Healthy Oceans Resilient Islands

SIDS Capacity Development Aspects in the BBNJ process

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● **Ambassador Werner Bauwens** is currently Deputy Director General for Multilateral and Global Affairs at the Belgian Ministry of Foreign Affairs. Before being appointed United Nations Director he was Special Envoy for Disarmament and Non-proliferation. He held various positions in Belgium and abroad, focusing on multilateral affairs in the context of the EU, NATO, OSCE and UN. He has a law degree from Leuven University and a political science degree from Johns Hopkins University (SAIS). He was Assistant Professor at the University of Liège, co-edited "The Art of Conflict Prevention" and "The Security of Smaller States" and published articles on European security.

Introduction to workshop objectives
H.E. Werner Bauwens

As host of the workshop Mr. Bauwens welcomed all guests to UNESCO-IOC's facilities in Ostend. Following the opening statement, he gave an overview of the program thereby focusing on procedural and organizational matters. The workshop has four legs out of which three represent BBNJ process topics and one stand-alone section on climate change. All debates follow the Chatham house rule. Because of the very long list of speakers, moderators will enforce time limits strictly. While Q&A sessions are foreseen there is no guarantee that everyone will be able to intervene. A list will be kept to ensure a balanced approach. The website is the place to look for documentation and background materials. Mindful of SIDS participants' ownership the host requested the 3 SIDS moderators of BBNJ sections to wrap up proceedings by lunchtime Thursday 9 March and hinted at the possibility to envisage a short summary conclusion document, if they wish to draft one. However, there would be no formal negotiation of an outcome document. It is up to the SIDS to decide what they want to take from this exercise to the BBNJ third PrepCom in

New York. The workshop closes in the afternoon of 9 March with a debate on climate change offering a look into upcoming UN negotiations. Mr. Bauwens concluded by wishing all a very successful and informative work session and expressed the hope participants would make maximum use of the opportunity to exchange views with colleagues and experts.

● **Mr Peter Pissierssens** is the Head of IOC's Capacity Development, Head of the IOC Project Office for IODE and Senior Programme Specialist in charge of the International Oceanographic Data and information Exchange (IODE) programme. He started his international career in 1985 in Kenya. In 1992 he moved to IOC, Paris where he had responsibilities related to marine information management, data management (IODE), the IOC's activities in Africa and the tsunami warning and mitigation system (ITSU). In 2008, he was appointed as Head of the IOC Project Office for IODE in Oostende, Belgium. This office also hosts the OBIS secretariat and coordinates the Ocean Teacher Global Academy project amongst several other projects and data systems.

Introduction to IOC project office for IODE, IOC CD Strategy and OceanTeacher Global Academy
Peter Pissierssens

The "International Oceanographic Data and Information Exchange" (IODE) programme of the Intergovernmental Oceanographic Commission (IOC) of UNESCO was established in 1961. Its purpose is to enhance marine research, exploitation and development, by facilitating the exchange of oceanographic data and information between participating Member States, and by meeting the needs of users for data and information products.

The establishment of the IOC Project Office for IODE in 2005 was the start of a new IODE. The resources made available by the Government of Flanders (Kingdom of Belgium), either through VLIZ or through the Flanders-UNESCO Trust Fund for Science, established a "creative environment" that spawned a wide variety of new services and products that are of direct benefit to the oceanographic data and information management community.

Responding to one of the Project Office's objectives (assist in strengthening the capacity of Member States to manage oceanographic data and information) one of the core activities of the Project Office since its opening has been the organization of training courses. The Oostende office developed a streamlined training facility and hosts the OceanTeacher training platform, an advanced e-learning platform used to manage all training content. The office has trained over 1,200 students and professionals from 124 countries and the OceanTeacher Global Academy (OTGA) project is now expanding into a global network through the establishment of regional training centres. The OTGA is a direct response to the need expressed in the UNCLOS Article 276 with regard to the establishment of regional centres, in order to stimulate and advance the conduct of marine scientific research, particularly by developing States, and to foster the transfer of marine technology. The 69th-71st UN General Assembly has expressed its appreciation to the OTGA's efforts in capacity building.

