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COBSEA Regional Action Plan on Marine Litter 2008

ANNEX 9:

THE COBSEA REGIONAL ACTION PLAN ON MARINE LITTER

23 January 2008

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DEFINITIONS

East Asian Seas: For the purposes of this RAP-MALI, the term *East Asian Seas* refers to the coasts, Territorial Seas, Exclusive Economic Zones (EEZ) and adjoining waters of the COBSEA member countries, as follows:

Australia

Cambodia

People's Republic of China

Indonesia

Malaysia

Philippines

Singapore

Republic of Korea

Thailand

Vietnam

In the case of Australia the term only applies to its northern coasts, Territorial Sea and EEZ.

This definition does not preclude other countries and/or political entities in the general East Asian Seas region, that are not currently members of COBSEA, from joining or becoming partners in the COBSEA RAP-MALI including Brunei Darusalaam, and Japan.

This definition also does not preclude other countries and/or political entities that are adjacent to the general East Asian Seas region, such as Papua New Guinea, from becoming partners in the COBSEA RAP-MALI.

Marine litter: For the purposes of this RAP-MALI, the term *marine litter* means any and all solid waste matter that is of anthropogenic origin that is found on the coast, on the sea-surface, in the water column and/or on the seabed, including but not limited to all forms of plastics, general garbage and debris and lost and abandoned fishing gear, from all sources including land-based and sea-based sources.

LIST OF ACRONYMS

AMSA	Australian Maritime Safety Authority
APEC	Asia Pacific Economic Cooperation
APFIC	Asia-Pacific Fishery Commission
ASEAN	Association of Southeast Asian Nations
COBSEA	Coordinating Body on the Seas of East Asia
CUW	Clean Up the World
DINRAC	Data and Information Network Regional Activity Centre (of NOWPAP)
FAO	Food and Agriculture Organization (of the United Nations)
GIS	Geographic Information System
GPA	Global Programme of Action for the Protection of the Marine Environment from Land-based activities (of UNEP)
IAPH	International Association of Ports and Harbours
ICC	Ocean Conservancy's International Coastal Clean-up
ICS	International Chamber of Shipping
INTERTANKO	International Association of Tanker Owners
IMO	International Maritime Organization (of the United Nations)
IOC	Intergovernmental Oceanographic Commission (of UNESCO))
IUU	Illegal, Unregulated and Unreported (fishing)
LAFG	Lost and Abandoned Fishing Gear
MARPOL	International Convention for the Prevention of Pollution from Ships
MSC	Marine Stewardship Council
NOWPAP	North West Pacific Action Plan
NPAs	National Plans of Action (of GPA)
PADI	Professional Association of Diving Instructors
RAP-MALI	Regional Action Plan on Marine Litter
RSP	Regional Seas Programme (of UNEP)
SQID	Stormwater Quality Improvement Device
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
3R	Reduce, Reuse, Recycle

1. INTRODUCTION AND BACKGROUND

1.1 The global problem of marine litter

Marine litter, also known as marine debris and marine garbage, is one of the major threats to the world's coasts and oceans. Marine litter enters the seas from both land-based sources and from ships and other vessels at sea, and comprises a wide range of materials, including persistent plastics and a variety of other problematic pollutants.

Marine litter causes a wide range of ecological, environmental and socio-economic impacts, including ingestion by and entanglement of marine life, fouling of coastlines and interference with navigation. There have been cases of major shipping accidents, resulting in loss of human life, from the entanglement of vessel propellers and rudders in marine debris. Serious public health issues are also associated with hazardous materials, medical wastes, syringes, glass and other sharp and/or dangerous debris washed-up on beaches.

Global data on marine litter continues to show increasing levels of garbage washing up on coastlines and accumulating at sea. In 1997, the U.S. Academy of Sciences estimated the total input of marine litter into the oceans, worldwide, at approximately 6.4 million tonnes per year, nearly 5.6 million tonnes of which was estimated to come from merchant shipping. It is estimated that there is over 46,000 pieces of plastic floating on every square mile of ocean today. It has been suggested by some researchers that an estimated three times more garbage (much of it plastic), is being thrown into the ocean each year than the amount of fish taken out (GPA, 2007).

Of particular concern are mass concentrations of marine debris in high seas 'sink' areas, such as the equatorial convergence zone. In some such areas, 'rafts' of assorted debris, including various plastics, ropes, fishing nets, cargo-associated wastes such as dunnage, pallets, wires and plastic covers; drums and shipping containers along with accumulated slicks of various oils, often extend for many kilometres. Marine litter is also a compounding factor in the dispersal of invasive alien species across the oceans.

