

# Considerations of Conjunctive Management in Current International Water Treaties

## A reflective review

**Dr Karen G. Villholth**  
Director  
Water Cycle Innovation

**Conjunctive Management of Surface Water and Groundwater:  
National to Transboundary Level**

16 - 17 Oct 2023

Geneva (Palais des Nations) and online



# Outline

1. How can transboundary CWM benefit states?
2. To what extent are elements of CWM considered in current international water treaties?
3. What are the trends?
4. What can we learn?
5. Outstanding challenges and possible next steps

# Benefits of transboundary CWM

1. Transboundary water management is gaining traction as countries face water issues that may not easily be solved unilaterally
2. Risks of poor outcomes is outweighed by the joint benefits of more sustainable water management at integrated, including transboundary, scale
3. TBCWM can provide a larger basket of solutions, in particular addressing climate change

# Database of formal treaties

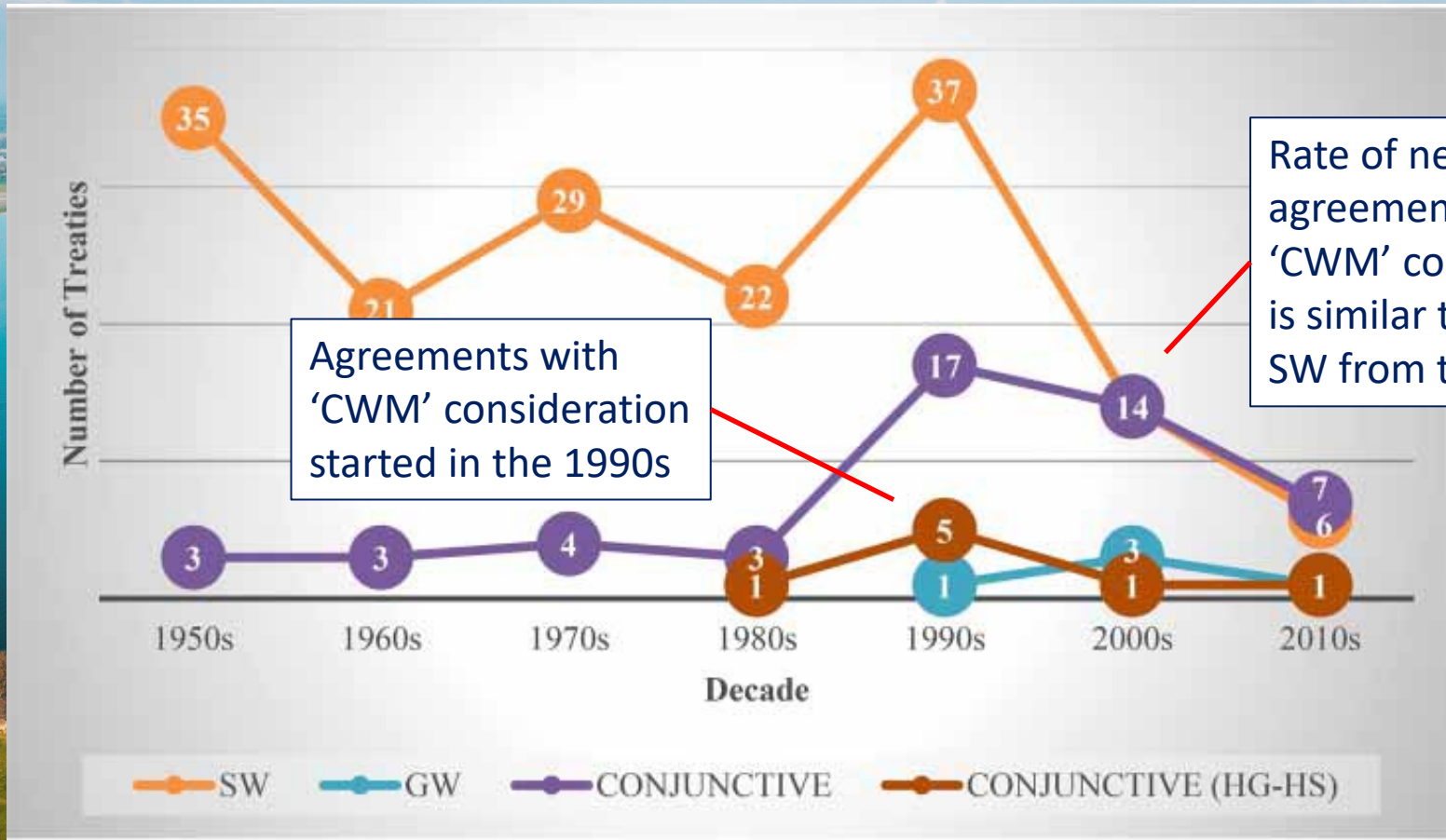
Data source	No. of unique treaties	
Giordano et al. (2014)	214	
TFDD	22	Transboundary Freshwater Dispute Database
FAOLEX	15	FAO Legislation Database
IWLIP	14	International Water Law Project
FAO	1	FAO Corporate Document Repository website
<b>Total</b>	<b><u>266</u></b>	

