Concept Note for the Ministerial Roundtable 1 of the High-Level Symposium on Water

Lisbon, 27th of June 2022

***Ministerial Roundtable 1:** Synergies between SDG6 and SDG14 – an integrated vision of the whole hydrological cycle: strengthening cross-sectoral approaches to accelerate implementation of related targets, including financing and governance*

Topics to be addressed:

- River Basins –Integrated Water Resources Management (IWRM)
- Wetlands Resilience
- Sediment Flux Management
- Marine Litter and Microplastics

A. Introduction

The hydrological cycle depends on the oceans, which health depends on the way coastal and inland waters – including associated ecosystems, such as wetlands – are managed.

The water management instruments must take into consideration the impacts that river discharges have on the ocean's health, as well as other pressures such as the diffuse pollution from agriculture and wastewater discharges or the large-scale loss and destruction of coastal wetlands and pollution of soil and water due to the expansion of aquaculture. Indeed, losses in ecosystem services provided to people from wetlands (e.g., protection from flooding, water purification) represent significant social and economic impacts.

Anthropogenic infrastructure barriers (e.g., damming, flood and coastal protection structures, settlements, and critical infrastructures) reduce the availability of accommodation space and sediment supply, which affect the resilience of environmental, economic and social systems. Adequate flows of water and sediments to feed estuaries, deltas, coastlines, and downstream ecosystems are crucial for the protection of coastal and marine ecosystems.

The trend for damming and reservoir construction to address water scarcity, energy demand, and flood risk, influences the sediment influxes from land to the oceans, trapping global sediment fluxes.

Such a trend contributes to the erosion of riverbeds and the coastline and the reduction of riverine sediment inputs. It also influences the water quality, namely suspended solids, turbidity, and water flows, crucial for preserving healthy ecosystems. Future expansion of coastal development can also bring risks to iconic and threatened species. Combined with sea-level rise and other effects of climate change, the consequences of these trends can be serious.

This kind of dilemma must be solved through productive dialogue between practitioners, researchers and policy makers on both sides, from freshwater to saltwater interests, in the framework of management plans.

B. River Basins – Integrated Water Resources Management (IWRM)

An IWRM approach helps reduce the fragmentation and minimize environmental, economic and social conflicts. It can help reduce the fragmentation of freshwater and saltwater policies by coordinating international, national and local regulatory frameworks. Further, it can support inclusive water governance i.e. equitable access to water by reducing pressure on water resources through e.g. co-management regimes for collaborative water management and to foster equity between water users while maintaining, enhancing, and restoring ecosystems and biodiversity. Finally, it can help mitigate environmental and social impacts by increasing water storage either by facilitating groundwater recharge, wetlands protection and restoration and alternative storage techniques in urbanised environments or by enforcing restrictions on groundwater abstraction.

IWRM also helps mainstream practices that reduce soil erosion, sedimentation, and pollution run-off.

The implementation of an IWRM approach cannot be separated from land use planning. The integration of these two is paramount to address the impacts of fragmentation caused by dams and diversions namely on coastal areas and increase the protection and restoration of aquatic ecosystems, including natural or human-made wetlands that reduce the impacts of floods, coastal storms and high temperatures as an alternative to 'grey' solutions. Furthermore, the integration of IWRM and land use planning will improve transboundary water cooperation and management and help foster global and regional analyses of the water cycle, which will become increasingly pressing to cope with droughts and desertification problems (e.g. in communities that are based on resource-dependent livelihoods) due to ongoing and projected global warming and climate change.

C. Wetlands Resilience

While wetlands serve the very important function of working as a natural filter (mitigating pollution), they also help reduce flooding and prevent shoreline erosion. According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Assessment Report (2022), protecting coastal wetlands could save the insurance industry around €50 billion annually by reducing flood damage losses. They also host a great biodiversity.

Furthermore, coastal wetlands – salt marshes, seagrasses, and mangroves – play a major role in carbon burial and sequestration globally, with some studies indicating their higher areal carbon sequestration potential compared to terrestrial forests. According to the IPCC Assessment Report (2014), under increased atmospheric carbon dioxide, the productivity of wetlands vegetation is expected to increase in the future.