Marine litter is also found on the seabed. It could be that as much as 70 per cent of the entire input of marine litter sinks to the bottom and is found on the seabed, both in shallow coastal areas and in much deeper parts of the oceans (GPA, 2007).

A serious element in the broader issue of marine litter is the problem of Lost and Abandoned Fishing Gear (LAFG). S. Raaymakers (in preparation) reports that LAFG, including nets, lines, traps and floats, that are either accidentally lost or intentionally abandoned by fishing vessels at sea (or by fishers working from the shore), is increasingly becoming a major world-wide marine pollution concern. The impacts of LAFG are similar to those of marine litter in general and include:

- Navigational hazards and threats to human life and property when vessels entangle LAFG;
- 'Ghost-fishing' when LAFG continues to function as designed, catching target commercial species without economic benefit but with economic (and ecological) loss;
- The entanglement of non-target species, including sea-turtles, marine mammals and sea-birds, many of which may be of conservation concern and/or legally protected species;
- The accumulation of communities of fouling organisms on LAFG that then acts as an agent for the introduction of foreign species to new areas;
- Beaching of LAFG which can cause amenity impacts, preventing or hampering use of beaches and foreshores for tourism, recreation and other uses; and

- Economic impacts - including from the four other impact types listed above, and from the response to these impacts – which can be costly (e.g. emergency response to entangled vessels, LAFG recovery and clean-up campaigns, scientific research and monitoring).

1.2 Marine litter in the East Asian Seas region

The East Asian Seas region (Figure 1) embraces the most populous region in the world. It is home to almost 1.8 billion people, 60 per cent of whom are concentrated in coastal areas. In the past decade, the region has been the centre of considerable economic growth, bringing about increasing urbanization and industrialization, especially in the coastal zone. Around 300 million people in the region are now living in coastal urban areas (PEMSEA, 2002).

Figure 1: East Asian Seas region showing the COBSEA member countries
(non-COBSEA members Brunei Darussalam, Japan, Papua New Guinea and Democratic People's Republic of Korea are not labelled)
(source: COBSEA —www.cobsea.org)

According to the Regional Review of Marine Litter in the East Asian Seas region, there is currently very little systematically collected quantitative data on the extent and impacts of marine litter in East Asia. Relatively good data is available for only two countries in the region, Republic of Korea (a COBSEA member) and Japan (a non-COBSEA member). In Australia, some data is available from various uncoordinated survey and monitoring efforts, undertaken at various geographical scales by different parties. In Indonesia, systematic marine litter surveys have been undertaken in the Thousand Islands off Jakarta since the early 1980s. Additionally, some semi-quantitative data on marine litter is available from the Ocean Conservancy's International Coastal Cleanup (ICC) and similar programmes that are conducted annually at restricted sites in all COBSEA member countries except Cambodia in recent years.

These data combined with papers from the scientific literature, anecdotal reports, media articles and personal observations indicate that the marine litter situation in the East Asian Seas is as severe as, if not worse than any other part of the world, and is increasing significantly over time. The massive industrial and urban development under-way in the coastal zones of the region, combined with an exponential and sustained growth in shipping activity serving the region's rapidly expanding economies (Figure 2), plus the current lack of effective marine litter prevention and control measures in most East Asian countries, make marine litter a major marine pollution problem in the region.

