PART 1

FOUNDATIONS

CHAPTER I: INTRODUCTION TO TRANSBOUNDARY WATER ALLOCATION AND THE GLOBAL HANDBOOK

SUMMARY:

This chapter describes the rationale of water allocation in a transboundary context. It sets up the Handbook by interrogating the central question: why and how is water allocation applied in transboundary basins, including surface and groundwater? The role, relevance, aims and limitations of allocation under changing circumstances and finite water resources are outlined. The Handbook's purpose, audience, process of development under the Water Convention, content and usability are then described.

1. Water Allocation in a Transboundary Context

a. Water allocation across borders in an era of changing circumstances

The question of how freshwater resources are allocated is becoming of increasing relevance to water managers today. Demand for water is growing globally. Factors including population growth, economic development and changing consumption patterns are driving this demand. At the same time, availability of water is increasingly limited by growing pressures such as water scarcity, deteriorating water quality, ecosystem degradation and climate change, which further exacerbates the situation in many already water-stressed basins.[1] Reserving water for environmental flow, Indigenous groups and ecosystem requirements is increasingly seen as a prerequisite for overall viability of water resources systems.[2]

The question of allocation is especially heightened in transboundary contexts. Over 60 per cent of freshwater resources globally cross national boundaries, including 310 transboundary rivers and 592 transboundary aquifers.[3] Many of these shared basins are vulnerable to the effects of climate change and other growing pressures. Water scarcity, contested infrastructure developments such as hydropower dams, and increasing demand for, and competition over, shared water resources are all separate, but often interlinked, factors that have been leading to growing tensions in transboundary basins around the world. Where adaptivity of the existing water management arrangements is low, this can exacerbate any issues. In turn, this can compound the difficulties of States reaching peaceful settlements on water sharing in the short-, medium- and long-term future.[4]

Many of the existing transboundary water allocation regimes are based on historical usage patterns. Some may require adjustment in light of changing circumstances, while taking into consideration that no use enjoys an inherent priority over other uses, except where there is an agreement or custom to

1 UNESCO World Water Assessment Programme (WWAP), *The United Nations World Water Development Report 2020: Water and Climate Change* (Paris, 2020).

2 Arthington, A. H. and others, "The Brisbane Declaration and global action agenda on environmental flows", *Frontiers in Environmental Science*, vol. 6 (July 2018).

3 International Groundwater Resources Assessment Centre (IGRAC), "Transboundary aquifers of the world map", 2015.

4 UNECE, *Policy Guidance Note on the Benefits of Transboundary Water Cooperation: Identification, Assessment and Communication* (New York and Geneva, United Nations, 2015).

the contrary.[5] In parallel, establishing allocation arrangements may be rising higher in policy agendas in settings where they were not previously considered a priority. While these topics have received detailed attention and guidance over recent years in national and subnational contexts,[6] there is a dearth of resources exploring transboundary allocation. Water allocation in a transboundary context thus demands more robust investigation to assess its conceptualization and application in practice.

BOX 1: USE OF "TRANSBOUNDARY" IN THE HANDBOOK

The use of "transboundary" in this Handbook follows the definition expressed in the Water Convention: international rivers, lakes and aquifers. Most case studies and anecdotes in the Handbook are thus international in nature. Recognizing that valuable lessons can also be learned from cross-border water allocation examples at the subnational level, a few such intracountry case studies are also outlined in the Handbook.

b. The role of water allocation in transboundary water resources management

Water allocation can contribute to the effective management of transboundary waters when developed jointly by the riparian countries and in conformity with relevant international law. When water resources are shared between two or more States, some form of allocation may take place in order to obtain a level of certainty in availability for each of the sharing parties. The formality of allocation arrangements typically varies. They can range from temporary and technical arrangements for water sharing that may have no explicit references to "allocation", to specific water quantity, quality or timing quotas in agreements and treaties with detailed allocation mechanisms.

