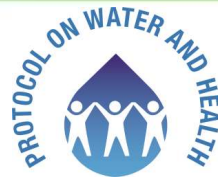


# EU Green Week PARTNER EVENT

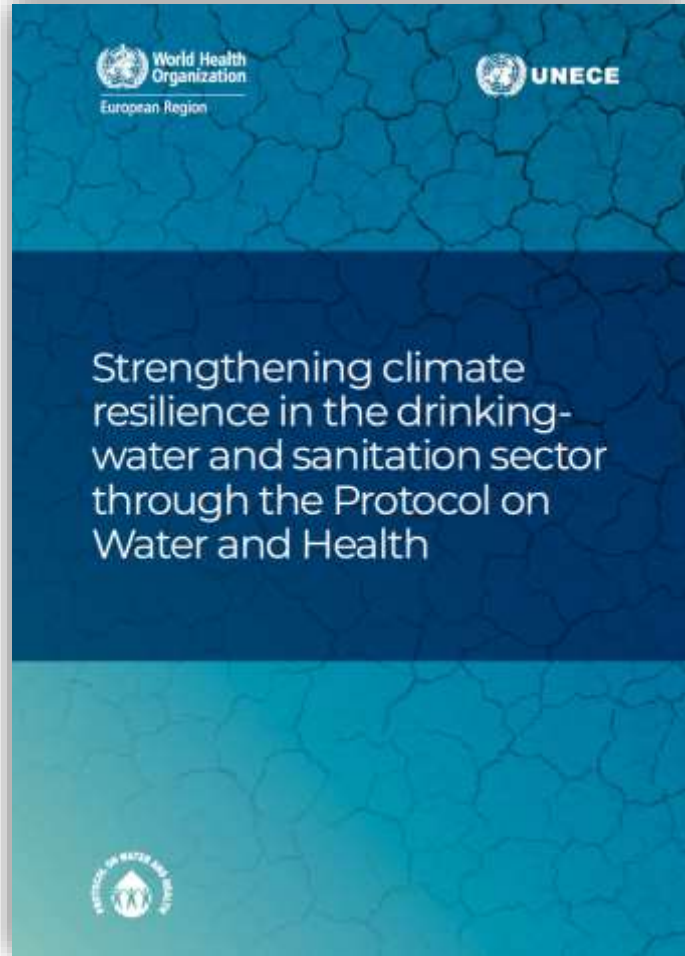
Forthcoming publication:  
***Strengthening climate resilience in the drinking-water and sanitation sector through the Protocol on Water and Health***

Lisbon, Portugal  
4 June 2024

#WaterWiseEU



# Overview



**Section A.**  
Climate change and water and sanitation – state of the art and key concepts

**Section B.**  
Options for action

**Section C.**  
The way forward



# Key sectoral considerations for resilience and net zero



## Climate change altering water quality and quantity patterns

RAIN AND FLOODING	DROUGHT	INCREASED TEMPERATURE	SEA-LEVEL RISE
Increased upstream erosion and run-off	Intermittent supply and associated ingress	Higher water demand	Saltwater intrusion into distribution networks
Damage to assets and infrastructure	Increased concentration of pollutants	Increase in algae blooms (± toxigenic)	Saltwater intrusion into aquifers
Overwhelmed water treatment and distribution facilities	Increased competition for scarce water resources	More favourable growth conditions for pathogens	Inundation of critical assets and infrastructure
	Release of contaminants from reservoir sediments	Reduced stability of residual chlorine	

Altering and more intense weather patterns resulting in:

- Infrastructure inundation/damage
- Service interruption
- Supply restriction
- Water and wastewater quality deterioration

## Climate change altering sanitation systems

RAIN AND FLOODING	DROUGHT	INCREASED TEMPERATURE	SEA-LEVEL RISE
Damage to sanitation assets and infrastructure	Ground movement leading to broken pipes	Infrastructure failure and damage due to ground thaw in permafrost areas	Reduced efficiency of biological treatment processes due to saltwater
Flooding and/or collapse of on-site systems	Increased corrosion of sewer pipes	Reduced efficiency of biological wastewater treatment	Damage to underground infrastructure from rising groundwater levels
Overflow of overwhelmed storm- and wastewater containment systems	Impeded function and use of water-reliant sanitation systems	Quicker drying of faecal sludge in waterless latrines	Damage to wastewater treatment works in low-lying/coastal areas
Spillage from bypassed wastewater treatment plants	Reduced capacity of receiving water bodies to dilute wastewater		

