Joint Submission by Egypt and Slovenia

Water for Climate, Resilience and Environment: Source to Sea, Biodiversity, Climate, Resilience and DRR

CONCEPT PAPER

I. Introduction:

Global awareness of the critical state of freshwater resources has generated much policy concern over the recent decades. The concern has been caused by the global challenge of securing supplies of freshwater sufficient to meet the water needs of humanity. The growing recognition of the intricate linkage between water and climate has exacerbated this global concern.

The global water security challenge stems from two key imbalances on the supply side. First, there is a disparity between the availability of freshwater and non-fresh water on earth. Though water covers more than 65% of the earth's surface, only 0.01% of that water is usable freshwater. Second, the geographical distribution of the usable freshwater resources is unbalanced among regions, countries and continents. The negative impact of this unequal freshwater distribution has been aggravated by uneven population distribution and growth among countries and regions. Thus, about 2.8 billion people suffer from conditions of freshwater scarcity. About 1.4 billion people inhabit river basins suffering from over-withdrawal of water resources.

On the demand side, the world is challenged by the fact that the water needs of humanity are growing. Water is integral to all aspects of human existence. It is not only a biological need of human being but also essential to human development. All productive sectors depend on water as an essential element of their processes. Water is not only essential for the economic dimension of development but it is also crucial to its social and environmental dimensions. Reliable access to safe water that can meet the basic needs is a social minimum that should be guaranteed to every citizen. Fair distribution of social wealth implies investing in the human rights to water in order to provide people with safe drinking and clean water and sanitation that allows them to lead a decent productive life.

Climate change is a central external driver that affects both water supply and demand for different uses. Climate change will have adverse water-related effects on the lives of billions of people worldwide, threatening food security, water security, livelihoods and ecosystems, as well as the achievement of Sustainable Development Goals. This will affect a wide-range of human rights, including the right to life, water and sanitation, food, health, adequate standard of living, clean and healthy environment and decent livelihoods. Water is inextricably linked to the three pillars of sustainable development, and without achieving SDG6, the world will not be able to achieve Agenda 2030[1].

II. Overview of the challenge, current status and interlinkages:

Synergies between sustainable water management and climate action have been established.[2] The sustainability of water management systems depends on the ability to maintain its functionality

[1] The IPCC working group II report on "Impacts, Adaptation, and Vulnerability", and the working group III report on "Mitigation of Climate Change".

[2] The IPCC working group II report on "Impacts, Adaptation, and Vulnerability", and the working group III report on "Mitigation of Climate Change".

under all conditions. Thus, sustainable water management systems must be optimal, robust, and resilient. *Optimality* refers to the ability of water management systems to maintain optimal performance under normal conditions. *Robustness* describes the capacity of water management systems to withstand temporary external shocks, such as environmental disasters, by maintaining an acceptable level of performance against shocks and rapidly restoring optimal performance once the shock dissipates. *Resilience* refers to the ability of water management institutions to adapt to irreversible negative disruption, such as climate change, by moving from a stable equilibrium to another stable equilibrium to absorb disturbances and achieve new optimal performance. The sustainability of water management systems is currently challenged in all three dimensions: *optimality*, *robustness* and *resilience*.

Optimality of water management systems is challenged by internal fragmentation and external isolation. Water systems are fragmented along the hydrological cycle and geopolitical landscape. In addition, water is an ecoservice managed in isolation of its surrounding and interacting ecosystems.

Water management systems have tended to manage water in a compartmentalized manner, segregating the management of the resource into its different manifestations and individual components along the hydrological cycle. At the national level, there is a separation between freshwater, land, coastal, and marine systems. Even within the freshwater realm, water management of surface, soil and ground water are compartmentalised. Green water; the water held in our soils, holds the majority of the world's freshwater and constitutes the majority of water use. Although green water is often hidden, its sustainable management is critical to the enormous water security challenges facing the planet. At the international policy arena there are separate goals for freshwater (Sustainable Development Goal (SDG 6) and oceans (SDG 14).

