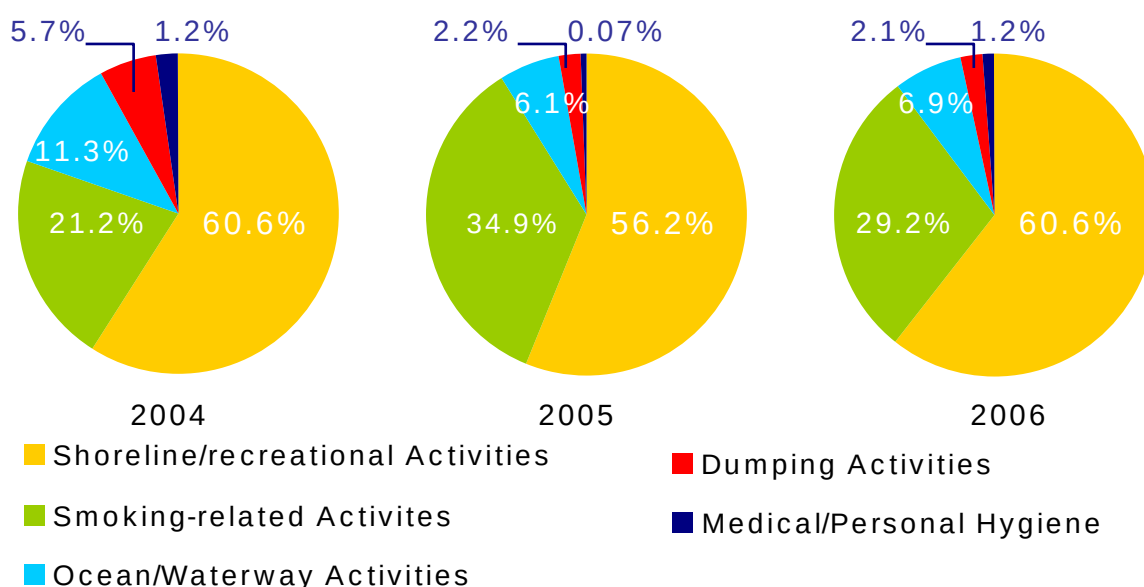


Figure 10. Worldwide sources of marine litter (data from the Ocean Conservancy)

kind in the world, collects data on marine litter. The ICC organizes an annual, worldwide beach cleanup in September. In the year of 2006, over 358,000 volunteers in 68 countries took part and removed litter from over 55,620 km (34,560 miles) of coastline and waterways. The ICC results show that almost 60% of litter found could be attributed to shoreline and recreation activities such as beach picnics (Figure 10).

Among the NOWPAP member states, Japan and Korean have participated in the ICC campaign since 1990 and 2001, respectively. In 2006, China has joined the ICC campaign. This overview used the ICC data from 2004 to 2006 (Table 3; OC 2004, 2005, 2006).

Table 3. ICC Participation of the NOWPAP member states

	ICC information	2004	2005	2006
Japan	No. of volunteers participated	17,773	14,809	16,878
	Total length cleaned up (km)	110.4	40.2	2,732.6
	Total litter weight collected (ton)	122.3	33.3	17.3
Korea	No. of volunteers participated	2,003	3,971	3,655
	Total length cleaned up (km)	46.7	35.1	89.8
	Total litter weight collected (ton)	16.7	134.3	323.9
China	No. of volunteers participated	-	-	30
	Total length cleaned up (km)	-	-	24.1
	Total litter weight collected (kg)	-	-	50.3

According to the ICC reports of Japan and Korea, almost 50% of marine litter collected originated from shoreline and recreational activities (Figure 1; OC 2004, 2005, 2006): food wrappers and containers, beverage bottles and cans, and straws. In Japan, smoking-related activities came in second (accounting for over 31%) while in Korea, ocean and waterway activities (29%). The majority of ocean and waterway activities was fishing-related items (e.g., bait containers, floats, traps, fishing line, lures and nets, light sticks and bulbs, rope, etc.). Dumping activities were responsible for a little less than 5%. While medical and

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personal hygiene made up little more than 0.1% of the total marine litter on average, it accounted for some of the more disturbing items such as syringes and tampons.

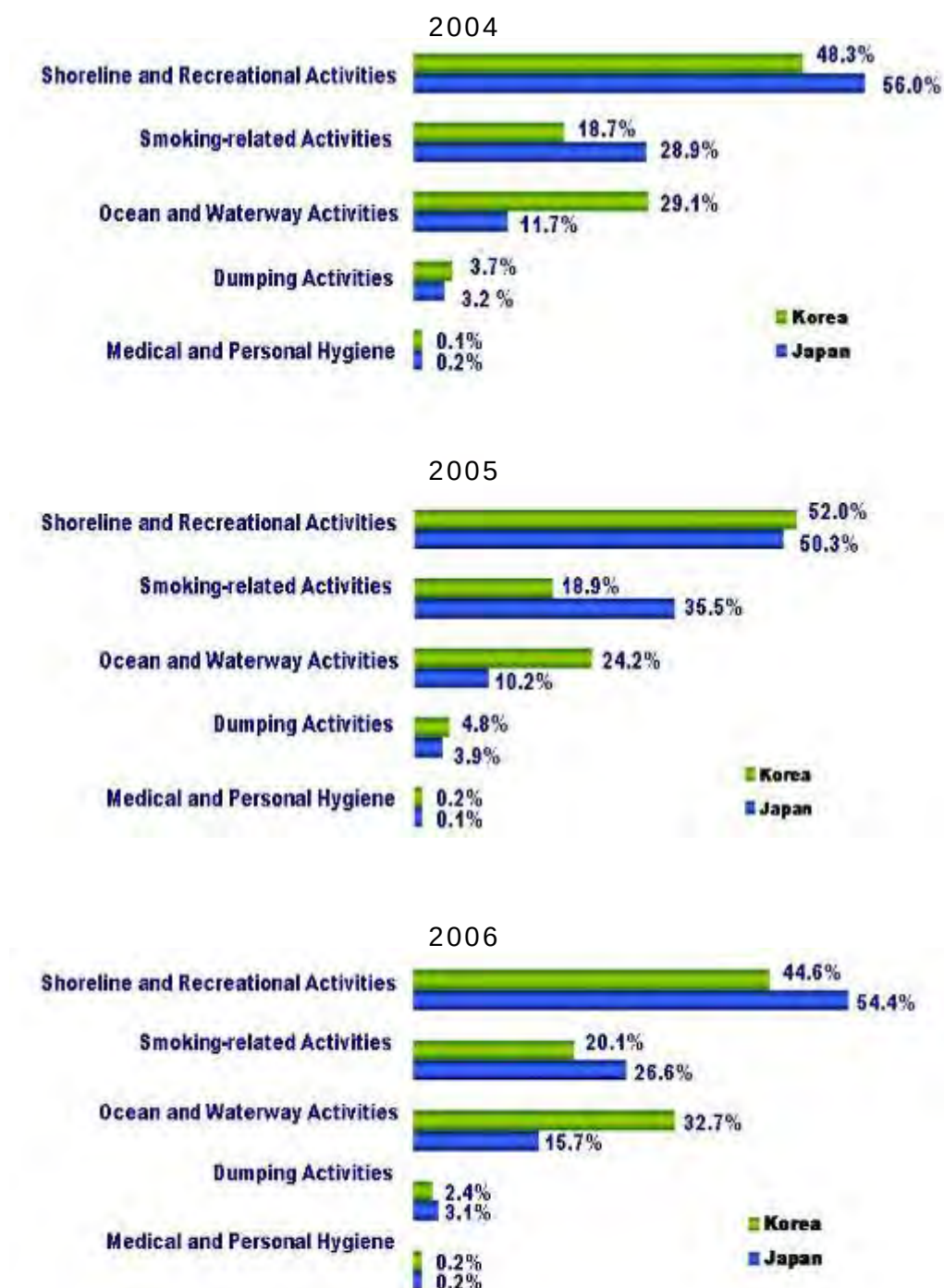


Figure 11. Sources of marine litter in Japan and Korea in percentage (data from the Ocean Conservancy)

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In 2007, China has organized an ICC campaign in Rizhao as part of the NOWPAP MALITA implementation and local volunteers organized an additional ICC campaign in Shanghai. Russia also conducted a pilot ICC campaign in 2007 and is expected to organize the full scale ICC campaigns. The ICC data to be produced by China and Russia will contribute to better understanding of sources of marine litter.

3. Legislation, Policies and Institutional Arrangements

3.1. Legislation and Policies

According to the regional overview on legal instruments, institutional arrangements and programmes related to marine litter, based on the four national summaries prepared as a part of NOWPAP MALITA, each of the NOWPAP member states has marine litter related national laws and regulations (Table 4; DINRAC 2007a). National legal instruments of the NOWPAP member states comply with marine litter-related international conventions and agreements such as the International Convention for the Prevention of Pollution from Ships (MARPOL Convention); the Convention for the Prevention of Marine Pollution from Dumping of Wastes (London Convention); the Basel Convention on the Transboundary Movements of Hazardous Wastes and Their Disposal; and the Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-based Activities (Table 5). The regional overview is available at the NOWPAP marine litter database (<http://dinrac.nowpap.org>).



