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**United Nations Conference on the Midterm
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“Water for Sustainable Development”, 2018–2028**

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Item 9 of the provisional agenda*

Interactive dialogues

**Interactive dialogue 4: Water for cooperation: transboundary
and international water cooperation, cross-sectoral
cooperation, including scientific cooperation, and water across
the 2030 Agenda for Sustainable Development (Sustainable
Development Goal targets 6.5 and 6.b and Goals 16 and 17)**

Concept paper prepared by the Secretariat

Summary

The present concept paper was prepared pursuant to paragraph 9 (d) of General Assembly resolution [75/212](#), in which the Assembly requested the Secretary-General of the 2023 United Nations Conference on the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action, “Water for Sustainable Development”, 2018–2028, to prepare a concept paper on each of the themes of the interactive dialogues, taking into account the relevant water-related processes of the Assembly and other possible contributions. The paper relates to interactive dialogue 4, entitled “Water for cooperation: transboundary and international water cooperation, cross-sectoral cooperation, including scientific cooperation, and water across the 2030 Agenda for Sustainable Development (Sustainable Development Goal targets 6.5 and 6.b and Goals 16 and 17)”. In the paper, the challenges, current status, interlinkages, opportunities for progress, transformative solutions and recommendations related to water cooperation are set out.

* [A/CONF.240/2023/1](#).



I. Introduction¹

1. Water unites people more often than it divides them. Water cooperation² across borders and sectors has proven to generate benefits that accelerate progress across Sustainable Development Goals, including delivering safe drinking water and sanitation, enhancing food security, sustaining healthy livelihoods and ecosystems, helping to address resilience to climate change, contributing to disaster risk reduction, providing renewable energy, supporting cities and industry, and fostering regional integration and peace.

2. Water cooperation should be inclusive. Water resources serve and are affected by multiple stakeholders, including civil society, government (national and local), Indigenous Peoples, the media, the private sector and the scientific community, at multiple levels. Intercultural aspects of water cooperation, and diverse stakeholder values, should be considered with regard to water governance systems.

3. Water cooperation should be cross-sectoral. Bringing together water, energy, agriculture, environment and others helps to better manage trade-offs and can amplify the benefits that accrue from collective action while also safeguarding ecosystems. Multilevel governance systems are key to breaking sectoral silos in a way that can deliver legitimate, equitable and sustainable outcomes.

4. Water cooperation must also be action-oriented. The benefits that cooperative processes can offer to communities, sectors, ecosystems and countries across the Goals can only be realized if concrete steps are taken to address funding and financing gaps, insufficient and inaccessible data and information, capacity development shortfalls, weak governance systems that result in poorly coordinated and uneven power relationships among stakeholders, and the slow introduction and uptake of innovative practices and technologies.

5. There is a cost for non-cooperation, given that water conflicts persist. Unilateral action by communities, sectors and countries can lead to unsustainable and often more costly development choices and, if left unaddressed, can spiral into threats to regional stability and peace, especially within the context of weak governance systems and situations of fragility, conflict and violence. Population growth, migration and increasing water demand, coupled with climate change impacts and ecosystem degradation, make water cooperation an imperative.

6. Progress on water cooperation must be accelerated. Currently, the world is not on track to implement integrated water resources management at all levels by 2030 (target 6.5 of the Goals). An estimated 107 countries are not on track to have sustainably managed water resources by 2030,³ and of the 153 countries sharing transboundary rivers, lakes and aquifers, only 32 have at least 90 per cent of their

¹ The present concept paper has benefited from contributions from Member States, the United Nations system and a diverse group of stakeholders. See <https://sdgs.un.org/conferences/water2023/documentation> and www.un.org/sites/un2.un.org/files/final_water_consultation_report_19_oct.pdf.

² In the present paper, “water cooperation” refers to the process through which communities, sectors and countries work together in a mutually beneficial way towards the common goal of the peaceful, sustainable and equitable use and protection of water resources at the local, national, regional and international levels.

³ United Nations Environment Programme (UNEP), *Progress on Integrated Water Resources Management: Global Indicator 6.5.1 Updates and Acceleration Needs 2021* (Nairobi, 2021).

transboundary basin area covered by operational arrangements for transboundary water cooperation.⁴

II. Overview of the challenges, current status and interlinkages

Challenges and current status

7. Global pressures on the quality and quantity of water have increased since the 1980s owing mainly to a growing population, increasing water demand, unsustainable consumption patterns and cumulative environmental impacts. Estimates suggest that 2.3 billion people currently live in water-stressed countries, of which 733 million live in countries experiencing high and critical water stress,⁵ and that, by 2050, 3.9 billion people (40 per cent of the world's population) will live in river basins that experience severe water stress.⁶ Groundwater use represents nearly half of all drinking water worldwide and the majority of the water supply to rural populations.⁷ Hotspots of groundwater depletion exist around the world, most often in areas of intensive groundwater use for irrigation and to supply large cities. Globally, groundwater storage depletion accounts for 15 to 25 per cent of all groundwater withdrawals.⁸

8. Across the globe, climate change places additional pressures both on the quantity and the quality of the world's water resources, as well as on water and wastewater infrastructure. Impacts include increased frequency and intensity of heavy precipitation, accelerated melting of glaciers, changes in the frequency, magnitude and timing of floods, more frequent and extended drought periods, changes in groundwater storage and recharge, and the deterioration of water quality. Transboundary rivers, lakes and aquifers are particularly vulnerable owing to fragmented governance systems. Climate impacts are projected to drive further migration and displacement and to compound existing vulnerabilities for people and places affected by fragility, conflict and violence, with grave humanitarian consequences.⁹

9. There is clear evidence that water cooperation between communities, sectors and countries can deliver a package of shared economic, social and environmental benefits, as well as promote peace and regional integration.¹⁰ More than six decades of collaboration between the countries of the Rhine River basin have demonstrated how cooperation can evolve from a singular purpose, such as addressing water pollution, to more holistic water management approaches across the entire basin and beyond. The creation of cross-border committees, such as the one between the communities in India and Nepal that share the Sharda/Mahakali River, demonstrates

⁴ Economic Commission for Europe and United Nations Educational, Scientific and Cultural Organization (UNESCO), *Progress on Transboundary Water Cooperation: Global Status of SDG Indicator 6.5.2 and Acceleration Needs 2021* (Paris, 2021). The basin area includes the surface area of any transboundary rivers and lake basins or aquifer systems. For a definition of "operational arrangements for transboundary water cooperation", see Economic Commission for Europe and UNESCO, *Progress on Transboundary Water Cooperation: Global Baseline for SDG Indicator 6.5.2* (Paris, 2018).

