



WATER POLICY IN CENTRAL ASIA AND CLIMATE CHANGE

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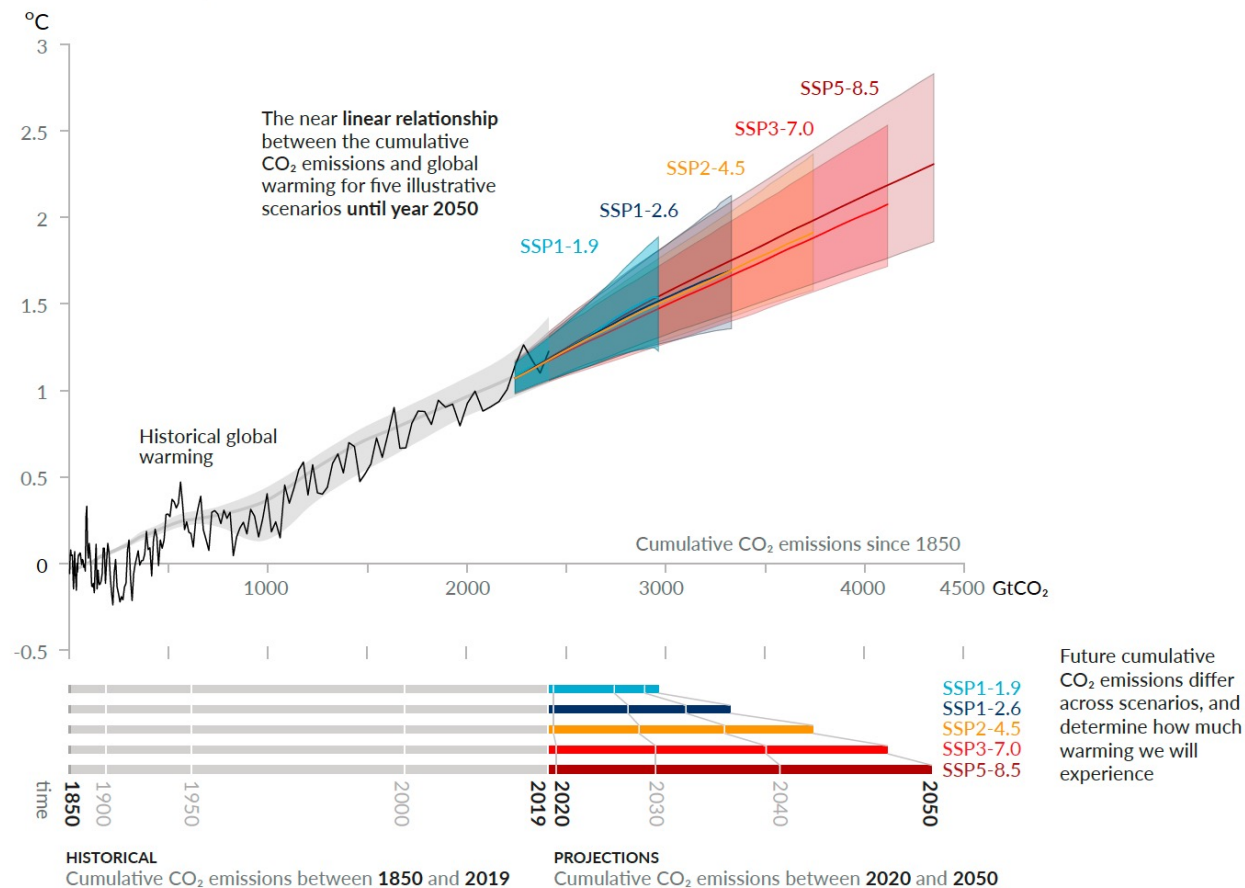
(SIC ICSD IFAS)

- From a physical science perspective, limiting human-induced global warming to a specific level requires limiting cumulative CO₂ emissions, reaching at least net zero CO₂ emissions, along with strong reductions in other greenhouse gas emissions (IPCC, 2021).
- Climate change brings deep uncertainty → planning in deep uncertainty

IPCC, 2021: Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. P. An, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekci, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

Every tonne of CO₂ emissions adds to global warming

Global surface temperature increase since 1850-1900 (°C) as a function of cumulative CO₂ emissions (GtCO₂)





CLIMATE CHANGE UNCERTAINTIES MEAN WATER UNCERTAINTIES.