Figure 12. NOWPAP Marine Litter Database

Table 4. Marine litter-related national laws and regulations in the NOWPAP region

	National laws and regulations
China	• Environmental Protection Law (EPL) sets the overall supervision and management of the environmental protection throughout the country. • Marine Environment Protection Law (MEPL) aims to supervise the nationwide marine environment protection, conserve marine resources, prevent pollution, safeguard human health and promote economic and social development. • Law on Control of Ocean Waste Dumping regulates waste dumping at sea. • Regulations on Prevention of Pollution Damage to Marine Environment by Land-based Pollutants prohibit to pile up, discard or dispose of solid waste along seashores and beaches without authorized permission. • Regulations on the Control of Environmental Pollution by Ship-based Wastes describe the treatment of garbage from ships. • Regulations on Strengthening Management of Plastic Package Wastes along Main Roads, in River Basins and at Tourist Attractions prohibit littering plastic waste or other solid waste into rivers, lakes and their banks and to use non-degradable tableware on passenger ships and cruise lines. • Regulations on Prevention of Pollution Damage to Marine Environment by Coastal Construction Projects concern the protection of the marine environment from the coastal development and construction.
Japan	• Basic Environment Law sets forth basic principles for the environmental policy. • Waste Management and Public Cleansing Law regulates industrial waste disposal, including waste dumping at sea, and concerns the maintenance of ports and harbours. • Cabinet Order of Waste Management and Public Cleansing Law sets the standards for the collection, transport and disposal of municipal solid waste, including industrial waste and ocean dumping of solid waste. • Law Related to Prevention of Marine Pollution and Maritime Disasters regulates the discharge of waste generated from ships and its management onboard. • Seacoast Law aims to protect the seacoast area from damages caused by a variety of oceanological phenomenon (e.g., tsunami, storm surges and high waves) and promote coastal zone conservation and its proper use. • Port and Harbour Law describes the maintenance and management of port areas and facilities. • Establishment Law of the Ministry of Land, Infrastructure and Transport concerns the matters of the prevention of the marine environment pollution.

Table 4. Continued

	National laws and regulations
Korea	• Environmental Policy Basic Law provides the overall supervision of management of the environmental protection. • Maritime Pollution Prevention Law aims to prevent the marine and coastal environment from hazardous pollutants (mainly from ships) such as oil, sewage and garbage. • Ocean and Fisheries Development Basic Law sets forth basic principles for the development of ocean-related industries including fisheries. • Port Management Law prohibits the discharge of waste in the port area for safe navigation and describes the development, maintenance and management of ports and their facilities. • Coast Management Law aims towards the sustainable use of the coastal environment, including beaches and public swimming areas, and regulates coastal construction. • Waste Management Law concerns the collection and treatment of industrial waste and household waste.
Russia	• Environment Protection Law sets basic policies for the environmental protection and ecological safety. • Water Code deals with the water protection from pollution and abuse. • Production and Consumption Wastes Law focuses on the waste management from production and consumption. • Inland Sea Waters, Territorial Sea and Contiguous Zone Law describes surveillance in case of incidents. • EEZ (Exclusive Economic Zone) Law contains the protection and conservation of special areas to prevent marine pollution from ships. • Regulations on Waste Disposal and other Kinds of Abuse define environmental pollution and related adverse effects where procedures of waste disposal are included. • Fishery Fleet Instructions on Preventing Pollution from Ships focus on preventing marine pollution from fishing vessels. • Polluted Harbour Waters Cleanup Operation Rules deal with cleaning polluted water in the port areas, including oil spill incidents. • Compulsory Regulations on Sea Ports address the management of garbage from ships.

Table 5. The current status of compliance with marine litter-related international conventions and agreements by the NOWPAP member states

	China	Japan	Korea	Russia
MARPOL Convention Annex V	Implements nationally through Regulations on Prevention of Ship-based Sea Pollution	Implements nationally through Law relating to the Prevention of Marine Pollution and Maritime Disaster	Implements nationally through Marine Pollution Prevention Law	Implements nationally through Fishery Fleet Instructions on Preventing Pollution from Ships; and Compulsory Regulations on Sea Ports
London Convention	Implements nationally through Regulations on Control over Waste Dumping to the Marine Environment	Implements nationally through Law Relating to the Prevention of Marine Pollution and Maritime Disaster	Implements nationally through Marine Pollution Prevention Law	Ratified
Basel Convention	Implements nationally through Regulations on Prevention of Environmental Pollution by Solid Waste	Implements nationally through Waste Disposal and Public Cleansing Law; and Law for the Control of Export, Import and Others of Specified Hazardous Wastes and Other Wastes	Implements nationally through Law on Transboundary Movement and Treatment of Marine Debris	Ratified
GPA	Implements nationally through Regulations on Prevention of Pollution Damage to Marine Environment from Land-based Activities	Implements nationally through Water Pollution Control Law; and Law Concerning the Examination and Regulation of Manufacture	Implements nationally through National Clean Water Action Plan	(No clearly defined regulations for the prevention of the sea from land-based activities)

Marine litter is, in most cases, not specifically mentioned in national legal instruments of the NOWPAP member states. The litter problem is more likely connected to other marine and coastal environmental protection and health issues. It is clear that marine litter should be further addressed by the existing national legislation with measures to prevent, reduce and control the discharge of land-based and ship-generated wastes, and to reduce the loss of fishing gear from fishing vessels. These measures can also contribute to the Integrated Coastal Area and River Basin Management (ICARM).

3.2. Institutional Arrangements

According to the regional overview on legal instruments, institutional arrangements and programmes related to marine litter, based on the four national summaries, governmental responsibilities for marine litter issues are shared by different authorities such as ministries,

Table 6. Institutional arrangements to deal with marine litter issues in the NOWPAP member states

	Institutional arrangements
China	• Ministry of Environmental Protection (MEP, formerly State Environmental Protection Administration) responsible for the overall supervision and management of environmental protection issues • State Oceanic Administration (SOA) in charge of surveys, monitoring and surveillance of the marine environment (including scientific research) and waste dumping at sea • Fishing Management Bureau (FMB) responsible for fisheries resources-related issues, including the supervision of the pollutant discharge by fishing vessels, under the Ministry of Agriculture • State Harbour Superintendent Administration responsible for supervision, investigation and disposal of the pollutant discharge by ships, surveillance of water quality of harbour areas, and prevention of pollution caused by ships • Environmental Protection Department of the Armed Forces responsible for the supervision of the pollutant discharge by military vessels and surveillance of naval port waters • Local People's Government in Coastal Areas responsible for protection of the marine environment from construction and land-based pollutants

Table 6. Continued

Japan	• Ministry of Environment (MOE) responsible for the overall supervision and management of environmental protection issues • Ministry of Land, Infrastructure and Transport (MLIT) responsible for the discharge of waste from ships at sea (with MOE) • Japan Coast Guard (JCG) responsible for the enforcement of marine-related laws and regulations, including waste discharge from ships • Port Authorities in charge of port management • Prefecture and Local Municipalities responsible for the general waste management
Korea	• Ministry of Land, Transport and Maritime Affairs (MLTM, formerly Ministry of Maritime Affairs and Fisheries) responsible for the overall supervision of the protection of the marine and coastal environment including the management of marine litter • Ministry of Environment (MOE) in charge of the overall environmental protection issues in inland areas including the management of land-based waste • Korea Coast Guard (KCG) responsible for the enforcement of marine-related laws and regulations, including waste discharge from ships at sea • Local Governments responsible for the protection of the coastal zone and the general management of waste including marine litter (in collaboration with MLTM)
Russia	• Ministry of Natural Resources (MNR) responsible for marine environmental protection issues including the management of biological resources • Ministry of Transport (MOT) in charge of shipping-related issues including safe navigation of ships • Administration of Sea Port responsible for merchant shipping-related issues in subordination to MOT • Administration of Primorsky Kray in charge of the overall environmental protection in the area

provincial and municipal governments and agencies (Table 6; DINRAC 2007a). In general, environmental ministries take the lead for the overall supervision of land-based marine litter and maritime ministries/administrations take responsibility for sea-based marine litter. Local governments are in charge of the general management of waste generated within their

coastal area. Therefore, at the national level, a mechanism to strengthen cooperation between different national institutional bodies is needed for better management of marine litter. There has been developed no comprehensive national action plans on marine litter in the NOWPAP member states.

3.3. Programmes and Initiatives

Marine litter-related programmes and initiatives have been drawn from several outcomes obtained through the NOWPAP MALITA implementation, such as a regional overview on legal instruments, institutional arrangements and programmes related to marine litter based on the four national summaries (DINRAC 2007a) and proceedings of a series of NOWPAP marine litter workshops (Table 7).

In Japan and Korea, relevant national activities to deal with the marine litter problem have already been in place (Table 7), in addition to national legal instruments and administrative institutions as described. Such national programmes and initiatives are expected to be further developed and specified taking into account the growing magnitude of the litter problem. In particular, two projects implemented in Korea, “Waste Fishing Gear Buy Back Project” and “Cost-Sharing Programme”, could be replicable good practices not only in the NOWPAP region but beyond the region.

In case of China, no directly relevant information is available for this overview but such activities seem to be covered under other marine and coastal environmental protection, pollution prevention and health issues (except for ship-generated marine litter and waste dumping at sea that are relevant to Annex V of the MARPOL Convention and the London Convention, respectively). In Russia, marine litter-related national initiatives are more likely to focus on the port areas that are mainly organized by local administration authorities governing the coastal zone. Furthermore, there are very positive signs that the Chinese and Russian governments have started paying more attention to the marine litter problem, in particular since the implementation of the NOWPAP MALITA project.

