

CENTRAL ASIA: PATHWAYS TO WATER SECURITY

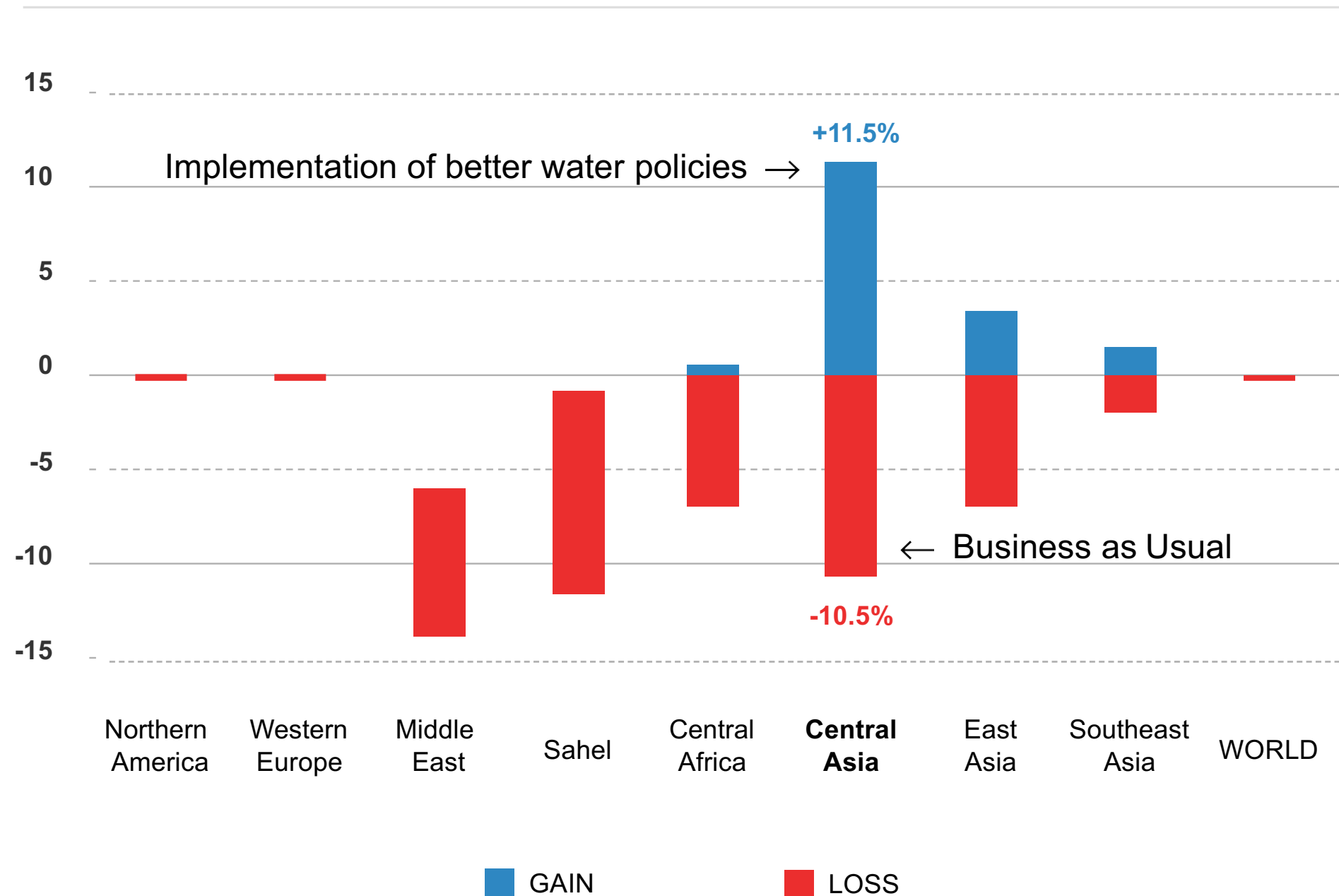
Key Messages



Overarching Message:

