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Draft Policy Guidance for Implementing the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities in the period 2017-2021

Note by the secretariat

I. Introduction

The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) was adopted in Washington D.C, USA in 1995 by 108 governments and the European Commission. It is a flexible, non-binding instrument that contributes to the sustainable development of coastlines, oceans and islands in an adaptive manner in the case of changing realities. The source categories that this programme addresses are: sewage, physical alterations and destruction of habitats, nutrients, sediment mobilization, persistent organic pollutants, oils, litter, heavy metals and radioactive substances. Paragraph 36 of the GPA provides that "*effective international co-operation is important for the successful and cost-effective implementation of the Programme of Action…"* and that *"[F]furthermore, international co-operation is required to ensure regular review of the implementation of the Programme and its further development and adjustment*".

Progress in implementing the GPA was first reviewed in Montreal, Canada in 2001, then in Beijing, China in 2006, and most recently in Manila, Philippines in 2012. Governments also agreed in Manila to the Manila Declaration and that they would focus on developing or strengthening three global partnerships on marine litter, wastewater and nutrient management.

In the years since the Manila Declaration was agreed upon, the international community has embarked on several initiatives, and discussed and developed policies concerning the marine and coastal environment, which are relevant to the implementation of the GPA. Paragraph 75 of the GPA calls upon the United Nations Environment Programme (UNEP) to perform its role as secretariat of the GPA in an efficient and cost-effective manner, under the premise that responsibility for implementation of the GPA, be it at the regional, national or local level, remains within the countries. The GPA urges UNEP to "be flexible and responsive to the evolving needs of the Programme and the availability of resources".

This document has been prepared by the UNEP GPA Coordination Office to present a **preliminary** policy and strategy for the implementation of the GPA during the period 2017-2021 with a view to addressing international discussions on sustainable development as they relate to the marine and coastal environment, and more specifically the **2030 Sustainable Development Agenda**. Regional Seas Conventions & Action Plans (RSCAP) are requested to review the approach proposed and discuss it at the 17th Global Meeting of the RSCAP, with the aim of providing direction that would inform further development of the strategy, in time for the next Intergovernmental Review (IGR) of the GPA, possibly in late 2016 or early 2017.

II. Basis for furthering the GPA implementation in the period 2017 -2021

The purpose of this paper is to prompt thinking on policy issues in relation to the further implementation of the GPA for the period 2017 to 2021. These issues will be discussed with a view to submission at the next IGR meeting of the GPA. The objective of this paper is also to elaborate the opportunities and benefits arising from improved management of land-based sources of pollution (LBS), so that these can be incorporated into the future work of the GPA.

The future role of the GPA will be based on regional and global deliberations, such as:

- Rio+20 Outcome document, *The Future We Want*
- The SAMOA Pathway
- UNEP's Programme of Work and Medium Term Strategy
- The 2030 Sustainable Development Agenda (SDGs)

- Decisions of Conferences of Parties to the Regional Seas Programmes
- Intergovernmental Review Meetings of the GPA
- United Nations Environment Assemblies (UNEA)
- Global Land-Ocean Connections Conferences (GLOC), and
- Other High-level meetings of relevance (e.g. Conference of Parties to UNFCCC, CBD etc.)

The GPA, through UNEP's role in various organs, is also able to respond through mechanisms such as UN-Oceans, UN-Water, and the 18 Regional Seas Programmes worldwide.

Main policy messages

The main policy message being proposed for the next IGR is that "**land-based sources of marine pollution (particularly wastewater, nutrients and marine litter), or LBS, need to be seen as resources rather than as burdens**". This is consistent with ongoing discussions related to the circular economy and, for specifically wastewater, was the subject agreed upon by experts preparing the 2017 World Water Development Report (WWDR), which will coincidentally and conveniently focus on wastewater.

