DANUBE WATER PROGRAM

Danube Water Conference , Vienna 1 June 2023

THE WORLD BANK

Science for Policy

Operationalizing the Water Security Diagnostics Framework

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Consultants:

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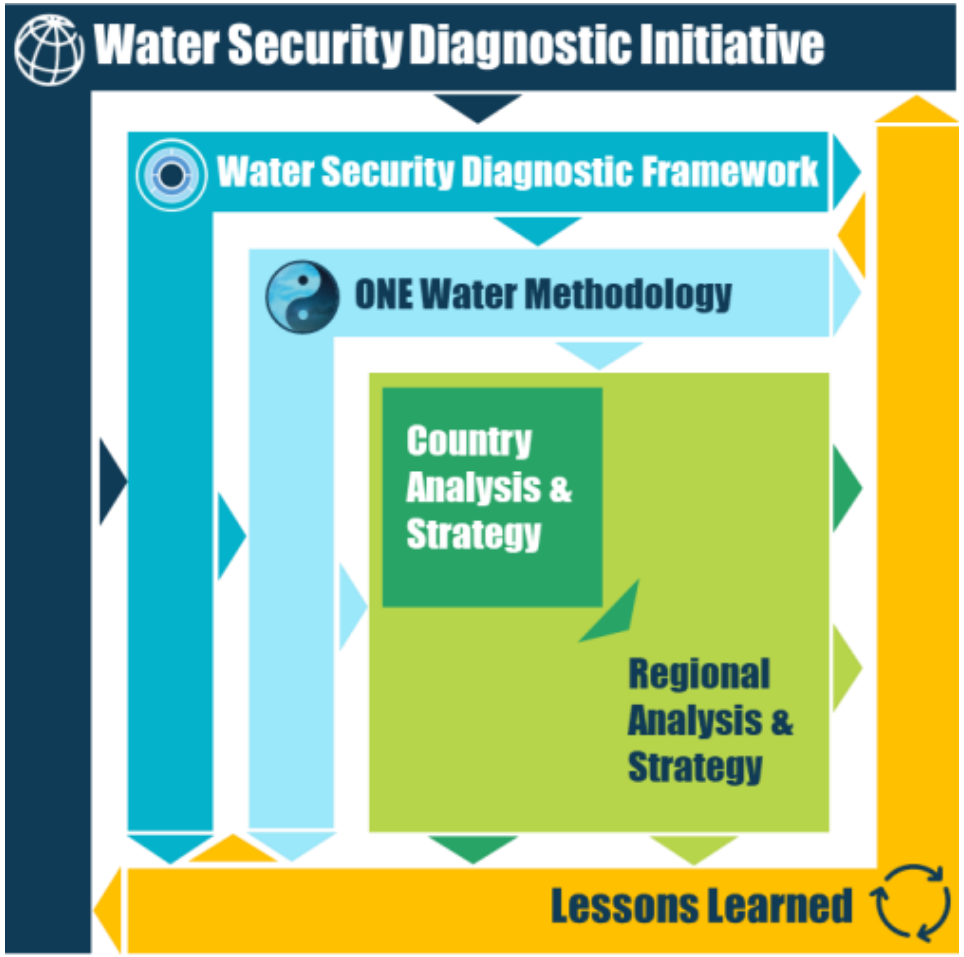
From vision & theory to action:
Operationalizing Water Security Diagnostic Framework

GOAL: Have a **robust** but **cost-effective** methodological framework that allows to countries to:

1. Rapid assessment of water security challenges, risks and opportunities
2. Benchmarking
3. Action oriented
4. Put water higher on the economic agenda