Table 7. Marine litter-related national programmes and initiatives in the NOWPAP member states

	Programmes and initiatives
China	• Strengthening the Management of Plastic Package Waste along Main Roads, in the River Basins and at the Tourist Attraction Sites, approved by the State Council, prohibits throwing away plastic litter into rivers, lakes and their bank. • The Ministry of Communication prohibits the use of non-degradable tableware on passenger ships and cruise lines sailing along the Yangtze River, the Taihu Lake, etc. • Ban on Plastic Shopping Bags prohibits providing free plastic bags from 1 June 2008 in all shops and also prohibits producing ultra-thin bags.
Japan	• Marine Environmental Improvement Project is operated by the Ministry of Land, Infrastructure and Transport (MLIT). It is focusing on recovering floating marine litter in Tokyo Bay, Ise Bay, Seto Inland Sea, etc. • Natural Disaster-related Emergency Large-scale Countermeasures Project is carried out by MLIT and Ministry of Agriculture, Forestry and Fisheries. It is targeting to collect and remove driftwoods mainly in the conservation areas and within 1 km of dikes, jetties, etc. This project operates only in case of emergency but not on a routine basis. • Subsidy for Promoting the Recycling-based Society is carried out by the Ministry of Environment. It is aiming to restrict waste discharge and promote recycling where the subsidy is provided to develop necessary facilities for the waste treatment and recycling. • Charge for Plastic Bags is initiated by Toyama Prefecture in April 2008 to pay 5 Japanese Yen (approximately US\$ 0.05) for a plastic bag in grocery stores. It aims to reduce the number of plastic bags used and to encourage carrying reusable bags.

Table 7. Continued

	Programmes and initiatives
Korea	• National Integrated Management Strategy for Marine Litter has been in place since 1999 by the Ministry of Land, Transport and Maritime Affairs (MLTM, formerly Ministry of Maritime Affairs and Fisheries). Relevant local governments, research institutions, private sector and NGOs are involved. This covers a wide range of surveys and monitoring of marine litter, and the development of environmentally sound technologies and marine litter-related policies. The results of this on-going effort provide a solid basis for a national action plan on marine litter that is currently under development. • Waste Fishing Gear Buy Back Project has been implemented since 2003 by MLTM to collect fisheries-related marine litter (e.g., fishing nets, traps, lines, floats, etc.) deposited in the sea and on the seabed. This project primarily encourages fishermen to bring ashore litter caught in their nets while fishing by providing large hardware bags to easily collect it. When fishermen bring waste fishing gear, it is purchased at the cost of approximately US\$ 10 per 100 litre bag. • Cost-sharing Programme has been initiated since 2001 based on “an agreement for litter disposal in Incheon Coastal Wasters and the Han River Watershed” between Seoul, Incheon and Gyeong-gi Province. Three local governments share the cost of improving coastal water quality around Incheon, including the marine litter removal and treatment cost. In 2007, this programme was further extended to the Nakdong River Basin where the four local governments are involved. They will cooperatively cope with the marine litter problem in a cost-sharing manner. • Charge for Plastic Bags has been introduced by the Ministry of Environment since 2001 to pay 50 Korea Won (approximately US\$ 0.05) for a plastic bag in all kinds of shops and stores. It aims to reduce the number of disposable plastic bags used and to encourage carrying reusable bags.
Russia	• Specific Activities on Coastal-sourced Pollution have been carried out based on Polluted Harbour Waters Cleanup Operation Rules. • City Territories Accomplishment Programmes and Waste Target-oriented Programme are implemented in Primorsky Kray. • Interdepartmental Cleanup Commission on the Peter the Great Bay was established in 2005 to improve the port water quality and prevent oil and marine litter pollution in Vladivostok.

3.4. Outreach

The marine litter problem can not be resolved solely by means of legislation, law enforcement and technical solutions. Therefore, it has to be addressed by efforts to change attitudes, behaviours, management approaches, education and involvement of all sectors and interests, including public at large.

Addressing the marine litter problem should begin with a wide range of public awareness programmes that influence people's attitudes and behaviours, including information sharing among related stakeholders, aiming at the prevention and reduction of the generation of marine litter at sources. Extensive educational programmes for a variety of sectors (e.g., fishing, shipping and tourism) and the general public are important to deal with the litter problem, in particular with respect to better waste management on land and at sea. At the regional level, NOWPAP has established a mechanism to communicate between the NOWPAP member states which contributes to information sharing and awareness building.

3.4.1. NOWPAP Marine Litter Workshops

Since the initiation of the NOWPAP MALITA project (and its preparation), six NOWPAP marine litter workshops have been held to share and exchange the overall marine litter-related information (e.g., national policies, monitoring programmes, scientific research and technologies and public awareness, etc.) between the member states and interested parties beyond the region such as UNEP, IMO and other regional seas conventions and action plans (e.g., see Figure 13). National experts in this field, governmental representatives and NGOs actively participated in the workshops.



Figure 13. Proceedings of NOWPAP marine litter workshops held between 2005 and 2007 while implementing the MALITA project.

Most of all, a series of workshops was of great use to build common understanding on the marine litter problem between the NOWPAP member states. The NOWPAP MALITA working meeting was held twice, in conjunction with the two major workshops held in Incheon, Korea in June 2006 and in Toyama, Japan in May 2007, respectively. The meeting discussed the progress on the project implementation and further activities to be taken based on the agreed MALITA workplan. These workshops and meetings, in combination with other activities of the MALITA workplan, contributed to implementing the project successfully and to developing a draft NOWPAP Regional Action Plan on Marine Litter.

3.4.2. NOWPAP International Coastal Cleanup (ICC) Campaigns

The workplan of NOWPAP MALITA includes the organization of the International Coastal Cleanup (ICC) campaigns. During 2006 and 2007, four NOWPAP ICC campaigns have been organized with the financial support from the member states, in combination with other side events such as exhibitions, workshops and NGO meetings (Figure 14).

In addition to Japan and Korea that have participated in the ICC campaign since 1990 and 2001, respectively, China has joined the ICC campaign since 2006 and organized the NOWPAP ICC campaign in Rizhao in 2007 showing strong ownership as a member state of NOWPAP. It is one of achievements of the NOWPAP MALITA project. Russia also conducted successfully a pilot ICC campaign in Vladivostok in October 2007. A unique feature of the ICC campaigns is the identification of sources of marine litter which eventually contributes to changing the behaviours that cause the litter pollution (see also 2.2.).

The ICC campaigns provide a very good opportunity to raise the public awareness and to collect data of marine litter sources, in particular for those who have not yet had systematic national marine litter surveys.

For the purpose of public awareness raising on marine litter and its adverse effects on the marine and coastal environment, NOWPAP developed several sectoral guidelines (for fishing; for shipping, including passenger ships and cruise lines, and for tourism), booklets, brochures and leaflets, in collaboration with the nominated Marine Litter National Focal Points of the member states and the four Regional Activity Centres (CEARAC 2007b; MERRAC 2007b, c, d, e, f). Some of them were translated into national languages of the NOWPAP member states to be easily readable by the general public, including the school children and youth. Further activities were also carried out such as exhibitions and environmental education in conjunction with other occasions.



Figure 14. ICC campaigns organized during the NOWPAP MALITA implementation

4. Strengths, Gaps, Needs and Proposals for Action

Marine litter issues have been of increasing concern in the Northwest Pacific region, in particular since the initiation of the NOWPAP MALITA project. During the project period, the NOWPAP member states have demonstrated a remarkable strong willingness to implement the MALITA project with the full extent of ownership and cooperation between the member states. First, the NOWPAP marine litter database was established that was not possible without national data and information provided by the member states (<http://dinrac.nowpap.org>). Second, a regional overview on legal instruments, institutional arrangements and programmes related to marine litter was developed on the basis of national summaries prepared by the Marine Litter National Focal Points (DINRAC 2007a). This overview to assess the overall status of the marine litter problem in the NOWPAP region is drawn from such national information available and outcomes achieved during the MALITA implementation.

This overview finds some barriers and gaps between the NOWPAP member states, mainly due to different levels of national economy; different priorities set by each member state among a variety of marine and coastal environmental issues; the different extent of the coverage of marine litter issues in national legal instruments and administrative institutions; inefficient enforcement of national and international laws and regulations; and lack of public awareness. In most cases, marine litter is not clearly specified in national legal instruments which are related to other marine and coastal environmental protection and health issues. Government responsibilities for marine litter issues are mostly shared between several different authorities (e.g., ministries, provincial and municipal governments and agencies). In general, authorities taking the lead for marine and coastal environment issues, including marine litter, are different from those taking responsibility for the whole nationwide environmental issues. The involvement of several ministries, on the other hand, can positively lead to more comprehensive awareness on the marine litter problem as long as they cooperate with each other.