Timboe, Pharr and Mathews (2020)

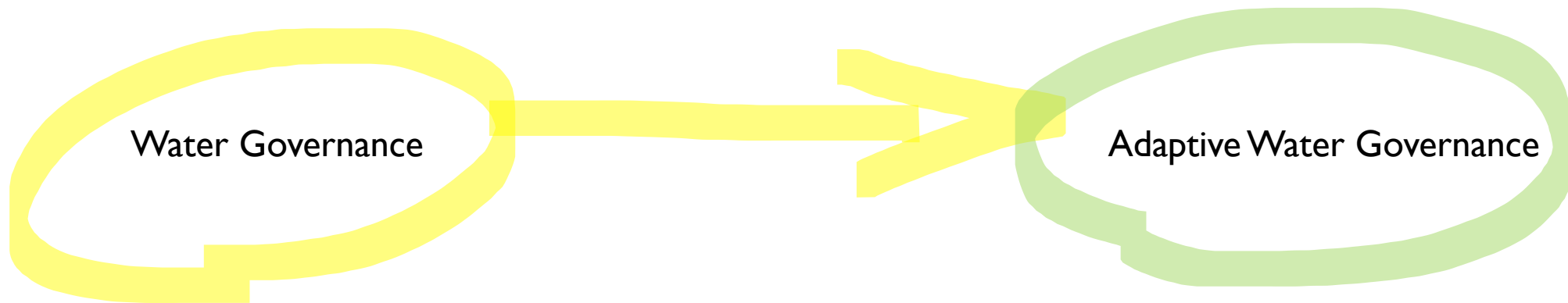
NON-STATIONARITY AND RESILIENCE OF SYSTEMS

- **Stationarity** of water systems is no longer our assumption.
- Our systems have to get more **resilient** in the near future
- **Stationarity**—the idea that natural systems fluctuate within an unchanging envelope of variability—is a foundational concept that permeates training and practice in water-resource engineering (Milly et al, 2008).
- **Resilience** - the capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation (IPCC, 2014).

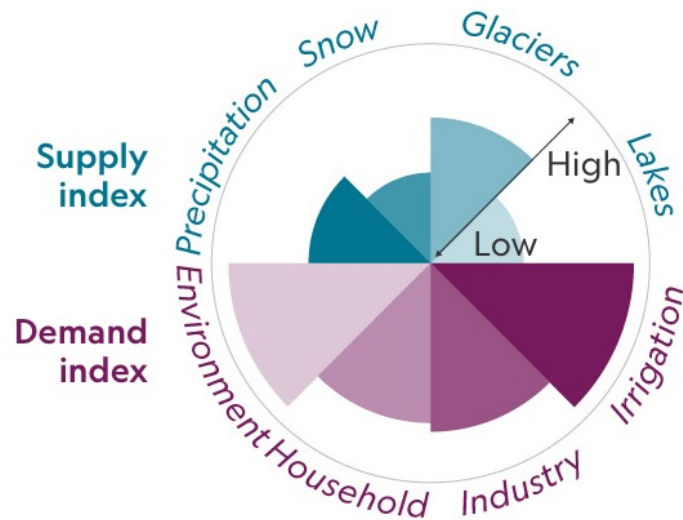
WE ARE CERTAIN THAT CLIMATE IS
CHANGING, BUT **HUMAN ASPECT**
INCREASES THE UNCERTAINTY.

- John Mathews, AGWA

Water Governance is a range of political, institutional and administrative rules, practices and processes (formal and informal) through which decisions are taken and implemented, stakeholders can articulate their interests and have their concerns considered, and decision-makers are held accountable for water management (OECD, 2018).