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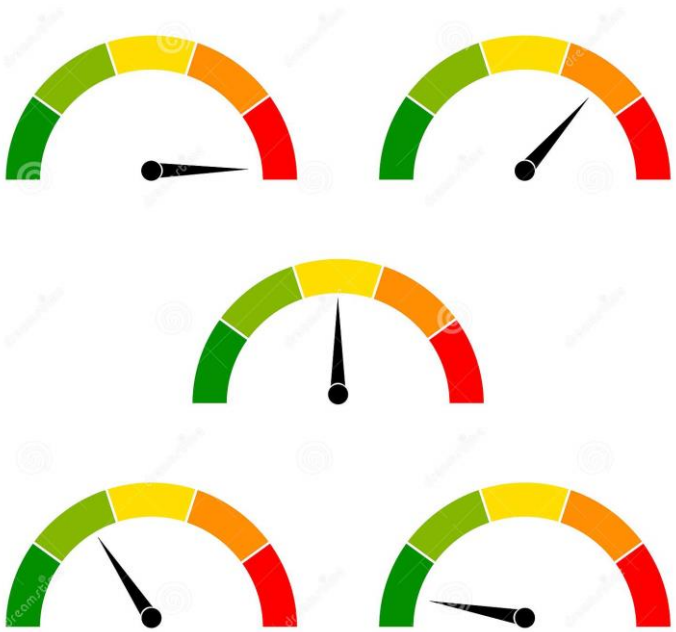
Integration of different types of knowledge



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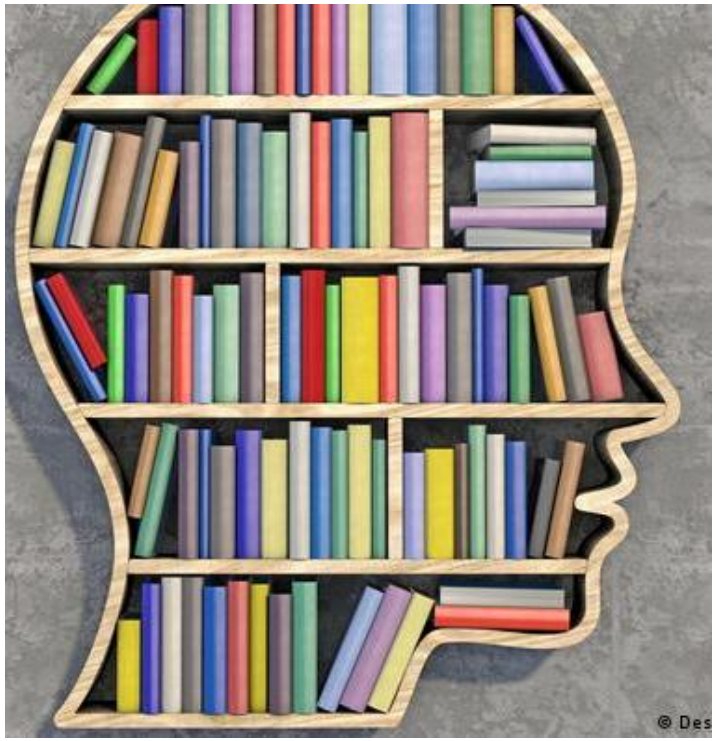

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Science-based approach + latest policies and plans + stakeholder expertise

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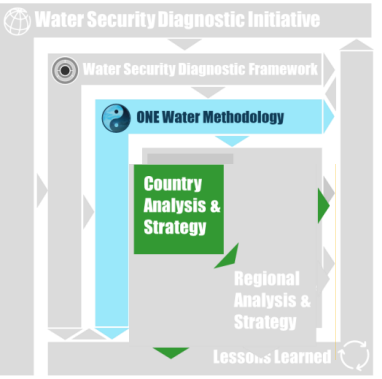
The ONE Water Methodology



Scoping interviews

Workshop I Validation Narrative

Phase A: Preparatory and Diagnosis

Step 1: Preparation
- Awareness
- Partnerships
- Scope/Vision
- Goals setting

Step 2: Indicator Selection
- Data collection
- Data prioritization
- Indicator's categorization

Step 3: Current Diagnosis
- Indicator-based assessment
- Qualitative Assessment

Step 4: Future Trajectories
- Identify how drivers (external/internal) impact
- water security dimensions

Step 5: Country Narrative
- Challenges, risks and opportunities, based on current and possible future conditions

Phase B: Action Planning and Decision

Step 6: Identification of actions
- Areas of intervention
- Realistic objectives
- Long-list options/actions

Step 7: Selection of Actions
- Actions prioritization based on cost, impact, resources
- Roadmap