⁵ UN-Water, *Summary Progress Update 2021: SDG 6—Water and Sanitation for All* (Geneva, 2021).

⁶ Organisation for Economic Co-operation and Development (OECD), *OECD Environmental Outlook to 2050: The Consequences of Inaction* (Paris, 2012).

⁷ UNESCO, *The United Nations World Water Development Report 2022: Groundwater: Making the Invisible Visible* (Paris, 2022). Groundwater withdrawal rates were approximately 3 per cent per year during the period 1950 from to 1980 and are currently approximately 1 per cent per year.

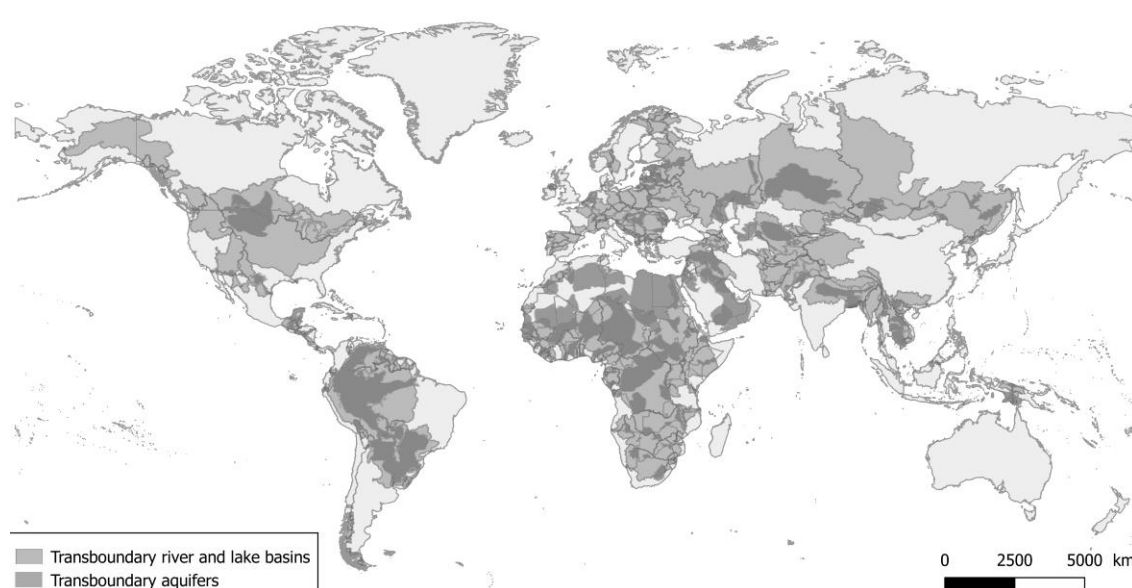
⁸ Ibid.

⁹ International Committee of the Red Cross, *When Rain Turns to Dust: Understanding and Responding to the Combined Impact of Armed Conflicts and the Climate and Environment Crisis on People's Lives* (Geneva, 2020).

¹⁰ Economic Commission for Europe, *Policy Guidance Note on the Benefits of Transboundary Water Cooperation: Identification, Assessment and Communication* (Geneva, 2015).

the benefits of transboundary cooperation at the local level. For the communities of that river, such cooperation has improved community resilience against water-related shocks, such as through early warning of floods, as well as increased the participation of women in water governance.¹¹

The world's transboundary river and lake basins and aquifers



Note: The delimitations and boundaries employed in the map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations.

10. Over 310 transboundary river basins and an estimated 468 transboundary aquifers are shared between two or more countries (see map).¹² Of the 153 countries sharing transboundary waters, approximately two thirds have more than 50 per cent of their territory within transboundary river basins. Although there is a long tradition of countries entering into cooperative arrangements for transboundary waters, significant gaps remain. There are notably regional variations in the coverage of cooperative arrangements and significant differences in coverage between river and lake basins and aquifer systems. For instance, while 24 countries across Europe and North America, as well as 18 countries in sub-Saharan Africa, report having 90 per cent or more of their river and lake basins covered by operational arrangements for water cooperation, only six countries in Asia, four countries in Latin America and one country in North Africa report having the same coverage.¹³ Also, if transboundary aquifers are covered by operational arrangements, such arrangements tend to be mostly through their association with river and lake basin arrangements; in indicator

¹¹ Avinash Singh and Marieke Meeske (Oxfam International), “Whose water? The challenge of rivers that flow across borders”, 26 May 2022.

¹² Melissa McCracken and Aaron T. Wolf, “Updating the register of international river basins of the world”, *International Journal of Water Resources Development*, vol. 35, No. 4 (26 April 2019); UNESCO, International Groundwater Resources Assessment Centre (aquifers), 2015; World Meteorological Organization, “Transboundary aquifers of the world, update 2021” (Delft, Netherlands, 2021); and United Nations Environment Programme and Global Environment Facility, Transboundary Waters Assessment Programme River Basins Data Portal (river and lake basins), available at <http://twap-rivers.org/indicators/> (accessed on 2 July 2018).

¹³ Economic Commission for Europe and UNESCO, *Progress on Transboundary Water Cooperation: Global status of SDG indicator 6.5.2 and acceleration needs Progress on Transboundary Water Cooperation: Global Status of SDG Indicator 6.5.2 and Acceleration Needs 2021*. These figures are based on 101 validated national reports on indicator 6.5.2.

6.5.2 data, just eight aquifer-/groundwater-specific arrangements were identified.¹⁴ Indicator 6.5.1 data suggest that, even where arrangements are in place, implementation is still a challenge in the majority of transboundary rivers, lakes and aquifers, and data-sharing remains limited.¹⁵

11. River basins and aquifer systems are usually the most effective spatial unit for governing water between communities, sectors and countries irrespective of political boundaries. At the transboundary level, cooperative arrangements and joint bodies, such as those relating to the Amazon River, the Chu and Talas Rivers, the Danube River, Lake Chad and the Senegal River basin, are therefore important instruments in the prevention and management of conflicts for climate action and regional sustainable development. Such arrangements and joint bodies have often been resilient in the face of broader geopolitical conflicts. Unfortunately, funding gaps, limited capacity, fragmented and unclear responsibilities at various levels, misaligned national and transboundary law and policy frameworks, a failure to engage beyond the water sector, poor monitoring and enforcement, asymmetrical power relationships, gaps in information and a lack of accountability remain some of the barriers to effectively implementing basin-wide or aquifer-wide arrangements.