● **Mr Ward Appeltans** is the IOC marine biodiversity focal point. He manages the international Ocean Biogeographic Information System (OBIS) and supports the Biology and Ecosystems Panel of the Global Ocean Observing System (GOOS BioEco). He is involved in the marine biodiversity observation network (MBON) of the Group on Earth Observations and is linked with several United Nations initiatives, such as the Sustainable Ocean Initiative of the Convention on Biological Diversity and supports the identification of Ecologically or Biologically Significant Areas led by the CBD.

The Ocean Biogeographic Information System (OBIS) as a biodiversity data sharing platform and clearing house
Ward Appeltans

After the successful decade-long Census of Marine Life project, for which OBIS was the data and information dissemination component, OBIS found a new home when in June 2009, the Member States of IOC-UNESCO adopted OBIS as part of its IODE programme. The IOC Member States had repeatedly identified the need to acquire biogeographic data for ocean and coastal resource management and agreed that knowledge of the ocean's biodiversity is of such importance to national and global environmental issues that the responsibility for OBIS' continuing success should be assumed by governments.

OBIS is now the world's most comprehensive online, open-access database of marine species distributions. OBIS grows with millions of new species observations every year. Contributions come from a network of hundreds of institutions, projects and individuals with common goals: to build a scientific knowledge base that is open to the public for scientific discovery and exploration and to detect trends and changes

that inform society as essential elements in conservation management and sustainable development.

With regards to BBNJ, OBIS could provide foundational technology and methodology for robust data integration, products, and services, and in fundamentally being a science mission can serve as a neutral party with regard to laws and regulations. However, while OBIS already provides much of the capability that a BBNJ data system can use, there are several areas that would require expansion to focus on BBNJ-specific needs. Such as making OBIS fit as a global metadata and clearing house mechanism that registers sampling events activities linked to cruises, instruments, platform and devices and protocols used, principle investigators and their research institutes, projects and grants, as well as applications derived from the data, publications and reports. In addition, increased scrutiny needs to be applied to flag data appropriate or inappropriate for specific uses in consultation with legal experts and communicate uncertainty in ways consumable by non-scientist users. OBIS relies on a network of national, regional or thematic OBIS nodes which connect with hundreds of scientists. To function well, the network need to be resourced and more people need to be trained in biodiversity monitoring, data management and data analytics.

● **Mr Ariel Troisi** is the Head of the Oceanography Department of the Servicio de Hidrografía Naval (Argentina). He is also IOC-Vice Chair, Co-Chair of the IOC intersessional working group on BBNJ, and IODE Data Management Regional Coordinator for Latin America and the Caribbean, and national coordinator for data management in Argentina.

IOC's perspectives on CD and TMT, SDG14 and an Ocean Science Decade
Mr Ariel Troisi

As outlined in the IOC Capacity Development Strategy 2015-2021 (IOC Resolution XXVIII-2), capacity development is a fundamental tenet of IOC's mission, enabling all Member States to participate in, and benefit from, ocean research and services that are vital to sustainable development and human welfare on the planet.

The IOC Criteria and Guidelines on Transfer of Marine Technology are a reference document for SDG14 as well as the BBNJ negotiations. The scope of technology includes digital data and information, manuals and guides as well as technical infrastructure. This presentation will provide an IOC perspective on the lessons learned and, in particular, the challenges of a TMT clearing-house.

The IOC has an important role to play in key areas needed for implementing SDG14, particularly Capacity Development and Technology Transfer. Therefore, the IOC and its partners are calling for 2021-2030 to become the International Decade of Ocean Science for Sustainable Development. This Decade of Ocean Science would provide a framework for concerted action to achieve the Sustainable Development Goal 14 as well as those of other global agreements encompassed within the 2030 Agenda. The Decade will aim to strengthen the capacity

of all States in marine scientific research, policy making, governance, education and the effective management of marine resources from communities to national agencies.