Barriers and gaps found in this overview can be mostly overcome through a change in the wide recognition of marine litter as one of marine pollution issues since the legal framework to protect and conserve the marine and coastal environment from pollution has already been in place in the NOWPAP member states. However, it is recommended that the NOWPAP member states develop, and implement, comprehensive national action plans including measures to prevent, reduce and control the litter from its generation to treatment and proper final disposal. Marine litter should be integrated into the national solid waste

management plans, with application of the 3R principles (Reduce, Reuse and Recycle). Public involvement and the results of scientific research are expected to eventually influence the national policy makers. Regarding best management practices, including preventive and control measures and environmentally sound technologies to deal with marine litter, continuous exchange of the marine litter-related information within and beyond the NOWPAP region will also greatly contribute to changing people's attitudes and behaviours and to increase the public awareness on this matter as a whole.

Taking into account the severity of the marine litter problem in the Northwest Pacific region and the growing concern at the global level, NOWPAP successfully implemented from November 2005 to the end of 2007. A Regional Action Plan on Marine Litter (RAP MALI) was developed as an ultimate outcome and successor of MALITA. RAP MALI approved in March 2008 suggests a series of detailed actions to be taken by the member states as well as at the regional level: on prevention of marine litter input, on monitoring of marine litter, and on removal of existing marine litter in the marine and coastal environment. Such actions will be applicable to national legal instruments, administrative arrangements, research activities and technology development (e.g., measures to decrease or eliminate the discharge of ship-generated litter; to stop the discharge of solid waste from land-based sources; to protect rivers from pollution; and to reduce the loss of fishing gear from fishing vessels).

As it has proven to be effective through the implementation of the MALITA project, the established NOWPAP mechanism, consisting of the four Regional Activity Centres, nominated Marine Litter National Focal Points of the member states, in close collaboration with the UNEP Regional Seas Programme and other UN agencies and programmes (e.g., FAO, IMO and GPA), should continuously work to better cope with the marine litter problem in the region. The NOWPAP RAP MALI will serve as a roadmap to improve the overall regional status of marine litter pollution with active participation of (and cooperation among) the member states. This overview will be updated regularly to illustrate the overall status of the marine litter problem in the Northwest Pacific.

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Part II
NOWPAP Regional Action Plan
on Marine Litter

Background

Marine litter is a part of the broader problem of solid waste management which is closely linked to the protection and conservation of the marine and coastal environment and sustainable development of the Northwest Pacific region. Marine litter poses multiple negative impacts on the marine and coastal environment, including living organisms, some sectors of economy and even human health and safety. Marine litter is also causing the transboundary problems when it is transported by currents and winds from one country to another.

Taking into account the global concern and the United Nations General Assembly Resolution, the UNEP Regional Seas Programme has started to address the marine litter problem at the regional level. For this purpose, in November 2006, UNEP has prepared “Guidelines for the Development and Implementation of Regional Strategies for Addressing Marine Litter”. These guidelines suggest three phases in order to incorporate the marine litter issues into the Programmes of Work of individual Regional Seas Conventions and Action Plans: Phase I (assessment of the regional situation); Phase II (preparation of a Regional Action Plan); and Phase III (integration of the Regional Strategy into the Programme of Work).

NOWPAP Marine Litter Activity (MALITA) has been started after its approval by the 10th Intergovernmental Meeting in November 2005. Through the implementation of MALITA project, several key activities have been implemented successfully. First, a marine litter database was established. Second, a regional review of legal and administrative aspects related to marine litter of the member states was prepared. Third, the meetings and workshops on marine litter as well as the International Coastal Cleanup (ICC) campaigns were organized. Fourth, several reports, guidelines, brochures and leaflets for different sectors and different target audiences were published. Fifth, cooperation with UNEP Regional Seas Programme and other regional organizations and projects, such as Coordinating Body on the Seas of East Asia (COBSEA) and Yellow Sea Large Marine Ecosystem (YSLME) project, was strengthened.

One of MALITA outcomes is a NOWPAP Regional Action Plan on Marine Litter (RAP MALI). In accordance with the UNEP Guidelines, the three phases of the NOWPAP RAP MALI development and implementation are as follows:

Phase I, Assessment of the regional situation. For the NOWPAP region, the first assessment was carried out in October 2007. Regular assessments are expected in the future as part of the RAP MALI implementation.

Phase II, Preparation of the Regional Action Plan. Draft NOWPAP RAP MALI was presented at the 12th NOWPAP IGM in October 2007 and its implementation was further discussed in detail at a special NOWPAP RAP MALI Meeting in November 2007.

Phase III, Integration of the Regional Strategy into the Programme of Work of the respective Regional Seas Programmes and the implementation of the Regional Strategy at the national and regional level. In the NOWPAP region, this phase will be started in the 2008-2009 biennium. The budget for RAP MALI from the NOWPAP Trust Fund is in accordance with allocation approved by the 12th IGM. It is expected that most activities of the Phase III will be funded by the member states. There is no definite timeframe for the Phase III, the marine litter issues should be addressed continuously, together with other environmental issues in the NOWPAP region, such as oil spills or harmful algal blooms.

The ultimate solution of the marine litter problem depends on two main issues: 1) wise management of solid waste on land and at sea; and 2) change in the attitude and behaviour of people (not leaving litter on beaches or throwing it away from all kinds of ships, boats and platforms; producing less garbage in general). Because both issues can not be resolved overnight, and due to the transboundary nature of marine litter, the NOWPAP member states should continue working together to tackle the marine litter problem in the Northwest Pacific region in the most comprehensive and holistic way.

Goal and Objectives

The goal of the NOWPAP Regional Action Plan on Marine Litter (RAP MALI) is to improve the quality of the marine and coastal environment of the Northwest Pacific region by addressing the marine litter problem through cooperation and partnerships. RAP MALI will also help to establish a regional mechanism to deal with the marine litter problem in the NOWPAP region. It will eventually contribute to achieving the overall goal of NOWPAP that is the sustainable development of the region.

To achieve the RAP MALI goal, the following three objectives are suggested:

- to **prevent** the marine litter input into the marine and coastal environment;
- to **monitor** the quantities and distribution of marine litter;
- to **remove** existing litter that was already discarded, disposed of and abandoned.

The NOWPAP RAP MALI is a non-legally binding action plan for the NOWPAP member states.

Implementation of RAP MALI

Three main components of the NOWPAP RAP MALI are suggested to be organized in accordance with the three objectives above. Of course, this division into three separate components is only for convenience; in real life all components will be interlinked. For example, International Coastal Cleanup (ICC) campaigns contribute to raising public awareness and monitoring; from the other hand, monitoring data help to develop new technical and administrative measures and even to introduce new legislation.

NOWPAP RAP MALI is expected to be implemented in close coordination with UNEP and other UN agencies, including Food and Agriculture Organization (FAO), Intergovernmental Oceanographic Commission (IOC) of UNESCO and International Maritime Organization (IMO). For example, when UNEP/IOC Global Guidelines for Marine Litter Monitoring are developed, the NOWPAP member states might consider using those guidelines. Close collaboration with other existing regional and global projects, programmes and organizations is also crucial for the RAP MALI implementation. Several joint activities have been already organized by NOWPAP, Yellow Sea Large Marine Ecosystem (YSLME) project, Coordinating Body on the Seas of East Asia (COBSEA) and Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) programme in 2007; such cooperation will be continued within the framework of RAP MALI as well.

One of critical factors for success of NOWPAP RAP MALI is a combination of national and regional actions. NOWPAP institutional infrastructure (Intergovernmental Meeting, Regional Activity Centres, Regional Coordinating Unit, and National Marine Litter Focal Points) has proven itself operational and reliable during the MALITA implementation and will be used for implementing RAP MALI.

While preparing this document, the marine litter strategies from the following regions were taken into account: East Asian Seas, Mediterranean, Red Sea and Gulf of Aden, Caribbean, Black and Caspian Seas. Most of all, experience and lessons learned during the implementation of NOWPAP Marine Litter Activity (MALITA) were used in this document.

During the development of the NOWPAP RAP MALI, a regional overview regarding marine litter in the NOWPAP region was prepared in October 2007 separately, so the current status of the marine litter problem is not presented here.

1. Prevention of the Marine Litter Input to the Marine and Coastal Environment

Considering that marine litter is a complex and multi-dimensional problem with significant implications for the environment, economy, and human health and safety, there is no single solution to the marine litter problem. Possible preventive measures are better waste management on land and at sea and educational and awareness-raising activities to bring about a change in attitudes and behaviours of people. In addition to preventing the generation of marine litter at source, it is necessary to deal with existing marine litter in the marine and coastal environment.

The NOWPAP member states are the parties to the existing global marine-litter related agreements: the International Convention for the Prevention of Pollution from Ships (MARPOL Convention), the Convention for the Prevention of Marine Pollution from Dumping of Wastes (London Convention), the Basel Convention on the Transboundary Movements of Hazardous Wastes and Their Disposal, and Convention on Biological Diversity. Other international instruments, such as Agenda 21 and the Johannesburg Plan of Implementation of the World Summit on Sustainable Development, Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-based Activities and FAO Code of Conduct for Responsible Fisheries, also apply to the NOWPAP member states.

At the nation level, the NOWPAP member states have already taken some preventive actions to reduce the generation of marine litter such as the improvement of their waste management practices, supporting beach cleanup activities as well as information, education and public awareness programmes. Unfortunately, these currently on-going efforts are not enough to cope with the marine litter problem as a whole. Therefore, the NOWPAP member states, recognizing the need for joint efforts to deal with marine litter issues, agreed to take following actions, taking into account national circumstances of each member state and strict budgetary situation of NOWPAP.