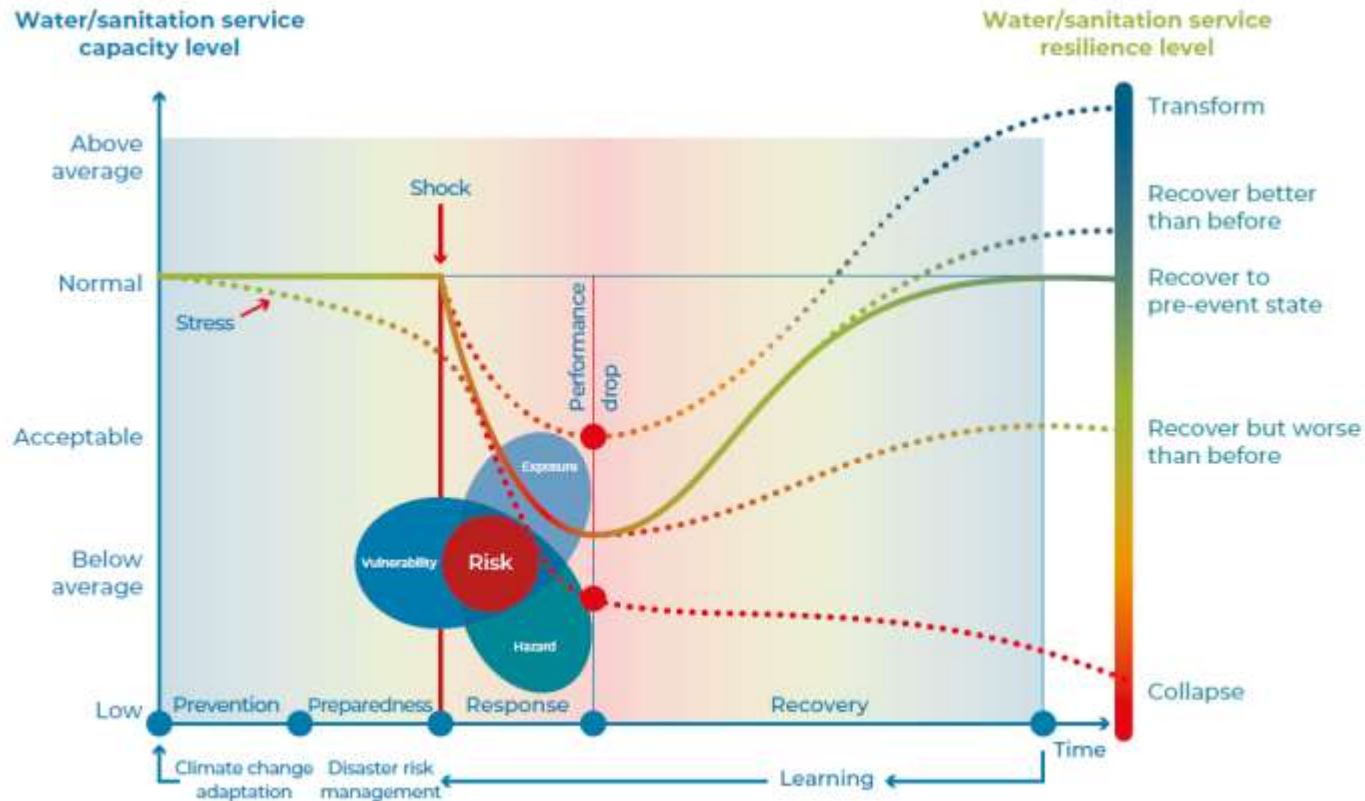


**Loss of access to safe water supply and sanitation**





# Towards increased resilience of water and sanitation services



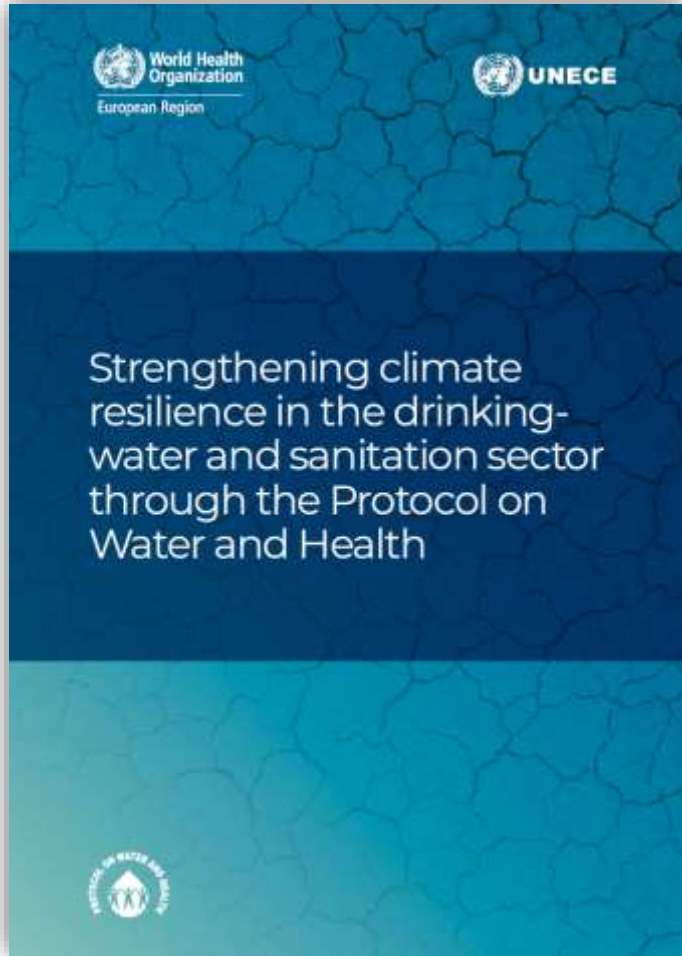
Source: adapted from WHO (17).

## *Resilience implies*

- Coping and responding or reorganizing in the face of an event to maintain essential functions
- Ensuring capacity for adaptation, learning, transformation
- Building back from an event to ensure that normal services are restored, or higher