● **Mr Glen Wright** is a Research Fellow at the Institute for Sustainable Development and International Relations (IDDRI), based in Paris, where he works primarily on high seas and regional ocean governance issues. Glen has a degree and a Master's degree in law, and is currently finishing his PhD.

Environmental impact assessment in ABNJ: challenges and opportunities for SIDS
Mr Glen Wright

EIA is a core element of the package deal of issues under discussion in the PrepCom, and the establishment of a robust EIA process for ABNJ will be crucial to ensuring conservation and sustainable use. While most States have EIA legislation and processes at the national level, translating this to the high seas context is challenging. This presentation aims to provide an overview of the discussion of EIA to date, identify some potential areas of convergence, and highlight some of the opportunities and challenges for SIDS.

In particular, emerging areas of convergence include: the need for an obligation to conduct EIA; the responsibility of States to conduct EIA; principles such as ecosystem-based and precautionary approaches and use of best available science; a requirement for EIA to be conducted for certain activities; specification of a minimum content of Environmental Impact Statements (EIS); inclusion of SEA; transparency and reporting; and a threshold for EIA.

The key challenges for all States, but for SIDS in particular, will be the demanding nature of conducting proper EIA in ABNJ, both in terms of technical requirements and likely cost. However, these can also be seen as an opportunity for SIDS to push for greater linkages between EIA and CB&TT in a new instrument, as well as provision for joint EIAs where

appropriate. SIDS are also well placed to take the lead on this issue, using their considerable knowledge and connection with the sea to advance this crucial element of the new agreement.

● **Professor Callum Roberts** professor of marine conservation at the University of York. His research focuses on threats to marine ecosystems and species, and on finding the means to protect them. For the last 25 years, he has used his science background to make the case for stronger protection for marine life at both national and international levels. His research team provided the scientific underpinning for half a million square kilometres of marine protected areas in the North Atlantic established in 2010. More recently, he has been researching the adequacy of global targets for marine conservation, arguing for a higher, science-based target of 30% protection of the sea by 2030 to follow the present political target of 10% of the sea protected by 2020. Currently he is working with the UN Ocean Sanctuary Alliance to encourage nations to meet their 10% commitment, and is researching the use and benefits/costs of very large Marine Protected Areas. His award-winning books, *The Unnatural History of the Sea* (2007, Island Press) and *Ocean of Life: How our Seas are Changing* (2012, Penguin/Viking), show the many dimensions of human influence on the sea. They show how the oceans of today are changing faster and in more ways than at any time in human history.

The role of Marine Protected Areas in ABNJ

Professor Callum Roberts

Hunting and fishing have been underway in areas beyond national jurisdiction for a very long time. Whales, seals and seabirds have been exploited for centuries, open water fishes for a hundred years or so. Long experience tells us that fishing/hunting impacts happen quickly and leave a long legacy. Abundance of many species has declined dramatically (by 95% or more), often in the space of only a few decades of intensive exploitation. Species in decline include many high

value commercial species. Pacific Bluefin tuna, for example, has declined by 97% from its pre-fishing abundance. Left unchecked, such declines threaten livelihoods as well as biodiversity, especially in oceanic Small Island Developing States.

Today, extinction is near for some species, such as leatherback turtles, several species of albatrosses and some sharks. Protection is desperately needed if they and many others are to be saved. For many migratory species that move in and out of national waters, even vigorous national protection efforts are futile without high seas protection. Fisheries management bodies often argue that their management tools (e.g. bycatch reduction devices or changes in fishing methods) can provide all the protection target species and other wildlife need. These tools have failed to deliver sustainable fisheries, let alone protect non-target wildlife. While there is evidence in favour of some approaches, such as efforts to reduce bird mortality in longline fisheries, some fishing impacts cannot be mitigated. Bottom trawls, for example, destroy what they touch in the deep sea. There appears to be no robust way to redesign longlines to reduce non-target fish and turtle catch while keeping up target catches. Fishery tools therefore, are necessary but not sufficient to deliver sustainable fisheries and biodiversity protection.