Water as a Constraint for Growth

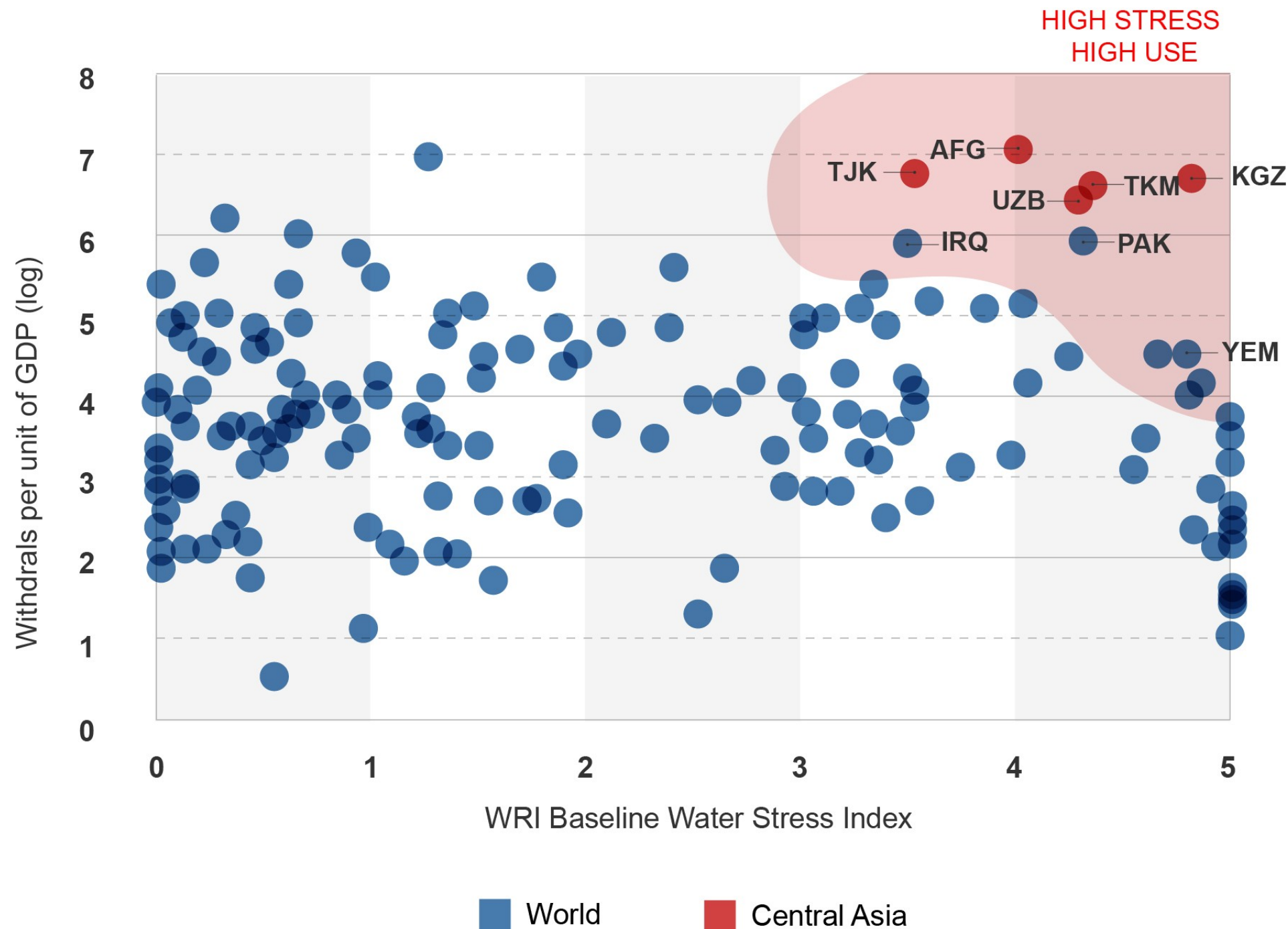
Climate change effects on water and GDP in selected regions
variation as percentage of GDP



→ Central Asia is the region that has most to gain (or to lose) depending on water policy adopted.

Overarching Message:

Water as a Constraint for Growth



→ Central Asia produces far below its water potential and is ill prepared for climate change.