Water management systems are fragmented among a number of entities over different political levels, and coordination among these levels and entities continues to be a challenge. The responsibilities of water management within the governance system are fragmented over a number of entities on a sectoral basis, and coordination among these entities and across sectors is a complicated process. Water management is fragmented over subnational, national, supranational levels. Within the context of transboundary freshwater resources, there is, in some cases, fragmentation in the management of the drainage basin over political borders, rather than managing the basin as a unitary whole. Indeed, the commitments of SDG6.5 remains far behind the policy calls to consider the whole basin in a holistic approach to water management, in accordance with international law, in order to avoid maladaptation

This fragmentation along the hydrological cycle and the geopolitical landscape has resulted in a poorly planned and managed water resources development. On one hand, ecosystem, especially river deltas have become increasingly vulnerable to the combined effects of salt-water intrusion, sediment-trapping by dams and over-abstraction of groundwater in many cases. In addition, river deltas will become more vulnerable to flooding and submergence by the expected sea-level rise due to climate change. On the other hand, many coastal and marine systems starve for water, sediments and nutrients because downstream flows are severely diminished, and impacted rivers often fail to reach the sea.

Moreover, water is often managed in isolation of its external environment. In fact, water is an ecosystem service provided in an ecological unit, such rivers, lakes, and aquifers. Many of the functions of these ecosystems depend on habitat connectivity. Unfortunately, managing water

without regard to the needs of the connected ecosystems has significantly affected biodiversity. Water and biodiversity are mutually dependent. For instance, growing water consumption combined with drought has led to the death of many endangered species in various regions of the world, due to dehydration and starvation. Uncoordinated river fragmentation caused by infrastructure development has significantly reduced migrating fish populations worldwide. At the same time, the continued loss of natural habitat has negatively affected water regulation in many parts of the world.

The fragmentation of water resources management affects not only its *optimality* but also its *resilience* to natural hazards. Water-related hazards account for 90% of all natural hazards. The most significant water-related hazards include droughts, floods, mud-slides, storms and related ocean storm surge, heat waves, cold spells, and waterborne diseases. These hazards have had drastic impacts on people and socioeconomic development. Since 1900, more than 11 million people have died as a consequence of drought and more than 2 billion have been affected by drought, more than any other physical hazard. The impact of such hazards is severe, especially on developing countries. Furthermore, during the period from 1990 to 2000, some developing countries lost between 2% and 15% of their annual GDP as a result of natural disasters. Robust water management systems can play a central role in reducing the risks of natural disasters. Disaster risk reduction (DRR) require substantial data and knowledge and need to be based on close cooperation among all stakeholders. However, Early warning systems needed for disaster risks reduction are still rare. Furthermore, 60% of transboundary river basins and a much higher percentage of shared aquifers still lack inclusive cooperative transboundary management mechanism.

Water resources management resilience is being seriously challenged by *climate change*. Many water-related hazards are expected to increase because of climate change. Most of climate change is manifested through water, such as increased variability in the hydrological cycle, and the increase in frequency and intensity of water-related climate hazards, including water-scarcity, floods, and droughts.[3] The increased frequency of water-related disasters correlated with climate change exposed 2.2 billion people to unsafe drinking water. 4.2 billion people were deprived of safely managed sanitation and more than 3 billion people were affected by floods and droughts causing a further deterioration of water quality. Climate change water-related impacts are expected to escalate over the coming decades. By 2050, more than half of the world's population will be at risk due to water stress, and desertification alone will threaten the livelihoods of nearly one billion people in about 100 countries. Intense water scarcity may displace as many as 700 million people by 2030. Scarcity of freshwater is caused by rising demand, overexploitation of resources, and pollution. Safe, sufficient and clean water and healthy aquatic ecosystems are essential for vital human needs, protecting health, achieving development and food security.