Action 1.1. Legal and Administrative Instruments

The marine litter prevention should be addressed by both legislative and control measures. At the national level, relevant legal and administrative instruments in conformity with marine litter-related international conventions and agreements are needed as a fundamental base to deal with the marine litter problem.

Legal Instruments

According to a NOWPAP regional overview on legal instruments, institutional arrangements and programmes related to marine litter (published in October 2007), the NOWPAP member states already have the existing legal framework to deal with the marine litter issues in compliance with marine litter related international conventions and agreements such as the MARPOL Convention, the London Convention, the Basel Convention and the Global Programme of Action (GPA) for the Protection of the Marine Environment from Land-based Activities. However, the current national legal frameworks of the NOWPAP member states are somewhat complicated with un-clearly defined responsibilities between different government agencies.

Box 1: Recycling in the US

In the US, 745 kg of trash per person was generated in 2005. Some 32% of this waste was recycled, two times more than 15 years ago. Annual revenue of the US recycling industry is estimated as \$236 billion.

(Time, 25 June 2007, page 12)

The NOWPAP member states are encouraged to undertake the following activities:

- Reinforce the implementation and enforcement of the existing national legal instruments, in compliance with marine litter-related international conventions and agreements, with clear responsibility of the specific governing authority;
- Integrate marine litter into the national legislation on solid waste management with application of the 3R principles (reduce, reuse and recycle);
- Develop the national plans on the Integrated Coastal Area and River Basin Management (ICARM) where the marine litter issues should be included.

Administrative Arrangements

According to a NOWPAP regional overview on legal instruments, institutional arrangements and programmes related to marine litter, more than one government authority is, in general, involved in dealing with the marine litter issues in the NOWPAP member states (except for the Republic of Korea having a comprehensive national project on marine litter under the Ministry of Maritime Affairs and Fisheries). The governmental responsibilities are, therefore, shared between different authorities (e.g., ministries, provincial and municipal governments

and agencies) which contributed to more awareness build-up and wider participation, but in some cases it may cause confusion as to who is responsible.

Box 2: Plastic bags

It takes about 1,000 years for shopping plastic bag to decompose. About 100 billion plastic bags are being sold annually worldwide. After IKEA chain in Britain began charging 10 cents per bag, use of plastic bags dropped to 5%.

(Time, 16 April 2007, page 12)

The NOWPAP member states are encouraged to undertake the following activities:

- Improve national institutional arrangements to prevent and reduce the amount of marine litter effectively, with clearly defined responsibility of the governing authority based on best management practices to deal with marine litter from its generation to disposal;
- Promote cooperation among relevant national and local authorities which are involved in the marine litter issues in order to establish appropriate cooperation mechanism;
- Develop comprehensive national action plans on marine litter. Such national plans should include measures to prevent and reduce the generation of marine litter, in particular targeting at changes in consumption patterns (e.g., avoiding the use of excessive packaging and plastic shopping bags, promoting the use of biodegradable plastics, etc.) with the application of the 3R principles (reduce, reuse and recycle);
- Improve waste management practices, including garbage collection and recycling;
- Apply market based economic instruments to deal with marine litter (explained in more detail in Part 1.2);
- Provide capacity building support to staff from national/provincial/municipal governments, port authorities and other related fields on the prevention and control of marine litter from both land-based and sea-based sources where regional workshops and training courses might be helpful.

Action 1.2. Wise Management of Marine Litter

Preventive measures to reduce the amount of marine litter should be part of solid waste management at the national level as mentioned above in Action 1.1. Good waste management must begin with preventing waste being generated because what is never produced does not have to be disposed of and can not become marine litter. The generation of marine litter will be reduced at sources by implementing better waste management strategies and practices. The second step of good waste management is to collect marine litter that has already been generated (presented in Action 3.2.). As marine litter comes from land-based sources and sea-based sources, these two different sources are addressed separately.

Marine Litter Management from Land-based Sources

A significant amount of marine litter is originated from land-based sources: municipal landfills (waste dumps) located on the coast; transport of waste from landfills along rivers and other inland waterways; discharges of untreated municipal sewage and storm water (including occasional overflows); industrial facilities (solid waste from landfills and untreated waste water); and tourism (recreational visitors, beach goers, etc.). Marine litter is identified as one of the pollution sources of the Global Programme of Action (GPA) on the Protection of the Marine Environment from Land-based Activities. The amount of marine litter reaching the marine and coastal environment can be reduced significantly by the prevention or reduction of the generation of solid waste on land and the improvement in its management, including collection and recycling of litter.

The NOWPAP member states are encouraged to undertake the following activities, as appropriate:

- Develop and implement the GPA National Plans of Actions, including land-based sources of marine litter;
- Take appropriate measures to reduce the generation of solid waste on land that can become marine litter;
- Establish and ensure the proper operations of solid waste management facilities on shore (waste reception and disposal from all sources, including shipping, fisheries and harbour wastes);
- Enhance and promote land-based waste management, including the proper management by municipalities of landfills (including relocation, if needed), sewage

treatment facilities (including building new ones), and the proper care of solid household waste (including collection and recycling);

- Apply market based economic instruments (such as plastic bag taxes; deposits for drink containers; award-based incentives for coastal villages and municipalities with integrated waste management systems; fines for illegal disposal of litter). Revenues from tourism taxes, car park fees, waterfront business charges, charging schemes for waste service and other sources can be used to cover the cost of collection and environmentally-sound disposal of garbage;
- Apply sectoral guidelines (already developed during the MALITA implementation and to be further developed during the RAP MALI implementation), in particular taking into account best management practices on marine litter in the tourism sector. Plastic manufactures, in addition to tourism authorities, should be also involved;
- Increase local planning and management capacity to avoid location of waste dump sites near coastlines or waterways as well as to avoid litter escape to the marine and coastal environment that will also be considered as part of the development and implementation of the Integrated Coastal Area and River Basin Management (ICARM), as described in Action 1.1.

In addition to the national activities described above, NOWPAP RCU, in collaboration with the four Regional Activity Centres (RACs) and the member states, and in consultation with UNEP, will undertake the following activities:

- Follow up on activities related to the prevention and reduction of marine litter from land-based sources agreed upon within the framework of RAP MALI;
- Provide relevant guidance and introduce good practices applied (or being developed) in and outside the NOWPAP region (including those from UNEP RSP and GPA);
- Facilitate the application of sectoral guidelines on the prevention and reduction of marine litter from land-based sources (already developed during the MALITA implementation and to be further developed during the MALITA implementation);
- Provide technical training and capacity building to staff from national and municipal governments on the prevention and reduction of marine litter from land-based sources through regional workshops and training courses (depending on funds available; if appropriate, together with UNEP RSP and GPA).

Marine Litter Management from Sea-based Sources

The sea-based sources of marine litter are mainly ships (including fishing vessels and leisure boats) and offshore platforms. Thus, measures to reduce and prevent marine litter from sea-based sources should begin with the provision or improvement of reception facilities for all types of ship-generated waste and cargo residues, in particular solid waste

Box 3: Measures against marine litter in the Baltic Sea

Since late 1990s, the HELCOM member states have been implementing a complex set of measures known as the Baltic Strategy to prevent illegal discharges of waste into the Baltic Sea and provide economic incentives to deliver wastes, including garbage, onshore. Today, all discharges of garbage into the Baltic Sea are prohibited. HELCOM requires all ships to deliver all garbage to reception facilities before leaving the port. To further encourage delivery, the countries bordering the Baltic Sea have agreed that ships should not be charged for using such reception facilities, under the “no-special-fee” system. Costs are instead recovered from general harbour fees or general environmental fees.

HELCOM has developed new measures addressing marine litter with a view to have them included into the overarching HELCOM Baltic Sea Action Plan, currently being developed to solve all major environmental problems affecting the Baltic Sea. Among them is a proposal to include marine litter caught in the fishing nets and trawls of fishermen to the “no-special-fee” system for ship generated wastes, as well as a proposal for remuneration of reasonable costs to the fishermen for transporting garbage caught in the fishing nets to the port and reception facilities. The plan will also include measures to raise public awareness on environmental and economic effects of marine litter, and support regular beach clean-up activities.

(HELCOM Press Release, 5 July 2007)

and garbage, at ports, fishing harbours, marinas and beach resorts. The lack of adequate port reception facilities could result in solid waste being disposed at sea and being transported by winds and currents to shore often in locations distant from the original sources of litter. Therefore, the port and local authorities governing the certain coastal area must receive the waste that is generated from the normal operation of the ships.

The local municipality must accept the responsibility for further management and treatment of garbage. In addition, to avoid deterring from discharging waste to port reception facilities due to high costs, the price for receiving the waste from ships must be included in the overall harbour fees (meaning no special fee for the reception of ship-generated waste, see Box 3). Better management of waste delivered ashore and waste management on board is also important to reduce and prevent sea-based marine litter.