**NATIONAL
AGENDA**



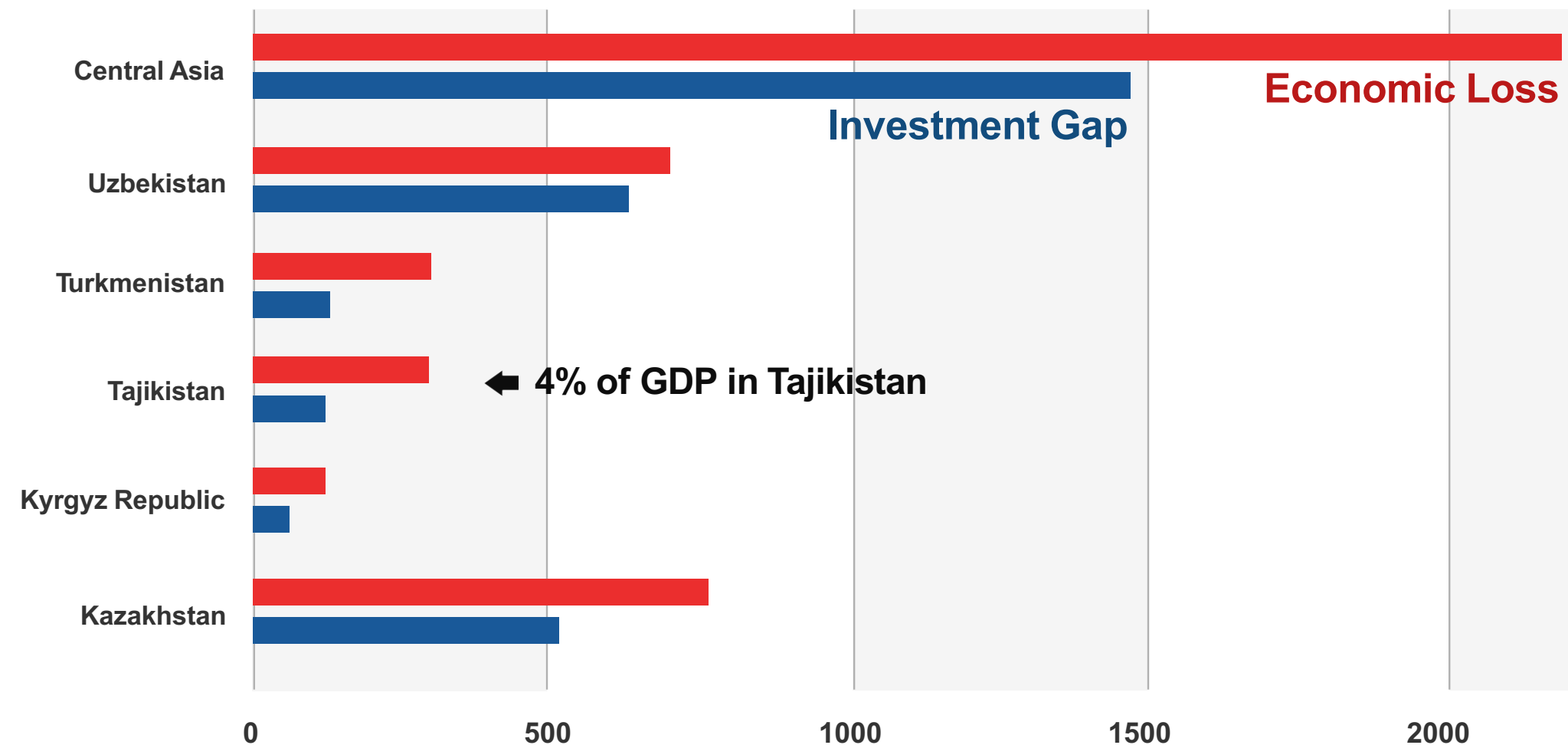
ACTION AREA 1

Water and Sanitation for Social Stability &
Human Capital Development

Action Area 1

Water and Sanitation for Social Stability & Human Capital Development

Economic impact of inadequate water supply and sanitation (USD Million)



→ Investments towards universal WSS are cheaper than the current costs of inadequate WSS to the Central Asian economies.