Step 8: Action Plan
- 1 Year Tactical Plan
- 5 Year Strategic Plan
- Stakeholder's roles and responsibilities
- Data/information completion plan

Implementation

Workshop II Action Planning

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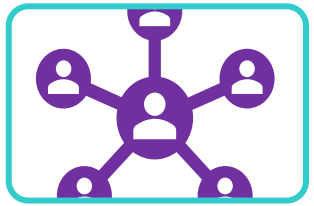
STEP 1: Problem framing

- Scoping interviews with key actors of the water sector from different institutional levels
- Data collection: collation of relevant policy documents, and WS related reports

STEP 2: Indicator framework

Water Endowment

- Availability (8 Core)
- Demand (6 Core)



Water Sector Architecture

- Infrastructure (12 Core, 5 Supporting)
- Institutions and governance (2 Core, 3 Supporting)

Water sector Performance

- Management of water resources (1 Core, 6 Supporting)
- Delivery of water-related services (1 Core, 5 Supporting)
- Mitigation of water-related risks (2 Core, 2 Supporting)

Water Security Outcomes

- Economic outcomes (3 Core, 2 Supporting)
- Social outcomes (6 Core, 4 Supporting)
- Environmental outcomes (5 Core, 6 Supporting)

- Indicators selected based on **relevance**, **accessibility**, **reliability** and **availability**
- **81 indicators:**
  - **CORE**: widely used and available from global databases (quantitative)
  - **SUPPORTING**: require local data; used to supplement the country assessment (qualitative)
- Indicator values are assigned **range bands** for benchmarking.

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Architecture indicators

WATER SECTOR ARCHITECTURE			
Institutions			
54. Level of legal and policy framework maturity	SUPPORTING	QUALITATIVE	
55. Clarity on allocation of roles and responsibilities	SUPPORTING	QUALITATIVE	
56 Level of water strategic planning and strategic investment planning	SUPPORTING	QUALITATIVE	
57. Level of operationalization of international treaties	SUPPORTING	QUALITATIVE	
Infrastructure			
58. Per capita dam storage capacity	CORE	QUANTITATIVE	SUBNATIONAL
59. Total water supply coverage by piped improved facilities	CORE	QUANTITATIVE	
60. Total sanitation coverage by sewer facilities	CORE	QUANTITATIVE	
61. Non-revenue water	CORE	QUANTITATIVE	
62. Continuity of service	CORE	QUANTITATIVE	
63. Wastewater treatment	CORE	QUANTITATIVE	
64. Share of cultivated land under irrigation	CORE	QUANTITATIVE	SUBNATIONAL
65. Share of irrigated land with flood irrigation	CORE	QUANTITATIVE	
66. Share of irrigated land with sprinkler irrigation	CORE	QUANTITATIVE	
67. Share of irrigated land with drip irrigation	CORE	QUANTITATIVE	
68. Level of adequacy of water supply infrastructure	SUPPORTING	QUALITATIVE	
69. Adequacy of WSS design standards, guidelines and approval	SUPPORTING	QUALITATIVE	
70. Level of adequacy of irrigation infrastructure	SUPPORTING	QUALITATIVE	
71. Irrigation infrastructure financing	SUPPORTING	QUALITATIVE	
72. Level of adequacy reservoir/hydropower infrastructure	SUPPORTING	QUALITATIVE	

Mixture of quantitative and qualitative to assess governance aspects related to:

- **Maturity Legal framework**
- **Clarity on institutional roles and responsibilities**
- **Adequacy infrastructures**

Indicator-based assessment of current situation: Example of qualitative indicator *"Maturity Legal Framework"*

LOW	LOW-MEDIUM	MEDIUM	MEDIUM-HIGH	HIGH
1. Legal framework does **not** cover critical functions and areas of the water sector 2. Numerous contradictions between reality and legal framework 3. Policies and strategies are outdated, non-existing or in contradiction with the legal framework	1. Legal framework covers **some** critical functions and areas 2. Framework has gaps and makes reforms hard to happen 3. Gaps, overlaps and weaknesses in policies and strategies are identified and there is an intention to close them	1. Legal framework covers **all** critical functions and areas 2. Efforts to review it and undertake reform are ongoing 3. Efforts to address gaps and weaknesses in policies and strategies are ongoing	1. Legal framework complete and adequate under **current situation** 2. Reforms are possible or ongoing under the current framework to instill change 3. Legal framework supports sector policies 4. Policies and strategies exist with critical elements covered some areas need update	1. Legal framework complete and adequate in **future** 2. Legal framework fully supports sector policies and strategies 3. Policies and strategies exist, are consistent and support operationalization of legal framework

