



United Nations Environment Programme

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PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT · PROGRAMA DE LAS NACIONES UNIDAS PARA EL MEDIO AMBIENTE

ПРОГРАММА ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ ПО ОКРУЖАЮЩЕЙ СРЕДЕ

Second Global Conference on Land – Oceans Connection (GLOC-2) 2-4 October, 2013, Montego Bay, Jamaica

OUTPUTS FROM THE THEMATIC SESSION OF THE GLOC-2

Title of the Session: Marine Litter

The thematic discussion on Marine Litter of Day 2 was divided into sessions (detailed agenda attached).

1. KEY PARTNERS/SPEAKERS OF THE SESSION

- Moderators of four segments (setting the scene; stakeholder voices; developing an agenda; the way forward): David Johnson (Seascope Consultants), Doug Woodring (Ocean Recovery Alliance), Jennifer Edwards (Jamaica National Solid Waste Management Authority), David Osborn (International Atomic Energy Agency).
- Speakers for the first segment: Heidi Savelli (UNEP/GPA), Fredrik Haag (IMO), Karine Erikstein and Francis Chopin (FAO), Mike Biddle (MBA Polymers/Waste Free Ocean Americas), Peter Kershaw (GESAMP).
- Speakers for the second segment (two stakeholder panels): Steve Rochlin (IO Sustainability), John Kieser (Plastics South Africa) and Andrew Russell (Plastics Disclosure Project), Rikki Gunn (Ghostnets Australia), Suzanne Stanley (Jamaica Environment Trust), Daniella Russo (Plastic Pollution Coalition) and Ania Budziak (Project Aware).
- Speakers for the third segment: Maria-Luisa Silva (Mediterranean Action Plan), Hermien Busschbach (Netherlands), Claire Bass (World Society for the Protection of Animals), Thomas Opperer (EU Delegation – Jamaica), Keith Christman (American Chemistry Council), Jonathan Angin (Agilyx Corporation), Michael Dungan (RES Polyflow), Michael Murray (Cynar Plc.).
- Speakers for the fourth segment: Hector Huerta (CPPS), Fabiano Barretto (Local Garbage).

2. BRIEF SUMMARY OF THE MAIN DISCUSSION POINTS OF THE MARINE LITTER SESSION:

- Ms. Heidi Savelli of the UNEP Secretariat introduced the Global Partnership on Marine Litter (GPML) which is guided by the Honolulu Strategy- a global framework for prevention and management of marine debris. On-going actions and activities by UNEP in the area of marine litter were mentioned, as well as the immediate (launch of Marine Litter Network) and future plans – 2013, 2014-18, 2019-25. Expectations for the session were two-fold: 1. Establish networks and how people can be involved; and 2. Identify priority actions for the GPML with the expertise in the room. Globally, the GPML serves as focal point for improved collaboration. The main channel for communication will be the online marine litter network which will allow users to network, track progress, find experts in the field, interact, and share knowledge. Future plans for the GPML include to work towards the Rio+20 commitment of a considerable reduction in marine litter by 2025, establishment of the regional/national nodes and identification of priority activities.
- Mr. Fredrik Haag, International Maritime Organization (IMO), presented a synopsis of operative conventions under IMO which cover marine litter, with emphasis on Annex V of MARPOL and

the London Convention and Protocol on Dumping of Waste and other Matter. Micro-plastics were mentioned as an emerging area for the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP). The action by IMO in the area of marine litter includes: Regulatory – developing and strengthening international regulations and guidelines (i.e. MARPOL, London Convention/Protocol and associated guidelines); Outreach and awareness raising through publications, information campaigns etc.; and Capacity building and assistance through training workshops, seminars and direct assistance to Member States. For the GPML the main objectives include: 1) Increase awareness of the impact of ML and solid waste to the marine environment (among seafarers, regulators/administrators, etc.); 2) Increase awareness of the existing international and national regulations related to marine litter (among seafarers, regulators/administrators, etc.); and 3) Increase political/policy level commitments to implement and enforce existing regulatory frameworks. An example of an innovative approach was given through the HELMEPA Marine Litter Observation System, where recordings of floating litter items are carried out by HELMEPA member-vessels transiting the Mediterranean Sea. Voluntary observations of marine litter are recorded when at sea, anchor or in port using a Marine Litter Observation Sheet and results are then amalgamated by HELMEPA. HELMEPA now proposes to expand this activity worldwide by setting up the Global Observatory on Marine Litter (GOML) where data would be compiled by HELMEPA and then reported to UNEP/MAP and IMO's Marine Environmental Protection Committee (MEPC).