Despite these benefits, the IPBES Assessment Report (2022) indicates that nature across most of the globe has now been significantly altered by multiple human drivers, with the great majority of indicators of ecosystems and biodiversity showing rapid decline. More specifically, it indicates that 75% of the land surface is significantly altered, 66% of the ocean area is experiencing increasing cumulative impacts, and over 85% of wetlands (area) have been lost. Urbanisation is considered a major cause of losses wetlands in multiple countries. In addition, land reclamation is linked to the degradation of wetlands, seagrass beds and decreased coastal water quality, with negative impacts on regional groundwater regimes discharges to the coasts.

Although coastal wetlands are dynamic ecosystems that can adapt, climate change effects in the form of global warming, sea level rise and increased extreme events may further increase the vulnerability of these ecosystems in the future.

Facing such pressures, the Ramsar Convention on Wetlands of International Importance is a global intergovernmental mechanism for wetlands protection of utmost relevance. To date 169 countries participate, having designated over 2,200 wetlands of international importance (Ramsar Sites) which together cover an area of 215 million hectares, an area that is equivalent to the size of Mexico. Yet it remains uncertain whether these commitments by national governments to the Ramsar Convention have actually had impacts in significantly reducing rates of wetlands loss (IPBES, 2022).

In the Convention's 4th Strategic Plan (2016–2024) four goals are established: addressing the drivers of wetlands loss and degradation (Goal 1); effective conservation and management of the Ramsar Site network (Goal 2); wise use of all wetlands (Goal 3); and enhanced implementation of the Convention (Goal 4). To date, the progress towards those goals is assessed as poor to moderate.

D. Sediment Flux Management

Sediment management remains a key parameter for managing climate risks and planning adaptation in coastal areas. Thereby a key parameter to guarantee the safety and wellbeing of coastal communities.

Since the DG Environment of the European Commission launched the project EUROSION (2002-2004), vulnerability and coastal resilience emerged as key concepts in defining the adaptation-safety relationship, from local to global scales. The project that aimed at developing coastal erosion policy recommendations suggested that stressed coastal systems, depleted biological resources, and risks from global climate change all require human adaptation and institutional change if future beneficial use is to be secure and sustainable.

In particular, EUROSION highlighted the role of the balance between the demand and the supply of sediment to the coast in the process of maintaining an equilibrium in the interaction at the interface between the sea and land.

In this context, the sediment flux management in the river basin framework with measures that can reduce this impact in the next decades (for new and existing dams) needs to be better analysed and implemented.

E. Marine Litter and Microplastics

Since the first mention of marine litter in the scientific literature in the 1960s, research efforts on this topic have steadily grown, so has the amount of litter in the oceans. Many studies show that about 80% of the litter found in the oceans originates on land and is transported by rivers to oceans. The remaining 20% is input directly from marine sources such as shipping and fishing activities. Marine litter monitoring shows that more than 85% of the litter identified on beaches is plastic and of this around 50% is single-use plastics.

According to the United Nations Environment Programme (UNEP) Report (2021), it is estimated that 7,000 million of the 9,200 million tons of cumulative plastic production between 1950 and 2017 became plastic waste. Three-quarters of which were discarded and placed in landfills, and the rest became part of uncontrolled systems and poorly managed waste streams, or have been dumped or abandoned directly in the environment, including in the oceans. Micro plastics can enter the oceans through the breakdown of large plastic items, leachate from landfills, sludge from wastewater treatment plants, overflows from combined sewer systems, airborne particles, runoff from agriculture, ship dismantling, and accidental loss of cargo at sea. Also, extreme events such as floods, storms, and tsunamis introduce significant volumes of debris into the oceans and accumulations of litter along riverbanks, coasts, and in estuaries.

All these findings have contributed to the fact that in recent decades, ocean pollution by anthropogenic waste has come to be recognized as a serious global environmental concern.