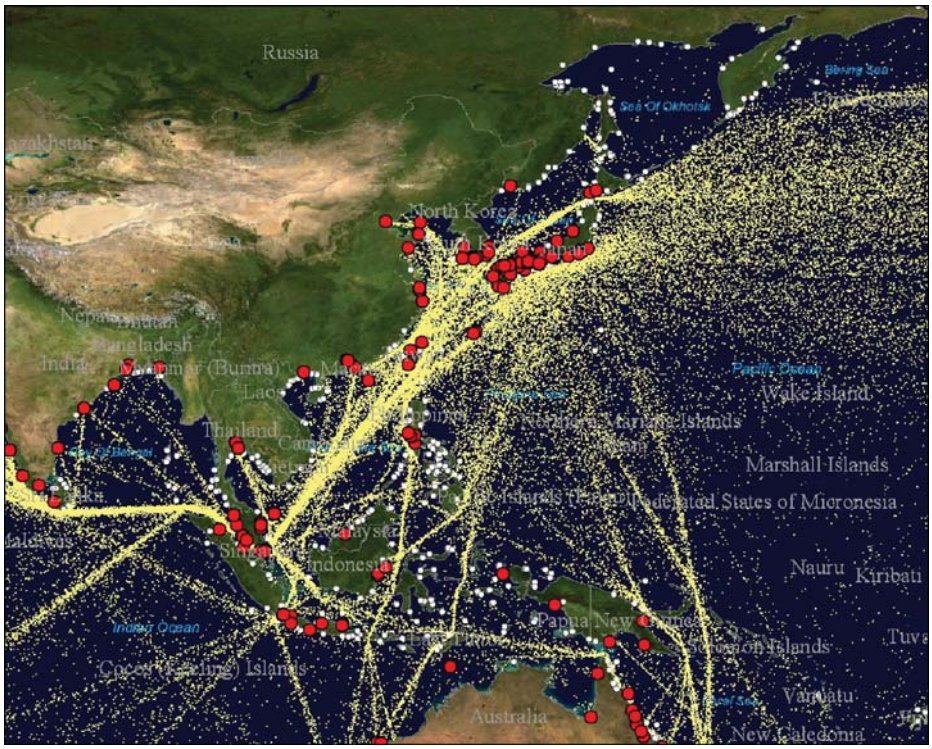

Figure 2: Shipping densities as represented by real ship position reports and major ports (red dots) in East Asia (source: GloBallast Programme, IMO)

As a component of the broader marine litter problem, LAFG is a major concern in the East Asian Seas, due to the extremely large size of the fishing industry (41 per cent of global fish catch comes from the East Asian Seas), combined with a lack of effective regulation of the fishing industry, including an extremely high level of Illegal, Unregulated and Unreported (IUU) fishing in the region.

The Regional Review of Marine Litter in the East Asian Seas region also found that there is an extremely low level of awareness about the marine litter issue in the region, that there are major cultural and capacity barriers to effectively addressing marine litter in the region, and that apart from Australia and Republic of Korea, none of the COBSEA member countries currently have concerted plans or actions to address the issue.

Of all the COBSEA member countries, only Republic of Korea has an advanced National Integrated Management Strategy for Marine Litter, which has been in place since 1999, providing a possible model for the rest of the region and indeed the world.

1.3 Development of the COBSEA RAP-MALI

Taking into account the global concern about the issue of marine litter and the United Nations General Assembly Resolution on Marine Litter (UN GA Resolution A/60-/L.22), the UNEP Regional Seas Programme (RSP) has initiated a global programme on marine litter, including addressing the problem at the regional level, through assistance to several Regional Seas organizations, including COBSEA.

With financial support from the UNEP RSP, COBSEA commenced its marine litter activity in late 2006 and in general accordance with the UNEP Guidelines, the COBSEA approach is being undertaken as follows:

Phase I: Assessment of the regional situation

National consultants were nominated by the COBSEA member countries and a regional consultant was identified to complete national surveys on marine litter and prepare a regional review on marine

litter respectively. The resulting *Regional Review on Marine Litter in the East Asian Seas region* provides valuable background information supporting the COBSEA RAP-MALI.

Phase II: Preparation of the COBSEA RAP-MALI

A draft framework document of a regional action plan on marine litter, was developed and presented to the First COBSEA Marine Litter Workshop held in Jakarta, Indonesia 8-9 May 2007. The workshop reviewed and further developed the draft framework document. The outputs of the workshop were consolidated into the draft COBSEA RAP-MALI - which constitutes ***this document.***

Phase III: Integration of the COBSEA RAP-MALI into the Programme of Work of COBSEA and implementation at the regional and national level.

In order to achieve implementation the COBSEA RAP-MALI will need to be approved and adopted by COBSEA and resources secured for its implementation, as part of the broader COBSEA Programme of Work.

2. AIM AND OBJECTIVES

The aim of the COBSEA RAP-MALI is to:

- Improve the quality of marine and coastal environments of the East Asian Seas by addressing the issue of marine litter through regional cooperation and partnerships.

The objectives of the COBSEA RAP-MALI are to:

- Prevent and reduce litter in marine and coastal environments of the East Asian Seas.
- Mitigate the environmental and socioeconomic impacts of litter in marine and coastal environments of the East Asian Seas.
- Raise awareness about marine litter and its impacts, amongst all relevant stakeholders in the East Asian Seas region, including but not limited to government decision makers, the private sector such as fisheries, shipping, ports and the plastics and packaging industries, and the general public.
- Monitor and assess the types, sources, distribution, quantities and trends of litter in marine and coastal environments of the East Asian Seas, in order to provide science-based information for policy making and management planning.