- Mr. Francis Chopin and Ms. Karine Erikstein of the Food and Agriculture Organization (FAO) outlined issues relevant to Abandoned, Lost and Discarded Fishing Gear (ALDFG). Environmental impacts of fishing can be atmospheric, aquatic, and benthic and lost gear at sea is still out there “ghost fishing”, resulting in loss of food resources, loss of revenue from fishing, biodiversity loss, and navigational accidents. Existing regulatory frameworks include UNCLOS, MARPOL Annex V, Convention on Biodiversity, UN Fish Stocks Agreement, other UN Resolutions, and FAO voluntary instruments such as the Code of Conduct for Responsible Fisheries on e.g. marking of fishing gear. FAO is considering the creation of an ALDFG retrieval process/programme as a pilot project which involves fishermen – they know the grounds, the seas and have vessels equipped to retrieve lost gear. A participatory approach to ALDFG was envisaged which is broad-based, long term and aimed at culture change in fishers and port managers etc. through: Awareness Raising Programmes; Capacity Building to increase awareness among national fisheries authorities, regional fisheries bodies and the fishing industry; Improve Port reception facilities for derelict gear, mark fishing gears; Encourage ALDFG to be addressed in License Conditions; Encourage reporting of lost gears–no penalty approach; Incentivize Gear Clean up and gear removal; Reviews/studies of legal frameworks in relevant countries; Public -Private Partnerships for ALDFG Removal: The people with the most experience on fishing gears are fishermen–make them part of the solution; Reward them for social and environmental responsibility. The development of a Pilot project for clean up and removal of ALDFG is envisaged and elements include: Expert Workshop on industry and government clean-up of fishing grounds and fishing ports; Baseline study and site selection of candidate G77 country fishery for a public-private sector project for recovery and clean-up (+Development of indicators); Recovery/clean-up pilot project (Fishing community led).
- Dr. Mike Biddle of MBA Polymer (and President of Waste Free Oceans Americas) indicated that since the 1960s, more and more plastic is found in waste streams. Whereas 90% of steel is recycled, for plastics this figure is 10-20% only. Reasons: (1) it started more recently and (2) plastic recycling is difficult. Traditional separation techniques do not work for plastics. Today however, this source is becoming available in very large volumes in well-sorted streams – mainly Europe and Asia. MBA revisited process to make plastic recycling more lucrative by looking at procurement, processing and selling; company handles 1 million pounds of plastic waste daily. Whereas it took 20 years to come up with a plastic recycling solution, it is expected that we will

see more people using this in the next decade. Recyclers of plastic have a growing and plentiful supply which is at a lower cost than virgin material and not tied to oil; 80-90% lower energy costs and a reduced carbon footprint of 1-3 tons of CO₂/ton plastic.

- The Plastic industry and NGOs alike have concerns about degradable plastic as it throws out of the window the option of recyclability. Only success is where policy is in place to address the first mile problem of plastic recycling: 1. System to collect the waste (policy to regard it as a resource, not waste to put it in commodity bracket and collect). 2. Commodity to be traded consistent with local legislation, e.g. US allows waste to travel overseas without any monitoring. In Canada, Europe and parts of Asia, waste cannot be shipped. You see the consequences. He indicated that the majority of marine plastics can be recycled – it is a matter of getting sufficient mass to do so cost effectively. Particles with POPs (e.g. BFR, PCBs etc.) – a specific concern for marine litter- can be removed in the sorting process.
- Dr. Peter J. Kershaw, GESAMP (Joint Group of Experts on Scientific Aspects of Marine Protection, an independent, inter-agency advisory body of the United Nations) spoke to the importance of how marine litter baselines are determined and set and explained the concept of proxy indicators (an indirect measure of a Pressure; e.g. coastal population density and shipping density). He further mentioned that some baselines and (proxy) indicators exist with which progress toward a target – a desired state- can be noticed. A good indicator is scientifically valid, simple to understand for the public and policy makers, sensitive and responding to change, cost effective and policy relevant e.g. quantity of litter on the beach or ingested by animals. The European target for plastic ingested by birds is ecoQO = 10% - current level is 35%. Some long term trends can be seen over time (e.g. UK beaches), but there is a lot of variability and there are spatial issues. Since marine litter is a transboundary issue we should not expect countries to set tight target when most litter originates from other countries (e.g. only 42% of litter found on Dutch beaches is from a local source).
- Other examples of indicators could be: Quantity of litter per unit area of beach/seabed/sea surface; Quantity of litter ingested by bird/mammal/fish/reptile/cetacean; Marine litter on beaches/shoreline; Average number of items. Challenges to setting a baseline include temporal variability & trends - a rolling 5- year average may be more useful than a single year. Whereas one needs to be careful with interpreting data, there are interesting new opportunities for sampling that have pretty good global coverage – e.g. making use of existing zooplankton surveys with continuous plankton recorders. Proxy indicators can be used as well: particle tracking using circulation models and shipping density, among others gives insight in regional variation of where the sources are. Coastal population density can give an indication of the relative importance of different sources. There is a potential for earth observation methodologies to be used. It is also possible to collect data through ‘opportunistic sampling’ e.g. using existing fish stock assessment; cruises for seabed litter; monitoring with the help of divers and remote cameras. Recommendations for the selection of indicators included: Set biological indicators that are region specific; Establish litter monitoring guidelines that account for litter on seabed, litter floating; Offshore, and seafloor biota; Consider indicators such as shipping density; coastal population density. A roadmap should factor in: Monitoring strategies-tools, timing, locations, harmonisation between nations; Monitoring implementation; Implementation of management measures; Review of effectiveness; Revision of targets/indicators; Implementation of further management measures

Suggestions:

- Recommendations to SIDS countries for recycling based on MBA Polymers in manner usable by governments: ensure policy that allows collection of material in an organized fashion to facilitate waste vs. resources; trade commodities in a way that is consistent with local legislation e.g. shipping policies; reach out to and include NGOs; segment process to lessen cost by, for

example, installing kits to achieve modest value of waste that can be taken to another level in more cost effective manner; volume determines move to commodity that is tradable; beginning by sorting out easier plastics would help to create dent in litter.