# Overview



**Section A.**  
Climate change and water and sanitation – state of the art and key concepts

**Section B.**  
Options for action

**Section C.**  
The way forward

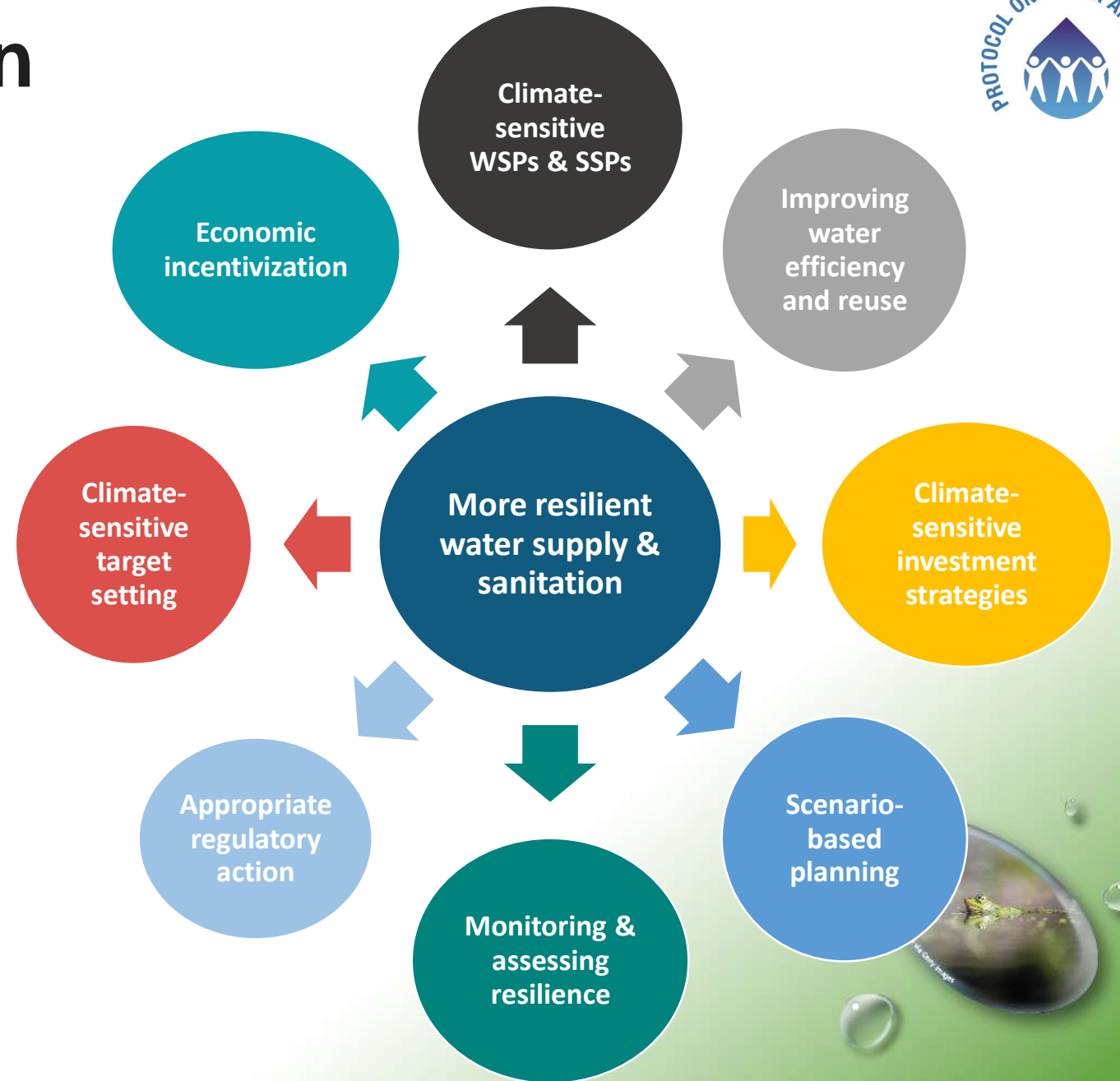




**Regional action is underway to enhance  
resilience of water & sanitation services,  
but more needs to be done**

# Opportunities for action

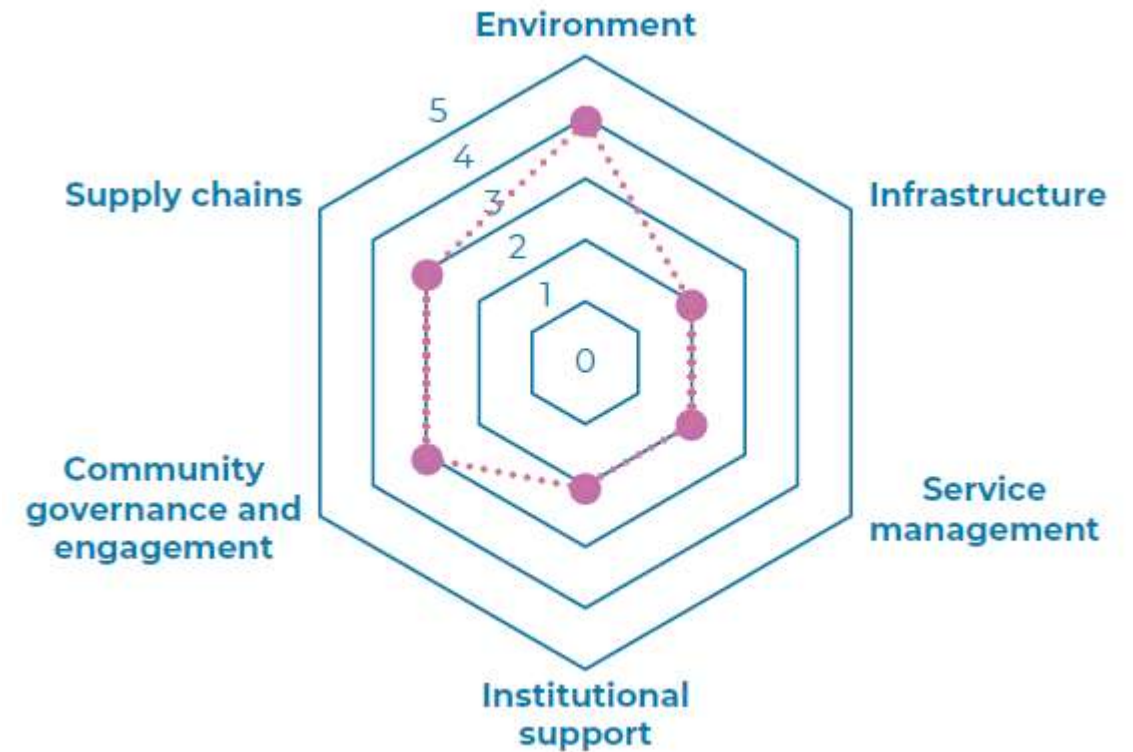
- WSP and SSPs can be applied to manage current risks, and increasing or emerging threats under likely scenarios
- Diversifying water sources, reducing leakages, and reusing recycled wastewater can enhance resilience
- Adopting targeted yet adaptive investment strategies linked to priority climate threats (e.g. identified via scenario-based planning, climate risk-narratives)