12. At the global level, there have been notable recent developments in advancing water cooperation on the basis of principles of international law. In 2014, the Convention on the Law of the Non-navigational Uses of International Watercourses entered into force. The Convention on the Protection and Use of Transboundary Watercourses and International Lakes, serviced by the Economic Commission for Europe, became open to all States Members of the United Nations in 2016. In addition, in resolution [63/124](#), the General Assembly endorsed the draft articles on the law of transboundary aquifers as the most authoritative reference for the negotiation by countries of governance arrangements for their shared aquifers. Support for the global instruments is growing.¹⁶ Cameroon, Chad, Ghana, Guinea-Bissau, Senegal and Togo were among the first countries outside the Economic Commission for Europe region to join the Convention on the Protection and Use of Transboundary Watercourses and International Lakes, and at least 20 countries are at various stages in the accession process. Ministers from parties and non-parties during the high-level session on Water and Peace at the ninth Meeting of the Parties in September 2021 recognized that the Convention on the Protection and Use of Transboundary Watercourses and International Lakes provided an essential intergovernmental platform and a United Nations forum for dealing with transboundary water issues that has helped to strengthen political will, exchange best practices and lessons learned, collaboratively identify and address emerging issues, support the adoption and implementation of arrangements and joint bodies, and ultimately accelerate transboundary water cooperation.¹⁷ Since the Convention's entry into force, in 1992, over 100 agreements have been signed. In addition, of the 24 countries that have their entire their transboundary basin area covered by operational arrangements, 19 are parties to the Convention.

13. Regional instruments, such as the Revised Protocol on Shared Watercourses of 2000 of the Southern African Development Community and Directive 2000/60/EC of

¹⁴ Ibid.

¹⁵ UNEP, *Progress on Integrated Water Resources Management*.

¹⁶ At present, there are 37 parties to the Convention on the Law of the Non-navigational Uses of International Watercourses and 47 parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes. See the General Assembly resolutions in 2008, 2011, 2013, 2016, 2019 and 2022 in which countries are encouraged to be guided by the draft articles when developing governance arrangements for their shared aquifers.

¹⁷ UN-Water, "The United Nations global water conventions: fostering sustainable development and peace", policy brief (Geneva, 2020).

the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (the Water Framework Directive), are also valuable and complementary legal frameworks and platforms for advancing water cooperation.

14. Through public-private sector partnerships, corporate social responsibility, impact investment and other means, the private sector is an important actor in addressing the water crisis. That sector places significant pressures on water resources both directly and through multinational operations and supply chains, as well as through the acquisition and leasing of land by multinational companies, which, in the absence of effective governance arrangements, may lead to inequitable and unsustainable water use patterns. Cooperation between governments, civil society and the private sector at the global level, for example through a call for fair water footprints, is critical to addressing the water crisis.¹⁸ Notwithstanding the fact that the private sector has an important role to play in water management, including by unlocking financial resources and innovative funding schemes, 25 per cent of countries report limited exchange of data on water resources development, management and use between government and the private sector.¹⁹

15. A key challenge in advancing cooperation at all levels is that of improving linkages across communities, sectors and countries, which is ultimately a governance challenge. Meaningful stakeholder engagement that brings together multiple values is essential to the sustainable and equitable governance of water at all levels. However, while approximately 90 per cent of countries report having laws and policies in place to support community and user participation in the issue of rural drinking water, as well as that of water resource planning and management, only around 17 per cent of countries report having sufficient (over 75 per cent) financial resources to support such participation.²⁰

16. At the national and transboundary levels, coordination mechanisms across sectors and ministries, including agricultural and livestock rearing, as well as the areas of climate, energy, environment, financing, fisheries, forestry, health, humanitarian matters, industry, mining, municipalities, planning, sanitation and tourism, are key to sustainable and equitable water management. However, 50 per cent of countries suggest that they do not have formal water resources management mechanisms at the national level for cross-sectoral coordination.²¹ Even when formal mechanisms are in place, most countries still report challenges in their implementation. A lack of vertical coordination between the basin or aquifer level at the national and subnational levels, including local government, is cited by many countries as a challenge.²² At the basin level, joint bodies, such as river basin organizations, often lack the mandate to engage effectively with all water-related sectors.

17. Scientific cooperation, together with education and training, plays an important role in supporting water cooperation and advancing the Goals. Output-based approaches to education and training, however, have paid insufficient attention to attracting and retaining the skilled workforce needed to advance water cooperation. Moreover, asymmetrical and weak national research capacities, fragmented research

¹⁸ Glasgow Declaration for Fair Water Footprints for Climate-Resilient, Inclusive, and Sustainable Development, available at https://fairwaterfootprints.org/app/uploads/2022/09/FWF_Glasgow_Declaration_rebrand_proof_01.pdf.

¹⁹ UNEP, *Progress on Integrated Water Resources Management*.

²⁰ UN-Water and World Health Organization, *Strong Systems and Sound Investments: Evidence on and Key Insights into Accelerating Progress on Sanitation, Drinking-Water and Hygiene – UN-Water Global Analysis and Assessment of Sanitation and Drinking Water 2022 report* (Geneva, 2022).

²¹ UNEP, *Progress on Integrated Water Resources Management*.

²² Ibid.

programmes, differing funding priorities, and a lack of critical and independent research mandates hinder meaningful scientific collaboration.²³ In addition, the knowledge of Indigenous Peoples, which can provide important insights into the sustainable and equitable management of water, is not always appropriately taken into consideration in scientific collaborations.

Sustainable Development Goal interlinkages

18. Climate adaptation and mitigation measures demand action across physical, political and jurisdictional boundaries, between sectors and among stakeholders operating at and across multiple levels. While climate change impacts on water can exacerbate tensions and increase the risk of disputes, they can also trigger cooperation. Water cooperation is important for advancing climate change adaptation in shared basins. Mainstreaming fresh water into climate mitigation and adaptation planning and action requires polycentric and inclusive governance arrangements that offer the potential for more efficient and effective adaptation, the pooling of available data, models, scenarios, expertise and resources, scientific evidence, innovations and technologies, and the enlargement of the planning space for locating adaptation measures and even sharing costs and benefits.