Under the continued situation where the level of resources for implementing the GPA has been limited, Governments have placed a clear priority for action among the source categories of the GPA. The three priorities are nutrients and wastewater (sewage), given their importance to coastal eutrophication, and marine litter for its impact on the marine ecosystems and economies of coastal communities. These diffuse sources continue to be challenges at the local, national and regional levels and the impacts of these sources on the coastal and marine environment are extending.

In the face of these challenges, governments and their stakeholders are seeking to boost resource-efficient growth and innovation in order to decouple the links between economic growth and environmental degradation, notably through increased resource-efficiency and reduction of pollution over product life cycles and along supply chains. Public policies and private sector initiatives that promote increased investment in efficient and environmentally friendly products and services are emerging. Economic development models based on the relation between resource use and pollution need further development to ensure there is efficient use of resources. Such models provide opportunities for Governments and other stakeholders to see pollution load reduction as opportunities for investments and where pollutants can be seen as resources.

Work to address these three diffuse source categories, highlighted above, provides opportunities to demonstrate potential benefits of ecosystem-based management and approaches and to consider these pollutants as resources. In focusing the GPA implementation in the coming five years, it is proposed that reuse and recycling of pollutants as resources will be fully taken into consideration. By taking such approaches to these source categories, management efforts and investments can lead to not only improving the environmental quality in coastal areas, but also socio-economic development in the same areas.

Thematic focus

Broad thematic focus should consider:

- **Circular economy**
- **Waste-to-value**

- **Impacts on livelihoods**

The ***circular economy*** is a generic term for an industrial economy that is, by design or intention, restorative and in which material flows are of two types, biological nutrients, designed to reenter the biosphere safely, and technical nutrients, which are designed to circulate at high quality without entering the biosphere. The founding principles of the circular economy include that Waste is food and Waste does not exist. The biological and technical components (nutrients) of a product are designed by intention to fit within a materials cycle, designed for disassembly and re-purposing. The biological nutrients are non-toxic and can be simply composted. Technical nutrients – polymers (including plastics), alloys and other man-made materials are designed to be used again with minimal energy.

The European Commission will present an ambitious circular economy strategy in late 2015, to transform Europe into a more competitive resource-efficient economy, addressing a range of economic sectors, including waste. They note that since the industrial revolution, waste has constantly grown, because economies have used a "take-make-consume and dispose" pattern of growth - a linear model which assumes that resources are abundant, available and cheap to dispose of. What is needed is a more circular economy, which means re-using, repairing, refurbishing and recycling existing materials and products. What used to be regarded as 'waste' can be turned into a resource. The aim should therefore be to look beyond waste and to close the loop of the circular economy. All resources need to be managed more efficiently throughout their life cycle.

Using resources more efficiently will also bring new growth and job opportunities. Better eco-design, waste prevention and reuse can bring net savings for businesses and benefit consumers, while also reducing total annual greenhouse gas emissions. Moving towards a circular economy is at the heart of the resource efficiency agenda established under the Europe 2020 Strategy for smart, sustainable and inclusive growth. The main ideas on how to do more with less are being taken further in the EU's Environment Action Programme to 2020.

Waste-to-value is an emerging term which describes many sustainability-oriented business models. It is a concept worth mainstreaming, because it cuts right to the core of what is really needed in society today – practical means of taking the waste generated and repurposing it, profitably if possible, into things needed by consumers.

Examining waste-to-value through the lens of the GPA, business models might be built around turning waste (e.g. food) into compost, turning methane generated in sewage treatment plants and as a byproduct of decomposition at landfills into compressed natural gas for vehicles, and many more. Whereas composting, landfill gas capture and bio-digesters are not new, re-framing the discussion around the waste-to-value terminology and concept may help communicate the value proposition in a way that is new and more intuitive.

While the economic potential of so many of these models is still to be determined, the potential of the sustainable impact is great. For example, composted (food) waste creates a nutrient-rich soil supplement, and it keeps food from turning to harmful methane in the landfill. It also saves on hydrocarbon usage – both in preventing the need for many traditional fertilizers (which are largely made from petrochemicals) to grow new crops, but also to make sure that the embedded energy that went into producing the food in the first place is not completely lost.