The NOWPAP member states are encouraged to undertake the following activities, as appropriate:

- Provide assistance in implementing of the requirements of Annex V to the MARPOL Convention to provide and improve reception facilities for all types of ship-generated waste in their ports, harbours, terminals and marinas;
 - Prepare administrative regulations and disseminate related information on waste management, including regulations on waste handling in ports and marinas, taking into account best waste management practices related to marine litter;
 - Make sure that the waste delivered to reception facilities is properly taken care of on land, in a manner of caring for the environment and human health;
- Apply market based economic instruments such as incentives to fishermen for removal of marine litter (see Boxes 3 and 4) and port reception fees (general fee approach but no special fee for waste). Revenues from fines for illegal disposal of litter and other sources can be used to cover the cost of collection and environmentally-sound disposal of garbage;
- Apply sectoral guidelines (already developed during the MALITA implementation and to be further developed during the RAP MALI implementation), in particular taking into account best management practices on marine litter in shipping and fisheries sectors. Plastic manufactures and tourism authorities, in addition to ship owners and operations should be involved;
 - Develop and apply operational fishing methods that minimize the loss of fishing gear and the ghost fishing effects of lost or abandoned fishing gear, according to the FAO technical guidelines for the implementation of the Code of Conduct for Responsible Fisheries;
 - Develop and use marked fishing gear to identify its owner or user that will contribute to reducing fisheries-related marine litter, as has been demonstrated by the Republic of Korea since 2006.

In addition to the national activities described above, NOWPAP RCU, in collaboration with the four Regional Activity Centres (RACs) and the member states, and in consultation with UNEP, will undertake the following activities:

- Follow up activities on related to the prevention and reduction of marine litter from sea-based sources agreed upon within the framework of RAP MALI;
- Provide relevant guidance and introduce good practices applied (or being developed) in and outside the NOWPAP region (including those by UNEP, IMO and FAO);
- Assess the effectiveness of the MARPOL Convention Annex V and the status of national reception facilities on a regular basis;
- Facilitate the application of sectoral guidelines on the prevention and reduction of marine litter from sea-based sources (already developed during the MALITA implementation and to be further developed during the MALITA implementation);
- Provide technical training and capacity building to staff from national and municipal governments on the prevention and reduction of marine litter from sea-based sources through regional workshops and training courses (depending on funds available; if appropriate, together with UNEP RSP, IMO and FAO).

Action 1.3. Information, Education, Outreach and Public Awareness

Information, education and outreach activities are integral components in all efforts to prevent and reduce the amount of marine litter. The implementation of better waste management strategies and practices will reduce the generation of marine litter at source but can not resolve the marine litter problem as a whole. There is a strong need to bring about a change in attitudes and behaviours of target groups as well as the general public towards more waste-wise thinking in society. In order to raise the awareness of everyone's responsibility to prevent marine litter pollution, a variety of education and training programmes on the sources and effects of marine litter, and ways to resolving the problem, for different target groups is needed. Cleanup campaigns will also contribute to raising public awareness. Increased public awareness in the whole society might help political decision making for better control and management of marine litter.

The NOWPAP member states are encouraged to undertake the following activities:

- Develop and implement education and training programmes for different target groups, such as ship owners and operators, crews, port users, fishermen, users of pleasure crafts and the general public, in order to better understand which sectors and groups are responsible for contributing to the generation of marine litter, why

the problem with its significant implications for the marine and coastal environment still exists and what they can do to prevent and reduce the generation of marine litter;

- Apply sectoral guidelines (already developed during the MALITA implementation and to be further developed during the RAP MALI implementation), taking into account well-known best management practices on marine litter, for the purpose of education and training programmes;
- Formulate and implement public awareness campaigns for the general public, industry (including tourism, shipping, fisheries, etc.), municipal authorities, local communities, ship officers and crews of recreational, commercial and fishing vessels, various groups within the tourism sector, and media to reduce the generation of waste and environmentally sound disposal and reuse;
- Organize and coordinate comprehensive voluntary beach cleanups as a tool in educating and involving local communities, stakeholders and media to increase knowledge and awareness of the problem caused by marine litter, in combination with public awareness campaigns by means of distribution of printed materials (e.g., brochures, leaflets, flyers, etc.), environmental exhibitions and school children poster contests;
- Organize and support the annual International Coastal Cleanup (ICC) campaigns to promote public awareness and to educate the public, including school children, on marine litter issues as well as to encourage positive behaviour changes that will help to reduce the generation of litter.

In addition to the national activities described above, NOWPAP RCU, in collaboration with the four Regional Activity Centres (RACs) and the member states, and in consultation with UNEP, will undertake the following activities:

- Organize the annual NOWPAP ICC campaigns, in combination with other side events such as workshops, NGOs meetings and exhibitions. If appropriate, participate in similar cleanup activities at the national and local level. These activities will eventually contribute to increasing the public awareness of the problems associated with marine litter;
- Develop public awareness materials (e.g., booklets, leaflets, flyers, etc.) and facilitate the application of technical sectoral guidelines (already developed during the MALITA implementation and to be further developed during the RAP MALI) for different target groups, such as ship owners and operators, crews, port users, fishermen, users of pleasure crafts and the general public, through regional workshops and training programmes;

- Promote and facilitate public awareness raising on marine litter issues through providing guidance and introducing good practices and programmes, including education and training programmes and relevant reference materials, applied (or being developed) in and outside the NOWPAP region (including those by UNEP and other UN agencies);
- Provide NOWPAP information about marine litter issues to the GPA Clearing-house node (Global Marine Litter Information Gateway) and UNEP RSP website for further dissemination.

Action 1.4. Cooperation with Civil Society

Private sector, NGOs and scientific community are important partners to address the marine litter problem more effectively. Private sector could develop voluntary agreements. NGOs could provide knowledge on beach cleaning projects, beach surveys and monitoring, public awareness and education. Scientific community could provide information and technologies on specific aspects of the marine litter problem which will be of great use to set the best strategies to prevent and reduce the amount of marine litter. At the national level, cooperation with municipal and local authorities governing the coastal areas is also important to successfully implement a wide range of marine litter-related activities.

The NOWPAP member states are encouraged to undertake the following activities:

- Approach civil society (private sector, environmental NGOs and scientific community) to develop partnerships and voluntary agreements to reduce the generation of marine litter;
- Involve private sector, NGOs and scientific community in the policy-making process and the policy implementation, if appropriate;
- Jointly organize workshops and campaigns on marine litter issues to promote public awareness and educate the general public, including school children and youth, and to change behaviours and attitudes positively to produce less marine litter;
- Cooperate with municipal and local authorities of the respective member state in need of assistance, through financial, scientific and technical support to increase public awareness and organize awareness and education campaigns (see also Action 1.3).

In addition to the national activities described above, NOWPAP RCU in collaboration with the four Regional Activity Centres (RACs) and the member states, and in consultation with

UNEP, will undertake the following activities:

- Approach private sector, NGOs and scientific community in order to exchange a wide range of information on marine litter issues, including materials for public awareness and technical sectoral guidelines (already developed and to be further developed by NOWPAP RACs and the member states), as well as to establish partnerships;
- Involve representatives of civil society in the NOWPAP annual ICC campaigns and related side events (such as workshops, NGO meetings, exhibitions, etc.) and, if appropriate, to jointly organize the ICC campaigns and similar cleanup events with technical support and assistance from NOWPAP.

Action 1.5. Research Activities

In order to prevent the marine litter input to the marine and coastal environment, the development and application of new and existing technologies are needed.

The NOWPAP member states are encouraged to undertake the following activities:

- Develop technologies to prevent the marine litter input from land-based sources (e.g., floating booms and barriers);
- Support research on environmentally sound technologies and production methods (e.g., biodegradable materials or materials which decompose under the influence of UV light, marked fishing gear to identify its owner) and promote the use of such research outcomes;
- Develop and carry out research on the impact of marine litter on the marine and coastal environment and economy (including economic costs and impact on human health and safety);
- Develop and support research on the effectiveness of market based instruments related to marine litter.

In addition to the national activities described above, NOWPAP RCU in collaboration with the four Regional Activity Centres (RACs) and the member states will undertake the following activities:

- Promote the exchange of information on technologies to prevent the marine litter input into the seas and oceans;
- Exchange the research outcomes among the member states.

2. Monitoring of Marine Litter Quantities and Distribution

All NOWPAP member states recognized a need for the regional monitoring programme to address the marine litter problem effectively and agreed upon the NOWPAP monitoring guidelines developed as part of the MALITA implementation in 2006-2007. National Marine Litter Focal Points (nominated by the NOWPAP member states) as well as NOWPAP RACs and RCU will be responsible for implementation of this component. International Coastal Cleanup events (described under component 3) will also contribute to obtaining data on marine litter quantities and distribution.

Action 2.1. Marine Litter Monitoring Using NOWPAP Guidelines

A regional NOWPAP marine litter monitoring programme will be implemented by integrating already existing (and being developed) monitoring activities. The NOWPAP member states are encouraged to develop national marine litter monitoring programmes that will be integrated into the regional NOWPAP marine litter monitoring programmes. Two NOWPAP marine litter monitoring guidelines can be used: one for marine litter found on the beaches and shorelines and the other for that on the seabed.

Action 2.2. Maintenance of Marine Litter Database

Database containing data on marine litter distribution on the coasts of all four NOWPAP member states for 2000 - 2006 has been established by NOWPAP DINRAC in 2006 (<http://dinrac.nowpap.org>) and updated in 2007. New marine litter monitoring data generated within RAP MALI will be added to the NOWPAP marine litter database together with other relevant information and the results of regular assessments.