3. INSTITUTIONAL ARRANGEMENTS

The institutional arrangements for the coordination and management of the implementation of the COBSEA RAP-MALI will include:

- The establishment of a regional working group of marine litter consisting of national focal points and experts, to provide advice to the COBSEA Intergovernmental Meeting and guide the implementation of the COBSEA RAP-MALI. The group will discuss and advise COBSEA on its modality of work.
- Within the framework of COBSEA, cooperation with other global and regional organizations and programmes including civil society, the private sector such as fisheries, shipping, ports, the plastics and packaging industries and other relevant stakeholders.

4. ACTIONS AND ACTIVITIES

In order to achieve the aims and objectives of the COBSEA RAP-MALI as outlined in section 2, it is necessary for COBSEA and its members to carry out clearly defined and structured actions and activities. In line with the objectives, six major actions are proposed, as outlined below.

It should be noted that in developing and proposing these actions, the participants in the First COBSEA Marine Litter Workshop held in Jakarta, Indonesia, 8-9 May 2007 agreed that, given that the region is only just beginning to address the problem of marine litter, it is necessary to initially focus only on high-priority, foundational actions and activities, that will lay the basis for further development of more sophisticated marine litter prevention and response actions in the future.

In line with the objectives of the COBSEA RAP-MALI, the six major actions that are proposed are as follows:

Action 1: Preventing and reducing marine litter from land-based sources

Action 2: Preventing and reducing marine litter from sea-based sources

Action 3: Preventing and reducing Lost and Abandoned Fishing Gear (LAFG)

Action 4: Mitigating the impacts of marine litter

Action 5: Raising awareness of marine litter

Action 6: Monitoring and assessing marine litter

Actions 1 to 3 relate to objective 1 of the COBSEA RAP-MALI, and have been divided into these three sub-categories in recognition of the fact that quite different approaches are required to address the different sources (land-based and sea-based).

While it could be argued that LAFG is implicitly included in sea-based sources, because this type of marine litter is such a major concern, and because addressing it requires sector-specific measures, involving close cooperation with the fisheries sector, including international organisations that deal with fisheries as well as the fishing industry itself.

Within these actions, specific technical activities are proposed. Each action and its set of activities are described in more detail below, and these are summarised in a workplan in section 5.

Action 1: Preventing and reducing marine litter from land-based sources

In working to prevent and reduce marine litter from land-based sources, COBSEA will seek to work closely with the UNEP Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) including joint funding and/or implementation of projects where appropriate.

The following activities are proposed under Action 1:

Activity 1.1: **Legal and economic instruments:** Encourage and assist countries to develop and adopt legal and economic instruments to assist the management and prevention of marine litter from land-based sources.

Activity 1.2: **GPA National Plans of Action (NPAs):** Encourage and assist countries to develop and to achieve greater on-ground implementation of GPA NPAs.

Activity 1.3: **Integrated waste management:** Encourage and assist countries to promote integrated waste management systems for major municipal areas and coastal towns and villages, including the waste management principles of Reduce, Reuse and Recycle (3R).

Activity 1.4: **Urban catchments:** Encourage and assist municipal councils in each country to implement litter prevention and interception systems in urban catchments, by sharing information on the use of engineering and non-engineering approaches, including but not limited to litter booms, physical traps/interceptors, Stormwater Quality Improvement Devices (SQIDs) and similar measures.

Activity 1.5: **Training & capacity building:** Seek to 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.

Activity 1.6: **Award-based incentives:** Encourage and assist countries to develop and implement award-based incentive schemes for coastal villages, towns and cities that have IWM systems, using models such as the Australian "Tidy Towns" programme.

Action 2: Preventing and reducing marine litter from sea-based sources

In working to prevent and reduce marine litter from sea-based sources, COBSEA will seek to work closely with the International Maritime Organization (IMO) and both the Transport and Marine Resources Conservation Working Groups of Asia Pacific Economic Cooperation (APEC), as well as the international and regional shipping and ports industries, as represented by bodies such as the International Association of Ports and Harbours (IAPH), the International Association of Tanker Owners (INTERTANKO) and the International Chamber of Shipping (ICS); including joint funding and/or implementation of projects where appropriate.