Critical functions of the legal framework:
- Allocating water
- Regulating water resources and services
- Developing and managing water resources
- Organizing and building capacity in the water sector
- Planning strategically – collecting, managing, storing, and using water-relevant data

Outcome Indicators

WATER SECTOR OUTCOMES			
Social			
1. Basic and safely managed drinking water coverage	CORE	QUANTITATIVE	
2. Basic and safely managed drinking water coverage urban/rural	CORE	QUANTITATIVE	
3. Basic and safely managed sanitation coverage	CORE	QUANTITATIVE	
4. Basic and safely managed sanitation coverage urban/rural	CORE	QUANTITATIVE	
5. Number of DALYs (disability-adjusted life years) due to unsafe water, sanitation, and handwashing	CORE	QUANTITATIVE	
6. Mortality rate attributable to unsafe water, sanitation, and hygiene (unsafe WASH services)	CORE	QUANTITATIVE	
7. Number of people affected by floods	CORE	QUANTITATIVE	
8. Exposure of people to flood risks	CORE	QUALITATIVE	SUBNATIONAL
9. Exposure of people to drought risks	CORE	QUALITATIVE	SUBNATIONAL
10. Exposure of people to water stress	CORE	QUALITATIVE	SUBNATIONAL
11. Affordability of WASH services	SUPPORTING	QUANTITATIVE	
12. Deaths from floods	SUPPORTING	QUANTITATIVE	
13. Non-availability of flush toilets	SUPPORTING	QUANTITATIVE	
14. Number of diarrheal DALYs from inadequate water, sanitation, and hygiene	SUPPORTING	QUANTITATIVE	
15. Percentage of deaths caused by diarrhea in children under 5 years of age	SUPPORTING	QUANTITATIVE	
Environmental			
16. Share of wastewater safely treated	CORE	QUANTITATIVE	
17. Proportion of water bodies with good ambient water quality (%)	CORE	QUANTITATIVE	
18. Wetland loss	CORE	QUANTITATIVE	
19. Groundwater decline	CORE	QUANTITATIVE	SUBNATIONAL
20. Water stress ratio	CORE	QUANTITATIVE	SUBNATIONAL
21. Share of surface water bodies (rivers) with good ecological status (EU WFD)	SUPPORTING	QUANTITATIVE	
22. Share of surface water bodies (lakes) with good ecological status (EU WFD)	SUPPORTING	QUANTITATIVE	
23. Share of groundwater bodies with good chemical status (WFD)	SUPPORTING	QUANTITATIVE	
24. Share of groundwater bodies with good quantitative status (WFD)	SUPPORTING	QUANTITATIVE	
25. Terrestrial and marine protected areas	SUPPORTING	QUANTITATIVE	
Economic			
26. Water use efficiency per sector	CORE	QUANTITATIVE	
27. Economic water productivity	CORE	QUALITATIVE	SUBNATIONAL
28. Agricultural gross value generated by irrigated agriculture	CORE	QUANTITATIVE	SUBNATIONAL
29. Electricity production from hydroelectric sources	CORE	QUANTITATIVE	
30. Share of hydropower in total primary energy supply	CORE	QUANTITATIVE	
31. Tourism share of GDP	SUPPORTING	QUANTITATIVE	
32. Water productivity of irrigation	SUPPORTING	QUANTITATIVE	
33. Water productivity of industry	SUPPORTING	QUANTITATIVE	

Mixture of **quantitative** and **qualitative** indicators to assess how water is contributing to deliver benefits for