Action 2.3. Compilation of Data from National Monitoring Programmes

National Marine Litter Focal Points (or Coordinators) nominated by the NOWPAP member states will be responsible for collecting data from national monitoring activities. Such activities include, but are not limited to, research, cleanup and monitoring efforts of (in alphabetical order): Japan Environmental Action Network (JEAN), Korea Marine Pollution Response Corporation (KMPRC), Korea Marine Rescue Centre (KMRC), Northwest Pacific Region Environmental Cooperation Centre (NPEC) of Japan, etc.

NOWPAP CEARAC will be responsible for compiling and harmonizing data of marine litter monitoring on the beaches based on the national input provided by designated National Marine Litter Focal Points of the NOWPAP member states, analysing these data and submitting the results to DINRAC using the unified formats with illustrative materials (e.g., maps, photos and diagrams).

NOWPAP MERRAC will be responsible for compiling and harmonizing data of marine litter monitoring on seabed based on the national input provided by designated National Marine Litter Focal Points of the NOWPAP member states, analysing these data and submitting the results to DINRAC using the unified formats with illustrative materials (e.g., maps, photos and diagrams).

Action 2.4. Regular Assessments of Current Situation and Trends in Marine Litter Quantities and Distribution

Short overviews of the current situation with marine litter in the Northwest Pacific region were prepared by NOWPAP RCU during the MALITA implementation in 2006-2007, based on national monitoring results and data from International Coastal Cleanup events, and were posted on the NOWPAP website (<http://www.nowpap.org>). Last assessment was published in October 2007.

Regular assessments of the marine litter quantities and distribution will be prepared by NOWPAP RCU (in close collaboration with RACs and Marine Litter National Focal Points) during the RAP MALI implementation and posted on the NOWPAP website. Data from national monitoring activities, ICC and other sources will be used for such assessments.

Action 2.5. Collection of Marine Litter-related Research Outcomes

A variety of information on impacts of marine litter on the marine and coastal environment, associated economic losses, collection and treatment technologies and other marine litter-related issues will be obtained through the collection and review of published data (articles, reports, etc.) and interpretation of the survey results. These data will be included in the NOWPAP marine litter database updated on the regular basis and available through the DINRAC website.

3. Removing Existing Marine Litter and Its Disposal

There are two approaches to deal with the marine litter problem: one is to prevent and reduce marine litter input to the marine and coastal environment and the other to remove accumulated litter that is already discarded, disposed of and abandoned in the environment. This section is focusing on actions and activities required to remove existing marine litter and to treat it in environmental-friendly manner after collection. In fact, despite currently on-going efforts to prevent the generation of marine litter, it will still be found nearly everywhere in the Northwest Pacific region for a while. Therefore, the NOWPAP member states should continue removing marine litter originated from domestic sources and from abroad, in combination with its proper disposal and treatment, taking into account national circumstances of each member state and strict budgetary situation of NOWPAP.

Action 3.1. Beach Cleanup Campaigns

Measures to deal with existing marine litter include beach and sea bottom cleanup operations. In the NOWPAP region, a variety of cleanup operations have been already undertaken by national and local authorities, volunteers and NGOs. Among these activities, the International Coastal Cleanup (ICC), initiated and promoted by the Ocean Conservancy,

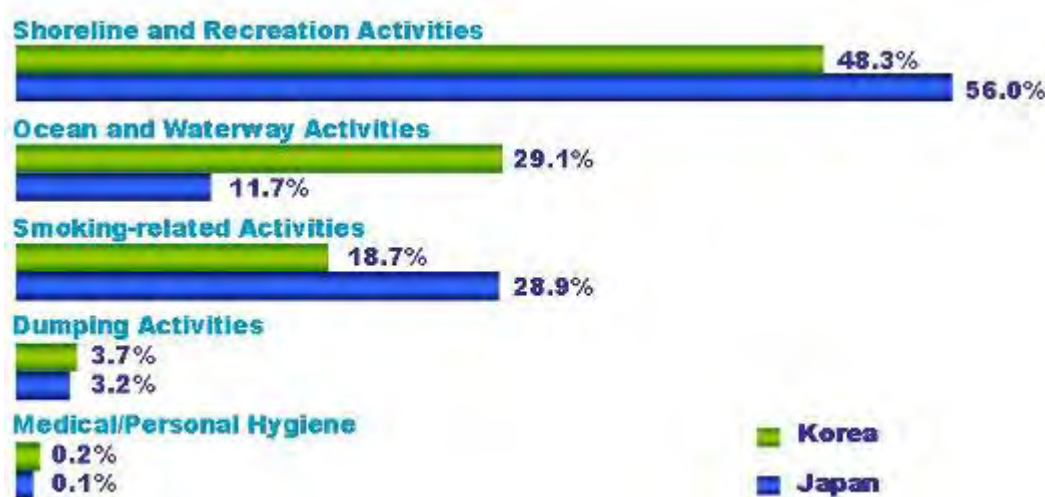


Figure 3.1. Activity-based sources of marine litter in Japan and Korea in 2004-2006
(Data from ICC annual reports)

is well known as the largest and most successful volunteer event of its kind in the world. It is held in September of every year since 1986. In 2006, a total of 358,617 volunteers from 66 countries participated in the ICC campaign and collected seven million pounds of marine litter along 34,560 miles of shoreline worldwide.

Japan and the Republic of Korea have been participated in the ICC campaign since 1990 and 2001, respectively. In the 2006 ICC campaign held in Japan, 16,878 people removed 38,204 pounds of marine litter from 1,698 miles of shoreline; and in Korea, 3,655 volunteers gathered 714,054 pounds of litter along 55.8 miles of shoreline. According to the 2004-2006 ICC results in Japan and Korea, about 50% of marine litter collected originated from land-based recreational activities such as picnics, festivals and sports events (Figure 3.1). The People's Republic of China organized formally an ICC campaign in Rizhao City in June 2007 although some local NGOs and volunteers already carried out small scale ICC cleanup campaigns and submitted the results to the Ocean Conservancy through their overseas partner in 2006. The Russian Federation also initiated a pilot campaign of ICC in Vladivostok in 2007 and the full scale one will be held in 2008.

The NOWPAP member states are encouraged to undertake the following activities, as appropriate:

- Continue their efforts in organizing the annual ICC campaigns and promote public participation in ICC as widely as possible. At the same time, national coordination on ICC should be improved and the role of NGOs and civil society should be enhanced;
- Submit the annual national ICC data to DINRAC directly or through the NOWPAP National Marine Litter Focal Points in order to help assess the regional extent of the marine litter problem;
- Use the ICC campaign as an opportunity to collect marine litter data, in particular for those NOWPAP member states which have not yet conducted systematic national marine litter surveys or monitoring;
- Strengthen the existing regional network on ICC through the platform of NOWPAP, to build partnerships between governments, NGOs, and enterprises for sustainable ICC activities;
- Use the annual ICC campaigns to promote public awareness and educate the public (including school children and youth) on marine litter issues as well as to encourage positive behaviour changes.

In addition to the national activities described above, NOWPAP RCU, in collaboration with the four Regional Activity Centres (RACs) and the member states, and in consultation with UNEP, will undertake the following activities:

- Organize the annual NOWPAP ICC campaigns, in combination with other side events, such as workshops, NGOs meetings and exhibitions, in order to increase

the public awareness of the problems associated with marine litter (see also Action 1.3);

- Participate in, if appropriate, similar cleanup activities at the national and local level to increase not only the public awareness but also local capacity in dealing with the marine litter problems (if necessary, RCU will provide technical assistance).

Action 3.2. Removal of Existing Marine Litter

The marine and coastal environment within the limits of national jurisdiction should be, in principle, protected and managed by governments of the respective country. However, marine environmental problems, including marine litter, can not be solved solely by means of legislation and law enforcement. In order to keep the marine and coastal environment clean from litter, more practical efforts are needed, such as regular litter removal operations, in addition to preventive measures described in part 1. Possible economic instruments to be applied are also presented in part 1.

Regular Removal Operations of Marine Litter

A starting point to clean the beach and seabed from marine litter is regular removal operations under the responsibility of relevant national and local authorities. In case of seabed cleanup activities, the application of modern technologies will be useful because of limited accessibility by humans such as specially designed vessels, devices and/or experienced scuba divers.

The NOWPAP member states are encouraged to undertake the following activities, as appropriate:

- Designate a responsible authority or contract a private entity or interested NGOs in order to undertake regular removal operations as part of their routine garbage collection and disposal (if appropriate, using modern technologies for marine litter collection);
- Facilitate and support public participation, including school children and youth, in regular removal operations in order to promote public awareness, educate them and to encourage positive behaviour changes that will reduce the generation of litter (see also part 1);
- Establish partnerships with civil society and private sector (industry), related to marine litter issues, through joint organizing regular removal operations (see also part 1).

Marine Litter Collection in Fishing Sector

Fisheries-related marine litter that is either lost accidentally or abandoned intentionally from fishing vessels or by fishermen working from the shore (nets, traps, lines, floats, etc.) can pose a significant hazard to safe navigation and threat to human life and property. In particular, “ghost fishing”, when lost and abandoned fishing gear continues to function as

Box 4: Waste Fishing Gear Buy Back Project and Fishing-For-Litter Project

The “Waste Fishing Gear Buy Back Project” is being implemented successfully in the Republic of Korea since 2003, aiming at collecting fisheries-related marine litter (e.g., fishing nets, traps, lines, floats, etc.) deposited in the sea and on the seabed. Since fishermen used to collect waste fishing gear during fishing operation and throw it back into the sea, the buy back programme is especially designed to encourage that fishermen bring ashore the litter collected as part of fishing activities. This is achieved by providing large hardwearing bags to the boats so that litter can be easily collected and deposited on the quayside.