The following activities are proposed under action 2:

Activity 2.1: **Legal and economic instruments:** Encourage and assist countries to develop and adopt legal and economic instruments to assist the management and prevention of marine litter from sea-based sources.

Activity 2.2: **MARPOL Annex V:** Encourage and assist countries in the region that are not party to MARPOL Annex V to become party, and assist countries with on-ground implementation of Annex V.

Activity 2.3: **Port Waste Reception Review:** Consider undertaking a regional review of the adequacy of port waste reception facilities and publish a Regional Directory of such, similar to that published jointly by Australia and New Zealand.

Activity 2.4: **Port Waste Reception Fees:** Seek to encourage countries in the region to adopt a coordinated regional approach to port waste reception facilities, based on a "General Fee" cost recovery basis.*

Activity 2.5: **Training & Capacity Building:** Seek to provide technical training and capacity building to staff from national governments, port authorities and the shipping industry on the prevention and reduction of marine litter from sea-based sources, through regional workshops and training courses.

* Note re. Port Reception Fees: In the Regional Review of Marine Litter in the East Asian Seas region most COBSEA members reported that where port waste reception facilities are provided, it is on a fee-for-service (user pays) basis. Such an approach can be a barrier to the use of such facilities - as vessel operators may not wish to pay such fees, and instead may opt to dispose of their garbage at sea - at no cost (assuming they are not caught and fined).

An alternative model that has been shown to be effective in some instances is a "General Fee" approach. This requires that all vessels using a port pay a standard environmental fee, which is used to fund the provision and operation of waste reception facilities, regardless of whether or not the vessels use the reception facilities. The result is that vessels are more likely to use the facilities - as they are paying for them anyway, and make no cost savings by dumping illegally at sea.

Action 3: Preventing and reducing Lost and Abandoned Fishing Gear (LAFG)

The activities proposed under action 3 are in addition to those under action 2, which in themselves will help to address the issue of LAFG.

In working to prevent and reduce LAFG, COBSEA will seek to work closely with the Food and Agriculture Organization (FAO) of the United Nations, the Asia-Pacific Fisheries Commission (APFIC), the Marine Stewardship Council (MSC) and both the Fisheries and Marine Resources Conservation Working Groups of APEC, as well as the fishing industry itself, including joint funding and/or implementation of projects where appropriate.

The following activities are proposed under Action 3:

Activity 3.1: **FAO Code of Conduct:** Encourage and assist the regional fishing industry to better implement / comply with the FAO Code of Conduct for Responsible Fisheries as it relates to LAFG.

Activity 3.2: **Gear marking:** Encourage and assist countries to develop national legislation that requires all fishing gear to be identified/marked.

Activity 3.3: **Gear registers:** Encourage and assist countries to establish national registers of fishing gear types (especially net types) used by their domestic fishing fleets.

Activity 3.4: **Waste gear buy-back:** Encourage and assist countries to establish waste fishing gear buy-back schemes such as that implemented successfully in Republic of Korea.

Action 4: Mitigating the impacts of marine litter

Recognizing that efforts to prevent and reduce marine litter from all sources as proposed under Actions 1 to 3 will not be entirely effective, and given the current severe state and increasing severity of marine litter in the Seas of East Asia, actions and activities are also required in order to mitigate litter that does and will continue to enter the marine and coastal environments of the region. As a starting point, under the COBSEA RAP-MALI the main mitigation measure that is proposed is marine litter removal and clean-up.

In working to mitigate the impacts of marine litter, COBSEA will seek to work closely with the ICC, PADI Project AWARE, Clean Up the World (CUW) and similar programmes, as well as the plastics and packaging industries which may be interested to support clean-up activities, including joint funding and/or implementation of projects where appropriate.

The following activities are proposed under action 4:

Activity 4.1: **International cleanup campaigns:** Encourage and assist all COBSEA member countries to join the ICC, PADI Project AWARE, CUW, Green Fins and similar campaigns and programmes and to spread these activities to additional sites in each country.

Activity 4.2: **Targeted cleanup campaigns:** Encourage and assist entities with particular interest in or responsibility for certain coastal areas, such as tourist resorts and port authorities, to undertake regular clean-ups of their areas.

Action 5: Raising awareness of marine litter

The Regional Review of Marine Litter in East Asian Seas region identified a severe lack of awareness about the marine litter issue amongst all levels and sectors of society in East Asia, as being perhaps the single

biggest barrier to addressing the issue in the region. It is therefore deemed logical and prudent that the development and implementation of a concerted communication and awareness campaign should form one of the high-priority, initial, foundational Actions of the COBSEA RAP-MALI.