Economic losses due to lack of improved water:

- Health care costs
- Productivity costs
- Premature death

**NATIONAL
AGENDA**

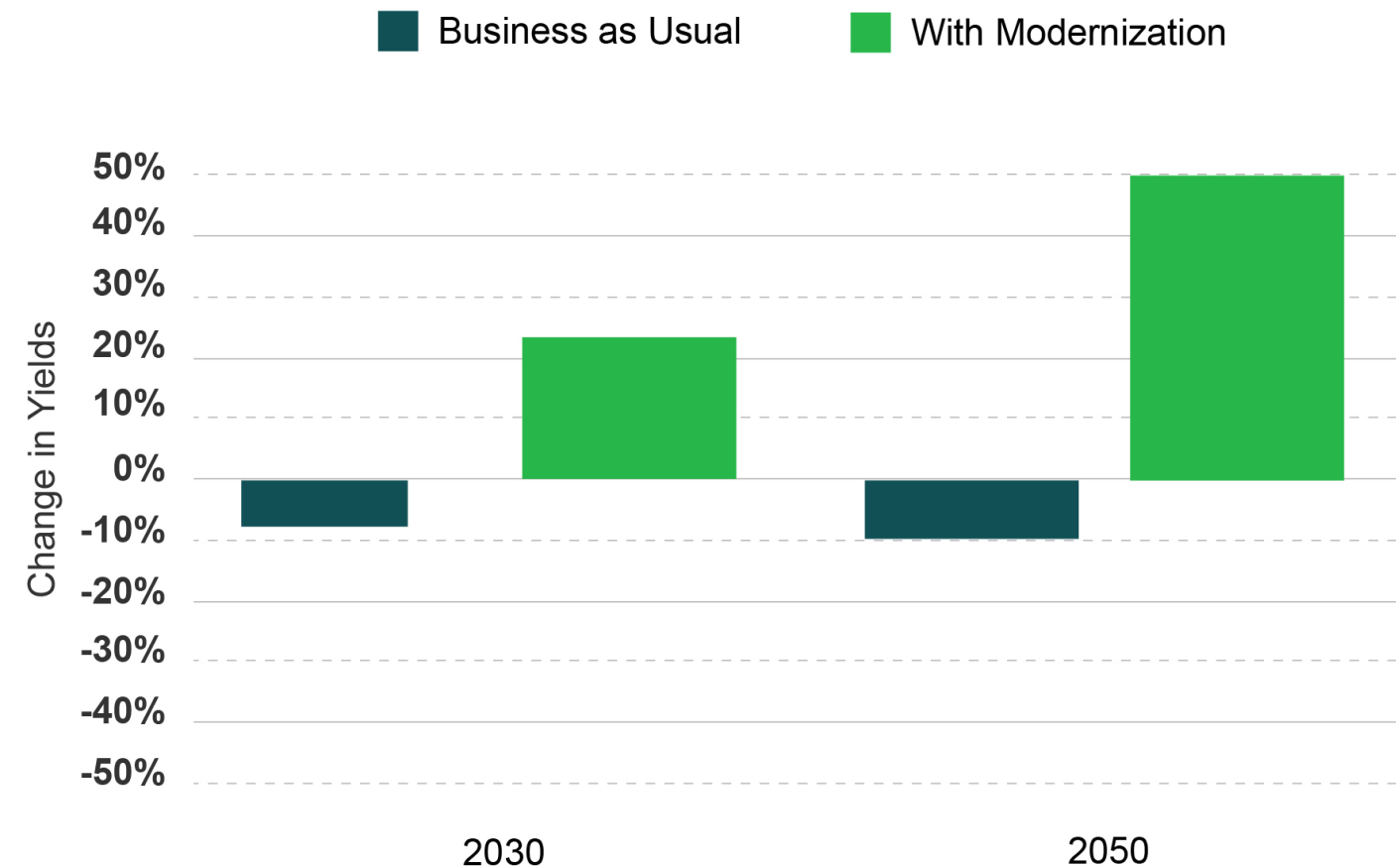


ACTION AREA 2

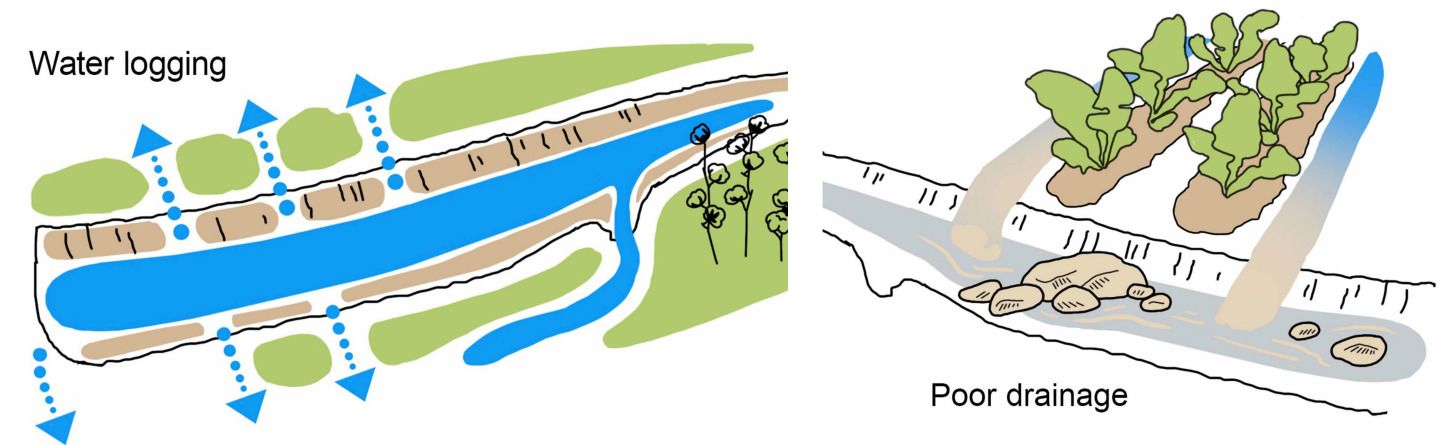
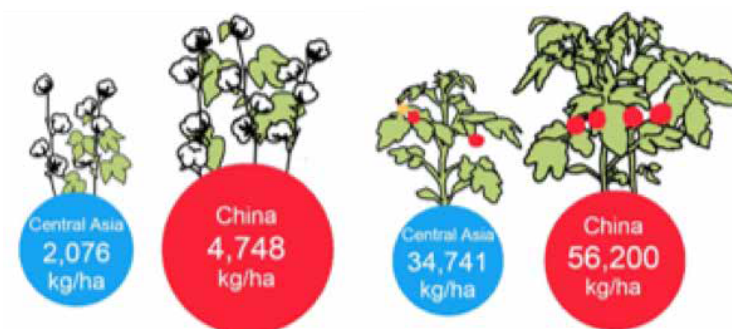
Water Resources Overhaul for
Increased Productivity

ACTION AREA 2:

Water Resources Overhaul for Increased Productivity



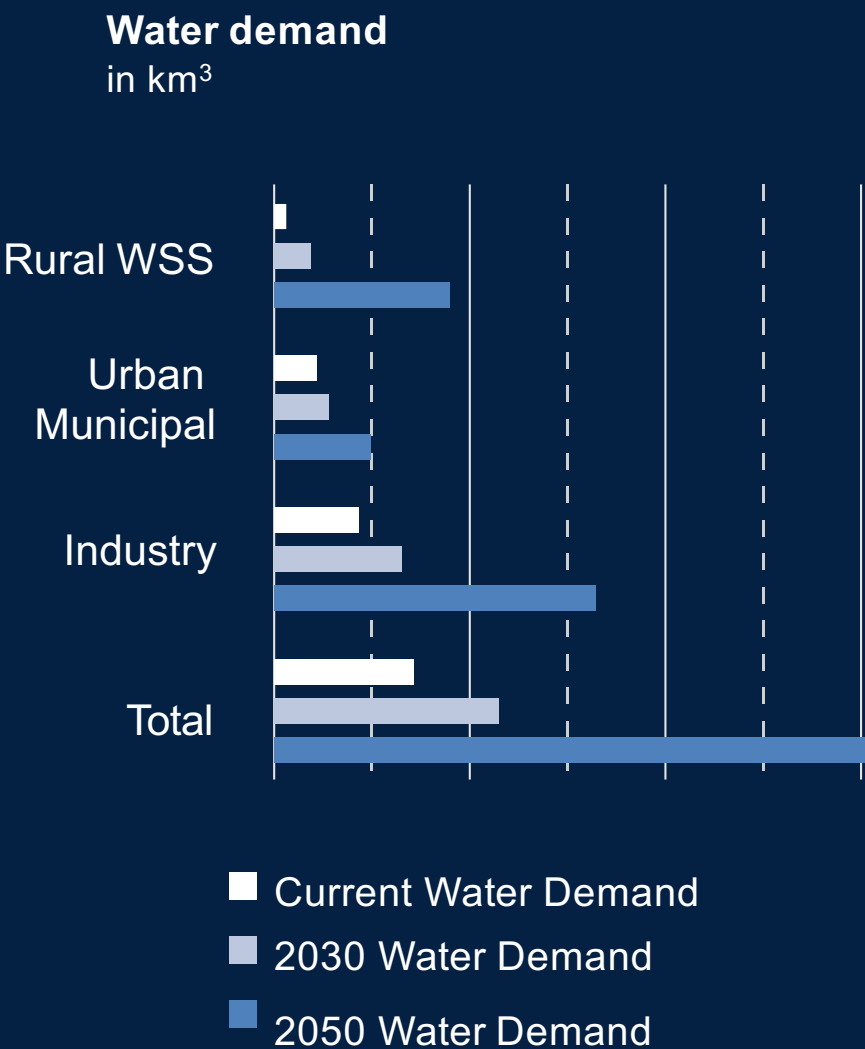