- Discussions in response to suggestion from floor to consider changing deep sea trawling gear to biodegradable material indicated that - fishing is a fairly marginal economic activity so may not be feasible and biodegradable material also impacted ocean life and humans by extension as it created smaller pieces of litter.
- Recommendations/suggestions for filling knowledge gap regarding measurement, type, location of marine litter:
 - remote sensing (used by Japan after tsunami)
 - cameras on board cruise ships and research vessels

Stakeholder/partnership sessions

Speakers for the first stakeholder panel included Steve Rochlin (IO Sustainability), John Kieser (Plastics South Africa) and Andrew Russell (Plastics Disclosure Project);

MAIN DISCUSSION POINTS OF THE SESSION

- Companies are taking up public policy leadership – we need policy to create incentives to get producer responsibility. They are looking for results – how much gets recycled – and work with other stakeholders through the science of developing bio based plastic technology (Coke), engage with governments and the public to solve the first mile problem: get plastic collected to enter it in the recycling and reuse chain (Dow), partner with nature conservation organizations on ecosystem valuation, started using less material and call for the creation of the reuse, recycling value chain (Nestle).
- Much more attention should be given to marine debris on the African continent. South African plastic is pushing up North. There seemed to be consensus that adding additives so that plastic ‘disappears’ is a total "no, no" – and that extended producer responsibility (EPR) is the way to go. EPR is already a big thing in South Africa- written in national waste act. It was also noted that Africa can ill afford to grow plants to produce biodegradable material.
- Litter can create jobs. Unskilled workers are involved in specific coastline programmes in South Africa – a country with a very high unemployment rate. An example was given of a 3 year initiative that employed 250 people, over 200km, earning small money, but at least some incentive was put in place to address marine litter. The challenge is what to do with collected plastic. Distance is an issue and transport – from rural to city areas- is expensive. Such initiatives will not survive without subsidy from government, but there is scope for governments and industry to work more closely.
- Industry, government and investors have an important role to play in addressing marine litter, however there are a lot of other actors out there as well that should be engaged. Industry can also just get on with it without government involvement (Method). For some companies – sustainability is the reason for being in the market (Interface). Puma wants to be the sustainable choice. They recycle old cloth and have created in-house competition for sustainable and non-sustainable choices. Government itself can also lead by example, as a big employer – not just legislate and set policy. Rwanda does e.g. not allow plastic bags. Finally socially responsible investors, e.g. pension funds; individuals have successfully influenced companies’ behaviour.

- There is a need to look at labelling of e.g. water bottles and policy effectiveness. What exactly does this bio plastic mean?
- Social evolution is on-going. Lessons learnt and problems avoided elsewhere in the world (e.g. stirrers, balloons). Given time – change will happen, slowly but surely. Important to talk about labelling – e.g. if plastic is not recycled – it gets a negative mark. That makes a producer go for a plastic that is being recycled.
- There is a serious disconnect if not bad blood between NGOs and industry. The root comes from perspectives. E.g. propositions, such as GMO corn as feedstock for plant bottles, or big bottle companies opposing container deposits make NGOs sceptical. Solutions have to address the problem as it appears in the world, although the whole interlinked footprint is hard to deal with for individual players. Advocacy and adversarial approaches have important roles to play in change – as well as more collaborative approaches.
- An interesting discussion ensued about what the take away message was: 1. it is smart because of marine litter impact that we recycle or 2. We need to reduce plastic? If we talk about recycling, we talk about industry, recycling etc. If we talk about the environment and impact of plastic in the environment – we talk about how do we get consumers and producers focused on the environment – instead of focus on how to become a profitable industry, facilitate job-creation, and become development conscious. Industry perspective is that plastic is fine, but not in the environment. Reuse, recycle, etc. needed. Walk away message: plastic is to be kept out of the environment. Where a particular plastic is very hard to recycle – an untenable situation is created, and one may need to get rid of it all together.

Stakeholder session (continued)

- Rikki Gunn (Ghostnets Australia), Suzanne Stanley (Jamaica Environment Trust), Daniella Russo (Plastic Pollution Coalition) and Ania Budziak (Project Aware).

MAIN DISCUSSION POINTS OF THE SESSION

- Ms. Daniella Russo, Plastic Pollution Coalition, highlighted that thousands of communities are dealing with plastics and that banning is caused because people are not able to handle the issue anymore. The chasm challenges are pricing and product performance. To find truly sustainable, biodegradable plastics, we may need to create disruptions to the status quo and challenge all about plastics. The PPC launched *Think Beyond Plastic*, an innovation competition for entrepreneurs working on solutions to the plastic pollution crisis. This brought together entrepreneurs from around the world to come up with alternatives to plastic as good business.
- Another example of stakeholder engagement was provided by Ms. Rikki Gunn, Ghostnets Australia, working with indigenous ‘rangers’ in low density population areas – from marginalized communities – for ghost net removal, rescue & data collection in e.g. the Arafura Sea. Recycling doesn’t exist in north Australia – because of distance and inaccessibility. An employment programme - working with the welfare system - was developed to collect fishing nets. To get correct data on the nets, the local rangers needed to be trained. To talk from the same background (fisheries) was an important aspect of building the partnership. The findings showed that ghost nets are a symptom of serious fisheries issues in the region. Following a workshop in Bali October 22-24, they will embark on the launch of Arafura Fisheries Management Plan early 2014 by MMAF, Indonesia and the development of a Ghost Net Reduction Plan.