Wastewater (WW) & Nutrients

Improving WW management, including its collection, treatment, discharge, and the beneficial use of liquid and solid byproducts, is critical to the social, environmental and economic dimensions of sustainable development and an integral step in avoiding local (and global) water crises.

Nearly all human activity that uses water results in the production of WW (from domestic, industry, commerce, agriculture and urban activities). WW is used water that is contaminated to a level where it presents a risk or hazard for use. With population growth and economic development, the quantity of WW is increasing while the consequences are (most often) not taken fully into account by governments and the various sectors.

WW is a major global issue (especially in developing counties) since it has been estimated that, globally, about 80% of WW from human settlements and industrial sources is discharged to the environment without treatment (UNEP & UN-Habitat 2010). Worldwide, around 750 million people still do not have access to improved drinking water and some 2.6 billion, almost half the population of the developing world, do not have access to improved sanitation (WHO/UNICEF, 2015)P1F2P. Untreated WW pollutes not only the natural environment but also the immediate living environment, and as such has a huge impact in health related illness, particularly in the developing world where millions of people die each year from water related diseases. WW pollution has the potential to contaminate scarce water resources, thus enhancing risks of water.

Full treatment sewerage systems, following traditional models of primary to tertiary treatment are very expensive and often prohibitively so. Re-use of the nutrients in wastewater could help avoid excessive treatment costs whilst providing benefits in terms of organic fertilizer. The 'nutrient cleaning' capacity of natural systems for treatment of wastewater, such as lagoons, ponds, and wetlands could be better utilized. Systems exist, operated in both developing and developed countries, for the conversion of wastewater into useable resources. These integrated systems combine processes and practices to optimize resource use by recycling wastewater so that water and nutrients can be re-used. Clean bio-solids can be used in agriculture as fertilizer and to improve the soil structure, through the approaches advocated as ecological sanitation or productive sanitation.

In China there are very large farms that are almost self-sufficient in terms of energy and nutrients because of the effective recycling of their waste streams. In India, the Calcutta wetland system provides the world's largest example of wastewater fed aquaculture. The wetlands receive about 555,000 cubic metres of untreated wastewater per day which flows through about 3,000 hectares of constructed fish ponds. Annual fish production amounts to 13,000 tons. Many other examples also exist globally. These approaches have real benefits in reduction of carbon footprints; for example, in a number of countries the manufacture and use of synthetic nitrogen fertilizer can account for a significant proportion of the country's greenhouse gas emissions. More efficient nitrogen use can mean increased net incomes to farmers, a decrease in carbon footprint, less pollution, and no loss of crop production levels.

Marine litter

Much of the marine litter from land-based sources results from unsustainable production, consumption, and poor waste management. Every year, marine debris results in substantial economic costs and losses

to individuals and communities around the world. Marine litter is part of a broader problem of solid waste management, which affects all coastal and upland communities including inland waterways and is closely linked to the protection and conservation of the marine and coastal environment. The UNGA Resolution 65/37 in 2010 (paragraph 137) urged "*States to integrate the issue of marine debris into national strategies dealing with waste management in the coastal zone, ports and maritime industries, including recycling, reuse, reduction and disposal*", and encouraged "*the development of appropriate economic incentives to address this issue, including* ***the development of cost recovery systems***…..".

It is estimated that 10 to 20 million tonnes of plastic is finding its way into the world's oceans each year, costing approximately US$13 billion per year in environmental damage to marine ecosystems. This includes financial losses incurred by fisheries and tourism as well as time spent cleaning up beaches. The total natural capital cost of plastic used in the consumer goods industry is estimated to be more than US$75 billion per year. The cost comes from a range of environmental impacts including those on oceans and the loss of valuable resources when plastic waste is sent to landfill rather than being recycled. The most significant upstream impact is greenhouse gas emissions released from producing plastic feedstock, which is responsible for almost a third of the total natural capital costs.

