MAIN MESSAGES

1. **Transboundary water allocation determines one or more of the following: the quantity, quality and/or timing of water at the border between riparian States; and grants associated entitlements**. Simply put, water allocation determines who can use shared water resources, in what quantity and of what quality, for what purposes, where and when.

2. **Effective, equitable and sustainable transboundary water allocation is increasingly important in the present rapidly changing water security contexts, to prevent conflicts and underpin development**. With growing populations, rising wealth, dietary changes, urbanisation and rising industrial demands, most countries are placing unprecedent pressure on water resources. It is estimated that, with current practices, the world will face a 40 per cent shortfall between forecast demand and available supply of water by 2030. Climate change is worsening the situation by altering hydrological cycles, making water more unpredictable and increasing the frequency and intensity of floods and droughts. The 310 transboundary rivers and more than 500 transboundary aquifers in the world are vulnerable to these growing pressures. In an increasing number of them, in particular in water-scarce regions, available water resources are already fully utilized or overutilized.

3. **Transboundary water allocation is a joint, iterative planning, decision-making and implementation process and an outcome between two or more water-sharing States that is highly context specific**. Arrangements need to be tailored to the specific purposes and issues seeking to be addressed. Cooperation between riparian countries, the design of the process and the information supporting it are all crucial. Building and maintaining trust throughout the process is key.

4. **Transboundary water allocation should be based on international water law. The United Nations global water conventions, the Draft Articles on Transboundary Aquifers, regional agreements and other relevant international agreements provide overarching legal frameworks for allocating water in transboundary basins and aquifers**. These instruments contain the general principles of international water law (such as equitable and reasonable utilization, no significant harm, good neighbourliness and cooperation, protection of ecosystems, peaceful settlement of disputes, prior notification) that should underpin transboundary allocation arrangements. They also provide the governance tools (agreements, joint bodies) for developing, revising and implementing contextualized transboundary allocation agreements or other arrangements.

5. **To respond to changing conditions, including but not limited to climate variability and change, transboundary water allocation agreements and other arrangements should be adaptable**. New transboundary water allocation agreements and other arrangements need to be designed to be adaptable in the medium and long-terms to changing hydrological, climatic and other related factors (socioeconomic, geographical, cultural, etc.). Existing water allocation agreements and other arrangements, or adopted subsidiary instruments, may need to be revised to be able to respond to changing conditions. Adaptive capacity can be integrated into transboundary allocation systems and institutions to respond to changing conditions, impacts and opportunities. Examples of this include applying allocations in percentages instead of absolute amounts, periodic reviews and using objective thresholds (e.g. persistent low precipitation) as a basis if exceptional deviations from agreed allocations are needed.

    a. **Climate change must be approached as a cross-cutting challenge to effective allocation**. It is a potential risk multiplier that may necessitate adjustment of existing—and careful drafting of any new—transboundary water allocation agreements and arrangements. Impacts of climate change on future demands and flows should also be anticipated and used to inform the negotiation of allocation arrangements. Transboundary allocation arrangements need to factor in the increased uncertainty and inter- and intraannual variability of precipitation and run-off to cope with increasing frequency and extremity of drought and flood events. Making transboundary allocation arrangements climate resilient requires strong coordination mechanisms between and among different levels of governance, sector policies and stakeholder groups.

b. **The joint review of pre-existing usage patterns, and any transboundary allocation arrangements on which they are based, is an important step when adapting arrangements to evolving conditions and demands**. Such review should be based on equity and sustainability, especially as regards upstream and downstream water use allocations, including for the environment.

c. **It is also important to share and jointly develop or review plans for future water uses based on predicted foreseeable needs at the transboundary and State levels**. Water demands and flows evolve over time, due to many factors, including but not limited to changes in demography and land uses, and such evolutions need to be taken into account. Future plans with potential transboundary impacts should be shared as soon as reasonably possible in accordance with the principles of prior notification and consultation.

d. **Economic considerations (including impacts on prices, consumers and product surplus in the sectors concerned, fiscal impact and affordability constraints), along with social considerations (such as on employment), are important in managing demand and water infrastructure needs over time, as well as negotiating and implementing water allocation (rules and mechanisms, externalities, etc.)**. Cost-benefit analyses can help to structure the options in water allocation and to assess the impact of those options. However, it must be acknowledged that not all costs and benefits can be quantified and monetized usefully, and, therefore, those aspects should be included in other terms in the analysis. The coordinated design and management of infrastructure and incentivizing efficiency and cost-effectiveness can help to increase efficiency of water infrastructure and reduce water demands.