- An example of engaging local stakeholders and youth was presented by Ms. Suzanne Stanley of the Jamaica Environment Trust in relation to e.g. the International Coastal Clean-up Day, 21 Sept. 2013 in Jamaica. Islands have their specific problems as they receive a lot of waste – but have limited space and capacity to deal with it. One of the most important aspects of the beach clean-up is collecting data – and using this for pollution prevention, influencing legislation and raising awareness. For some stakeholders, their participation is to check the CSR box, green wash, community service hours, have a fun day, or a high school social.
- Finally, Ms. Ania Budziak of Project Aware provided an example of working with specific stakeholder groups (in this case divers) to address the marine litter problem. Project Aware’s mission is to mobilize the world’s divers into a global force to protect our ocean planet. Aim: Create a database of marine debris found by divers on the seabed that can help drive change on land. The database was launched in June of 2011 and gets data from a year-round, global underwater survey of marine debris with data submitted online from repeat surveys in the same locations. ‘Dive against Debris’ removes, records and reports marine debris. Various online resources are available in multiple languages on their website. By engaging divers these can drive change in their communities and workplaces.

Speakers: Maria-Luisa Silva (Mediterranean Action Plan), Hermien Busschbach (Netherlands), Claire Bass (World Society for the Protection of Animals), Thomas Opperer (EU Delegation – Jamaica).

MAIN DISCUSSION POINTS OF THE SESSION

- In terms of governance, examples from national, regional and global level were shared.
- The Regional Plan on Marine Litter Management in the Mediterranean (with legally binding timelines and targets) was prepared by the Secretariat of the Mediterranean Action Plan for the Barcelona Convention and is expected to be adopted in December 2013. Objectives include to Prevent ML Generation; Reduce ML to minimum & impacts; Remove existing ML to the extent possible; Manage ML to accepted international and regional standards and approaches; and Enhance knowledge of ML sources, quantities and impacts. **Proposed ML Targets:** Decreasing trend in the number of/amount of marine litter (items) deposited on the coast; Decreasing trend in the number/amount of marine litter items in the water surface and the seafloor; Decreasing trend in the cases of entanglement or/and a decreasing trend in the stomach content of the sentinel species; Commitments include to have a Regional Data bank by 2016; Regional Monitoring Expert group by 2014; and National Monitoring Programme by 2016. In order to provide assistance to countries for the estimation of costs of specific measures and activities contained in the Regional Plan, the Background Document on Marine Litter Regional Plan Measures and Indicative Cost Estimation of Measures Implementation was prepared which contains many examples of costing for specific measures and activities from different parts of the world.
- Ms. Hermien Busschbach presented on the Dutch National policy framework and National implementation strategy. The EU Marine Strategy Framework Directive is the most important legal framework for implementation of measures on Marine Litter in the Netherlands. 2012: Initial assessment on the state of the marine environment, define Good Environmental Status (GES) together with targets and indicators. 2014: monitoring programme; 2015: programme of measures; 2016: implementation of programme of measures; 2020: achievement of GES? New MSFD cycle in 2018. Dutch Policy objectives on Marine Litter: Measures to reduce solid waste/marine litter (by requirements on products and improved waste management); More attention for micro-plastic; Cleaning beaches and fishing for litter project; and Communication

and awareness. The national policy framework includes two targets for 2020: Reduction of visible litter on the beach; and Decrease in trend on amount of litter in marine organisms (Fulmars) - currently 90% of Fulmars have plastic in stomach, 58% exceeds critical level of 0.1 gram. (OSPAR ECoQO: 10% of birds not more than 0.1 gram plastic in stomach). Sources in the (Dutch part of) North Sea: 44% shipping and fisheries; 30% land; 26% unknown. Implementation process in the Netherlands: Set up of a policy group involving relevant ministries, research institutes, lower governments, water authorities. Goal to prepare government decisions, coordinate Dutch implementation process for MSFD. Organising stakeholder groups (business, research institutes, NGO's, branch organisations). Aim: identifying effective and feasible measures and to gain support. Six clusters: agenda setting & awareness, beaches, river basin catchment areas, shipping, fishing and plastic (waste) recycling. Gathering knowledge in four fields: Development of indicators; Identifying sources; Impact of microplastics; Cost – benefit analyses of measures; Concrete examples of measures include “fishing for litter” since 2000. In this field Belgium (Flanders) and Dutch harbours are working on harmonisation of tariffs for taking in “fished-up” waste. Key for tackling marine litter is to start to avoid *wasting* resources - Dutch policy paper on “green growth” and particularly by one of the goals: “the transition from litter to resource”. The Netherlands has the goal to increase the recycling rate by 5% (from 78 -> 83%) and a ban on landfill of 35 waste streams.