It is already well-established that spatial protection is critical to safeguard ocean life, which is why the UN Sustainable Development Goal 14 adopts the Convention on Biological Diversity target of protecting 10% of the ocean by 2020. It is often said that migratory species like those in the high seas, will not benefit from protected areas; they move around too much. But nobody would argue that protected areas don’t have value to migratory birds. Where species predictably concentrate in space and time, they become more vulnerable.

Targeted protection can therefore deliver significant benefits. Most species that live in the high seas have characteristics that lend themselves to strategic protection in MPAs. New maps of space use by animals fitted with satellite tracking devices show areas of concentration and vulnerability, such as feeding or breeding areas and migration corridors. We can identify from them places of opportunity and of necessity for protection using MPAs, such as hotspots of bycatch. There are rapid advances underway in the technological sophistication of these tools, as well as a huge increase in their use. While there is still a great deal to learn, our understanding increases month to month.

UN protected area targets do not specify what kind of protection MPAs should receive. The simplest course of action, and one often taken, is to establish protected areas that have little protection from fishing and other damaging uses. Networks of MPAs are often carefully designed to represent the range of habitats present. But without strong protection from the most significant sources of harm, which in areas beyond national jurisdiction is still fishing, despite advancing climate change. The only worthwhile protected areas for open water life are those that offer a high level of protection from fishing. There is no free lunch. We cannot protect open water habitat without controls on fishing. Without the animals, there is only water. Nonetheless, movements of wildlife will limit protected area benefits. So MPAs are necessary but not sufficient to safeguard biodiversity beyond national jurisdiction. Fisheries and other protection measures are needed in the surrounding matrix.

The good news is that MPAs with protection from fishing produce a payoff for the fishing industry. The fisheries value of MPAs, from build-up of spawning stocks, export of their offspring and emigration (spillover) of juveniles and adults, are

well-known from coastal settings. We are now beginning to see them at a scale appropriate to high seas MPAs. For example, tuna fishing vessels ‘fish-the-line’ around the south-west of the Galapagos Marine Reserve, a sure sign of spillover of fish. Strategic deployment of MPAs around Small Island States could provide a dividend by way of ‘spill-in’ of fish moving from the high seas to national waters, particularly as these protected areas would protect neighbouring waters from overfishing by the international fleet. Rapid advances in satellite monitoring mean that strong protection is now feasible.

● **Dr. Yimnang Golbuu** is the CEO at the Palau International Coral Reef Center. His research interests include Marine Protected Areas (MPAs), watersheds, and impact of climate change on coral reefs of Palau. In 2012, he received a commendation by the Palau National Congress for his contributions to the sustainability of Palau's natural resources. In 2013, he was awarded a Pew Fellowship in Marine Conservation. His current research interest focuses on MPAs in Palau and their connectivity, with the aim of using that information to improve the MPA network in Palau. He has served as board member of Palau Conservation Society, Chairman of the Northern Reef Management Planning Team and Chairman of the Protected Areas Network Technical Committee. He is currently a Member of the Northern Reef Co-Management Committee, the Palau National Commission of UNESCO, The Palau National Marine Sanctuary Executive Committee, Palau's Point of Contact (POC) for the US Coral Reef Task, Pew Fellow in Marine Conservation, and Vice President of the International Society of Reef Studies.

Designing ecologically connected network of Marine Protected Areas in Palau
Dr Yimnang Golbuu

A well-connected and representative network of Marine Protected Areas can ensure that all the habitats would be incorporated in the network, therefore protecting the whole life cycle of the organisms, even though they might utilize different habitats at different time in their life cycle. A well-presented network can also build resilience into the network, especially if resilience sites are included in the network. In this presentation, I will provide the results of our work in modelling larval connectivity among Palau's MPAs to determine how well they were connected. I will also present on the effectiveness of the network in conserving fish resources.