# Framework for prioritizing action



Domain	Assessment method
Infrastructure	Assessment of sanitary integrity and protection, water quality and yield analysis
Environmental setting (catchment)	Geospatial analysis of remotely sensed images, climate models/CRNs
Service management	Focus group discussion and key informant interviews
Supply chains	Focus group discussion and key informant interviews, infrastructure assessment, geospatial analysis of remotely sensed images
Governance and accountability	Focus group discussion and key informant interviews
Institutional support	Focus group discussion and key informant interviews



Source: Howard et al. (25).

Total score	Resilience	Priority
25-30	Very high	Low
19-24	High	Low
13-18	Medium	Medium
7-12	Low	High
6	Very low	Very high

**Enables priorities for action to be identified in the context of service impacts arising from future climate change**



# Role in investment

Use of existing resources and strengthening existing management practices should be targeted in first instance

Where necessary, additional investment is required e.g. to upgrade and improve:

- Infrastructure
- Catchment management
- Operational capability

**NAPs and NDCs should explicitly include water and sanitation to ensure the enabling climate-related policy and financing reflect sectoral needs**



# Role of regulations

Regulations can support enhanced resilience and emissions reduction

Regulations are demanding increasing action on climate change

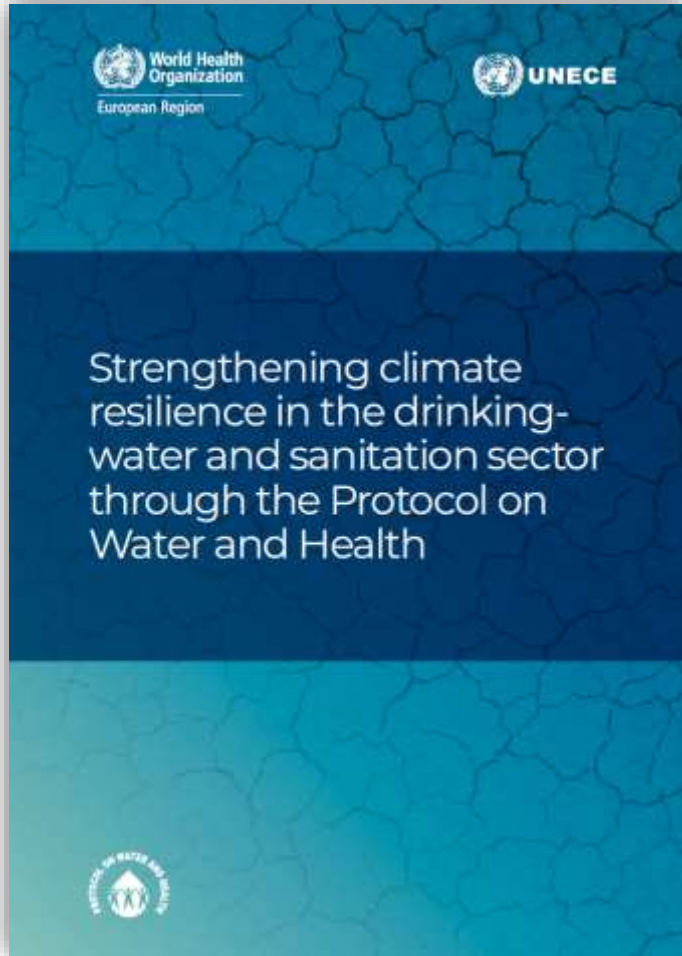
- Seeking greater consideration of climate on operations monitoring and management practices