- Ms. Claire Bass of WSPA elaborated on impacts of ghost nets on marine animals – she also put forward an idea for globally tackling the marine debris problem: the “untangled” campaign. The objective would be to make seas safer homes for animals using 3 Rs: Reduce volume of fishing gear being abandoned, lost or discarded; Remove entangling ghost fishing gear already in the marine environment; Enable the effective Rescue of animals already entangled in fishing gear. WSPA would work towards the formation of an Untangled Alliance: towards ghost-gear free seas. This could be an alliance of IGOs, NGOs, governments, industry/corporations (e.g. fishing & plastics) to establish vision and targets towards ghost-gear free seas; engage - and allow communication between - a diverse range of stakeholders to co-ordinate and catalyse action. The campaign/alliance would aim to enable: expansion and replication of existing effective solutions, plus development of new solutions; effective global co-ordination and resource sharing; monitoring and feedback to show global impact and inspire further change.
- The EU representative, Mr. Thomas Opperer expanded on the Marine Strategy Framework Directive and Good Environmental Status as well as water management policy framework of the EU and the findings of the Berlin conference, April 2013, coming up with three core principles: precautionary principle, polluter pays principle, prevention at the source.
- Discussions ensued with some specific recommendations for the GPML, such as a focus on closing the plastic cycle, on the basis of voluntary agreements, the sharing of practices and awareness raising. Legally binding agreements at regional level were discussed and some subsidies that may need to be eliminated. There is a need for more joined up approaches and funding and addressing issues at the source and at impact level.

Suggestions for GPML

- Closing of the plastic cycle
 - On the basis of voluntary agreements
 - particularly for private companies on recycling rates in products and also for countries improving their recycling rates
 - schedules (targets, year and action)
- Sharing best practices on awareness raising and consumers behaviour.

- Untangled campaign – reduce, remove, rescue
- Need for joined up approaches and funding.

Speakers at ‘Waste to fuel’ session: Keith Christman (American Chemistry Council), Jonathan Angin (Agilyx Corporation), Michael Dungan (RES Polyflow), Michael Murray (Cynar Plc.).

MAIN DISCUSSION POINTS OF THE SESSION

- The waste to fuel session was building on one of the 6 priority areas in the Declaration by the plastic industry, namely nr 4: spreading knowledge of efficient waste management systems. Waste should be seen as a resource, for re-use, recycling and if this is not possible/feasible, for energy recovery (preferred hierarchy: Reduction, Reuse, Recycle, Compost, Energy recovery, Landfill).
- Mr. Keith Christman, of the American Chemistry Council presented on “the Global Action Plan for Solutions on Marine Litter – Spreading Knowledge on Waste Management”. Plastic and other litter in the marine environment is unacceptable. Plastic materials deliver significant societal benefits, including: energy and resource savings, consumer protection and innovations that improve health care, reduce food spoilage and improve quality of life. However, for society to receive these benefits, it is essential to properly recover plastics so that litter does not threaten our natural environment, including marine ecosystems. The Declaration on Marine Litter states will amongst other things Spread knowledge of efficient waste management systems and Enhance recycling/energy recovery opportunities. Plastics Recycling is Growing – in 2011, 2.6 Billion pounds of plastic bottles; 1 Billion pounds of plastic bags & film; and 934 million pounds of rigid plastics was collected. Keep America Beautiful’s National Campaign *“I Want to Be Recycled”* was a Partnership with AdCouncil and included a number of outreach products to increase recycling (www.iwanttoberecycled.org). As Plastics are Captured Energy it is essential to consider Energy Recovery Technologies such as: Mass burn waste-to-energy → electricity and steam; Engineered solid fuels → alternative solid fuel and coal/coke replacement; Plastics-to-fuel → synthetic crude oil and fuels; Gasification (emerging) → electricity and/or fuels (ethanol) and chemicals. ACC and partners support Reduce, Reuse, Recycle then Energy Recovery. The ensuing Plastics to Fuel presentations aimed to spread knowledge however additional work will be needed.
- Mr. Jon Angin of Agilyx highlighted that Plastics-to-Oil technologies utilizing pyrolysis, are capable of recovering up to five times more energy than incineration on an MMBTU basis - after reduce, re-use and recycle, we should “manage” the waste stream to its highest and best use recognizing waste as a resource to be leveraged. Critical issues like marine litter are a function of the relative inability to properly handle all types of waste. The new age of the waste industry places value on local handling, recovery, conversion and the distribution of recovered items and products and so developing markets have a unique opportunity to insert new solutions while integrated waste handling infrastructure is still being planned and built. Integrated waste handling systems utilizing complementary conversion technologies can address 70%+ of waste streams in developing markets building new economic incentives and commodity value while creating jobs.
- Mr. Michael Murray of Cynar Plc, presented on “Successfully Converting End-of-Life Plastics to Liquid Fuels” using “Pyrolysis 2 Fuel” (P2F) Technology which transforms End of Life Plastic (ELP) waste into transport/energy fuel. P2F substitutes high cost fossil fuel imports with a CO₂ saving of 1402 tpa compared to fossil fuel. Cynar Fuel Output: 1 ton Waste Plastic converts to 264 US gallons (1,000 liters) usable fuels (Diesel: 185 gallons, Gasoline: 53 gallons, Kerosene: 26.5 gallons. Synthetic Gas:16 gallons and Residual Char 5% goes to cement kilns. He indicated

that significant fuel costs saving can be obtained with an average USA pump price of gallon of diesel (ex. Taxes) at \$3.94 and the cost to produce 1 gallon of Cynar Diesel (ex. taxes) is \$1.50. He further mentioned some relevant initiatives such as EU's Green Paper on Plastic Waste catalysing a structured discussion about how to make plastic products more sustainable throughout their life cycle and reduce the impact of plastic waste on the environment; ACC advocates close cooperation with a broad range of stakeholders to create solutions for the marine environment; and China's Green Fence where US/ EU States are banned from exporting trash to China. Cynar can Transform ELP into a Valuable Resource. It can: Harvest plastic waste to road grade low sulphur Diesel; Reduce plastic waste to oceans by partnering with local Municipalities, Governments, Investors and Private Industries to drive & incentivise plastic segregation & recycling; Create employment through harvesting, segregating and processing ELP; Provide direct substitution on imported fuels; Improve Green credentials and demonstrate case for reduced tax on fuels produced from world's plastic waste. Cynar committed to help to Divert and Transform ELP from our Oceans to valuable, usable fuels and will partner or work closely with a broad range of associations and other parties to mobilise these solutions.