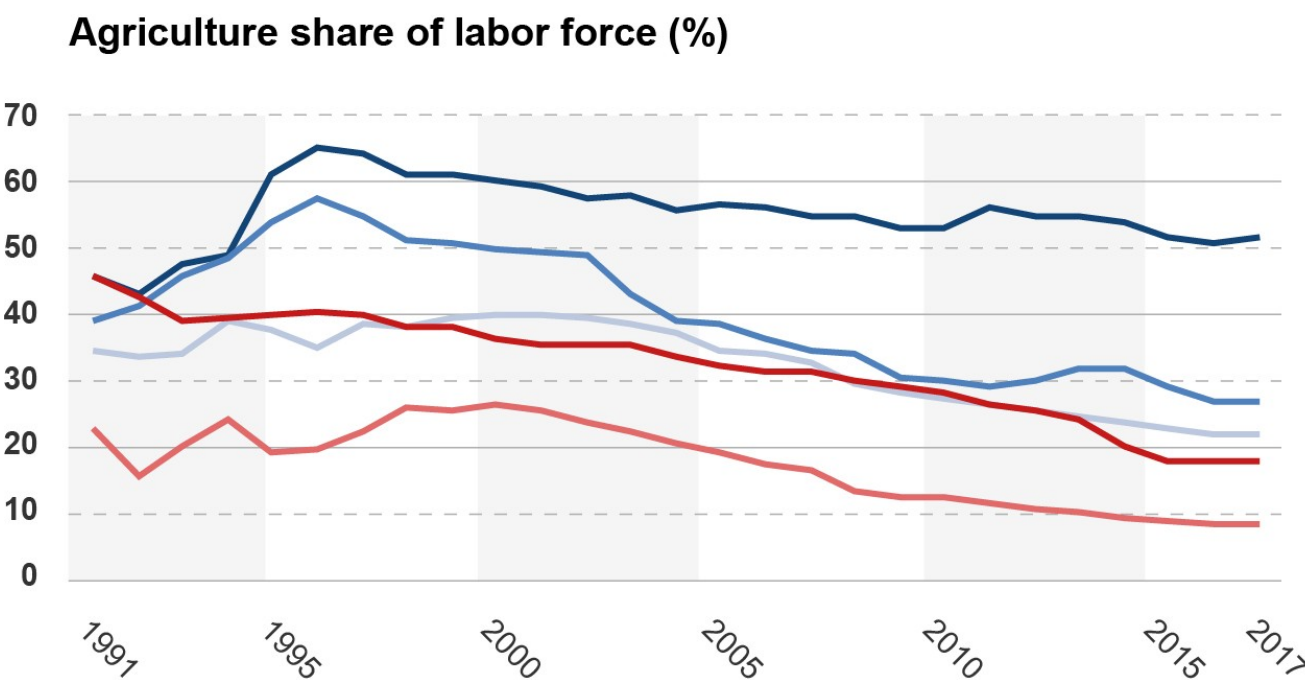
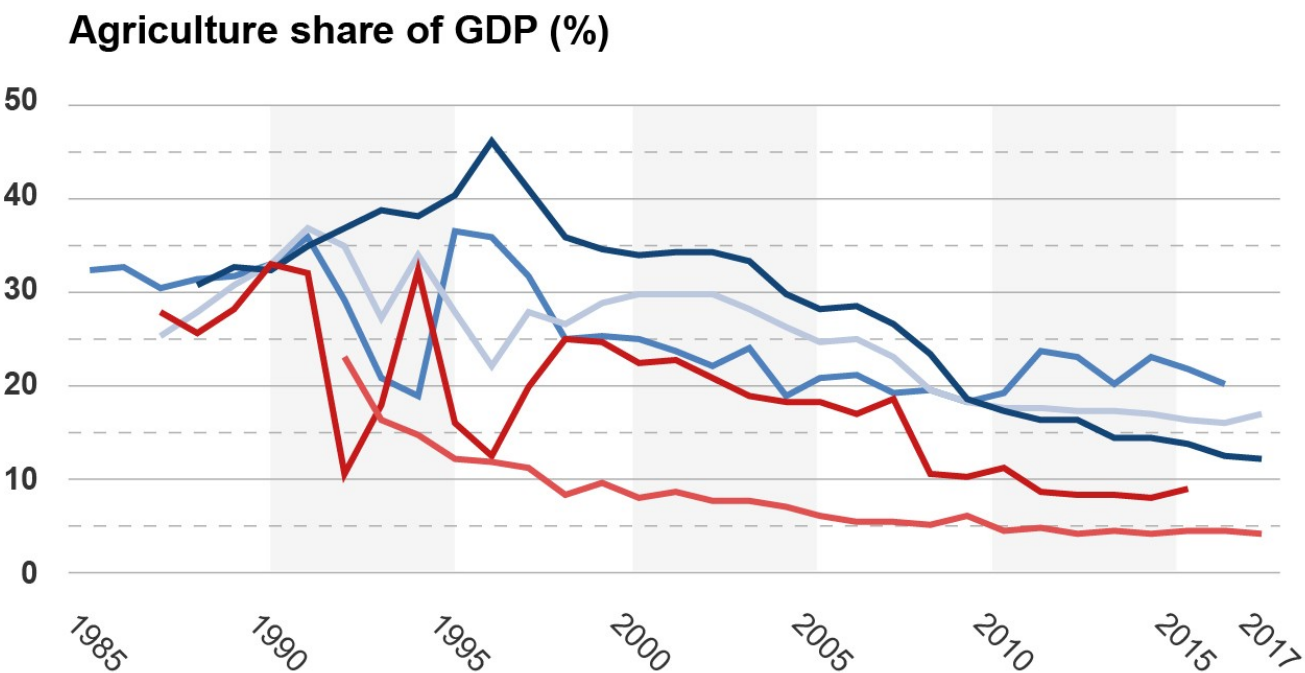
Current yield vs Potential yield