19. Another opportunity for enhancing cooperation across the Goals relates to water and energy (Goal 7). For example, hydropower is recognized as playing a crucial role in accelerating the transition away from fossil fuels towards renewable forms of energy. The International Energy Agency estimates that hydropower generation would need to double to reach net-zero CO₂ emissions by 2050.²⁴ Cooperation between Brazil and Paraguay, originally through the signing of a peace and cooperation agreement in 1966, has demonstrated the multiple benefits that countries enjoy through cooperation. As a result of the creation of the Itaipu hydropower scheme and a binational entity, the countries have generated shared benefits that include not only energy provision and shared revenues but also social and environmental projects across most Goals for local communities and Indigenous Peoples in the Paraná River basin. In addition, the countries have been able to more effectively manage critical periods, such as during low water levels. Unfortunately, many countries and transboundary basins lack the necessary governance arrangements that can both provide an enabling environment for implementing hydropower projects sustainably and equitably and account for the likely impacts of climate change and related risks in existing and future infrastructure projects.

20. The water-energy-food-ecosystems nexus, which requires a systems approach that brings together communities, sectors and countries, offers potential to accelerate progress across multiple Goals.²⁵ Given that agriculture accounts for 70 per cent of water use globally, nexus solutions that lead to a more sustainable and productive agricultural sector are particularly important. Within a transboundary setting, not addressing trade-offs and externalities across all sectors can lead to tension between communities, sectors and countries, whereas a water-energy-food-ecosystems nexus systems approach, underpinned by multilevel governance, including transboundary arrangements where appropriate, has the potential to increase resources use efficiency, capitalize on regional complementarities and improve ecosystems. Nature-based solutions can support a water-energy-food-ecosystems nexus system approach.

²³ Dinara R. Ziganshina and Joop L.G. de Schutter, "Paving the way for evidence-driven transboundary water cooperation in Central Asia", *Journal of the American Water Resources Association*, vol. 58, No. 6 (31 October 2021).

²⁴ International Energy Agency, *Net Zero by 2050: A Roadmap for the Global Energy Sector* (Paris, 2014).

²⁵ Economic Commission for Europe, *Solutions and Investments in the Water-Food-Energy-Ecosystem Nexus: A Synthesis of Experiences in Transboundary Basins* (Geneva, 2021).

Such solutions protect, sustainably manage and restore natural or modified ecosystems, address societal challenges effectively and adaptively, and simultaneously provide human well-being and biodiversity benefits. Cooperation between Algeria, Libya and Tunisia on the North-Western Sahara Aquifer System has illustrated the benefits of adopting a water-energy-food-ecosystems nexus approach. On the basis of a 2006 tripartite consultation mechanism and other cooperative endeavours, these countries have worked at the local, national and aquifer levels to carry out an assessment of such a nexus and to identify a package of 15 mutually supportive solutions that minimize intersectoral trade-offs and negative impacts while maximizing synergies across water, energy, food and ecosystems.²⁶

21. Water cooperation can be a catalyst for exploiting synergies between the preservation and sustainable use of terrestrial ecosystems, including mountains and forests (Goal 15) and oceans, seas, and marine and inland water resources (Goal 14). Partnerships such as the Action Platform for Source-to-Sea Management, hosted by the Stockholm International Water Institute, have demonstrated the importance of cooperation and coordination between organizations, initiatives and multilateral environmental agreements operating at multiple levels with a shared interest in building more climate resilient and sustainable land-freshwater-marine ecosystems. The collaboration between the Orange-Senqu River Commission and the Benguela Current Large Marine Ecosystem Commission in Southern Africa has shown the value of coordination between two international commissions established for the equitable and sustainable use of a transboundary river basin and a marine ecosystem.

22. While the relationship is complex, it is clear that water, peace and security are inextricably linked.²⁷ Water can be an important driver for peace and cooperation at all levels.²⁸ At the local level, conflicts between users may occur. For example, transhumance routes affected by changing rainfall patterns can affect migratory herders, who may be pushed towards the lands used by sedentary farmers or towards conservation areas, which may in turn threaten the potential for tourism and lead to human-wildlife conflicts.²⁹ Displacement and migration owing to water insecurity represent a large and growing risk. Local-level cooperation becomes even more important in situations of fragility, conflict and violence. In such settings, water access can be part of existing tensions, the ability of authorities to address such tensions may be compromised and a failure to agree on cooperation mechanisms may trigger conflict. In 2022, 1 billion people lived in countries affected by situations of fragility, conflict and violence, and over 324 million were directly in need of humanitarian aid.³⁰ Water may be the object or the target of conflict, such as when Da'esh briefly took control of the largest dam in Iraq (the Mosul Dam) in August 2014, or during the wider conflicts in the region. In conflict settings, water resources, the natural environment and essential services, such as access to water and sanitation, are almost invariably directly or indirectly affected by the conduct of hostilities. Taken together, and left unaddressed, these pressures not only represent a significant risk to cooperation, peace and stability but also undercut the ability to gain significant development opportunities that are directly or indirectly dependent on water.

²⁶ Economic Commission for Europe, "Improving sustainable development in the North Western Sahara Aquifer System through a transboundary nexus approach", policy brief (Geneva, 2022).

²⁷ "Secretary-General's remarks to Security Council on preventive diplomacy and transboundary waters [as delivered]", 6 June 2017, available at www.un.org/sg/en/content/sg/statement/2017-06-06/secretary-generals-remarks-security-council-preventive-diplomacy-and.

²⁸ Geneva Water Hub, *A Matter of Survival: Report of the Global High-level Panel on Water and Peace* (Geneva, 2017).

²⁹ International Committee of the Red Cross, *When Rain Turns to Dust*.

³⁰ United Nations, Office for the Coordination of Humanitarian Affairs, *Global Humanitarian Overview 2022: October Update – Snapshot as of 31 October 2022* (New York, 2021).

Adherence to and respect for international humanitarian law is the most basic and essential form of cooperation in times of armed conflict.

23. Water can bring communities, sectors and countries together and act as a driver of peace by providing livelihood and development opportunities – opportunities that are in contrast to largely lose-lose scenarios that result from conflict. By coordinating water collaboration across sectors and river, lake and aquifer systems, regional integration mechanisms, such as the regional economic communities across Africa, have an important role to play in advancing cooperation, peace and regional integration. At the transboundary level, joint bodies such as river basin organizations can also play a key role in driving peace and regional integration. For example, the establishment of the Sava River Basin Commission between Bosnia and Herzegovina, Croatia, Serbia and Slovenia has demonstrated how interests in the joint management of shared waters allow countries to build trust and develop cooperation in many other areas within post-conflict settings.