Transboundary water allocation is both a process and an outcome, which are not mutually exclusive. When formalized, water allocation can broadly be seen through two basic framings. On one hand, it is often a jointly agreed and clearly defined volumetric, qualitative or timing-related allocation quota. On the other, it generally involves an iterative process of joint planning and negotiation between two or more States (see Figure 1). Ideally, both the process and outcome should be sufficiently flexible and adaptable to cope with changing needs and variabilities. While variations on water allocation exist within and outside these two broad framings, ultimately, the framing applied depends on the allocation context and the particular interests of the parties. To be realizable and sustainable, water allocation objectives need to be aligned with the optimal and sustainable utilization of the shared waters, consistent with its adequate protection. These objectives need additional assessment in different climate and socioeconomic scenarios to ensure practicality. They must also be consistent with the 2030 Sustainable Development Goals (SDGs), especially SDG 6 on clean water and sanitation[7] and linked to related SDGs and other rules and principles of international law.

Water allocation is only one approach and is not an answer to all water-related challenges in transboundary settings. In many instances, broader approaches, such as assessing the benefits of

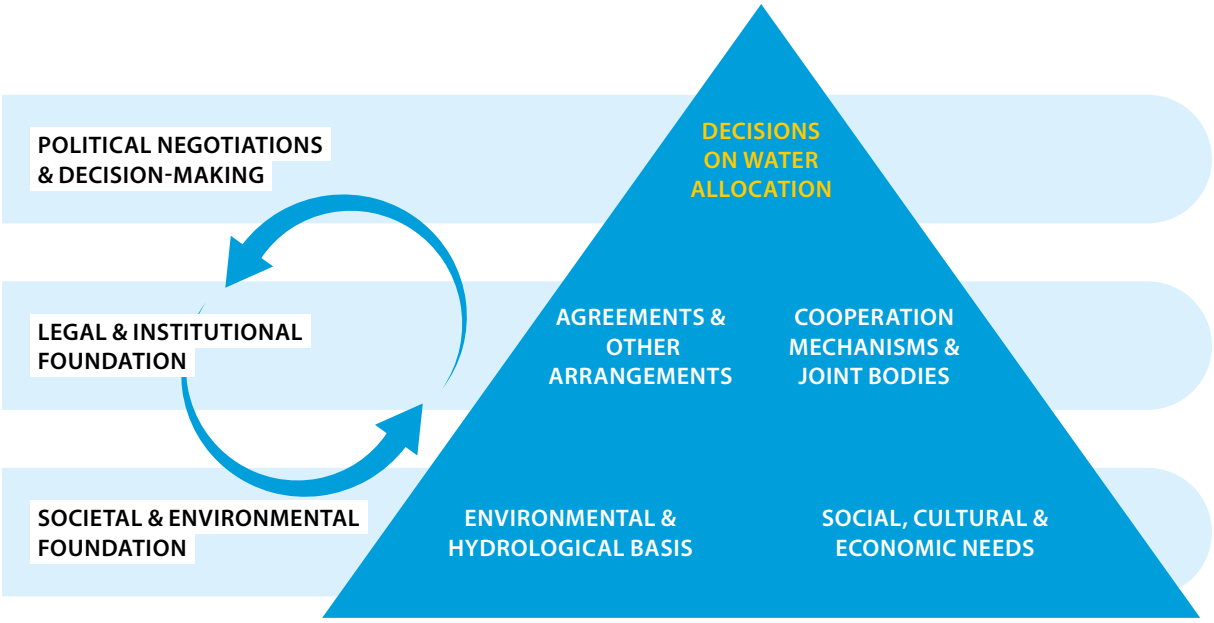
5 1997 Convention on the Law of the Non-navigational Uses of International Watercourses (Watercourses Convention), Art. 10.

6 Organisation for Economic Co-operation and Development (OECD), *Water Resources Allocation: Sharing Risks and Opportunities*, OECD Studies on Water (Paris, 2015); Robert Speed and others, *Basin Water Allocation Planning. Principles, Procedures and Approaches for Basin Allocation Planning* (Paris, UNESCO, 2013); Dustin Evan Garrick, *Water Allocation in Rivers under Pressure: Water Trading, Transaction Costs and Transboundary Governance in the Western US and Australia* (Cheltenham, United Kingdom, Edward Elgar, 2015).