III. Overview of opportunities for progress and transformative solutions:

Water is not only part of the problem; it is also part of the solution. Water is fundamental to all systems' transition required for climate-resilient development. Thus, a *climate-resilient water management policy* can play an important role in climate action. An integrated view of water

[3] The IPCC working group II report on "Impacts, Adaptation, and Vulnerability", and the working group III report on "Mitigation of Climate Change".

resources, the biosphere and environmental flows is required to devise sustainable water, food, and economic systems that will allow us to decelerate climate change, protect us from extremes and to adapt to the unavoidable events in the future.

It is now widely accepted that complexity, variation, and uncertainty are inherent properties of linked social and natural processes. Thus, water resources management system must follow a holistic approach that can govern the whole hydrological cycle continuum without fragmenting it. The *source-to-sea* continuum links the interconnected ecosystems of the hydrological cycle with the associated socioeconomic processes, demands and pressures. Crafting institutions along the source-to-sea continuum, and their associated platforms and processes, form a governance network, and strengthening this network can help to mobilize existing systems and institutions to promote multi-scale, multi-sectoral, formal, and informal arrangements that result in improved coordination at scale, better connecting stakeholders, sectors, and natural systems.

Water saving measures can help climate action and avoid maladaptation by reducing energy needs for processing, transporting, and treating water and wastewater, and for better processing and disposing of sludge and other forms of waste[4]. In tandem, Water-use decoupling can help countries to provide sustainable freshwater resources for their societies while reducing pressure on water resources and enhance its resilience to climate change. This would enable countries to maintain climate-resilient water security policies. Water decoupling can be achieved via a mix of policy mechanisms: economic diversification, food (virtual water) trade, water productivity enhancement, freshwater substitution with other non-conventional water sources of water, such as desalinated water, drainage water reuse and recycling urban wastewater.

Streamlining water into global climate, the Disaster Risk Reduction(DRR) processes could constitute means of connecting climate change issues with all the other SDGs. Inclusive effective and efficient monitoring systems should be set up by all stakeholders. Monitoring systems must be complemented by early warning systems in order to reduce the hazards of ecological emergencies and crises. To enhance the resilience of such monitoring and early warning systems, these systems need to be subject to continuous evaluation.

To seize these available opportunities, there is a clear need for stronger combination of capacity development and financing as both are of mutual importance. Financial investments will not pay off when the absorptive capacities are lacking.

The Cross Regional Statement on Water, endorsed by 168 countries, calls for, among other things, effective, coordinated and consistent international cooperation and achievement of integrated water resource management at all levels, including sharing accessible, timely reliable, disaggregated, and fit-for-purpose data, smart technologies and robust monitoring mechanisms. In addition, the Statement emphasized the crucial need to build opportunities for cooperation and to support capacity building and training, especially in developing countries. This is particularly true for Africa, which is, indeed a paradox, since Africa has contributed least to the climate crisis, yet it is the most vulnerable to its devastating consequences.

COP27 brought water to the heart of Climate Action. Through the High-Level Round Table on Water Security during the COP27 Summit, the Water Pavilion, and Water Day, the international community engaged in serious discussions on the links between water and climate action.

[4] World Water Report Water and Climate Change 2020

Furthermore, COP27 Presidency launched AWARe "Action on Water Adaptation and Resilience" and the Action Plan of the UNSG's initiative to cover all persons on the planet with early warning systems within 5 years.