III. Overview of opportunities for progress and transformative solutions

Funding and financing

24. While official development assistance commitments to the water sector increased in real terms between 2015 and 2019, official development assistance disbursements to the water sector remained stable, at \$8.8 billion.³¹ Current levels of financing fall far short of global projections of the financing needed to achieve Goal 6. Estimates suggest that \$6.7 trillion is needed by 2030 and \$22.6 trillion by 2050 to achieve Goal 6.³² The shortfall is recognized at the transboundary level, where most countries report having insufficient resources to advance water cooperation.³³ Despite inevitable challenges, including significant funding gaps, domestic budgetary resources from the States that are members of a joint body should be the primary source of funds to support at least its core operational costs. Joint bodies reliant on such sources tend to demonstrate stronger political will, engagement and resilience. Additional public and private financing and funding offer opportunities for diversifying financial sources. However, some challenges exist in funding and financing transboundary water cooperation, including a perception that such projects are high-risk and a poor understanding of their benefits.³⁴

25. Improvements are needed in the targeting of funding and financing for water cooperation and in the better coordination and equitable use of existing resources. They include the mobilization of additional domestic and international funding for cross-sectoral projects, mobilizing climate funds for water, such as the Adaptation Fund and Green Climate Fund, and the development of innovative financing models, such as the Blue Peace Financing Initiative. Co-designed by the Swiss Agency for Development and Cooperation, the United Nations Capital Development Fund and the Geneva Water Hub, the initiative is currently being piloted within the Gambia River Basin Development Organization to promote access to public and private capital for non-sovereign entities, such as river basin organizations and municipalities,

³¹ Based on indicator 6.a.1 data. See UN-Water, *Summary Progress Update 2021: SDG 6 – Water and Sanitation for All* (Geneva, July 2021).

³² OECD, *Financing a Water Secure Future*, OECD Studies on Water (Paris, 2022).

³³ UNEP, *Progress on Integrated Water Resources Management*.

³⁴ Economic Commission for Europe, *Funding and Financing of Transboundary Water Cooperation and Basin Development* (Geneva, 2021).

by transforming transboundary and multisectoral cooperation frameworks into investment platforms.

26. While transboundary water cooperation will require investments that are inevitably more difficult and involve more transaction costs than single-country actions, they can bring multiple benefits beyond water. International and regional grant finance, for example through the International Waters focal area of the Global Environment Facility, and the World Bank-managed regional trust funds, such as the Cooperation in International Waters in Africa programme, are essential not only for regional dialogues and the establishment and implementation of legal and institutional frameworks on shared waters but also to address global concerns, such as biodiversity, sustainable land management, climate mitigation and adaptation, disaster risk reduction and pollution prevention in a systems approach that has potential benefits far beyond separate and sectoral finance.

Data and information

27. The sharing of data and information within and between communities, sectors and countries is essential to effectively and transparently inform water-related decision-making processes at multiple levels. Data and information exchange, including scientific cooperation, can also play an important role in building trust and a shared knowledge base, which in turn can contribute to dispute avoidance. Regional approaches, such as demonstrated through the implementation of the Water Framework Directive of the European Union, can be an important means by which to align data validation and standardization procedures while advancing joint monitoring and assessment. However, States still face challenges with regard to data collection, comparability and compatibility, financial and technical resources, spatial coverage, the sustainability of data storage and sharing platforms, the application and interpretation of data, and the frequency and timeliness of data exchange. Notwithstanding efforts through the Internationally Shared Aquifer Resource Management Initiative of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Intergovernmental Hydrological Programme to prepare a global inventory and support cooperation between countries through improved knowledge of and capacity for transboundary aquifers, as well as the Global Environment Facility-financed Transboundary Waters Assessment Programme, the monitoring of indicator 6.5.2 has confirmed that many countries still face problems in gaining access to reliable data on their shared aquifers. Indicator 6.5.2 national reports have, however, provided an opportunity for countries to share data and information on a wide range of their activities and experiences in support of transboundary water cooperation.

28. While it is reliant on local data for calibration, recent scientific and technological innovation may provide opportunities that address some of the challenges, such as through the use of the most recent information and communications technology, remote sensing, geographic information systems, big data, machine learning and open science.³⁵ Citizen science can also play an important role in fostering water cooperation. In addition, joint transboundary diagnostic analyses and strategic action programming, built on cross-sectoral and multi-stakeholder consultation, are valuable tools with which to develop and coordinate science- and evidence-based approaches to the identification of shared challenges, priorities and investments with regard to transboundary rivers, lakes and aquifers.

29. Local communities and Indigenous Peoples have a valuable role to play in ground truthing scientific data and information and in sharing traditional knowledge, which can foster bottom-up inclusive approaches that lead to better evidence-based

³⁵ See “UNESCO recommendation on open science” (Paris, 2021).

decision-making and awareness-raising, support capacity development and lay the foundations for effective policy implementation.

Capacity development

30. While educating water managers on new technologies has improved, education on the skills needed to foster cooperation, such as negotiation, diplomacy, conflict resolution, governance and law, should be upscaled.³⁶ As vehicles through which greater inclusivity can be advanced, capacity development initiatives should include engagement with underrepresented groups, including Indigenous Peoples, women and young people, reach across sectors, and involve engagement with various levels and parts of government, including local government.

31. Transboundary cooperation processes require a long-term perspective, sometimes with many small steps. The processes should include opportunities to maintain dialogue outside formal negotiation settings. When people become students or participants in a training workshop, informal engagements render capacity development a dynamic – although often undervalued – process that can support, complement and strengthen formal cooperation processes in various ways. Capacity development initiatives, such as training workshops and exchange visits, can bring together experts from different communities, sectors and countries, build trust and facilitate both peer-to-peer and intergenerational learning. In transboundary settings, the funding of internships, master's and PhD students from transboundary institutions, national Governments and civil society has proven to be successful in building a cadre of young and influential technical experts with solid relationships and a common knowledge base. Platforms and initiatives at the global and regional levels, such as the International Waters Learning Exchange and Resource Network of the Global Environment Facility, the International Network of Basin Organizations and the provision of open-access massive open online courses related to transboundary cooperation, governance, international water law and diplomacy, play an important role in advancing water cooperation.³⁷

Innovation

32. Cooperation between international organizations, professionals and researchers through international scientific collaborations plays a crucial role in facilitating and identifying innovative solutions to water resources challenges while also deepening shared knowledge and understanding, fostering synergies and building trust. For example, UN-Water, a coordination mechanism that brings together 35 members of the United Nations system and 45 international partners, aims to maximize system-wide coordinated action, cooperation and coherence on all fresh water-related issues. Global and regional networks, such as the UNESCO Water Family, composed of 58 water-related Chairs and 36 water-related centres and 168 Intergovernmental Hydrological Programme National Committees and their focal points among the 195 States Members of UNESCO, can bridge the knowledge gap by facilitating the transfer, exchange and sharing of expertise between institutions, academia, civil society, local communities, researchers and policymakers. Bilateral agreements and regional networks/platforms, such as those provided through the African Ministerial Council on Water or the Conference of Ibero-American Water Directors, have proven valuable in advancing accessible and affordable knowledge exchange and technology

³⁶ UNESCO-Intergovernmental Hydrological Programme, *IHP-IX: Strategic Plan of the Intergovernmental Hydrological Programme – Science for a Water Secure World in a Changing Environment*, ninth phase, 2022–2029 (Paris, 2022).