Oceans are critical to sustaining life's natural support systems. They contribute to the livelihoods, culture and well-being of communities around the world. They also play a vital role in the global economy by providing food and a source of income for millions of people. Yet, with a fast-growing world population, the production of waste continues to increase faster than the efforts to curtail it and prevent it from degrading the environment. More waste means more marine litter; and one of the main types of marine litter is plastic debris.

About 280 million tonnes of plastic is produced globally each year and only a very small percentage is recycled. As society has developed new uses for plastic, the variety and quantity of plastic items found in the environment, and this includes the marine environment, has increased dramatically. Once in the ocean, plastic does not go away: it fragments, eventually breaking down into smaller pieces known as microplastics, and acts as a vector for chemicals such as persistent organic pollutants that may be transferred into the food chain upon ingestion by marine organisms. Transported by ocean currents, few places around the globe have not been infested by this material.

Proper management, use and disposal of plastic will help companies to optimize its use and reduce its end-of-life impacts by fully incorporating environmental management within their business frameworks. Forward-looking companies can improve their management of plastic by, for example, cutting costs through their more efficient use, developing "closed loop" business models that recover the resources locked up in plastic, and winning customers by creating sustainable products. Good management of plastic could save consumer goods companies up to US$4 billion per year.

A recent UNEP publication - *Valuing Plastic: The Business Case for Measuring, Managing and Disclosing Plastic Use in the Consumer Goods Industry* - on the valuation of plastic, has allowed, for the first time, to put a figure on the costs companies would incur if the damage caused by waste plastic was included in their accounting. The report highlighted the urgent need for businesses to manage their annual use and disposal of plastic, as many companies already do with carbon emissions. It also provided a series of recommendations that are designed to help ensure a sustainable future for plastic. The report additionally provides guidance on how to achieve the same economic output with fewer inputs and less

waste, leading to greater cost savings; all of which can further expand the global economy in years to come.

Through the Global Partnership on Marine Litter and other relevant initiatives, UNEP is committed to working with all stakeholders to reduce the influx of waste into the ocean and to prevent plastic from getting into the environment in general. Progress on plastic pollution will require companies to work in partnership with other stakeholders. This includes collaborating with governments to develop effective legislation and waste management infrastructure, especially in developing countries.

The GPA may wish to elaborate the concept of plastic 'waste' to a resource for recycling or reuse (e.g. plastics to fuel, which reduces waste and generates a useful byproduct).

Multi-stakeholder partnership approaches

The multi-source and inter-sectoral nature of wastewater, nutrients and marine litter, while potentially providing a range of opportunities and benefits from resource re-use and recycling and lower carbon footprint approaches, require governance and institutional mechanisms. Mechanisms need to be established that are able to bring governments, industrial sectors, scientists and other stakeholders together around the shared agenda of the win-win investments. UNEP and the international community have established multi-stakeholder partnerships, advocating clearly defined objectives and targets which can produce tangible results in reducing the impacts of these source categories, bringing specific economic benefits derived from the partnerships to involved stakeholders. Such partnership approaches can overcome challenges previously faced with global and regional partnerships, where Governments and other stakeholders can clearly show their commitments to achieve the defined objectives and targets, such as those defined under the Honolulu Commitment and the Honolulu Strategy, in the case of marine litter.

In order for the established global Partnerships to work effectively and impact on national policies related to these source categories, there needs to be a way of ensuring a role for Governments in overseeing and engaging in the Partnership work on a regular basis, rather than relying simply on a full scale GPA inter-governmental review after 5 years. It is therefore proposed that Governments be engaged in the oversight of the work of the Partnerships through the GPA inter-governmental processes, including inter-sessional activities as proposed below.

Two inter-linked functions are proposed to the GPA inter-governmental mechanism. First, a GPA Bureau would be established for the fourth IGR on a regionally representative basis. The Bureau will continue to function after the Inter-Governmental Review meeting, and will have a role in receiving regular reports from the respective Partnerships, and in providing a conduit back to the Partnerships. Secondly, as part of the GPA work programme for 2017-2021, the UNEP GPA Coordination Office would develop and implement inter-sessional activities. The inter-sessional activities will be organized for the purpose of reviewing the progress in the GPA implementation and identifying emerging issues related to GPA. The inter-sessional activities may be organised through the Bureau, and an inter-sessional meeting(s) may be organized in conjunction with other global meetings, such as UNEA, and subject to available resources.