The interactive dialogue "Water for Climate, Resilience and Environment: Source to Sea, Biodiversity, Climate, Resilience and DRR" will build on COP27's relevant discussions to present successful stories of managing water and climate extremes at different levels, and will highlight countries' commitments to achieve water related SDGs. At the end of the session main recommendations will be outlined, including possible commitments that would be relevant to address the global water challenges with respect to. The session topics include:

1. **Financing:**

Better utilization of existing resources and the mobilization of additional domestic and international funding is required for the delivery and implementation of all SDG 6 targets. Equally important if prioritizing international concessional financing and public and private investments in the water sector and for preserving ecosystems. It is essential that governments improve the enabling environment and regulatory frameworks and explore new approaches for encouraging investment in environmentally sustainable water and sanitation-related infrastructure and services, while causing no harm and ensuring the human rights to safe drinking water and sanitation. Incorporating sustainable financing, regulation, monitoring, reporting, and maintenance mechanisms into all water-related project interventions, including small-scale water and sanitation infrastructure, can mobilize action at all levels of government and service providers to ensure water security for all.

Smart financing is needed for the protection of water resources, adaptation to climate change, and the prevention of water-related disaster risks aimed at addressing water scarcity and increasing the resilience of people and communities vulnerable to water stress, water scarcity, and water-related disasters. Finance in water should also ensure strengthening climate action in a way that is adequately supported by fit-for-purpose and accessible climate finance. Coordinated financial support is essential to local, national and regional action, including:

- Water-climate adaptation activities in all sectors (e.g. irrigation, drought-resistant crops, least water, soil and carbon consumption per calorie, preparedness to extreme evens, upgraded infrastructure, innovative technologies for enhanced water management, etc)
- Investment in improving and developing low-cost water supply (e.g. supporting non-conventional water resources such as recycling, reuse, and desalination using renewable energy sources)
- Joint investment programmes to ensure climate-smart and water-wise energy production, increasing the water content and carbon uptake of our environment, supporting ecosystem services related to water and food security and improving water supply while doing no harm.

2. **Data and information:**

Water data and information availability is essential for better management for reaching the water-related goals and targets and the broader sustainable development goals. Early warning systems can respond to short term impacts related to extreme weather events; however, there is need to address medium- and longer-term impacts associated with the variabilities of water resources.

Early warning systems should include the three components forecast, notifications, and means of communications. Cooperation should include sharing information and plans, consultations, adequate socio-economic and environmental impact assessment studies, data sharing and monitoring, joint forecasting and warning, including:

- Supporting countries in water resources' assessment and water accounting,
- Supporting countries in water reporting,
- Publishing a regional water report annually under UN auspices,
- Trusted water monitoring systems and information sharing on a platform that is open, transparent and accessible for all;
- Cooperating with national authorities to improve their early warning systems, seasonal forecasting abilities and outlook capabilities, and issue regional flood and drought warnings.

3. **Capacity development:**

Capacity building (trainings, technology transfer, knowledge exchange, roundtables and outreach activities) as well as sharing experience and best practices is essential to provide the much-needed human capacities in international water negotiations and mediation, especially in developing countries and arid basins. Equally important is expanding international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programs, including water harvesting, desalination technologies, water efficiency, wastewater treatment, recycling and reuse technologies; improved service levels shall include the following:

- Local, national and institutional capacity development including risk analysis, crisis prevention, communication, inclusion, management of early warning system and disaster risk reduction.
- Improving capacity in water supply and demand management to foster water conservation, efficiency and reuse in all sectors, developing and utilization of alternative/non-conventional water supply including throughout existing WASH systems.
- Promoting coherence: integrating existing activities, initiatives and coalitions (COP27 initiative "AWARe", Marrakech Partnership Climate Action Pathway Water, Adaptation Action Coalition, Water and Climate Coalition.....) based on a consultative process to ensure that different water and climate related initiatives are coordinated and synchronised.

4. **Innovation:**

While applying locally appropriate traditional and indigenous peoples' knowledge, there is a dire need for modern technologies to enhance water use efficiency and integrate conservation, e.g. in agriculture and industry. Utilizing non-conventional water resources in water-scarce countries must be supported by appropriate technology transfer that engage national and regional institutions and research centres, including:

- Innovation to develop low-cost water supply, sanitation and non-conventional water resources and providing data, analysis, methodology to predict future water availability, assess water/climate risks, improve water supply and demand management in all sectors,

- Quantification of impacts of low emission energy scenarios on water quality, ecosystems and socio-economic conditions and incorporation into national and regional planning;
- Scientific assessment of technological and policy tools to decrease water losses, improve water supply and enhance co-benefits including through decreasing demand for water and decoupling economic growth from water use and degradation.