7 See https://sdgs.un.org/goals/goal6.

FIGURE 1

Simplified decision-making hierarchy in transboundary water allocation



Source: M. Keskinen, 2020.

transboundary cooperation,[8] benefit-sharing[9] and water-energy-food-ecosystem nexus approaches,[10] demand management strategies, and exploring alternative water resources or alternatives to planned uses of water are more appropriate (see Chapter IV). Such approaches help to establish a broader basis for win–win solutions in transboundary water management. Therefore, especially when utilized with basin-wide planning and integrated water resources management (IWRM) approaches, water allocation in a transboundary context can play a key role in contributing towards equitable and sustainable outcomes for all.

Certain foundational elements are important in forming the basis of any effective transboundary water allocation arrangement. Water allocation arrangements formalized in agreements should ideally be formed by a cooperative process, be planned jointly and incorporate inclusive stakeholder decision-making. Allocation between States must adhere to customary international law, general principles of international law and the law of treaties and any existing treaty obligations relevant to the transboundary waters concerned. The United Nations global water conventions, which codify the main principles of international law, provide guiding legal frameworks (and certain international customary law obligations) relevant for the establishment and maintenance of transboundary water allocation arrangements. The 2008 Draft Articles on the Law of Transboundary Aquifers provide further guidance for allocation of transboundary groundwater resources.

8 UNECE, "Benefits of transboundary water cooperation", 14 January 2021.

9 Claudia Sadoff and others, eds., *Share: Managing Water Across Boundaries* (Gland, Switzerland, International Union for Conservation of Nature (IUCN), 2008).

10 UNECE, *Policy Guidance Note on the Benefits of Transboundary Water Cooperation* (2015); UNECE, *Methodology for Assessing the Water-Food-Energy-Ecosystems Nexus in Transboundary Basins and Experiences from its Application: Synthesis* (New York and Geneva, United Nations, 2018).

Collecting and sharing relevant and reliable data and information is a vital foundation for the planning and implementation of water allocation in a transboundary context. Ideally, this is done through joint and/or coordinated monitoring and assessment systems. Overall, a strong knowledge base can help to reconcile different understandings of the shared water resources for transboundary water allocation between sectors and/or riparian States regarding water availability, status and significance for sustainable development.

Water allocation planning, frameworks and implementation should fit each unique transboundary context. Beyond common foundational elements, the specifics of any transboundary allocation arrangement should be based upon, and tailored to, the circumstances of the riparian States involved and the intended objectives. Climate change is a cross-cutting challenge impacting on regions, basins and States differently and contextualized allocation arrangements are therefore required.

2. The Handbook on Water Allocation in a Transboundary Context

a. Mandate for developing the Handbook

Sustainable water management lies at the core of the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention), the secretariat of which is provided by the United Nations Economic Commission for Europe (UNECE). The Water Convention is a unique, now global, intergovernmental legal and institutional framework with the objective to ensure the sustainable use of transboundary water resources by facilitating cooperation. Good practices in different aspects of water management are essential in reaching its objectives.

The Programme of Work 2019–2021 under the Water Convention[11] included area 3: Promoting an integrated and intersectoral approach to water management at all levels. One of the objectives of the Programme was to support the development of equitable and sustainable transboundary water allocation criteria through the development of a Handbook on Water Allocation in a Transboundary Context. The Handbook was to be based on existing practices and would cover the key aspects of equitable and sustainable allocation of water in the transboundary context, addressing both surface waters and groundwaters and also environmental flows.

BOX 2: STATUS OF THE HANDBOOK

The Handbook has been produced under the Programme of Work 2019–2021 of the Water Convention and aims to provide a reference point and general guidance for transboundary water allocation. It is not binding on States, nor does it supersede any of the provisions or obligations contained in the Convention.