- Society
- Economy
- Environment

Example of CORE (quantitative) indicators

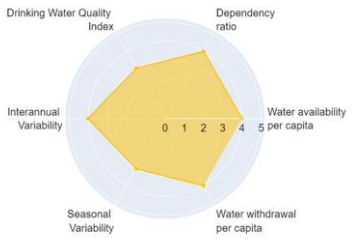
WS SUBDIMENSION: SOCIAL OUTCOMES

Indicator	Unit	LOW	LOW-MEDIUM	MEDIUM	MEDIUM-HIGH	HIGH
Basic and safely managed drinking water coverage (%)	%	0 – 65 (below average of least developed countries)	66 - 75	76-85	86-95	96 – 100 (98 is regional WHO value for Europe)
Basic and safely managed drinking water coverage (%) rural/urban	%	1-60: Large gap between urban and rural coverage with basic and safely managed drinking water services.	61-70: Significant gap between urban and rural coverage with basic and safely managed services, hinting at serious inequality in service provision.	71-80: Access to safe drinking water facilities for rural areas improving, but rural areas still underserved.	81-90: The gap in rural and urban supply with safe drinking water facilities is closing; most rural areas are connected.	91-100: Very small to no gap in service provision remaining.
Basic and safely managed sanitation coverage (%)	%	0 – 35 below average of least developed countries	20-40%	40-60%	60-80%	80-100%
Basic and safely managed sanitation coverage (%) rural/urban	%	1-60: Large gap between urban and rural coverage with basic and safely managed sanitation services, hinting at serious inequality in service provision.	61-70: Significant gap between urban and rural coverage with basic and safely managed services, hinting at serious inequality in service provision.	71-80: Access to safe sanitation facilities for rural areas improving, but rural areas still underserved.	81-90: The gap in rural and urban supply with safe sanitation facilities is closing; most rural areas are connected.	91-100 (and 100+): Very small to no gap in service provision remaining.