³⁷ For example, the massive open online course on governance for transboundary freshwater security, which is available free of charge in six languages. See www.gwp.org/en/learn/capacity-building/governance-for-transboundary-freshwater-security--a-massive-open-online-course-mooc.

transfer between countries. Innovations in science, including citizen science, open science and data, the Internet of things, cybersecurity, artificial intelligence, remote sensing and big data, have an important role to play in advancing water cooperation. Approaches to sustainable water management that combine traditional knowledge and heritage with scientific innovation offer useful lessons, including on equitable and sustainable water allocation and conflict management.

33. Transformative innovation in governance has the potential to accelerate progress on the Goals. Innovation should underpin policy coherence in line with integrated water resources management, the water-energy-food-ecosystems nexus and source-to-sea approaches and, through integrated platforms, promote cooperative partnerships and networks. Such an approach helps to maximize water productivity and sustainability, especially within constrained and contested contexts, and assists in targeting and enabling sustainable food and energy transitions across scales. By incorporating a new governance arrangement for the transboundary Stampriet Transboundary Aquifer System within the existing Orange-Senqu River Commission, Botswana, Namibia and South Africa have adopted an innovative governance approach that lowers the transaction costs involved in setting up and implementing an entirely new transboundary governance arrangement while also advancing the values of conjunctive management of surface water and groundwater.

34. The adoption and implementation of the Glasgow Declaration for Fair Water Footprints for Climate-Resilient, Inclusive, and Sustainable Development is an example of an innovative partnership between government, the private sector, financial institutions, civil society organizations, and research and external support agencies at multiple levels.³⁸ Through the Declaration, signatories agree to collaborate to ensure that business activity across multiple scales and with significant water and climate-related risks eliminates water pollution and over-extraction from rivers and aquifers, enhances climate resilience and brings greater accountability to safeguard sustainable and equitable allocations of water.

Governance

35. Governance is much broader than government – it recognizes the value of the private sector, civil society and a wider range of stakeholders. At the local and national levels, the factors undermining effective governance should be addressed, including poor resource management, corruption, fragmented institutional arrangements, bureaucratic inertia, insufficient human capacity and a lack of investment. Effective water governance demands decentralized and inclusive decision-making, integrity, transparency and accountability, and intersectoral collaboration between private enterprises, community-based organizations, water user associations, non-governmental organizations (NGOs) and government agencies (national and local). Water governance should be based on clearly allocated and distinguished roles and responsibilities for policymaking, policy implementation, operational management and regulation. Policy and regulatory coherence through effective cross-sectoral coordination should be encouraged, especially between policies for water and the environment, health, energy, agriculture, industry, spatial planning and land use.³⁹ Laws and institutions are critical for establishing clear roles, rights and responsibilities, serving as a medium of legitimate communication across multiple levels of governance and ultimately safeguarding equitable and sustainable

³⁸ See https://static1.squarespace.com/static/5baa3175bfba3e44386d68a5/t/6183c764800eea56053de38a/1636026213380/COP26_Glasgow_Declaration_for+Fair_Water_Footprints.pdf.

³⁹ International Association for Water Law, “Manifesto for national integrated legal frameworks for water governance” (Rome, March 2022).

entitlements to water resources. National laws, regulations and institutions and transboundary governance arrangements must also be aligned.

36. At the transboundary level, the adoption of arrangements for transboundary water cooperation, based on established principles of international law, is a key feature of any multilevel governance system. Arrangements for transboundary water cooperation can be concluded at the bilateral, basin or subbasin level, or provisions on water may be included in broader regional integration agreements or peace treaties. While their form and content may differ depending on the specific context and priorities, certain core building blocks based on international law should be included, such as: (a) scope, such as embedding a drainage basin approach where appropriate; (b) substantive norms, such as the principle of equitable and reasonable utilization, the duty to take all appropriate measures to prevent significant harm and the general obligation to cooperate; (c) procedural and institutional arrangements, including setting up joint bodies, prior notification and consultation, environmental impact assessment, data exchange, monitoring and assessment, forecasting and early warning; and (d) dispute settlement mechanisms.⁴⁰ In addition, while recognizing that renegotiating agreements can have high transaction costs, there is a need to climate-proof arrangements to ensure that they have the flexibility required to manage risks related to climate change. As illustrated in the above-mentioned Stampriet example, to better account for transboundary aquifers, there is a need to advance governance frameworks for conjunctive management, that is, the monitoring and coordinated management of surface and groundwater.⁴¹

37. Joint bodies, such as river basin organizations, are critical to ensuring that cooperative arrangements are implemented effectively and have the capacity to evolve over time, such as in response to climate change impacts or other risks. For example, the International Joint Commission, between Canada and the United States of America, has evolved over more than 100 years to address transboundary water issues between the countries. Such evolution has resulted in the Commission expanding its role in the 1970s and 2010s to tackle pollution and degradation within the Great Lakes Basin ecosystem. While many different types of joint bodies exist at the transboundary level, experience shows that there are certain facets that generally increase their effectiveness, including inclusiveness, providing them with broad competence to address integrated water resources management in a meaningful way, clearly defining their tasks and powers, ensuring for adequate representation of key stakeholders and promoting consensus decision-making, embedding flexibility in their rules and procedures, allowing for regular interactions among experts and decision makers, utilizing them as a platform for sharing available data and information, and giving them a mandate to identify and assess shared benefits.⁴² With these facets, joint bodies can perform many important legal, technical and diplomatic functions, including data and information collection and exchange, joint monitoring and assessment, joint basin management planning and adaptation, stakeholder engagement, compliance monitoring and dispute settlement. Joint bodies therefore play an important role in advancing multiple Goals and act as drivers of peace and regional integration.