6. **A main limitation of allocation can be its narrow focus on water quantity, quality and timing, within a bounded spatial area. Thus, transboundary allocation should always be considered in conjunction with complementary broader approaches.**

a. **Intersectoral approaches, such as the water-food-energy-ecosystem nexus approach**, help to inform the choice of sectoral and integrated policies and decisions that increase efficiency, reduce trade-offs and build synergies.

b. **Long-term basin planning incorporating the principles of integrated water resources management (IWRM)** can reduce the need to resort to specific water allocation arrangements, or provide a foundation for transboundary water allocation. For instance, IWRM requires the holistic consideration of different water sources and uses, together with the management of both supply and demand in the basin.

c. Considering all the **benefits that can be derived from water management** provides a comprehensive perspective to negotiating transboundary water allocation arrangements, which helps in moving beyond addressing purely water-related issues to their broader social, economic, environmental and political impacts.

7. **While designing and operationalizing water allocation arrangements is the product of a unique, context-driven pathway, the following three steps constitute an adaptable framework applicable to different settings:**

i. **identification of incentives, reasons/motivations and development of a knowledge base;**

ii. **negotiations of arrangements or agreements, including development of allocation mechanisms and plans, monitoring and ensuring compliance, and dispute prevention and resolution mechanisms;**

iii. **implementation, including national implementation.**

8. **Developing transboundary water allocation arrangements is an iterative process that requires cooperation across all its steps. It is advisable to start by setting out the States' terms of reference, identify one or more simple shared objectives, develop trust and then expand**. It is recommended to incorporate feedback loops in order for States to jointly revisit and reassess important elements and steps in the process, as and when required.

9. **An adequate shared knowledge base and understanding of the issues at stake is a starting point for evaluating whether water allocation agreements and other arrangements provide the most appropriate means to address the issues**. This information can further assist with defining agreed allocations and system design, including related mechanisms and plans. Important elements of the knowledge base include water resource and availability assessments and analyses of environmental requirements, as well as use and impact assessments, preferably in different scenarios.

10. **The identification of the net benefits of cooperation regarding transboundary waters can help with creating enabling conditions, including the political willingness, for strengthening cooperation on water allocation in a transboundary context**. Tools are available to assist with this process. Allocation arrangements can thus contribute to broader peacebuilding and regional conflict prevention, mitigation or resolution.

11. **Historical records of negotiations over transboundary water allocation arrangements indicate that they have tended to follow a needs-based approach rather than approaches focused solely on legal rights** (whether absolute rights or other principles and entitlements). Needs-based approaches that are based on basin characteristics, or the tangible benefits that water brings, are more easily quantifiable for the purposes of allocation. Such approaches have often provided a common starting point for negotiations by offering practical methods for determining water-sharing baselines in a transboundary context. Notwithstanding, legal rights are a crucial component of any negotiations regarding transboundary water allocation.

12. **Negotiations benefit from an assessment of present and future water needs in the riparian States, including a detailed diagnosis of potential water allocation scenarios**. Any future water needs assessment should consider feasible options for managing water demands, prioritizing vital human needs and improving water use efficiency in riparian States and by their main water users.