In working to raise awareness about marine litter in East Asia, COBSEA will seek to work closely with the ICC, PADI Project Aware, CUTW, Green Fins and similar programmes that have major awareness as well as clean-up objectives. COBSEA will also seek to work with the plastics and packaging industries, which may be interested to support awareness activities, including joint funding and/or implementation of projects where appropriate.

The following activities are proposed under action 5:

Activity 5.1: **Regional communication strategy:** Seek to develop and implement a regional communication strategy on marine litter to promote awareness of the issue amongst all relevant audiences (government, industry, community), with consideration being given to the use of mass media (TV, radio and newspaper) as the most effective communication method.

Activity 5.2: **Targeted awareness campaigns:** Seek to develop and undertake awareness campaigns targeting high priority marine litter sources (e.g. fishing, shipping, municipal councils, port authorities).

Action 6: Monitoring and assessing marine litter

The Regional Review identified that there is a major lack of data on the sources, types, extent, distribution, impacts and trends over time of marine litter in the Seas of East Asia, and that this lack of understanding is a barrier to effective marine litter prevention and management in the region.

Monitoring and assessment programmes are required so as to determine the true regional extent of the problem, including identification of high priority sources and regional hot spots that require targeted management action, as well as trends over time and the effectiveness or otherwise of management and control responses.

In working to develop and implement marine litter monitoring and assessment programmes in East Asia, COBSEA will seek to work closely with UNEP and the Intergovernmental Oceanographic Commission (IOC), which are jointly developing global standards for marine litter surveys and monitoring. COBSEA will also seek to work with the ICC, which generates some limited monitoring data from its annual clean-up activities, as well as marine and coastal scientific institutions which may be interested to support marine litter monitoring and assessment activities, including joint funding and/or implementation of projects where appropriate.

The following activities are proposed under action 6:

Activity 6.1: **Data from ICC:** Seek to develop procedures in collaboration with ICC to improve the reporting of data to national governments and COBSEA that is collected from annual ICC events in the region.

Activity 6.2: **National Surveys and Monitoring:** Encourage and assist each COBSEA member to develop and implement formal, systematic, nationally coordinated marine litter survey and monitoring programmes, using standardised methods being developed by UNEP and IOC (standardisation is vital for data quality control and inter-comparability).

Consider encouraging COBSEA members to annually report the results of any such programmes to EAS/RCU for inclusion in a possible Regional Marine Litter Information System, as proposed under activity 6.3, and for consideration by COBSEA Intergovernmental Meetings.

Activity 6.3: **Regional Marine Litter Information System:** Consider the merits of establishing a central regional information system on marine litter at the COBSEA Secretariat and the role that the East Asian Seas Knowledgebase and other existing databases, such as the marine litter database managed by the NOWPAP Data and Information Network Regional Activity Centre (DINRAC), could play.

If developed, such an information system could be used for the storage, management, analysis and interpretation of the results of the national marine litter survey and monitoring programmes, as well as data returns from ICC events in the region and any other relevant sources of marine litter information in the region.

Such an information system could present outputs graphically on map-based Geographic Information System (GIS) - providing visual representation of the geographical spread of the problem. This would provide a powerful monitoring tool for assessing the true regional extent of the problem, including regional hot spots, as well as trends over time and the effectiveness or otherwise of management and control responses.

Activity 6.4: **Trajectory modelling:** Consider to undertake marine litter trajectory modelling in the COBSEA region, to identify sources and accumulation zones for marine litter, and enable better targeted management actions.