The Handbook deliberately builds upon the Water Convention's past work on water allocation. In 2017, the Water Convention secretariat organized a global workshop on water allocation in transboundary basins, in Geneva.[12] The topics, case studies and presenters involved in that event were reviewed and, where it was deemed appropriate, integrated into the development of the Handbook and the composition of the Expert Group. Moreover, several other guidance documents and approaches developed under the Convention

11 United Nations Economic and Social Council, Economic Commission for Europe, *Report of the Meeting of the Parties on its eighth session: Addendum: Programme of Work for 2019–2021* (ECE/MP.WAT/54/Add.1).

12 The presentations and other documents of the workshop are available at https://unece.org/environmental-policy/events/global-workshop-water-allocation.

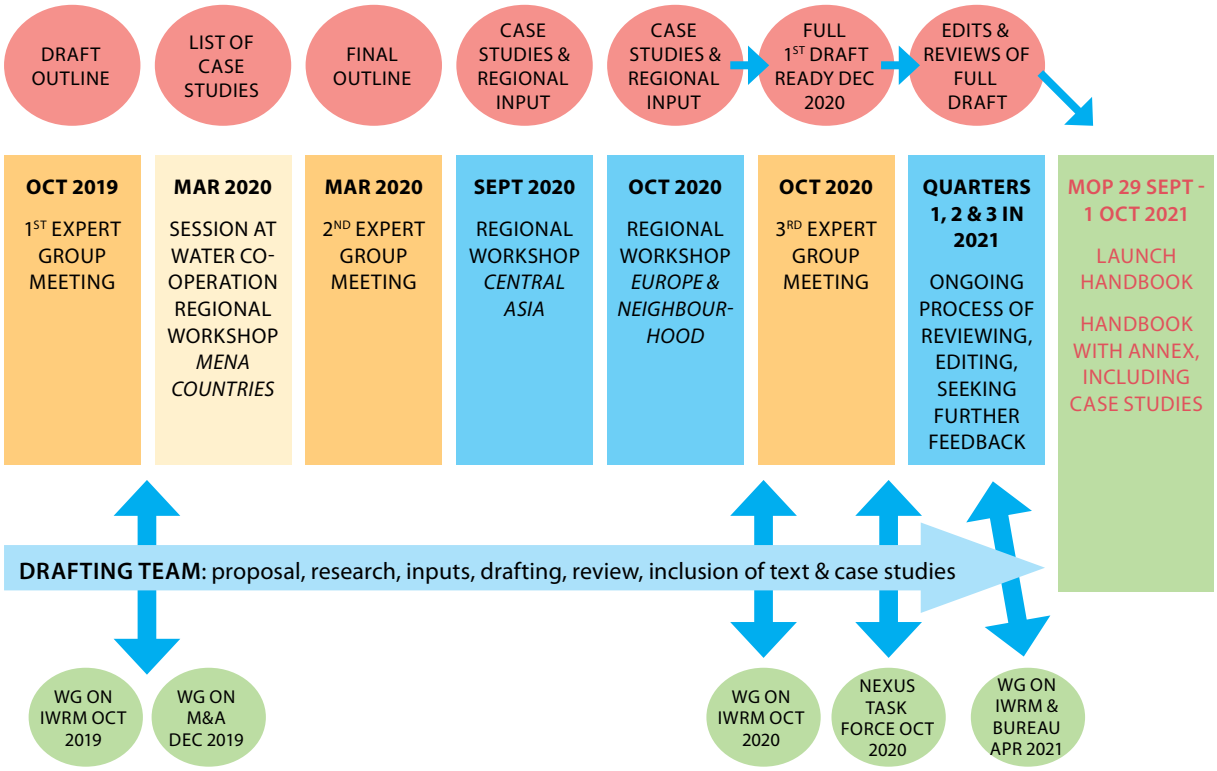
that are related to water allocation have been considered and integrated where appropriate, predominantly in Chapter IV.

b. Process for developing the Handbook

The development of the Handbook was carried out between 2019 and 2021 through an intergovernmental process under the auspices of the Water Convention (Figure 2). States were involved in the feedback and review process as key drafting milestones were linked to meetings of several of the Water Convention's bodies held between 2019 and 2021. Updates and draft documents were presented to two separate Working Groups—on Monitoring and Assessment and on Integrated Water Resources Management (the latter held annually)—as well as the Task Force on the Water-Food-Energy-Ecosystems Nexus. "Members" and "Guests" participating in the Expert Group in their individual capacities had several opportunities to review drafts and provide feedback.[13]

FIGURE 2

Overview of timeline for development of the Handbook



Source: UNECE Water Convention secretariat.