- Plastic to oil value proposition was presented, a revenue source for creating new jobs. Pyrolysis (not incineration) can address 70% of waste stream. Another example presented came from RES polyflow's Mr. Michael Dungan – RES Polyflow designs and manufactures energy recovery systems that convert mixed polymer waste to fuels and petrochemicals before they reach the landfill, without excessive handling, sorting or cleaning. Their energy recovery technology thermally deconstructs hydrocarbon based materials such as end of life plastic and rubber and converts it into new molecular structures that can be marketed as transportation fuels as well as feedstocks for new polymer production. He further suggested that instead of human centred solutions, design could benefit from a system perspective and solution provided in nature (biomimicry). Landfill or gyres as btu (British thermal unit) warehouse - ocean currents as a conveyor belt providing supply. Need to collaborate with local officials/providers of the waste stream and adapt to local circumstances.

Speakers: Hector Huerta (CPPS), Fabiano Barretto (Local Garbage)

- Mr. Hector Soldi from the Permanent Commission for the South Pacific informed participants of the CPPS/UNEP/FAO/CI Partnership to raise Regional Awareness on Marine Litter. Workshops in fishing communities to combat marine litter in the Southeast Pacific countries (UNEP / CPPS) were convened in which almost 600 stakeholders were trained - school teachers, fishermen, tour operators, local authorities. In addition, CPPS developed educational material: Multimedia, Videos, Literature, leaflets and a website (<http://amigos-del-mar.net/>) where all materials are available.
- Mr. Fabiano Barretto, Local Beach, Global Garbage expanded on initiatives in Germany, Portugal and Brazil where efforts are underway to establish national partnerships to address marine litter problem (with the possibility to expand into regional ones, including former Portuguese colonies in Africa and Indo-Pacific). The Portuguese speaking countries are developing a network of collaboration across regions – spanning a large part of the world's ocean. In Rio, a large art exhibit is planned – of art made from marine litter – during the upcoming football World Cup in Brazil.

MAIN DISCUSSION POINTS OF THE SESSION

- Environmental education plays an important role in changing behaviour. Wonderful videos and other products have been developed to sensitize (young) people, of which one example from Peru was presented. Education and awareness raising needs to consider language and cultural aspects.

- Legislation is often in place but no implementation. We need to communicate in the language and culture of the people. To change behaviour – one does not necessarily need to rely on laws; positive incentives can be more effective. Regulate, enforce and educate (culture and socio economic specific). Hence, a more regional approach would be more effective than a global approach for education. Tourists tend to behave differently abroad – NIMBY (Not In My Back Yard), at home, but elsewhere easily rubbish is left in the environment. Another interesting observation was made, that people respond to what they see. Instilling a sense of pride (‘keep your country clean’) has yielded good results. Not the policing and enforcer.

Summary:

1. What is feasible in Rio+20 Commitment Context:

- Challenge to determine private vs. public sector contracting within existing policy regulatory framework. Hard to achieve public sector lead in area so private sector is at forefront but action requires public backing through regulatory frameworks. Coca Cola, DOW Chemicals and Nestle Waters are examples of private companies whose work has attracted public sector involvement by creating demand for government to follow.
- Need to strengthen network in Africa and Indian Ocean Area.
- Consider environmental price tag for products to allow consumer choice.
- Consider socially responsible investment for sustainability of planet, i.e. aim to lessen plastic footprint.
- Need to establish unity in the field e.g. in labelling of plastics.
- Establish collaborative partnerships with governments.
- Consider exactly what the real message is – environmental or economic? Is aim to increase use of plastics vis-à-vis recycling or reduce production? Very difficult for governments to envision.

2. Priority Actors Roles and Engagement

- Aim for a behaviour change towards plastics bearing in mind it is a hydrocarbon and the high cost for communities to dispose of disposable plastics
- Challenges – pricing and product performance
- Focus should therefore be on:
 - Disruption of the status quo
 - Technology behaviour market
 - Establishing an entrepreneurial forum to “think beyond plastic”
- Three aims of ghost net fishing project:
 - Clean up rubbish
 - Reduce rubbish
 - Dispose of rubbish
 - Methods used: educating aboriginal fishers; using rubbish to create art; identifying source of nets; creating workshops around issue.
- Private sector needed as a participatory actor
- Target specifically affected groups to help drive change on land e.g. divers, sailors

3. Governance

National Level Activity

How international obligations lead to national implementation and action within EU which is also bound by regional conventions:

- Countries benefit from good environmental status
- Policy objectives – reduce solid waste; focus on micro plastics; cleaning beaches and fishing for litter; building awareness (e.g. North Sea litter problem)
- Policy group for implementation established
- Stakeholder groups organized to gather knowledge in developing indicators and measures to avoid waste of resources and build a “green growth” policy
- Need to emphasize the role of Governments

Global Activity

Untangled - campaign to make seas safer for animals by:

- Reducing volume of fishing gear abandoned, lost or discarded at sea
- Removing such gear that exists in marine environment
- Rescuing animals entangled in fishing nets
- Method – creating alliance of NGOs, governments and industries/corporations
- Action – establishing vision and targets towards ghost gear free seas
- Purpose – sharing, expansion and replication of existing solutions and development of new ones; free monitoring, resource sharing, and feedback to demonstrate global state and inspire change
- Status – reports are being prepared to help build and create toolbox for ghost net solutions

Crosscutting

- Need for knowledge sharing
- Monitoring is critical
- Network of partnerships is necessary
- Effective use of resources is required
- Obtain view of stakeholders
- Set quantitative targets to address marine litter
- Closing the plastic cycle via voluntary agreements
- Sharing best practices

Prevention Strategies and Energy Recovery Technologies

- Some actions to date include: EPR Log; Waste charging; Green Fence
- Global Action Plan for Solutions to Reduce Marine Litter consists of a six-point strategy for industry action based on precept that, plastics in marine environment is unacceptable; plastics provide significant social benefits. Suggested actions:
 - Partnership research
 - Promoting enforcement
 - Disseminating knowledge
 - Recycling for efficient energy recovery

- Plastics are a potential source of income for SIDS domestic markets
- New technologies in ecosystem such as recovery by pyrolysis vs. incineration
- While we can use litter from the sea, the real opportunity now is managing waste on land
- Develop integrated waste solution model and integrated technologies suite to help address energy needs

4. Way forward - Recommendations:

1. Communicate in language and culture of local community
2. Create products that do not cause litter
3. Seek behaviour change
4. Make connection to health
5. Focus on lessening consumer addiction to disposables
6. Look at regulatory responsibilities of agencies, groups, governments which is needed to support initiatives
7. Behaviour and cultural differences are important but bear in mind it will be different in different places – combination in focus is necessary
8. Regulate, enforce, educate not only with a cultural focus; should also be socio-economic, group specific but yet uniform
9. Consider responsible tourism as this is a large income earner for most coastal states
10. Consider regional vs. global approach, e.g. organization such as UN can use cable to spread word through ads and messages
11. Make move to enforce fines – most exist on paper only
12. Focus on coordination and collaboration; consider whether partnership should be more than this
13. Consider open source tools for knowledge sharing
14. Manufacturers should be part of the partnership and should take responsibility; how to include them should be a priority
15. Companies that form partnership will not want their product ending up in the marine environment
16. Global partnership can serve to broker local partnerships
17. Consider better vetting of solutions for best practices
18. Partnership can serve as a brainstorming platform from which everyone can benefit
19. Acknowledge that plastic is a good product that simply needs to be managed and properly marketed; genuine multi-perspective consensus needed to guide role of plastic industry
20. Little focus on marine litter on molecular scale – need to consider impact on marine biota and increase investment in science and impact on marine environment
21. Pilot projects and baseline studies on ALDFG and its retrieval from the marine environment;
22. Raising awareness and changing attitude towards considering waste as resource
23. Implement ML monitoring and management measures, assess the situation, revise targets if necessary and then repeat the whole cycle again
24. Partnerships between private sector, environmental NGOs and public sector
25. Innovative approaches to recovery of marine litter from the ocean and to convert litter to fuel/energy
26. ML-related events during the 2016 Olympics in Rio

27. Combination of regulations, enforcement and education
28. Share experience, knowledge, best practices; use open source tools; make partnership inclusive, attractive for as many stakeholders as possible.

5. WHAT ISSUES DID PARTICIPANTS FEEL SHOULD BE INCLUDED IN THE WORK PLANS OF THE RELEVANT GLOBAL PARTNERSHIPS

Focus/ scope of the partnership:

- IMO activities dealing with marine litter (including revised MARPOL Annex V as well as London Convention and Protocol);
- Abandoned, lost and otherwise discarded fishing gear (ALDFG) and possibilities of its retrieval;
- Development of demonstration projects to develop/implement/scale up best practices (reduction and management of ML);
- Plastic waste management (using waste as resource);
- Baseline initiatives and proxy indicators for marine litter (such as shipping density or coastal population density);
- Role of private sector (plastic manufacturers, recyclers, and others) in addressing marine litter problem, including Extended Producer Responsibility (EPR); Global Action Plan for Marine Litter Solutions (by the Global Plastics Association, launched at the 5th IMDC in March 2011);
- Job creation in relation to marine litter removal (in developing countries and in remote areas);
- Controversial policies in different countries in relation to biodegradable plastics and bans on certain plastic products as well as “disconnect” between approaches of environmental NGOs and private sector;
- Behavior change necessary to get rid of marine litter and plastic pollution in particular;
- Beach cleanups and other events to raise public awareness of marine litter problem; working with divers;
- Increase awareness of impacts, existing international and national regulation and increased political commitment;
- Create unity, provide guidance to one another and get together so that we are not alone out there (call for help);
- Strengthen the voice that something needs to be done about plastic debris – the trash is telling us that we are not doing the job;
- Focus on closing the plastic cycle, on the basis of voluntary agreements, sharing of good practices and awareness raising;
- Bring information together of what works and what doesn't. Exchange experiences and best practices. For Africa, the Conference is a mirror of where the continent must not go;
- Set baselines; develop indicators and measure state, trends and impact;
- Focus not only on marine litter, but also on source reduction, new materials, redesign etc. – focus on land-based issue, not only shore line collection;
- Create clearing house of who is doing what (including private sector, NGOs);
- Need to give recognition, guidance, and a platform to examples of companies that stepped up without government interference;
- Need to start regarding garbage as above ground mines for recycling;