Step 3: Water Security Diagnosis

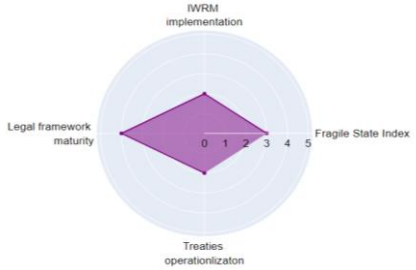
Endowment

Supply and demand

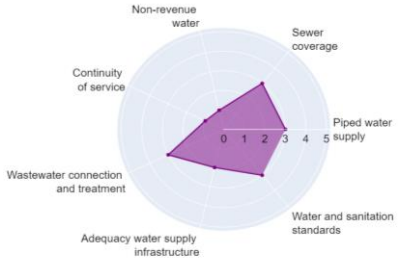


Architecture

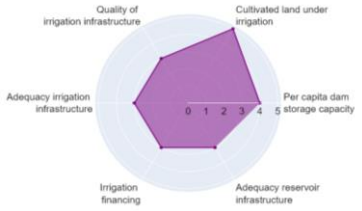
Legal Framework and Institutions



Water Supply & Sanitation infrastructure

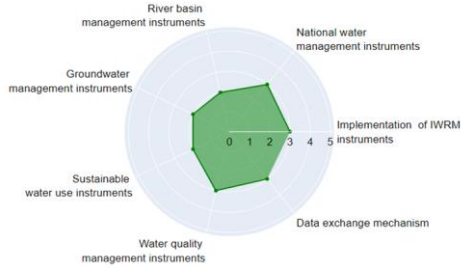


Irrigation and Hydropower infrastructure

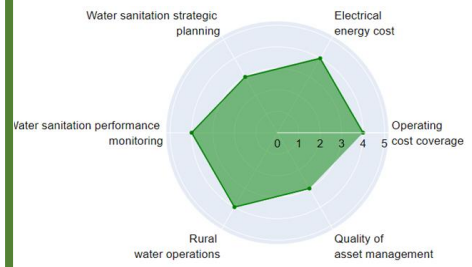


Performance

Water Resources Management



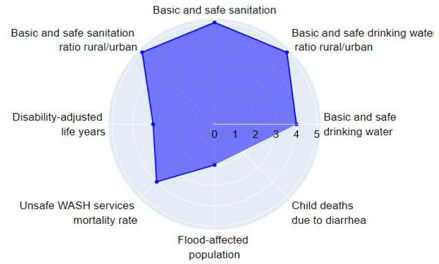
Water Supply and Sanitation



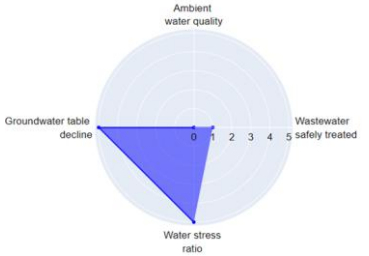
Water risks mitigation

Outcomes

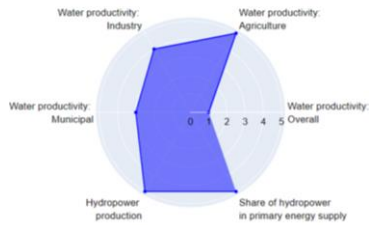
Social



Environmental



Economic



Step 4 and 5: Future Trajectories & Country Narrative

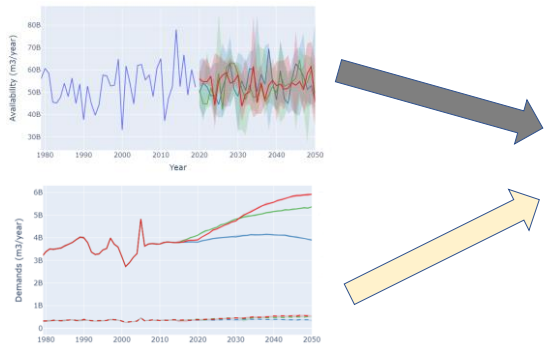
WORLD BANK GROUP | Climate Change Knowledge Portal
For Development Practitioners and Policy Makers

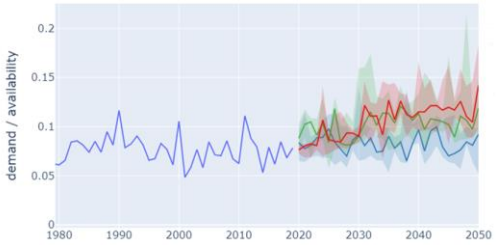
ISIMIP
Inter-Sectoral Impact Model Intercomparison Project

- Future water scenarios 2050
  - CWATM for modeling water demands, availability and stress
  - AQUEDUCT for drought and flood risk projections
- Combinations of three different IPCC climate and socio-economic scenarios
  - Optimistic (SSP1 + RCP2.6)
  - Middle (SSP3 + RCP7.0)
  - Pessimistic (SSP5 + RCP8.5)
- Modelled scenarios are used as inputs to discern with stakeholders associated risks and opportunities to build the **country narrative**