5. **Governance:**

The cross-cutting and interconnected nature of water demands cross-sectoral approach in governance, integrating water, climate, environmental and disaster-risk-management policies through integrated water resources management (IWRM) at all levels.

There is a necessity to bolster cooperation among riparian states on the bases of the equality of rights and the community of interest, and the applicable principles of international law.

Adopting a Source-to-sea (S2S) approach, which enforces the linkages between freshwater, land, coastal and marine systems, and supporting the efforts towards the effective and coordinated governance of these systems. S2S merges to integrated water managements mechanism: integrated water resources management (IWRM) and integrated coastal zone management (ICZM). IWRM aims at promoting the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. ICZM has similar aims and functionality but applies to sea and coastal zones. By merging the two management mechanisms, S2S links the interconnected ecosystems of the hydrological cycle, including biodiversity, with the associated socioeconomic processes, demands and pressures. It also reinforces the link between surface, soil and ground water resources. S2S can promote the principles of inclusive cooperation, constructive engagement and mutual support among states sharing rivers, aquifers, lakes, seas or even oceans, reducing in this way the risk of maladaptation.

Implementing ecosystem-based approaches, including nature-based solutions, in transboundary contexts, could be cost-effective solutions providing multiple benefits for the environment, societies and economies.

Taking into account the close links between human health and the status of ecosystems, holistic approaches are required, including the "one health approach" to implement coherent policies between the health, biodiversity and water sectors.

Incorporating sustainable financing, regulation, monitoring, reporting and maintenance mechanisms into all water-related project interventions, including small-scale water and sanitation infrastructure, can mobilize action at all levels of government and by service providers to ensure water for all.

Governance can be effective only if it is transparent, inclusive, participatory, multi-stakeholder and based on the needs of communities. Women must be empowered and ensured a meaningful participation in the decision-making process and the entirety of the governance process.

IV. Recommendations:

The overall aim of the discussion should be to present examples and solutions towards overcoming silos by identifying synergies among water, environment, climate and resilience agendas at all levels: local, national, regional and global.

There is an exceptional opportunity to promote the links between the water and climate agendas, including through linking the *COP27 outcomes* (attached) and *Cairo Call for Action*[5] (attached) with the UN 2023 Water Conference.

For the first time in COP history, and after many years of futile attempts by the water community to "Water the COP", the Egyptian presidency has taken four major steps in this vein. The first was the introduction of the *Action on Water Adaptation and Resilience Initiative* (*AWARe),* with the support of the WMO. In addition, the COP presidency organised a h*igh-level round table on Water Security*. This was followed by the first *thematic day on water*. These three major actions have culminated by including paragraphs on water and its links with climate change, for the first time ever, in the *COP27 covering decision*. The four major water actions and their outcome (attached) provide many recommendations and guidelines to the UN 2023 Water Conference.

The discussion of the interactive dialogue should be geared towards the following outcomes:

- Promote integrated planning approaches, addressing action and means of implementation to climate change and the objectives of integrated water resources management at all levels including through collaborative approaches, while reconciling it with the other sectoral planning processes and policies in an environmentally sustainable manner.
- Promote scarcity and drought/flood risk management, through the development of water scarcity, drought and flood risk management plans, including in transboundary basins where relevant, including through inter-institutional coordination at different government levels. Give them higher priority in the water political agenda.
- Support the development of prevention and disaster risk reduction plans for water-related natural disasters in countries most exposed to these risks (drought, flooding, , coastal aquifer salinization due to rising sea levels, etc.). Support effective early warning systems directed at people in vulnerable situations located in high-risk zones, as well as enhance water information services to have reliable data about the hydrological cycle (including water quantity, quality, distribution, access, risks, and use) for effective decision-making.
- Promote adaptation and implementation of water-related disaster management plans, which include measures to address droughts and water stress and floods. In addressing the balance between water supply and demand, non-conventional water resources need to be promoted, as appropriate.
- Promote the use of space observation data for disaster management and disaster risk reduction through technical advisory support, assessment, specific recommendations and capacity building.