5. WORKPLAN

Table 1: The COBSEA RAP-MALI workplan

Action	*Activity*	*Timeline*	*Responsibility*	*Estimated regional budget*
1. Land-based sources:	**1.1 Legal and economic instruments:**			
	a. Review and recommend effective legal and economic instruments with regards to the management of marine litter from land-based sources	Year 1	COBSEA Secretariat	USD 15,000
	b. Develop national legal instruments to address marine litter from land-based sources and/or strengthen existing national legislation	Year 1-5	Participating countries	National budget / Other sources
	1.2 GPA NPAs:			
	a. Develop, or update existing, GPA NPAs to strengthen the management and mitigation of land-based pollution including marine litter	Year 1-5	Participating countries in collaboration with UNEP GPA	National budget / Other sources
	b. Provide support to participating countries for the integration of actions addressing marine litter in GPA NPA development	Year 1-3	COBSEA Secretariat in collaboration with UNEP GPA	USD 80,000
	1.3 Integrated waste management:			
	a. Promote the use of integrated waste management among coastal municipalities;	Year 1-5	Participating countries	National budget / Other sources
	b. Develop guidelines for the application of 3R programmes in coastal communities	Year 3	COBSEA Secretariat	USD 20,000
	c. Assist local municipalities in developing and applying income generating 3R programmes in coastal communities	Year 3-5	Participating countries in collaboration with COBSEA Secretariat	USD 50,000
	d. Promote the use of 3R programmes in marine parks and coastal tourism areas;	Year 1-5	Participating countries, the COBSEA Secretariat and the Green Fins network	USD 20,000
	1.4 Urban catchments:			
	Encourage municipal councils to implement litter prevention and interception systems in urban catchments	Year 1-5	Participating countries	National budget / Other sources
	1.5 Training and capacity building:			
	a. Organise a training workshop to share review outcomes and experiences on effective legal and economic instruments to manage marine litter from land-based sources between COBSEA member countries	Year 2	COBSEA Secretariat	USD 20,000
	b. Organise a technical training workshop to share knowledge and experiences on the use of engineering and non-engineering approaches to litter prevention	Year 4	COBSEA Secretariat	USD 30,000

Action	*Activity*	*Timeline*	*Responsibility*	*Estimated regional budget*
	1.6 Award based incentives:			
	a. Initiate or strengthen existing award-based incentives schemes for coastal towns and cities that have IWM systems at national level	Year 1-5	Participating countries	National budget / Other sources
	b. Encourage the establishment of award-based incentives schemes through regional campaign activities, such as COBSEA Clean Beach awards or similar	Year 1-5	COBSEA Secretariat	USD 50,000
2. Sea-based sources:	**2.1 Legal and economic instruments:**			
	a. Review and recommend effective legal and economic instruments with regards to the management of marine litter from sea-based sources	Year 1	COBSEA Secretariat	To be combined with activity 1.1a
	b. Develop national legal instruments to address marine litter from land-based sources and/or strengthen existing national legislation	Year 1-2	Participating countries	National budget
	2.2 MARPOL Annex V:			
	a. Ratify MARPOL Annex V, or strengthen the implementation of MARPOL Annex V, specifically regarding the prevention and mitigation of marine litter from sea-based sources	Year 1-5	Participating countries in collaboration with IMO	National budget / Other sources
	b. Provide support to participating countries to identify and implement concrete actions to address marine litter through on-the-ground implementation of MARPOL Annex V.	Year 3-5	COBSEA Secretariat in collaboration with IMO	80,000
	2.3 Port waste reception review:			
	Undertake a regional review of the adequacy of port waste reception facilities and publish a regional directory.	Year 2	COBSEA Secretariat and participating countries incollaboration with IMO	50,000
	2.4 Port waste reception fees:			
	a. Encourage the adoption of a “General Fee” cost recovery basis for port waste reception facilities at national/local ports	Year 1-5	Participating countries	National budget / Other sources
	b. Develop a coordinated regional approach/recommendation to port waste reception facilities, based on a “General Fee” cost recovery basis	Year 3	COBSEA Secretariat and participating countries in collaboration with IMO	15,000
	2.5 Training and capacity building:			
	Organise a training workshop to share review outcomes and experiences on effective legal and economic instruments to manage marine litter from sea-based sources between COBSEA member countries, specifically focusing on strengthened implementation of MARPOL Annex V	Year 2	COBSEA Secretariat in collaboration with IMO	To be combined with activity 1.5a