By taking the abovementioned approaches, Governments are also requested to implement the GPA through effective regional frameworks, notably the Regional Seas Conventions and Action Plans frameworks. The proposed partnership approach would lead to the formulation of more coordinated

stakeholder efforts on the priority source categories, involving also existing global, regional and national initiatives to address the issues relevant to these three source categories.

III. An outline of the GPA work programme for 2017-2021

There still remains a pressing need to address the key source categories of nutrients, wastewater, and marine litter given their connections with coastal water quality, health, livelihoods, agriculture and other relevant sectors, and the persistent nature of the problems they pose. ***Details of ongoing work that will continue have not been included in this paper.*** However, the GPA should seek to catalyze integrated management approaches, particularly focusing on resource management and reuse.

Emerging issues which the GPA is expecting to address include:

- Marine litter & microplastics
- Emerging wastewater pollutants (e.g. endocrine disrupting chemicals)
- Nutrients (Nitrogen and Phosphorus; Harmful algal blooms, including Sargassum in the Caribbean and West Africa)

Building on the progress made since the last GPA IGR in Manila in 2012, and in the light of present and emerging challenges, the approach proposed here entails Governments, with the support of UNEP and in partnership with international and regional organisations and other stakeholders, focusing over the period 2017-2021 on:

(i) Most urgent research gaps, new technologies, legislation, etc - specification of areas especially in need of more research, including key impacts on the environment and on human health; establishment of public-private partnerships to get involvement of the government and the private sector to **address the marine litter problem, particularly plastics**; capacity building programmes for officials to deal with marine plastic debris. Using the GPML, governments would commit to work with relevant sectors to mitigate the environmental impacts of these sources of pollution and at the same time to promote efficiencies and incentives in their production, and make full use of ***re-cycling and re-use opportunities***;

(ii) Exploring **emerging wastewater pollution sources**, taking into account emergent pollutants such as microplastics, endocrine disruptors, discarded pharmaceuticals amongst others, and their impacts on ecosystems, human health and livelihoods. The main chemical components of discharged effluents will need to be identified in order to provide a baseline on recommending innovative solutions for effluent treatment.

The impacts of effluent discharge on human health and livelihoods will be assessed to help propose ways of protecting ecosystem health for sustainable ecosystem services, and ***turning wastewater into a valuable resource***. This is consistent with the theme for UNEA-2: "*Healthy Environment, Healthy People*". Gaps in implementation of relevant policies will need to be identified and implementation of policies enhanced to protect the marine and coastal environment; and

(iii) **Reduction of microplastics in wastewater**. This will include raising public and stakeholder awareness on the socioeconomic, human health, and environmental impacts presented by microplastics in wastewater effluents. Global concerns over the impacts of microplastics (plastics <5 mm) as a pollutant have emerged in recent years as concentrations continue to increase in aquatic bodies (from e.g. plastics in cosmetics and personal care products, synthetic fibres from washing, breakdown of larger plastics). Microplastics are often mistaken by aquatic life for food and can be caught by filter feeders such as mussels and oysters, affecting both the environment and livelihoods.

Pollutants accumulated on plastics may be transferred to these species and bio-accumulate up the food chain, potentially affecting human health. Due to their small size, the technology does not exist to remove microplastics and fibres from aquatic bodies. Current wastewater treatment efforts, especially in developing countries where treatment is particularly limited, are ineffective in preventing the release of microplastics into the environment. Instead, these plastics must be reduced and removed at their source. The GPA, through the framework of the GPML, will aim to develop recommendations on the removal of microplastics from wastewater and consumer products and facilitate implementation.