An economic incentive is also given to fishermen: when they bring back waste fishing gear collected during fishing operation to the designated place, it is purchased at the cost of approximately US\$ 10 per 100 litre bag. The budget for this programme is shared between central and local governments.

Annual amount of litter collected and annual budget for “Buy Back Project”				
	2003	2004	2005	2006
Litter collected (tonnes)	578	2,453	3,076	5,137
Budget (US\$)	730,000	2,127,000	2,601,000	3,678,000

Another example is the “Fishing-For-Litter” project implemented in the North Sea. The project is originally started by the North Sea Directorate of the Dutch Government in co-operation with the Dutch Fisheries Association in March 2000. The aim of the project was to clear the North Sea from litter by bringing ashore the litter that is trawled up as part of fishing activities and disposing of it on land. The project then rolled out the scheme to other ports around the North Sea. By the end of the three-year project in 2004, 54 boats were involved in 4 countries and 450 tonnes of litter had been collected. Without direct financial benefit for fishermen involved in the Fishing-For-Litter Project, the cooperation of the vessels and their crews is on a voluntary basis just like voluntary participation in beach cleanups.

Both projects can also contribute to changing practices and culture within the fishing sector, provide a mechanism to remove marine litter from the seawater and seabed, and raise awareness among the fishing industry, other sectors and the general public.

designed to catch target commercial species, causes serious economic and ecological losses. There are good examples to cope with the marine litter problem caused by fisheries: one is the “Waste Fishing Gear Buy Back Project” implemented successfully in the Republic of Korea and the other is the “Fishing-For-Litter Project” in the North Sea (see Box

4). Both projects encourage fishermen to deliver marine litter caught during fishing operations to reception facilities in ports and fishing harbours instead of throwing it overboard back into the sea.

The NOWPAP member states are encouraged to undertake the following activities:

- Develop and apply measures to remove and collect fisheries-related marine litter efficiently;
- Develop and use marked fishing gear to identify its owner or user that will contribute to preventing fisheries-related marine litter being abandoned (as it has been carried out by the Republic of Korea since 2006);
- Develop and implement national projects or programmes on fisheries-related marine litter, taking into account good practices (see Box 4);
- Facilitate and promote fishermen participation in the marine litter collection (if appropriate, with financial and other incentives; see also Box 4).

Action 3.3. Research Activities Related to Marine Litter

Integrated management of marine litter covers from the generation of litter to its final disposal or treatment (processing) after collection. In addition to the previous actions described so far (how to prevent and reduce the generation of marine litter at sources and how to collect and remove existing marine litter), this action is focused on the treatment and disposal of collected marine litter with respect to research activities.

Marine litter should be treated properly under the national solid waste management as mentioned in Action 1.2. In order to treat marine litter with other solid waste (not exposed to sea water), technological assistance is essential, such as to remove salt and sand from collected litter. The development of new technologies is of great use for proper treatment and disposal of marine litter, such as the reduction in the quantities of certain marine litter (volume reduction); the pre-treatment of litter for its recycling and reuse; and the production of recycled products. Further development of technologies is also needed, such as the recovery of raw materials and the production of recycled products and energy from certain kinds of litter.

The NOWPAP member states are encouraged to undertake the following activities:

- Support research and development (R & D) activities related to waste treatment equipment and facilities for proper treatment of marine litter;

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- Promote R & D on environmentally sound technologies and production methods such as recycling of polyethylene and polypropylene waste plastic, recycling of expanded polystyrene (EPS) waste, producing fuel from refuse paper and plastic, recovery of raw materials, etc.;
- Develop and support recycling technologies such as the use of certain natural resources from collected marine litter;
- Promote cooperation among the member states, through scientific and technical support, in developing environmentally sound waste disposal methods and alternatives to disposal.

Workplan and Budget for 2008/2009

While the implementation of RAP MALI is relying on the individual NOWPAP member states, funding for the implementation of basic activities of RAP MALI will be provided through the NOWPAP Trust Fund. Additional financial support, and in-kind contributions, from the NOWPAP member states and from international organizations and programmes will also be sought. Suggested NOWPAP RAP MALI activities to be covered by the Trust Fund in the 2008/2009 biennium are shown in the table below.

NOWPAP RAP MALI workplan

(RAP MALI activities are started immediately after the adoption of NOWPAP RAP MALI by the member states, deadlines shown in the workplan indicate expected end of activities)

Activities		Deadline	Participants
1. Prevention of marine litter inputs to marine and coastal environment			
1.1	Legal and administrative instruments		
	Update national summaries (prepared initially during MALITA implementation) on legal instruments, institutional arrangements and programmes related to marine litter, including solid waste management, integrated coastal and river basin management, and market-based economic incentives	Sept. 2008	RCU Member states
	Prepare regional overview on legal instruments, institutional arrangements and programmes related to marine litter based on updated national summaries	April 2009	DINRAC
1.2	Wise management of marine litter		
	Organize workshop on marine litter-related issues (expected to be supported by member states)	2008-2009	RCU
	Apply sectoral guidelines on land-based sources of marine litter	July 2009	CEARAC POMRAC
	- <i>Translate developed guidelines into national language of each member state and update them as appropriate</i>		RACs Member states
	- <i>Publish translated guidelines</i>		CEARAC POMRAC

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	- <i>Distribute guidelines to the relevant sectors and organizations, including the public and workers, through appropriate occasions (e.g., workshops and campaigns)</i>		Member states RACs
	Apply sectoral guidelines on sea-based sources of marine litter	July 2009	MERRAC POMRAC
	- <i>Translate developed guidelines into the national language of each member state and update them as appropriate</i>		RACs Member states
	- <i>Publish translated guidelines</i>		MERRAC POMRAC
	- <i>Distribute guidelines to the relevant sectors and organizations, including the public and workers, through appropriate occasions (e.g., workshops and campaigns)</i>		Member states RACs
	Assessment of port reception facilities in the NOWPAP region	Aug. 2009	MERRAC
	- <i>Develop methodology and formats for assessment of port reception facilities</i>		MERRAC
	- <i>Collect data based on agreed methodology and formats</i>		Member states
	- <i>Develop assessment report</i>		MERRAC
1.3	Information, education, outreach and public awareness		
	Develop public awareness materials	Aug. 2008	RCU CEARAC DINRAC MERRAC POMRAC
	- Translate developed brochure into national language of each member state		RACs
	- Publish translated brochures		RACs

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	- Distribute brochures to relevant sectors and organizations, including the public and workers, through the relevant occasions (e.g., workshop and ICC campaign)		Member states RACs
1.4	Cooperation with civil society		
	Organize joint workshops and campaigns, in conjunction with NOWPAP ICC, as appropriate	2008-2009	RCU Member states RACs
1.5	Research activities		
	Introduce and exchange information (by e-mail, during workshops and similar events) on research outcomes and technologies on marine litter prevention and reduction	2008-2009	RCU Member states RACs
2. Monitoring of marine litter quantities and distribution			
2.1	Marine litter monitoring using NOWPAP guidelines		
	Implement marine litter monitoring using NOWPAP monitoring guidelines	2008-2009	Member states
2.2	Maintenance of marine litter database		
	Maintain and update data and information based on national inputs by member states and RACs	2008-2009	DINRAC
2.3	Compilation of data from national monitoring programmes		
	Compile and harmonize marine litter monitoring data on beaches (provided by member states) and submit collected data to DINRAC	2008-2009	CEARAC Member states
	Compile and harmonize data on marine litter on seabed (provided by member states) and submit collected data to DINRAC	2008-2009	MERRAC Member states
2.4	Regular assessment of current situation and trends in marine litter quantities and distribution		
	Updated regional assessment on a regular basis	2008-2009	RCU
2.5	Collection of marine litter-related research outcomes		
	Collect and put collected information on NOWPAP website or share with member states by e-mail	2008-2009	RCU
	Interpret results of marine litter monitoring on beaches	2009	CEARAC

3. Removing existing marine litter and its disposal			
3.1	Beach Cleanups Campaigns		
	Organize NOWPAP ICC campaigns during 2008-2009, together with marine litter workshops and/or working meetings	2008-2009	RCU DINRAC POMRAC
3.2	Removal of existing marine litter		
	Collect data and information on marine litter collection/disposal in fishing sector, including policies, technologies, etc., and share with member states	Sept. 2009	RCU Member states RACs
3.3	Research activities related to marine litter		
	Introduce and exchange information on technologies and research outcomes on removal of existing marine litter (by e-mail and through workshops and other relevant events)	2008-2009	RCU Member states RACs
	Develop technical materials and introduce best practices on solid waste management, including removal of marine litter on beaches	July 2009	CEARAC
	Develop technical report on technologies and research outcomes on prevention, collection and treatment of marine litter	2008-2009	MERRAC
4. Coordination of RAP MALI implementation			
	Organize working meetings on RAP MALI implementation in conjunction with workshops and/or NOWPAP ICC campaigns	2008-2009	RCU Member states RACs

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