Action	*Activity*	*Timeline*	*Responsibility*	*Estimated regional budget*
3. LAFG:	**3.1 FAO Code of Conduct:**			
	a. Strengthen the implementation and compliance with the FAO Code of Conduct for Responsible Fisheries as it related to LAFG	Year 1-5	Participating countries in collaboration with FAO	National budget / Other sources
	b. Provide support to participating countries to identify and implement concrete actions to address LAFG through the implementation of the FAO Code of Conduct for Responsible Fisheries.	Year 5	COBSEA Secretariat in collaboration with FAO	80,000
	3.2 Gear marking:			
	Develop and/or strengthen existing legislation requiring all fishing gears to be identified/marked	Year 1-5	Participating countries	National budget / Other sources
	3.3 Gear registers:			
	Establish national registers of fishing gear types (especially net types) used by domestic fishing fleets	Year 1-5	Participating countries	National budget / Other sources
	3.4 Waste gear buy-back:			
	a. Assess the possibility of implementing waste gear buy-back schemes at national level	Year 1-5	Participating countries	National budget / Other sources
	b. Organise a technical training workshop to share experiences on successful management initiatives such as the waste gear buy-back scheme implemented in the Republic of Korea	Year 4	COBSEA Secretariat	To be combined with activity 1.5b
4. Mitigating impacts:	**4.1 International cleanup campaigns:**			
	a. Join Ocean Conservancy's ICC, CUW, PADI Project AWARE, Green Fins and similar campaigns and programmes and encourage active participation by NGOs, schools, private sector etc in local cleanup campaigns	Year 1-5	Participating countries	National budget / Other sources
	b. Encourage and assist participating countries to join Ocean Conservancy's ICC, CUW, PADI Project AWARE, Green Fins and similar campaigns and programmes through the organisation of regional cleanup campaigns	Year 1-5	COBSEA Secretariat in collaboration with ICC, CUW etc	100,000
	4.2 Targeted cleanup campaigns:			
	Encourage and assist entities with particular interest in or responsibility for certain coastal areas, such as tourist resorts and port authorities, to undertake regular clean-ups of their areas	Year 1-5	Participating countries	National budget / Other sources
5. Raising awareness:	**5.1 Regional communication strategy:**			
	Develop and implement a regional communication strategy on marine litter to promote awareness among all relevant audiences and identify potential funding for its implementation	Year 1-5	COBSEA Secretariat and participating countries	USD 50,000

Action	*Activity*	*Timeline*	*Responsibility*	*Estimated regional budget*
	5.2 Targeted awareness campaigns:			
	a. Develop and undertake national/local awareness campaigns targeting high priority marine litter sources (e.g. fishing, shipping, municipal councils, port authorities)	Year 1-5	Participating countries	National budget / Other sources
	b. Ensure active involvement by representatives from private sectors representing high priority marine litter sources (e.g. fishing, shipping, municipal councils, port authorities) in the implementation of the COBSEA RAP-MALI through the participation in training workshops, clean-up campaigns, potential funding for activities etc.	Year 1-5	COBSEA Secretariat	N/A
6. Monitoring & assessing:	**6.1 ICC data:**			
	Develop procedures in collaboration with ICC to improve the reporting of data to national governments and COBSEA that is collected from annual ICC events in the region	Year 1	COBSEA Secretariat in collaboration with ICC	N/A
	6.2 National surveys and monitoring:			
	a. Provide logistical and other (non-financial) support to the development of standardised marine litter monitoring methods that has been initiated by UNEP RSP and IOC	Year 1	UNEP RSP and IOC/ UNESCO in collaboration with the COBSEA Secretariat	N/A
	a. Develop and implement formal, systematic and nationally coordinated marine litter survey and monitoring programmes, using the standardised methods developed by UNEP RSP and IOC.	Year 1-5	Participating countries	National budget / Other sources
	b. Report the results of national surveys and monitoring to the COBSEA Secretariat for inclusion in a possible Regional Marine Litter Information System and for consideration by COBSEA IGMs	Year 1-5	Participating countries	National budget / Other sources
	6.3 Regional information system:			
	Establish a central regional information system on marine litter as part of the developing East Asian Seas Knowledgebase	Year 2	COBSEA Secretariat	USD 20,000
	6.4 Trajectory modelling:			
	Undertake marine litter trajectory modelling in the COBSEA region, to identify sources and accumulation zones for marine litter, and enable better targeted management actions	Year 3	COBSEA Secretariat in collaboration with renowned research institution and participating countries	USD 120,000
			Total estimated regional budget:	**USD 800,000**

6. FUNDING AND SUSTAINABILITY

The funding and sustainability arrangements for the implementation of the COBSEA RAP-MALI are as follows:

- Budget for the implementation of the COBSEA RAP-MALI shall be allocated from the COBSEA Trust Fund and financial and in-kind support shall be sought from other sources such as:
  - COBSEA members
  - Other bilateral donors
  - Multi-lateral donors
  - Relevant private sector industries
  - NGOs
- The implementation of the COBSEA RAP-MALI at the national level will be carried out by individual member countries.
- With a view towards longer-term sustainability, COBSEA and its members will endeavor to include user-pays, polluter-pays and other economic instruments in all marine litter activities, as and where appropriate and possible.

7. REFERENCES

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