Availability

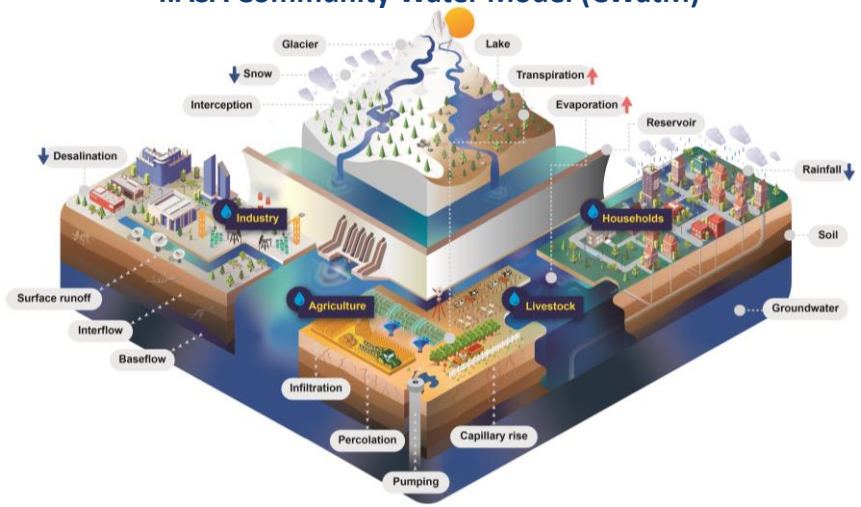
Demand



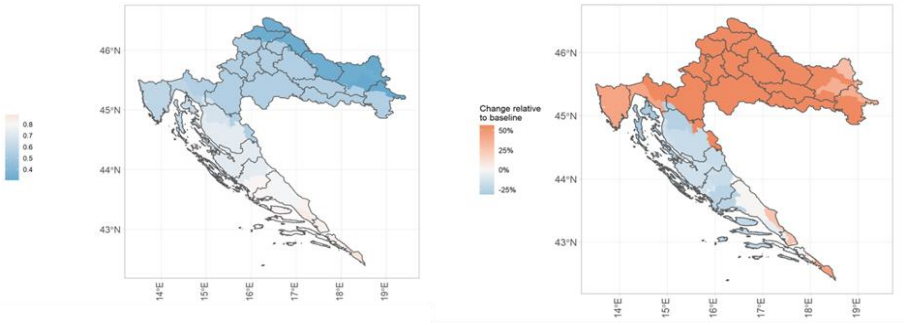


Demand/Availability

IIASA Community Water Model (CWatM)



Spatially-explicit future projections



a) Seasonal variability

b) Water stress

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Steps 6-8: Identification and prioritization of actions