Note: Abbreviations above - WG (Working Group), M&A (Monitoring & Assessment), IWRM (Integrated Water Resources Management), Bureau (Bureau of the Water Convention).

13 "Members" of the Expert Group were classified as those participants who have been specifically invited to make a nomination for and/or join the Expert Group, as a result of our seeking to achieving a balanced composition and diversity of representation, and having met a minimum set of criteria. "Guests" were classified as those participants who have directly requested to participate in the Expert Group to support the development of the Handbook and have clearly demonstrated that they meet the set of minimum criteria for experts in area(s) specifically relevant to transboundary water allocation. There was no distinction, however, between Members and Guests in terms of functional participation in the Expert Group meetings, online communication and Handbook content review and feedback. Both could participate fully in the process.

The Expert Group comprised approximately 40 experts specialized in water allocation from different continents, basins, States and organizations, acting in their individual capacity (see Acknowledgments for full list of Members and Guests). This Group guided and assisted the Drafting Team and the secretariat throughout the development of the Handbook. Three Expert Group meetings were held in which the structure and contents of the Handbook were discussed, relevant thematic topics and case studies presented and feedback and recommendations put forward for further content elaboration: Geneva, 21–22 October 2019 (in person)[14] and video conferences on 30–31 March 2020[15] and 20–21 October 2020.[16] The Expert Group also advised on and helped draft case studies on transboundary water allocation used to practically illustrate key features of chapter content.

A number of regional events and sessions as part of transboundary water cooperation workshops have been held to introduce the Handbook and gain region-specific feedback for its development. A virtual online "Regional workshop on equitable and sustainable water allocation – Sharing experiences on transboundary water allocation and water scarcity" focused on countries in the European Union, the Caucasus and Eastern Europe was held on 5–6 October 2020.[17] A "Regional workshop: Enhancing transboundary water cooperation in the MENA region: Progress, challenges and opportunities" held on 3–4 March 2020 in Beirut, Lebanon, sought to gain regional feedback for the Handbook through a session focused on lessons learned from allocation practices and experiences in the region.

In Central Asia, a parallel regional process on transboundary water allocation was implemented by the International Water Assessment Centre (IWAC) in Kazakhstan. Two regional workshops were convened—a "Technical meeting of experts on water allocation and environmental flow assessment in the transboundary context" held on 12–13 December 2019 in Nur-Sultan, Kazakhstan, and a virtual "Regional meeting on water allocation and environmental flow assessment in a transboundary context" held on 22–23 September 2020. A "Technical Meeting of Experts on Water Allocation and Environmental Flow Assessment in the Transboundary Context" was held online on 15 May 2020. The Central Asia regional process and events (in which the Water Convention secretariat and Drafting Team participated) aimed to identify good regional practices and approaches that can assist Central Asian and neighbouring countries in the development of equitable and sustainable transboundary water allocation mechanisms.[18] The key outcomes of the IWAC regional process for Central Asia, including a report detailing lessons learned and main recommendations, directly served to inform the development of this Handbook along with selected case studies from the region.

c. Target audience of the Handbook and its added value

The Handbook aims to cover global practice of transboundary water allocation. It seeks to be a practical guide providing an overview of the key elements, frameworks and modalities to consider in the application of transboundary water allocation, while recognizing that every allocation context is unique. A wide array of case studies from different continents and geographical regions has been selected, in consultation with the Expert Group, for the purposes of achieving diversity and balance of representation in the global examples.

The Handbook's primary audience is government officials, basin authorities and other water practitioners whose work directly concerns or relates to transboundary water resources, especially between States. Secondary audiences include all stakeholders with an interest in transboundary water allocation processes and outcomes. Such audiences would incorporate the general public, water user groups such as farmers and Indigenous peoples, specific interest groups such as non-governmental organizations (NGOs), and academics.