- Do not disregard non-surface litter e.g. fishing gear lost. Sampling – do not forget seabed. Floating litter quite difficult as well. But you need all these little building blocks to know what the trends and baselines are in the ocean.
- Identify creative ways of better monitoring litter. E.g., “See Litter Cam” developed by JRC for cruise ships and HELMEPA initiative: HELMEPA has introduced an observation sheet for floating marine litter observation system in the Mediterranean and IMO and the GPML has been asked to assist in the global implementation;
- Prevent plastic from ending up in the environment, learning through the partnership on how to go about that and correct common mis-communications on the issue, e.g. bottle caps.

Priority areas:

- Biodegradable plastics (pro- and contra- points, in particular in developing countries). Legislators are pushing for biodegradable plastic. What are problems for recyclers? Biodegradables fragment in your hand. Once biodegradable are mixed in – nobody wants it. Make it for use again and again – do not go down the one way path (which is what ‘biodegradable’ plastic will lead to). [maybe NGO and industry should work together to state that those new alternatives that seem the way of going now in some places are NOT the way to go]
- Cohesive strategy for SIDS needed- recycling industry is committed to help look into this.
- Roadmap for indicators needed – refer to GESAMP.
- WSPA put forward an idea for globally tackling the marine debris problem: the “untangled” campaign. The objective would be to make seas a safer home for animals using 3 Rs: ‘reduce’, remove, and rescue. There is a need for more joined up approaches and funding. Develop a Global alliance towards ghost-gear free seas.
- Set ambitious targets for marine litter at all relevant levels.
- Share information on national and regional initiatives such as the Regional Action Plan for ML management in the Mediterranean; EU policies related to ML; European Conference on ML (Berlin, 2013); learn from processes – can they be replicated in other countries and regions?
- Role of government authorities in addressing marine litter problem (regulations, policies, economic instruments, etc.);

Internal functioning GPML:

- Internal dimension of the partnership needs to be looked at.
- Regional “nodes” of the Global Partnership on Marine Litter (GPML) to address land-based sources of marine litter and sea-based sources as well as to recover litter accumulated in the marine environment; Work out how the regional nodes will work – the various focal areas may not apply equally to all nodes. There might be a need for including cross-cutting issues, such as education and awareness raising
- Use open source tools to share knowledge (Sharing and giving it away for free).
- Strengthen network for Africa and Indian Ocean – growth area, not much talked about.
- Partners have to learn to trust one another – otherwise the partnership will fail.
- Platform can be a place for discussion to come up with solutions on how to manage plastic responsibly (not to point fingers).
- Where butting heads – set the rules together. Adversarial and collaborative partnerships to support each other better.
- Participants to be change agents –talk about what has been learnt this week.

Summary of main discussions – GPML Partnership Forum Meeting

The meeting discussed the partnership framework document. While the document is to be considered a living document, the following suggestions were made to further clarify some areas (which could be annexes to the document):

- Continued work on indicators (not only process oriented) including indicators on improvement of the state of the marine environment and behavioural change through e.g. open source tools;
- TOR for entities such as advisory committee (including selection procedures);
- TOR for regional nodes/networks

The Secretariat will act on the suggestions and make these documents available to the GPML members.

Key comments: “Leave ego’s behind and get to work. Otherwise we can go home now.” Similar initiatives took 2 year process of getting all parties on board. Make sure people do not get off at the wrong stop – or too early. Take home messages of this process is that the journey and dialogue are important not to lose everyone. The GPML (or members) should not aim to exclude partners from the onset as it would be a very bad start for an “open and inclusive network”.

The work plans of the focal areas were presented and discussed – the final versions will be finalized taking into account comments from the floor and be made available online.

Further ideas for partnership activities

- Berlin meeting put together a list of ideas – GPML could revisit it.
- MARLISCO – not legal authority, but local practice.
- Has the implementation and effects of port charges for waste deposits been studied? If not, can this be facilitated by IMO? Cases of ships dumping was happening 20km out of port, if ships know that they will be charged for waste
- Sustainable Coastlines offered to share information on large beach clean-ups and behavioural change analysis through open source tools and social media. Another idea was to develop a capacity building project funded through the International Olympic Committee. Funding sources are there and influential people can help support;
- “Untangled” campaign led by WSPA
- Communication and outreach strategy for GPML

The Steering Committee of the GPML will initially consist of the leads of the focal areas. As the mandate to form the GPML was provided to UNEP/GPA by its member governments during the Third Intergovernmental Review Meeting of the GPA, UNEP emphasized the importance to also ensure that Governments are represented on the Steering Committee as well and looked forward to the engagement of the Government of the Netherlands and the Government of the United States of America that have already contributed substantially to address the marine litter challenge. UNEP also acknowledged the generous support of the Government of Norway.