

NOWPAP Regional Action Plan on Marine Litter



Northwest Pacific Action Plan

<http://www.nowpap.org>

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NOWPAP Regional Action Plan on Marine Litter

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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.

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.

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)

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.

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.

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)

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 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.

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)

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;

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- 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, 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 (Fig. 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.

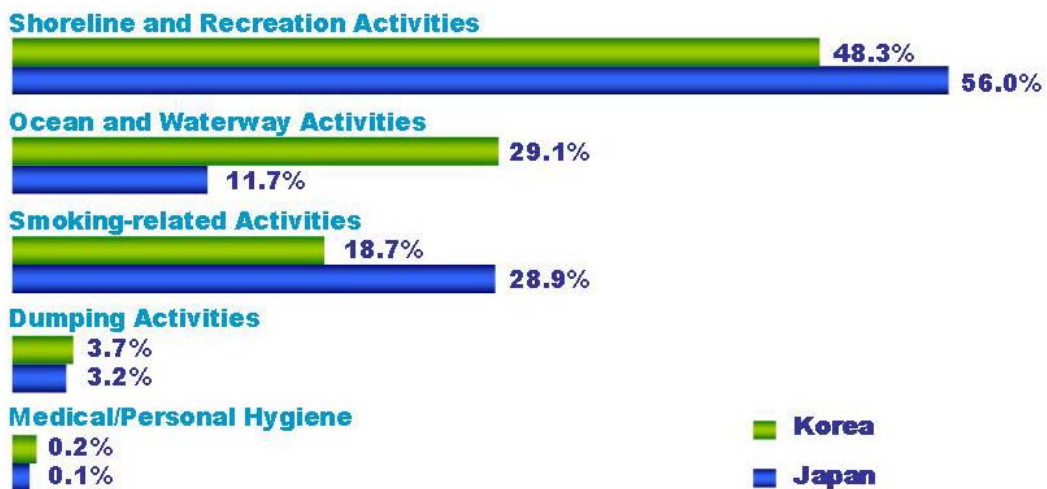


Fig. 3.1. Activity-based sources of marine litter in Japan and Korea in 2004-2006
(Data from ICC annual reports)

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;

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- 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:

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- 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 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).

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
<i>Litter collected (tonnes)</i>	578	2,453	3,076	5,137
<i>Budget (US\$)</i>	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.

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 pretreatment 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;
- 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
	- <i>Translate developed brochure into national language of each member state</i>		RACs
	- <i>Publish translated brochures</i>		RACs
	- <i>Distribute brochures to relevant sectors and organizations, including the public and workers, through the relevant occasions (e.g., workshop and ICC campaign)</i>		Member states RACs

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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

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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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