● **Professor Marcel Jaspars** is Professor of Chemistry at the University of Aberdeen, Scotland, UK and director of the Marine Biodiscovery Centre. He is also the scientific leader of the EU FP7 PharmaSea Project and chief Scientific Officer for Ripptide Pharma.
The Jaspars group focuses on the functions and applications of marine derived natural products. The goal of the work is to determine the biological role of selected natural products as well as using them as pharmaceuticals and tools for biomedical research. The core skills in the group are natural product isolation and structure determination using spectroscopic methods. In addition, his group works on the understanding the biosynthesis of complex cyclic peptides of marine origin, which has led to the foundation of the start-up company 'Ripptide Pharma'. The company uses engineered enzymes to rapidly diversify complex cyclic peptides with the potential to modulate protein-protein interactions involved in many diseases. In addition, the Jaspars group is using a synthetic biology approach to create cells that are able to produce complex cyclic peptides.

Mr Jaspers founded the interdisciplinary Marine Biodiscovery Centre, a £2.5 M investment to focus on marine resources for novel pharmaceuticals, and to investigate fundamental questions in chemical ecology and biosynthesis. The Centre contains facilities for chemistry, chromatography, spectroscopy, molecular genetics and microbiology.

Mr Jaspers leads the PharmaSea EU FP7 consortium (EUR 9.5 M, 24 partners from 14 countries) which aims to make the use of marine microbial derived compounds a more attractive proposition to the pharmaceutical industry. The microbes are obtained from extreme environments, in particular hadal trenches, cryogenic environments and thermal vents. As part of this he has been providing advice to policy makers involved

in the UN process on the conservation and sustainable use of biodiversity in areas beyond national jurisdiction.

The opportunities and challenges of Marine Genetic Resources in ABNJ
Professor Marcel Jaspars

This presentation will cover the promises and reality of marine biodiscovery using recent examples from academia and industry. The extent of marine biodiversity relevant to marine biodiscovery will be discussed and placed in context of the marine biodiscovery pipeline. Good practice will be identified in marine biodiscovery and suggestions will be made as to how any legally binding instrument can be built upon such already existing practices. I will argue that any regulation on marine biodiscovery should be light touch so as not to deter researchers aiming to carry out such work. Barriers to carrying out marine biodiscovery will be specified, and potential solutions identified. Examples will be provided of products already on the market, actual value, and routes to market.

● **Mrs Harriet Harden-Davies** is a PhD candidate at the Australian National Centre for Ocean Resources and Security (ANCORS) University of Wollongong. Harriet's research areas include technology transfer, marine genetic resources in areas beyond national jurisdiction, marine scientific research and the law of the sea. Harriet is co-lead of the Deep Ocean Stewardship Initiative working group on marine genetic resources. She has held senior management and research roles in science and innovation policy at the Australian Academy of Technology and Engineering and the UK Royal Society and she holds a BSc (Hons) Marine Biology with Oceanography from the University of Southampton.

The role of Marine Genetic Resources in relation to Transfer of Technology

Mrs Harriet Harden-Davies

Technology transfer and marine genetic resources are interlinked. Marine science and technology are crucial to access and use marine genetic resources from areas beyond national jurisdiction. In turn, marine scientific research relating to marine genetic resources also drives the development of new technologies that can advance knowledge of the global ocean and inform management measures. The United Nations Convention on the Law of the Sea (UNCLOS) provides the international legal framework for marine scientific research and the development and transfer of marine technology. However, scientific capacity constraints hinder the ability of developing States, especially small island developing States, to participate in global scientific research activities and harness the potential of new technologies. The development of a new international legally binding instrument for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction under UNCLOS provides an opportunity to strengthen the

international framework for scientific capacity development and technology transfer. The generation, exchange and application of scientific knowledge can be enabled by international collaboration in marine scientific research, data sharing and knowledge exchange platforms, and global networks of regional science and technology centres. This could be pursued through an integrated approach to the investigation, conservation and sustainable use of genetic resources in ABNJ.

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