13. **A joint or coordinated assessment of vulnerability of water resources and of water-dependent sectors to climate change, and impacts scenarios are also useful tools**. They foster a shared understanding of the future water outlook and can provide scope for periodic review of the terms of allocation and their modalities for implementation

14. **Negotiating water allocation arrangements and agreements should not be seen as a one-off exercise**. Rather, it is part of a transboundary water cooperation process that advances step by step and may eventually need to be revised. In some cases, technical solutions, informal or temporary arrangements may be instrumental in reaching an acceptable short-term solution. However, formal legal and institutional arrangements are more suited to providing a long-term and sustainable framework for transboundary allocation.

15. **To ensure the sustainability and implementation of the water allocation arrangements, it is crucial to identify key stakeholders beyond government entities concerned with water allocation and engage them in both the process of negotiation and its outcome**. These stakeholders may include international financial institutions, infrastructure operators, sectoral organizations, main water users or water user associations, civil society and citizens' organizations, local communities and Indigenous peoples. A stakeholder analysis can inform who should be involved, and an institutional analysis can inform the determining foundations for any arrangement. Special efforts are needed to involve traditionally marginalized and/or underrepresented members of society who rely on transboundary water resources, and to ensure gender equity. This broad participation brings benefits and contributes to an improved knowledge base, as well as enhanced equity and sustainability.

16. **Identification of different allocation options and alternatives and their careful consideration before taking decisions is beneficial, and diverse valuation tools and needs-based evaluations can be of assistance, while taking into account that not all benefits or factors can be quantified**. Multi-criteria decision analysis (MCDA), is one such means of providing transparent and systematic comparison. Various software tools and decision support systems (DSS) have been developed to support the application of MCDA and other methods in practice.

17. **Uncertainty related to water availability, variability and events is inevitable, making it essential to integrate flexibility mechanisms and adaptive capacity in allocation arrangements**. Better

availability of data reduces uncertainty, but even a lack of data can be turned into an opportunity by sharing information and co-producing knowledge.

18. **Integrating clearly defined dispute settlement mechanisms (both diplomatic and adjudicatory mechanisms) can help support the implementation of transboundary allocation arrangements**. Given the often-contested nature of transboundary water use and allocation, it is beneficial to incorporate into any allocation agreement binding dispute settlement mechanisms that are agreed to by the riparian States.

19. **Transboundary water allocation arrangements and agreements often need to be further specified to ensure effective implementation**. This can be supported by developing allocation mechanisms, coordination and monitoring plans—considering different scales—which may also provide flexibility for allocation.

20. **Implementation of transboundary water allocation arrangements relies on having effective legislation and institutions in place at the national and/or subnational levels, and may require revising and strengthening them**. Seeking alignment and coordination between transboundary allocation arrangements and relevant State legislation is beneficial and should be taken into consideration as early as possible in the planning process. Other national and subnational instruments, such as regional limits on water abstraction, water entitlement or licensing systems, and annual water allocation process and monitoring systems for compliance and enforcement can be useful. Moreover, the institutional and technical capacity of all concerned national and subnational agencies should be taken into consideration in transboundary water allocation implementation plans.

21. **While the implementation of agreed allocation measures rests with riparian States, transboundary joint bodies are key elements of well-functioning transboundary allocation systems**. They provide a platform for negotiation and regular exchange, stability and predictability in the long-term. However, few joint bodies have a mandate with respect to water allocation. Moreover, even in the presence of a clear mandate, dealing with water allocation remains a challenging task for joint bodies that calls for strengthening their capacities.

22. **Collecting and sharing reliable data and information is a critical foundation for the planning and implementation of water allocation in transboundary basins**. Data and information should include both biophysical and socioeconomic aspects, as well as data and information needed to monitor future variability and change. Information-sharing can help to reconcile different understandings of the shared water resources between and among sectors and/or riparian States regarding water availability, status and significance for sustainable development. The following elements can strengthen the knowledge base for transboundary water allocation.

    a. **Joint and/or coordinated monitoring and assessment systems, which utilize sound and financially sustainable technology, are key for the design and implementation of water allocation arrangements**. Harmonized methodologies and parameters, inspired by best practices, can further support consistency of cross-border comparisons and interoperability of data. Such systems can be useful in verifying allocation implementation and effectiveness and provide the transparency necessary for compliance and enforcement.

    b. **Open, transparent and regular sharing of up-to-date information is important for allocation, but many States find this element challenging**. Sharing should include the exchange between States of, and/or access to, any relevant data (including metadata) on the current status and variability of transboundary water resources within each State, including various stakeholders. It should also include any plans for future water uses and related developments, including infrastructure projects, as soon as they are reasonably known, as well as forecasts/outlooks on the availability of waters. Nevertheless, not all data is always required (or simply not available) and this should not prevent decision makers from taking decisions under uncertainty.