The GPA would engage with relevant stakeholders, especially industry and major companies involved in the production of microplastics, in order to implement options for their reduction. The GPA furthermore will aim to collaborate with civil society organizations (like the Plastic Soup Foundation and the Mermaids project) in order to better engage with industry through their current projects.

(iv) **The Sargassum (brown seaweed) influx into Caribbean and African coastal areas**. This emerging issue is specifically related to the portfolio of UNEP in relation to nutrient impacts on the marine environment. It could become politically significant as a transboundary issue, affecting the lifeblood of Caribbean (& West African) economies – tourism & fisheries. There is potential to turn ***the seaweed problem into an income generating opportunity – a green economy approach***. The transboundary nature of the issue provides an opportunity for Regional Seas Programmes in different regions, under the leadership of UNEP, to collaborate in addressing a global issue. The multi-disciplinary nature (including climate change; pollution; sustainable livelihoods; wildlife protection) of the phenomenon may warrant development of a multi-focal area and multi-agency (e.g. UNEP, FAO, IOC/UNESCO, IAEA, CBD, CMS, GIZ plus GPNM members) project (for consideration by the GEF or GCF).

UNEP, through the Abidjan Convention (ABC) Secretariat has been approached to provide a management response to the Sargassum episodes in Sierra Leone and more generally, in West Africa. The Executive Chairperson of the Environment Protection Agency in the Office of the President of Sierra Leone, in a formal letter to UNEP, noted the massive deposits of Sargassum on beaches which have created environmental problems and disrupted the tourism industry. Each time the seaweed has bloomed, the tourism industry has suffered huge losses in revenue and there have been drastic declines in fish catches.

The Sargassum influx is a source of concern due to its potential ecological impact, and in particular on threatened species like sea turtles. Special Sargassum working sessions have been organised in 2015 to exchange about the observed Sargassum influx, causes and transport pathways, and impacts on sea turtles in various life stages in the Caribbean.

The Sargassum issue is spanning the Atlantic and has impacted West African and Caribbean coastlines, waters and livelihoods alike. The ABC Secretariat has also recently reported incidences in Cote D'Ivoire. In both regions, Sargassum began hitting beaches in unprecedented amounts in 2011. Rarely have researchers encountered a phenomenon of this magnitude and duration. Physical oceanographers have been following the Sargassum 'invasion' since first observed in the Caribbean in 2011. A similar situation was also occurring along West Africa coastlines and it is hypothesized that the concurrent Caribbean and West Africa episodes are strongly related.

Researchers are seeking to understand the underlying mechanisms driving such a bloom and influx and have been working to that end since 2011 (mostly without dedicated research funding). The movement of Sargassum into the Caribbean has not slowed since 2011, and 2015 ranks as perhaps the

year of greatest influx into the region. It is believed that the recent massive influxes are related to Sargassum blooms occurring in the Atlantic Ocean east of Brazil, and hence are not associated with the name-giving Sargasso Sea. Some scientists link them to higher than normal temperatures and low winds due to climate change, both of which influence ocean currents.

Barbados is in the early stages of trying to effectively manage the massive influx of Sargassum, which has been impacting the coastlines of Barbados and the region over the last 4 - 5 years. As recently as April, various Government agencies (e.g. Health, Tourism, Coastal Zone Management Unit, Fisheries, etc.) met to formulate a management strategy for addressing the impacts of Sargassum on coastal and marine resources, and the services that these resources provide within the social and economic context.

In brief, research indicates that the events appear related to a recently initiated (~2010) massive buildup (bloom) of Sargassum within the Atlantic equatorial region, ***fueled by nutrient input*** (upwelling and African atmospheric dust) and warmer than usual sea temperatures. One hypothesis is that unprecedented masses of Sargassum are being transported on ocean currents from the equatorial Atlantic to the Western Atlantic and then into the Caribbean. A similar dynamic appears to be at work in the Eastern Atlantic, pushing Sargassum onto the West African coast. 'Back-tracking' of Sargassum movements using ocean current models in combination with ocean satellite-tracked drifter data acquired for the equatorial Atlantic tend to confirm this hypothesis.