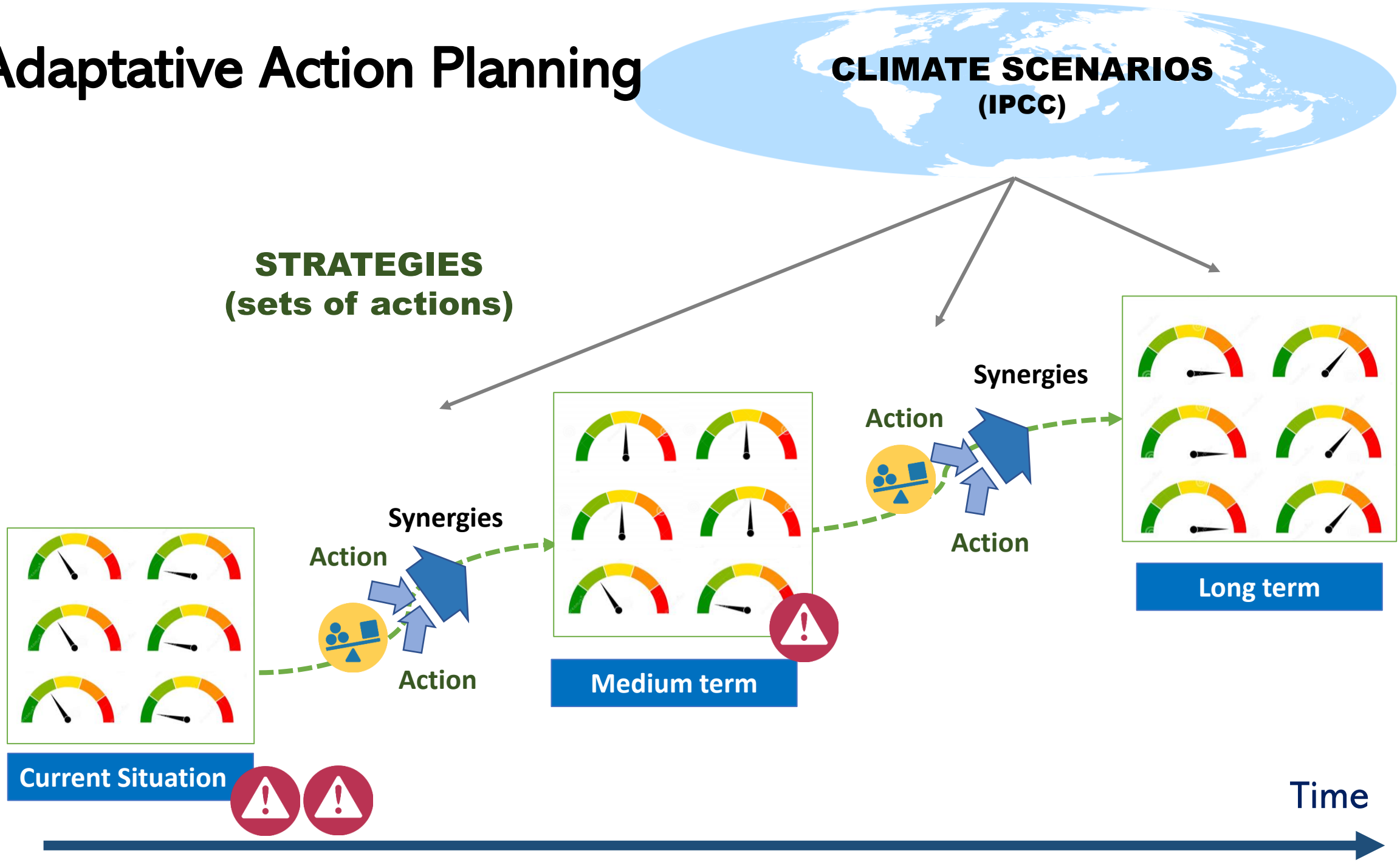
➢ Multi-Criteria Analysis

- ➢ **7 Criteria:** Effectiveness, Acceptance, Justice and Ethics, Urgency, Side Effects, Flexibility, Feasibility
- ➢ **Participatory ranking** and prioritization
- ➢ **Three levels of priority**

ACTION	EFFECTIVE-NESS	ACCEPTANCE	JUSTICE & ETHICS	FEASIBILITY	FLEXIBILITY	SIDE EFFECTS	URGENCY	TIMEFRAME	MAIN RESPONSIBILITY	COSTS
Introduction of renewable energy technologies and promote circular economy green technologies	●	●	●	●	●	●	●	Medium	Ministry of Economy and Sustainable Development and Croatian Waters	High
Reduction of water losses and unique common definition for non-revenue waters	●	●	●	●	●	●	●	Medium	Ministry of Economy and Sustainable Development and Croatian Waters	High
Improve monitoring of groundwater, coastal and transitional water bodies	●	●	●	●	●	●	●	Medium	To be agreed	Medium
Investment and resource mobilization after 2023	●	●	●	●	●	●	●	Short	Ministry of Economy and Sustainable Development and Croatian Waters	Low
Improve monitoring and registration of water abstractions	●	●	●	●	●	●	●	Short	Croatian Waters	Medium
Increase irrigation to cope with future droughts	●	●	●	●	●	●	●	Medium	Ministry of Agriculture	High
Support the development of green infrastructure and non-infrastructural measures to improve flood protection and management	●	●	●	●	●	●	●	Medium	Croatian Waters	Medium

Ranking of actions	Final scoring
Reduction of water losses and unique common definition for NRW (EU DWD definition)	1st priority
Development of a Capacity Development and HR Plan at Ministry level, PUC and municipality level	
Improve water management based on river basin approach	
Water sector reform – targets defined and next steps on pathway clear (e.g. position paper for parliamentary discussion)	
Harmonization of the Water Law with existing regulations	
Safeguard high value ecosystems against future development projects	2nd priority
Implementation of a new tariff policy according to the ongoing tariff study and methodology - under development	
Legal framework for financing the water sector	
Improve WB-status Assessments + Rules/mechanisms to allow use permits according to waterbody status	
Establishment of a regulatory body	
Water supply+demand Projections (Climate change) - support demand reduction measures	3rd priority
Encouraging green-spaces, re-greening, and infiltration, in rural and urban spaces	
Upgrade or increase irrigation / drainage infrastructure coverage over irrigated agricultural areas	
Regionalization of utilities	
Fewer people living in flood-prone areas	

Adaptative Action Planning



Key messages

- **Main innovations**:
  - High level but informative 360° review of the water sector
  - Relying on latest information reported by countries and available and evidence based
  - Effective implementation time: 4-5 months
  - Strong involvement of stakeholders
  - Robust approach to address the enabling environment (legal, institutions, sector performance)
  - Action oriented and adaptative planning

- **Implementation:** Successfully applied in 5 countries (Western Balkans) and in process of being implemented in 8 more countries including Central Asia, and at regional scale for ECA and Danube

Thanks

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