23. **Water allocation mechanisms can generally be divided into direct mechanisms, indirect mechanisms and/or mechanisms based on principles**. These mechanisms are not mutually exclusive and can be used in combination and change over time. For example, groundwater is a distinct type of resource compared with surface water, and, by consequence, specific mechanisms refer to pumping rates,

water table impact and spring outflow or relate to storage capacity of the aquifer. It is up to the States involved in allocation arrangements to determine the mechanisms that are most relevant and suitable to use in their context and any associated benefits they wish to prioritize.

a. **Direct mechanisms** typically specify: fixed quantities (for all or some States); percentage of flow; equal division; variable by water availability; variable according to time of the year; water loans; allocation of entire/partial aquifer/river (based on sole use); allocating time; and/or cap, limit or no allocation allowed.

b. **Indirect mechanisms** include: dividing allocation based on the priority of use; consultation and/or prior approval; and/or the allocation mechanism determined by a river basin organization (RBO), commission and/or committee.

c. **Mechanisms based on principles** refer to one of the following: benefits-sharing; historical or existing uses; equitable use; sustainable use; or use of a market instrument.

24. Growing practice in some transboundary basins reflects the prioritizing of human and ecological needs before allocating available water resources to other needs. Water quality for human consumption is becoming an increasingly important aspect of transboundary allocation and the prevention and reduction of pollution loads a high priority. Preventing ecosystem degradation has also been a main driver for recent water allocation reforms.

a. **Vital human needs for drinking water, sanitation and hygiene are increasingly prioritized, especially in regions facing frequent drought events or chronic water scarcity**. Water scarcity may compromise water supply and sanitation services and can have negative impacts on human health. Deteriorating water quality diminishes available potable resources, while the need for treatment increases costs for water use.

b. **The state of freshwater ecosystems affects the quantity, quality and variability of allocable water**. Safeguarding or restoring key aspects of ecosystem functioning, such as downstream water supply, wetlands, freshwater fisheries or sediment transport to low-lying delta regions can thus be strategically important to transboundary allocation arrangements.

c. **Increasing use of environmental/ecological flow assessment tools and approaches, while ensuring the environment is determined to be a water user, reflects an understanding that maintaining healthy freshwater ecosystems has broader, strategic social, cultural and economic benefits, both direct and indirect**. This trend also recognizes the intrinsic value of the integrity of ecosystems. Numerous methods for defining e-flows have been developed beyond the basic definition of minimum flows.

d. **Ensuring obligations related to return flows and discharges are properly specified and enforced can further support the prioritization of human and ecological allocation needs**.

25. In addition to international water law, other branches of international law and their principles can be useful for the definition of transboundary water allocation arrangements.

a. **Multilateral environmental agreements can be applicable where appropriate in developing transboundary water allocation arrangements**. These include but are not limited to the: Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention); Convention on Environmental Impact Assessment (EIA) in a Transboundary Context (Espoo Convention); Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention); Convention on Biological Diversity; and United Nations Framework Convention on Climate Change (UNFCCC).

26. Several emerging principles and norms can be considered for inclusion in the development of allocation arrangements, depending on the context. These include but are not limited to: Indigenous values and water allocation in conjunction with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and cultural flows; the human rights to water and sanitation, and other rights; the community-of-interest approach; water stewardship; and the rights of rivers and ecosystems. Approaches to valuing water and supporting ecosystem services, for example, water pricing and payment for ecosystem services, have also gained increasing attention globally.