Typically, existing regulations related to safety of services are applied

- Developing climate-sensitive regulations and specific safety standards should be further exploited



# Overview



**Section A.**  
Climate change and water and sanitation – state of the art and key concepts

**Section B.**  
Options for action

**Section C.**  
The way forward





# Role of the Protocol on Water and Health

**The Protocol can support the enhancement of resilience through**

- ✓ Providing a platform to bring together requisite stakeholders
- ✓ Harmonizing climate-sensitive policies
- ✓ Developing common systems for monitoring of progress and reporting (e.g. toward enhanced resilience, net zero)
- ✓ Promoting WSP and SSP advocacy and uptake
- ✓ Supporting regional capacity building, dialogue and experience sharing

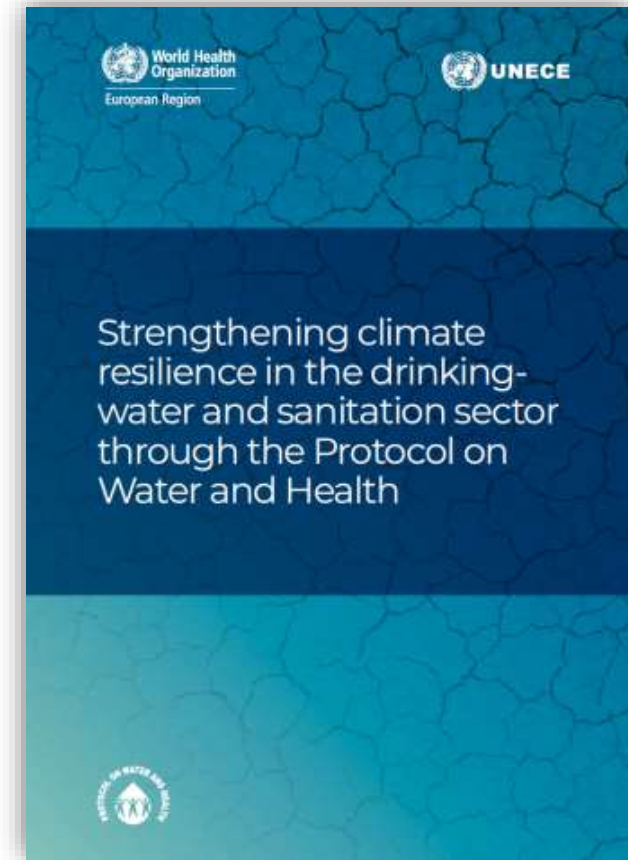


# Greater integration is needed in key Protocol areas

- Tailored integration for small water supplies and sanitation systems
- Strengthening surveillance monitoring for drinking-water quality, and early warning and response systems for climate-sensitive water-related diseases
- Promoting climate resilience and adaptation in institutional settings, supporting broader efforts to increase the resilience of health systems



# Thank you for your attention!



Copyright WHO/Europe, all rights reserved.

For reproduction permission and all other issues, please contact [eurocech@who.int](mailto:eurocech@who.int)