Lautze, Holmatov, Saruchera, and Villholth (2018)

# Treaty classification framework

	Parameter	Classification
General parameters	Date signed	Date of the primary document
	Countries and continent	Countries that are party to the treaty; Continent where the basin is located
	Water source(s) to which treaty applies	(i) Surface water (ii) Groundwater (iii) Surface and groundwater
	Depth of conjunctive management	(i) Heavy groundwater–heavy surface water (HG-HS) (ii) Heavy groundwater–light surface water (HG-LS) (iii) Light groundwater–heavy surface water (LG-HS) (iv) Light groundwater–light surface water (LG-LS)
	Scale	Shared waters, full basin, aquifer, border waters, tributary/sub-basin, infrastructure, other
Technical parameters	Primary issue area (focus)	Water use: environment/water quality, flood control, hydropower, irrigation, navigation Water institutions: policy framework, organizational development, allocative rules
	Water allocation	Yes/No; if Yes, quantitative or conceptual allocation
	Water quality	Yes/No; if Yes, category one (comprehensive standards), two (no standards), or three (simple commitment)
	Type of BO	Does a treaty create a BO? If Yes, type one (committee), two (commission), or three (authority)
	Data and information exchange	Yes/No
	Joint monitoring	Yes/No

# Results: Historic development



# Findings

1. Eight treaties (3%) address GW and SW to an equally high degree (considered 'substantive conjunctive')
2. The thematic focus is primarily on the environment and water quality
3. The emphasis is on softer issues (data and information exchange, monitoring, and organizational development)
4. The scale of 'conjunctive' treaties is 'fuzzy', more problem-based than geographically defined

# Conclusions

1. GW and SW is generally not considered on par in international treaties
2. There is a progression towards more GW integration in SW-focused treaties
3. Similarly, GW increasingly considered in specific aquifer agreements, which in turn generally do not consider SW
4. The development of truly conjunctive water treaties may not yet be mature
5. Implementation of conjunctive solutions are constrained by institutional and knowledge barriers



# Further work on TBCWM proposed

1. Alignment of joint/TB groundwater and surface water monitoring, assessment, and management
2. Co-development of legal and other guidance related to conjunctive management of water resources in transboundary waters
3. Identifying opportunities/low-hanging fruits and piloting in prospective contexts

# References

- Giordano, M., A. Drieschova, J.A. Duncan, Y. Sayama, L. De Stefano, and A.T. Wolf (2014). A review of the evolution and state of transboundary freshwater treaties. *International Environmental Agreements: Politics, Law and Economics* 14(3), 245–264.
- Lautze, J., B. Holmatov, D. Saruchera, and K.G. Villholth (2018). Conjunctive management of surface and groundwater management in transboundary waters: A first assessment. *Water Policy*, 20 (1): 1–20. DOI: 10.2166/wp.2018.033.

# Thank you

**Karen G. Villholth**

Director

**Water Cycle Innovation**

[karen@watercycleinnovation.com](mailto:karen@watercycleinnovation.com)

[www.watercycleinnovation.com](http://www.watercycleinnovation.com)

X/Twitter: @KVillholth

LinkedIn: [bit.ly/3xe0iKa](https://bit.ly/3xe0iKa)

## Conjunctive Management of Surface Water and Groundwater: National to Transboundary Level

16 - 17 Oct 2023

Geneva (Palais des Nations) and online