- Modernizing agriculture and change in irrigation methods to increase water productivity.
- Private sector engagement for innovation and productivity increases.

ACTION AREA 2:

Water Resources Overhaul for Increased Productivity



- Agriculture currently by far largest water user.
- The overall importance of agriculture to the economy is declining.
- Allocating water to most productive sectors and uses.

**REGIONAL &
NATIONAL
AGENDA**






ACTION AREA 3

Energy Development and Trade
as Engine of Growth

ACTION AREA 3:

Energy Development and Trade as Engine of Growth

Countries	Oil Reserves to Production Ratio (years)	Natural Gas Reserves to Production Ratio (years)	Coal Reserves to Production Ratio (years)
Kazakhstan	44.8	42.2	230
Turkmenistan	314.1		
Uzbekistan	30	22.7	340

Renewable Energy Potential	Kazakhstan	Kyrgyz Rep.	Tajikistan	Turkmenistan	Uzbekistan
Solar (MW) 	376 000	267 000	195 000	655 000	593 000
Wind (MW) 	354 000	15 000	2 000	10 000	16 000
Small Hydro (MW) 	4 800	1 800	23 000	1 300	1 800
Installed Capacity 2012 (MW)	19 000	3 680	5 190	2 852	12 617

→ Meeting climate targets by developing renewable energy resource potential.