The proliferation of Sargassum is ultimately a transboundary issue and therefore introduces regional management issues regarding nitrification from the Amazon and Congo and international management issues regarding rising sea surface temperatures, within the context of climate change.

Potential action which could be facilitated by the GPA include:

- Research into the possibilities of utilizing the seaweed. This is already being done on a small scale in Barbados (see: https://www.youtube.com/watch?v=6nkRU0-4Kf8)
- Monitoring the level of nutrients in the coastal area and determining the source of input
- Collaboration with countries and regions
- Beach clean-ups
- Resource mobilization

In the short term, Barbados is taking steps to manage Sargassum that reaches its shores as follows:

- Removal of Sargassum from beaches in a manner that minimises the excessive removal of beach sand
- Encouraging stakeholders (e.g. hoteliers, coastal landowners, etc.) to remove Sargassum at their own expense. In many cases these stakeholders are being negatively impacted (i.e. foul odour, flies, competitive occupation of beach space otherwise used for tourism and passive recreation, etc.) by Sargassum.
- Investigating possible mitigation measures, such as the deployment of oil booms, for the purposes of preventing Sargassum from reaching the shore.
- Investigating and encouraging alternative uses for Sargassum. Thus far, Sargassum is being used in agriculture as a mulch and fertilizer. Use as a biofuel is also an option. However, the biofuel option adds CO2 to the atmosphere, with climate change implications.

One action, relevant to both Sierra Leone and the Caribbean would be development of a predictive tool/alert system (ocean model coupled with satellite imagery) for the regions applicable to

development of response/adaptive strategies for resources at risk. It is felt that a joint approach towards addressing this very serious issue could be a long-term activity for the GPA.

To provide the necessary support for the proposed approach it is estimated that the GPA Coordination Office will be served by four professional staff members including a GPA Coordinator, as well as one general support staff member, all of whom should be supported by UNEP. UNEP may cover the necessary costs for the operation of these core staff members, subject to the resources available to the implementation of the GPA within relevant parts of the UNEP Programme of Work. Additional staff members, such as Junior Professional Officers, Consultants and UN Volunteers may be provided through funding from budgetary sources external to UNEP. The GPA Coordination Office will also continue to use interns. Other costs, such as maintaining the partnerships, providing capacity support and organisation of inter-governmental meetings and inter-sessional work should be covered by other sources than UNEP core funding.

IV. Suggested action by the Inter-Governmental Review Meeting

Delegations from governments attending the fourth session of the Inter-Governmental Review of the Global Programme of Action will be invited to consider the approach set out in this paper (as modified and finalized) and participate in a full policy discussion. In particular, they may wish to consider the following discussion items:

(i) Despite the efforts by Governments and other stakeholders, degradation trends of environmental quality of the marine and coastal environment continue, *inter alia*, from the perspective of water quality and human health. There is a need for countries to accelerate implementation of the GPA in the light of growing pressures on marine and coastal ecosystems, which require more effective management approaches aligned to new and persistent challenges;

(ii) The future work programme for implementing the GPA should build on the approaches agreed at the last Inter-Governmental Review Meeting held in Manila and the focus should continue to be, among the nine source categories identified in the GPA, on effective management of nutrients, wastewater, and marine litter, and contributing to improvements in coastal water quality, through the lens of resource management and waste-to-value. With this focus, these materials are considered as not only pollutants but also important resources contributing to sustainable development of coastal areas and economies;

(iii) In order to take these issues forward effectively, the global multi-stakeholder partnerships created by and hosted within the GPA Secretariat are necessary for bringing governments together with key industrial sectors, major groups, scientists and other stakeholders around a shared agenda; and

(iv) In order to provide ongoing momentum and effective oversight, the GPA platform should have a new ongoing component, comprising a Bureau of regional representatives leading GPA advocates, complemented by inter-sessional work for the purposes of reviewing the progress, overseeing the partnerships and identifying emerging issues.