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14 UNECE, "First meeting of the Expert Group on the Transboundary Water Allocation Handbook", 21 October 2019.

15 UNECE, "Second meeting of the Expert Group on the Transboundary Water Allocation Handbook", 30–31 March 2020.

16 UNECE, "Third meeting of the Expert Group on the Transboundary Water Allocation Handbook", 20–21 October 2020.

17 ECE/MP.WAT/54/Add.1.

18 United Nations Economic and Social Council, Economic Commission for Europe, *Rules of Procedure of the Meetings of the Parties, Strategy for the Implementation of the Convention at the Global Level, Programme of Work of the International Water Assessment Centre for 2019–2021 and Decisions* (ECE/MP.WAT/54/Add.2).

The novelty of the Handbook and its added value to the existing resources on water allocation is twofold. First, the Handbook was developed via an intergovernmental process (as outlined above). Second, its focus is transboundary water allocation between States. The Handbook draws on key themes, common elements and lessons learned from existing resources analysing national and subnational water allocation (see Chapter VIII, subsection 7a). Yet its specific framing is on water allocation in a *transboundary* context and so it addresses an identifiable niche in the available literature on water allocation and does so with a practical focus. The Handbook also innovates by integrating a diverse global selection of case studies that have never previously been compiled.

d. Table of Contents and how to read the Handbook

The Handbook is divided into Main Messages and two main parts (see Box 3):

- **Main Messages** discusses lessons learned and distils conclusions from the other parts of the Handbook;
- **Part 1 - Foundations (Chapters I–IV)** introduces the rationale of, foundations for, and limitations to, transboundary water allocation. It also discusses broader complementary approaches such as benefit-sharing related to water allocation;
- **Part 2 - Operationalizing (Chapters V–VIII)** provides the substantive and procedural basis for making water allocation happen, as well as practical steps for States to operationalize transboundary water allocation.

BOX 3: SUMMARY OF CONTENTS OF THE HANDBOOK

MAIN MESSAGES

PART 1 – FOUNDATIONS

Chapter I: Introduction to Transboundary Water Allocation and the Global Handbook

Chapter II: Definitions, Objectives and Components of Transboundary Water Allocation

Chapter III: Issues Water Allocation Can Address

Chapter IV: Limitations to Water Allocation and its Linkages with Broader Approaches

PART 2 – OPERATIONALIZING

Chapter V: Objectives of Water Management and Related Principles of International Law to Guide Transboundary Water Allocation

Chapter VI: Cooperative Frameworks for Transboundary Water Allocation

Chapter VII: Knowledge Base for Transboundary Water Allocation

Chapter VIII: Operationalizing Transboundary Water Allocation: Processes, Mechanisms and Examples

ANNEX: Typology of Transboundary Water Allocation

The Handbook contains brief summaries of case studies from around the world that have been identified as being relevant to demonstrating transboundary water allocation. All the case studies include valuable lessons learned on transboundary water allocation, including illustrative features to the extent possible. Finally, an explanation of the Typology of Transboundary Water Allocation (TTWA) methodology comprises the Annex of the Handbook.

The Handbook should be read as a compendium of different dimensions of transboundary water allocation, highlighting the need to strike a balance between robustness and flexibility when developing allocation arrangements. Chapters can be read in order, but the Handbook is also intended to be modular depending on specific needs. In this regard, chapters, subsections and case studies can be referred to and applied as self-standing guidance. For this purpose and to improve accessibility, each chapter begins with a short summary explanation of its aim and contents so it can be read in isolation depending on the needs of the audience.

e. Dissemination and feedback

The parties to the Water Convention and international organizations can play an important role in the dissemination of the Handbook and putting it into practice and future use by governments. Feedback on the Handbook and its use in practice can be sent to the Water Convention secretariat: water.convention@un.org. In particular, feedback is encouraged on how the Handbook is applied in practice in different regions and basins globally, including, but not limited to, the steps for operationalizing transboundary water allocation and the main messages.