38. Although often undervalued, the process of developing arrangements for transboundary water cooperation and joint bodies is in itself a significant outcome

⁴⁰ Economic Commission for Europe, *Practical Guide for the Development of Agreements and Other Arrangements for Transboundary Water Cooperation* (Geneva, 2021).

⁴¹ Jac Van der Gun, "Conjunctive water management: a powerful contribution to achieving the Sustainable Development Goals" (Paris, UNESCO, 2020).

⁴² Economic Commission for Europe, "Principles for effective joint bodies for transboundary water cooperation under the Convention on the Protection and Use of Transboundary Watercourses and International Lakes" (Geneva, 2018).

worth investing in. Such a process can help to develop a common set of technical, legal and process management skills, and it can identify inequalities and inequities, generate respect and appreciation for different views, establish trust and rapport, and foster convergence towards a shared understanding of transboundary waters and their use and protection. NGOs and community-based organizations, such as EcoPeace Middle East and Nile Basin Discourse, in partnership with governments, can play an important role in advancing cooperation, both within and outside the context of an existing cooperative arrangement. Similarly, cooperation between cross-border communities can facilitate broader transboundary cooperation.

39. At the national level, countries that have made the most progress towards enhancing cross-sectoral coordination have pointed to the establishment of coordination bodies, such as intersectoral water policy committees that meet regularly and involve all stakeholder groups, or steering committees under the European Union Water Initiative national policy dialogues, which foster intersectoral consultation in the development and implementation of water strategies and legislation.⁴³ Experience has shown that nurturing the interdisciplinary training of practitioners, improving coordination at the basin level (such as through the use of basin councils or catchment management committees), involving all key stakeholders (ministries, professional organizations and NGOs), mainstreaming climate initiatives into water management, and coordinating funding are useful ways in which to enhance intersectoral coordination at the national level.

IV. Recommendations

40. The following recommendations are made:

Inclusiveness

(a) Accelerated progress on water cooperation at all levels will require much more transparent, accountable, inclusive and integrated water governance systems that target poverty reduction, value underrepresented groups and leave no one behind;

(b) There is a need to ensure the integration of all genders into water resources management at all levels, including transboundary cooperation. Networking initiatives dedicated to supporting existing and potential women water leaders, such as the Women in Water Diplomacy Network, should be continued and upscaled;⁴⁴

(c) Notwithstanding international legal recognition and protection, the implementation of the rights of Indigenous Peoples within a water context remains inconsistent. Where appropriate, governance frameworks for water cooperation should integrate local and traditional knowledge and customs into their structures, policies and programmes, promote the sharing of best practices and lessons learned, and ensure that Indigenous Peoples have the opportunity to meaningfully engage in decision-making processes;

(d) Young people are agents of change who push society to think differently about water challenges and how to respond to them. They are often not present in decision-making and negotiating spaces at various levels and should therefore be involved in water cooperation;

⁴³ UNEP, *Progress on Integrated Water Resources Management*; and European Union, OECD and Economic Commission for Europe, “Water policy reforms in Eastern Europe, the Caucasus and Central Asia: achievements of the European Union Water Initiative 2006–2016” (Geneva, 2016).

⁴⁴ Stockholm International Water Institute, “A path forward for women, water, peace and security: the Women in Water Diplomacy Network Nile and Beyond Global Strategy 2022–2027” (2022).

Cross-sectoral approaches

(e) Greater cooperation is needed to advance cross-sectoral approaches to water management that recognize the foundational value of water across Goals, while also managing trade-offs and maximizing shared benefits;

(f) Although progress has been made in all regions of the world, the implementation of integrated water resources management at all levels and all dimensions must be accelerated. High-level political support is needed to achieve sustainable water resources management. Such support can be achieved by clearly communicating and demonstrating the value of implementing integrated water resources management for multiple Goals, for key stakeholders at multiple levels and for all sectors;

(g) At the global level, there is a need to integrate water into the United Nations Framework Convention on Climate Change, the Paris Agreement and its implementation mechanisms, such as global stocktaking, nationally determined contributions and national adaptation plans, as well as the Sendai Framework for Disaster Risk Reduction and other climate-related multilateral frameworks. The twenty-seventh session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, held in Sharm el-Sheikh, Egypt; the Sharm el-Sheikh Implementation Plan; and the Action for Water Adaptation and Resilience initiative were aimed at facilitating such integration. At the transboundary level, joint bodies have a key role to play in coordinating national adaptation measures and plans and in supporting the adoption of joint basin adaptation and management plans, such as those developed for the Danube, Dnister, Neman, Rhine, Lake Chad, Lake Victoria, Mekong and Niger basins;

(h) At the regional level, multi-stakeholder assessments, dialogues and strategies, river basin and aquifer plans, and coordinated financial support are all important ways through which to assess, prioritize and implement coordinated cross-sectoral nexus solutions and investments. These solutions and investments should include both “hard” solutions, such as environmentally sustainable infrastructure, and “soft” solutions, such as legal and institutional reforms, information-sharing and capacity development;

(i) Political commitment is critical to supporting policy coherence and multi-stakeholder platforms, which build bridges across sectors and government departments at the national and local levels. Practical ways to support the implementation of ecosystem-based approaches must also be advanced within the context of water cooperation, such as adhering to the Global Standard for Nature-based Solutions of the International Union for Conservation of Nature;

(j) Multilevel partnership among governments, financial institutions, the private sector, civil society and the scientific community to advance source-to-sea approaches, as well as lessons learned from existing practice, such as cooperative experiences between river basin organizations and regional sea commissions, should be capitalized on and developed further. Efforts to develop an international legally binding instrument on plastic pollution also provide an opportunity to strengthen links between freshwater and marine ecosystem governance systems;⁴⁵

(k) At the global level, existing and new diplomatic and humanitarian tools and initiatives, such as the Global Early Warning Tool of the Water, Peace and Security Partnership and the Geneva List of Principles on the Protection of Water Infrastructure, should be utilized to address water conflicts and advance technically informed preventive diplomacy underpinned by strong political leadership and

⁴⁵ See UNEP, document UNEP/EA.5/Res.14.

international humanitarian law. International organizations and other actors should support the creation of networks of local and transboundary peace mediators that can utilize water as a driver for reconciliation and building long-term peace. The recommendations of the Global High-level Panel on Water and Peace should be fully supported and realized;