Although the oceans have been the subject of study for many years, little research has been devoted to plastics accumulated on land and in freshwater systems. In 2017, a report, conducted by the Helmholtz Centre for Environmental Research in Germany estimated that ten rivers transport 88-95% of the global riverine plastic load into the sea, with eight out of those ten located in Asia (the other two being located in Africa).

According to a 2016 European Joint Research Centre report, marine litter can impact organisms at distinct levels of biological organization and habitats in several ways, namely: through entanglement in, or ingestion of, litter items by individuals, resulting in death and/or severe suffering; through chemical and microbial transfer; as a vector for transport of biota and by altering or modifying assemblages of species.

Marine litter is a threat not only to marine species and ecosystems, but also poses a risk to human health and has significant implications for human well-being, negatively impacting vital economic sectors such as tourism, fisheries, aquaculture, or energy supply, bringing losses to individuals, businesses, and communities.

Since 2020, humanity has been suffering unprecedented challenges and devastating losses. The Covid-19 pandemic has forced the entire world to constantly reorient resources and priorities and has reminded us of how interdependent our systems are. The pandemic has demonstrated that no country alone can address problems of cross-border nature. Today the world is interconnected, therefore, global, and cross-border problems require multilateral solutions. Marine plastic pollution is one of such transboundary problems.

The annual discharge of plastic into the ocean is estimated to be eleven million tons according to the 2020 released “Breaking the Plastic Wave” report. According to that study, without meaningful action, by 2040 municipal solid plastic waste is set to double, plastic leakage to the ocean is set to triple and plastic stock in the ocean is set to quadruple.

In recent years, public attention to the problem of plastic pollution has rapidly increased. At the same time, discussions between countries on how the international community should respond to this problem have also intensified, either in the form of multiple Resolutions of the United Nations Environment Assembly or through expert group discussions.

Existing legislation and regulatory tools have proven inadequate, demonstrating that more must be done. In recent years, a growing number of stakeholders, including an extensive list of states, have considered that a viable way could be the development of a new global agreement specifically dedicated to solving the problem of plastic pollution. This commitment culminated in the presentation of a resolution to the second part of the UNEA 5 session that took place from the 28th of February to 2nd of March 2022. The historic resolution, titled “End Plastic Pollution: Towards an internationally legally binding instrument” was adopted.

Finally, we must realize that all these inter-relationships and interactions between inland waters and the oceans assume an even more relevancy in the context of climate change. Ocean acidification, sea level rise and extreme water-related events, droughts and floods, are some of the impacts of climate change, and the society need to work together to adapt and mitigate their effects. Despite the progress made so far, the actions for the achievement of SDG 14 and SDG 6 are insufficient, in part due to limited coordination between the ocean and freshwater communities, therefore collaborative action is pivotal if these goals are to be met, especially in a context of climate change.

Among many others, the following challenges/questions arise:

1. In the framework of climate change, water scarcity for human activities and for ecosystems is a growing trend which requests diversified adaptation measures. What strategic approaches can be adopted in the interface water and ocean to face such challenges?
2. Given that over three billion people rely on oceans for their livelihoods and recognizing that the sustainability of oceans is under severe threat due to, namely, plastic/marine pollution, fishery collapse, ocean warming, acidification, and eutrophication, erosion, flooding, what kind of cooperation/collaboration can be considered between the communities of inland water and sea resources decision makers? Will it be possible to implement some measures for sediment flux management in a short period? What can be the role of nature areas restoration (like wetlands) in this context?
3. Almost 40 per cent of the world's population lives in coastal areas, which face growing risks from contamination to safety (resulting from erosion, climate change, storms, etc.) of coastal environments resulting from human activities. The primary drivers are known as well as the problems. What political instruments can be improved to address such a complex cross-sectoral framework?
4. The adoption of the resolution for the negotiation of a legally binding international instrument on plastic pollution by UNEA 5.2, including in the marine environment, was a particularly important milestone in the fight against plastic pollution. Considering that plastic pollution control will have to be tackled on very many different fronts, what should be the contributions of integrated water resources management approaches for that purpose?