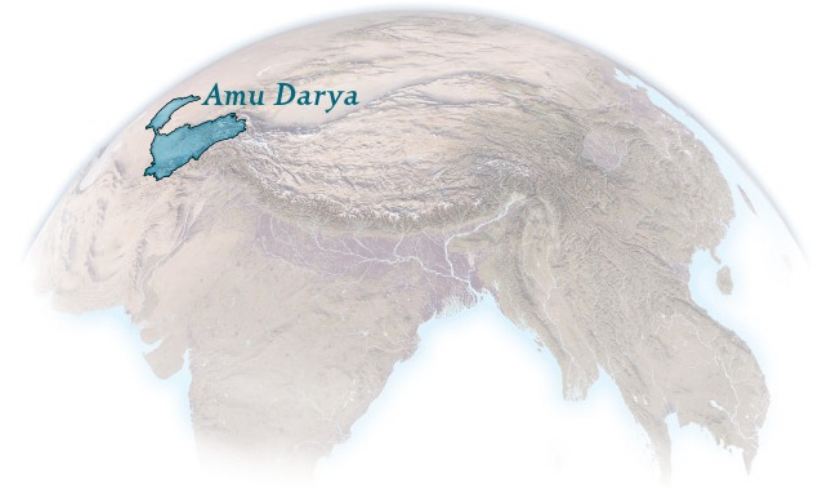
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Amu Darya

Human activities have dramatically altered natural ecosystems in the Amu Darya Basin. Extensive water diversions for irrigation from the Amu Darya and the Syr Darya contributed to the shrinking and collapse of the Aral Sea.

* INCLUDES RESERVOIRS



<https://www.nationalgeographic.com/magazine/graphics/asias-vital-rivers-perpetual-planet-feature>

BASIN SCORE

Amu Darya 37.3 /100

BASIN SCORE

Syr Darya 48.1 /100

<https://bluepeaceindex.eiu.com/#/>

- Geography
- Context
- Financial investments
- Human capacities
- Institutional capacities

Water Code	KZ	KG	TJ	TM	UZ
Responsible Authority*	Committee for Water Resources of the Ministry of Ecology, Geology and Natural Resources	State Agency for Water Resources at the Government	Ministry of Energy and Water Resources Agency for Land Reclamation and Irrigation at the Government	State Committee for Water Management	Ministry of Water Maangement
Water Code	2003	2005	2020	2016	1993 (2013)
Water Strategy	P. 2020-2030	Dics	Draft	Disc	2021-2023
Climate Strategy	Disc	Draft	2019	2019	Disc

*Information received from OECD 2020

CLIMATE


Party	Date of the 1 st NDC Submission/ Ratification	Reduction Target	Base Year	Adaptation (A) or Mitigation (M)	Sectors covered
KZ	6 December 2016	15% compared to base year	1990	A & M	Energy; Agriculture; LULUCF; Waste
KG	2015*	11.5%-13.8%	1990	A & M	Energy; IPPU; Agriculture; LULUCF; Waste
TJ	22 March 2017	10-20% compared to base year	1990	A & M	Energy; IPPU; Agriculture; LULUCF
TM	21 October 2016	0.0004 tones of CO ₂ eq./thousand USD GDP in PPP = 1.7 times less compared to base year	2000	A	Energy; IPPU; Agriculture; Waste
UZ	18 April 2017	10% (intensity target)	2010	A*	Energy*; IPPU*; Agriculture*

Central Asian NDCs and supporting information (IPPU – Industrial Processes and Product Use, LULUCF – Land Use, Land-Use Change, and Forestry, information with an asterisk* is summarized according to authors' expert opinion based on the submitted NDCs) (adapted from FAO 2018 and Amponin & Evans, 2016).

CHALLENGES

- Command-and-control water system is adding vulnerability factor
- Water security (associated with climate risks) becomes the driving factor for water policy-making
- Central Asian states are reluctant in building regional capacities
- Water-Food-Energy-Environment (WEFE) Nexus needs to be balanced at the regional level
- Data acquisition and modelling
- Data sharing at all levels
- Evidence-based decision-making

- **1. Top priorities for research to address critical knowledge gaps:**
 - The inability to bridge the policy and science is always an issue, studying the theoretical framework of Policy Change in water sector is our primary area of concern
 - Developing Adaptive Water Governance mechanisms in situ, also contributing to the global knowledge gap
 - Adapting Resilience Assessment Framework for agricultural systems will help face upcoming risks.
- **2. Given current and emerging knowledge, what adaptation responses are the most pressing?**
 - Proper transboundary planning with Transboundary Climate and Water Strategy and adoption of WEFE nexus approach at the regional level
 - Development of Disaster Risk Reduction (DRR) systems and merging them with Climate Adaptation strategies.



Thank you! Questions?

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