(l) The co-production and sharing of knowledge are critical to advancing evidence-based approaches to decision-making on water that foster cooperation among scientists, policymakers and practitioners, water users and the public and help to build trust within transboundary settings. The strategic plan (2022–2029) for the ninth phase of the UNESCO Intergovernmental Hydrological Programme should be embraced as a critical means by which to promote the role of science at multiple levels and to ensure that, by 2029, countries have the knowledge, sound scientific and research capacity, new and improved technologies, and management skills needed to achieve a water-secure world;

Action-oriented recommendations

(m) Water cooperation requires accelerated action at all levels to realize water’s catalytic and transformative power in advancing the Goals;

Funding and financing

(n) At all levels, funding and financing for water cooperation from national and international sources (public and private) should be increased and better coordinated to realize the benefits across multiple Goals and leave no one behind. The financial and non-financial benefits of investing in water cooperation should be demonstrated through more robust analysis, awareness-raising, capacity development and exchange of experiences. At all levels, there is a need to improve the enabling environment for funding and financing through better coordination, accounting, legal and regulatory frameworks, transparency, anti-corruption and accountability measures, and broader revenue-generating mechanisms. Environmental and social governance frameworks, including the Guiding Principles on Business and Human Rights, as well as the Guidelines for Multinational Enterprises of the Organisation for Economic Co-operation and Development, should be respected and corporate water stewardship should be reflected in corporate accountability and sustainable finance legislation. Transboundary cooperation information should be integrated into corporate water risk tools.⁴⁶ At the transboundary level, the establishment and strengthening of arrangements and joint bodies, including their financing provisions, as well as the strengthening of the capacity of such bodies to execute processes for joint project identification and preparation, are critical steps to addressing any perceived risks associated with transboundary water cooperation and providing a sustainable enabling environment for water-related investments;

Data and information

(o) There is a need to strengthen data-driven decision-making on water cooperation at all levels. At the global level, efforts to coordinate and strengthen the availability of water-related data, such as the UN-Water Integrated Monitoring Initiative for SDG 6 and the Unified Policy for the International Exchange of Earth System Data of the World Meteorological Organization, should be supported. At all levels, data-sharing protocols can assist in the harmonization and standardization of data collection and sharing methods, as well as in data management and exchange, but they can only be effectively implemented through long-term investments at the

⁴⁶ Climate Disclosure Standards Board, *Application Guidance for Water-related Disclosures* (n.p., 2021).

national and transboundary levels. At the transboundary level, where operational arrangements for water cooperation are lacking, cooperation on data among technical experts, such as through the triennial indicator 6.5.2 data drives, can build trust and collaboration. Joint bodies have a key role to play in data collection and exchange, as well as joint monitoring and assessment. Data management and data-sharing should be supported through information management systems and web-based platforms that assist in data collection, storage, processing, visualization and sharing, including providing public access to data;⁴⁷

Capacity development

(p) Capacity development activities in relation to water cooperation are continuing and should be upscaled. The UN-Water SDG 6 Capacity Development Initiative, established in 2021, should be capitalized on as an opportunity to coordinate capacity-building programmes and the expertise of UN-Water members and partners in a way that is cross-sectoral, inclusive, demand-driven and responsive to country-specific needs. State-of-the-art water cooperation training programmes and materials that utilize new technologies and innovative learning processes, such as open e-learning platforms, should be developed further and should emphasize law, diplomacy, negotiation, and conflict management and resolution. Special attention and funding support should be directed towards building the capacity and developing the skills of women water professionals, as well as young people interested in water sector careers. Support for the capacity development of local government should be strengthened to allow for implementation of arrangements for transboundary water cooperation at the national and local levels;

Innovation

(q) To accelerate progress on water cooperation across sectors and administrative boundaries, innovation is required in areas such as funding and finance, data and information, capacity development and governance. Transformative change will require greater coordination between United Nations agencies and other intergovernmental organizations, NGOs, networks and platforms that support water cooperation, as well as stronger cross-sectoral collaboration and more inclusive engagement of stakeholders at multiple levels. Bilateral technology transfer and knowledge exchange programmes between States, including South-South partnerships, are an important tool for advancing water cooperation. Where appropriate, free access to knowledge and technology transfer should be provided. Cooperation at the regional level should be strengthened as an important catalyst for knowledge exchange, technology transfer and the advancement of innovation;

Governance

(r) Coordinated governance arrangements provide a critical enabling environment in which to advance Goals across multiple levels, sectors and stakeholders. At the local level, while community participation is central to water governance, more investment is needed to support local community and user participation. At the national level, countries should, in an inclusive and cross-sectoral manner, develop national water road maps, as proposed by the Food and Agriculture Organization of the United Nations, and integrated water resources management action plans that focus, prioritize and coordinate efforts in support of target 6.5. At the transboundary level, where operational arrangements are lacking or not adaptable or resilient enough to meet contemporary challenges, governments should take responsibility, in partnership with non-governmental actors and with

⁴⁷ UNESCO, *The United Nations World Water Development Report 2022*.

support from the international community, for establishing such arrangements. Joint bodies are key drivers of sustainable development. Where required, the capacity of joint bodies should be strengthened to realize their multiple roles, including engaging with water-related sectors and stakeholders at multiple levels, coordinating basin plans and climate adaptation strategies, leveraging innovative financing solutions, and maintaining common data and information systems;

(s) To strengthen political will and accelerate transboundary water cooperation on the basis of principles of international law and existing good practices, countries should accede to and implement the Water Convention and the Convention on the Law of the Non-navigational Uses of International Watercourses, as well as utilize the draft articles on the law of transboundary aquifers as a guide to developing specific arrangements for their shared aquifers, or enhancing the coverage of groundwater in river and lake basin arrangements. United Nations agencies, financial institutions, regional economic commissions, river basin organizations, NGOs and others should support countries in their efforts to accede to and implement these instruments.

V. Guiding questions

41. The following guiding questions may be used to inform the dialogue:

(a) What needs to be done to accelerate progress and have arrangements and joint bodies for water cooperation in place for all transboundary rivers, lakes and aquifers by 2030?

(b) What transformative solutions will help to implement inclusive and cross-sectoral multilevel governance arrangements in support of integrated water resources management by 2030?

(c) How can the international community better capitalize on water as a driver for peace at all levels, including through humanitarian-development partnerships, and better protect water in times of armed conflicts?

(d) What opportunities exist to articulate, promote and maximize the shared benefits of water cooperation equitably across communities, sectors and countries?

(e) How can the gap in the funding and financing of water cooperation be addressed? How can synergies between existing funding and financing models be strengthened, and how can innovative funding sources and approaches be advanced?

(f) How can synergies between climate action and water cooperation be enhanced?