[5] The Outcome of Cairo Water Week (CWW), in its fourth and fifth editions (CWW 2021 & CWW 2022). CWW is one of the official preparatory meetings on the track of the UN 2023 Water Conference.

- Promote the relevant science and tools, including nature-based solutions as measures that could provide multiple benefits in climate action as well as for DRR.
- Enhance regional and cross-border cooperation in water management, including, to address climate change through promoting sustainable and climate resilient water management within river and aquifer basins in accordance with international law.
- Water should continue to be fully integrated in the COP's agenda, and water should be integrated in other fora such as CBD and UNCCD. This will provide an opportunity to promote the relevance of the water agenda and to call for increased financing for climate action in sustainable and climate resilient water resources management as part of climate finance.
- Enhance capacity building and sharing experience on the modelling of climate change impacts, including those on hydrologic systems and associated hydrological responses, projecting of extreme events, the assessment of impacts on water resources availability and risks of extreme events, and adaptation measures.

V. Guiding Questions:

1. How do we effectively include water into all relevant intergovernmental processes, replicating the recent success of putting water on the agenda of UNFCCC? How do we integrate intergovernmental processes and national policies?
2. How would you describe the way to achieve sustainable water security in water-scarce areas? And how can we measure green water and account for it in Integrated Water Resources Management? How to design our interventions in way that they reach people in vulnerable situations, such as rural water scarce areas?
3. How can governments improve the enabling environment and explore new approaches for investment in water and sanitation-related infrastructure and services, while ensuring the human rights to safe drinking water and sanitation for all?
4. How the current financial gap in water resources management systems would affect achieving the water-related SDGs by 2030? And how can we mobilize additional financial resources to the water sector?
5. How do we better convey the relevance of water for climate action in order to secure a higher proportion of climate finance for water?
6. Water-use decoupling projects might help in reducing the pressure on water resources. Would you elaborate using some examples of such projects? How do we create an enabling environment for the relevant innovation?
7. How can we achieve the balance between the needs for human activities and preserving related ecosystems, including biodiversity and healthy environment? What kind of analytical tools could we use to help us in this?
8. In many cases, building on the relevant local knowledge and complementing it with the use of modern technology can enhance water use efficiency. Would you elaborate on the statement and give examples of such cases? Can modern technology render the reluctance to share data across borders irrelevant and how sharing information build trust between relevant parties?

9. How do we design capacity building in a multi-disciplinary way that prepares future professionals to address the interconnected challenges of the triple planetary crisis in an integrated manner?
10. Climate change and human intervention in transboundary water courses are further aggravating water scarcity particularly in countries that already water stressed. What type of specific support is essential to mitigate the water crisis, address water stress and water scarcity and reduce risks on these countries and how? What role can nature-based solutions and other relevant approaches play in this regard?
11. Early warning systems help reduce the increasing hazards of disasters and extreme events by climate change What is need for these systems to be available to all?
12. Transparent and inclusive multi-stakeholder governance is a key prerequisite for sustainable management of water resources. How do we best incorporate the stakeholders' knowledge and contribution for risk-informed and adaptive governance?
13. What are the key determinants of climate-resilience of water resources management systems?
14. How can climate adaptation efforts open opportunities for establishing transboundary water cooperation or strengthen the existing ones, including through the collective commitment of riparian countries to water adaptation efforts?