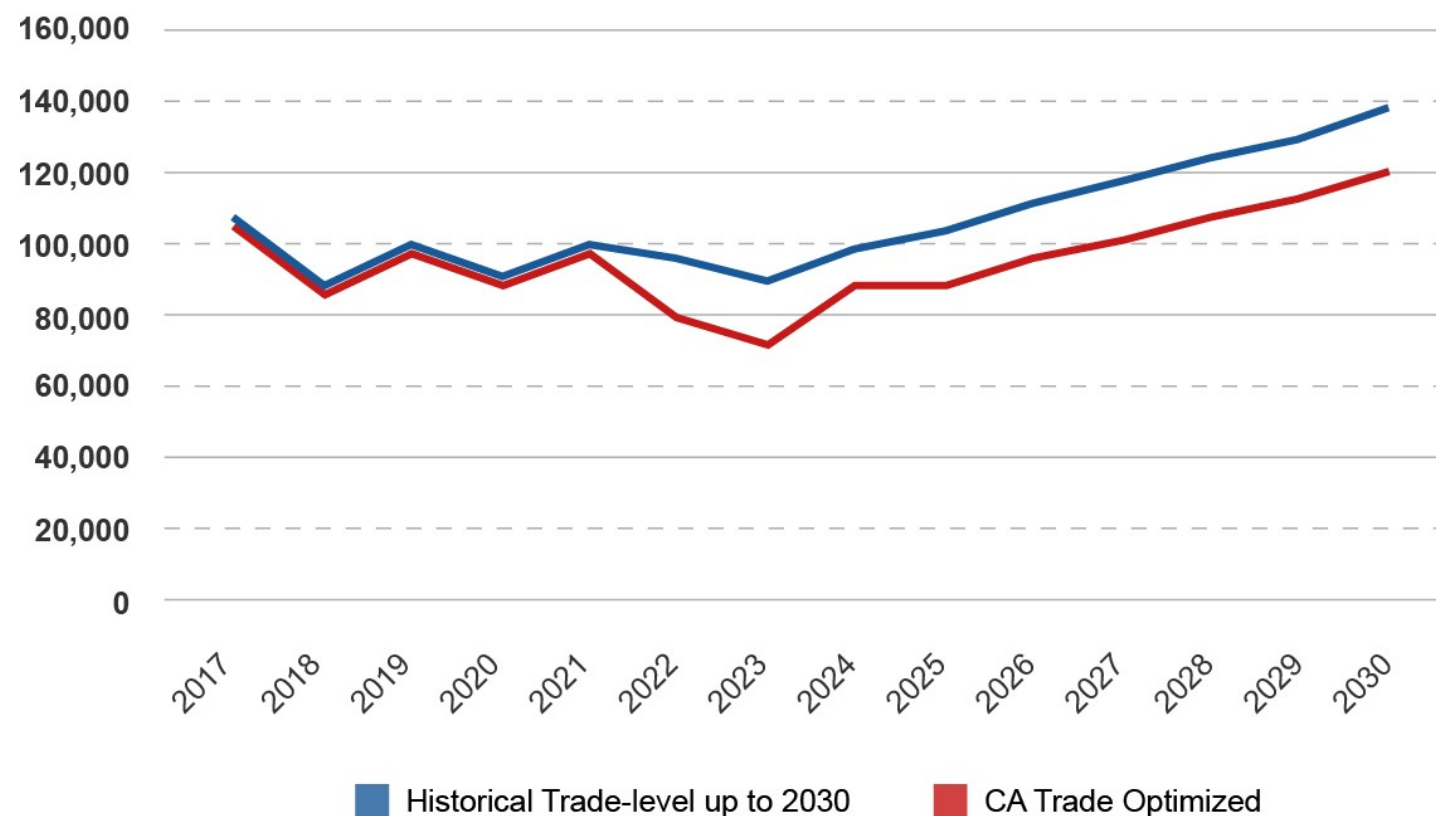
→ Preparing the grid and provide renewable feed-in conditions to prepare for the post peak-water future.

→ Renewables potential exceeds national and regional demand.

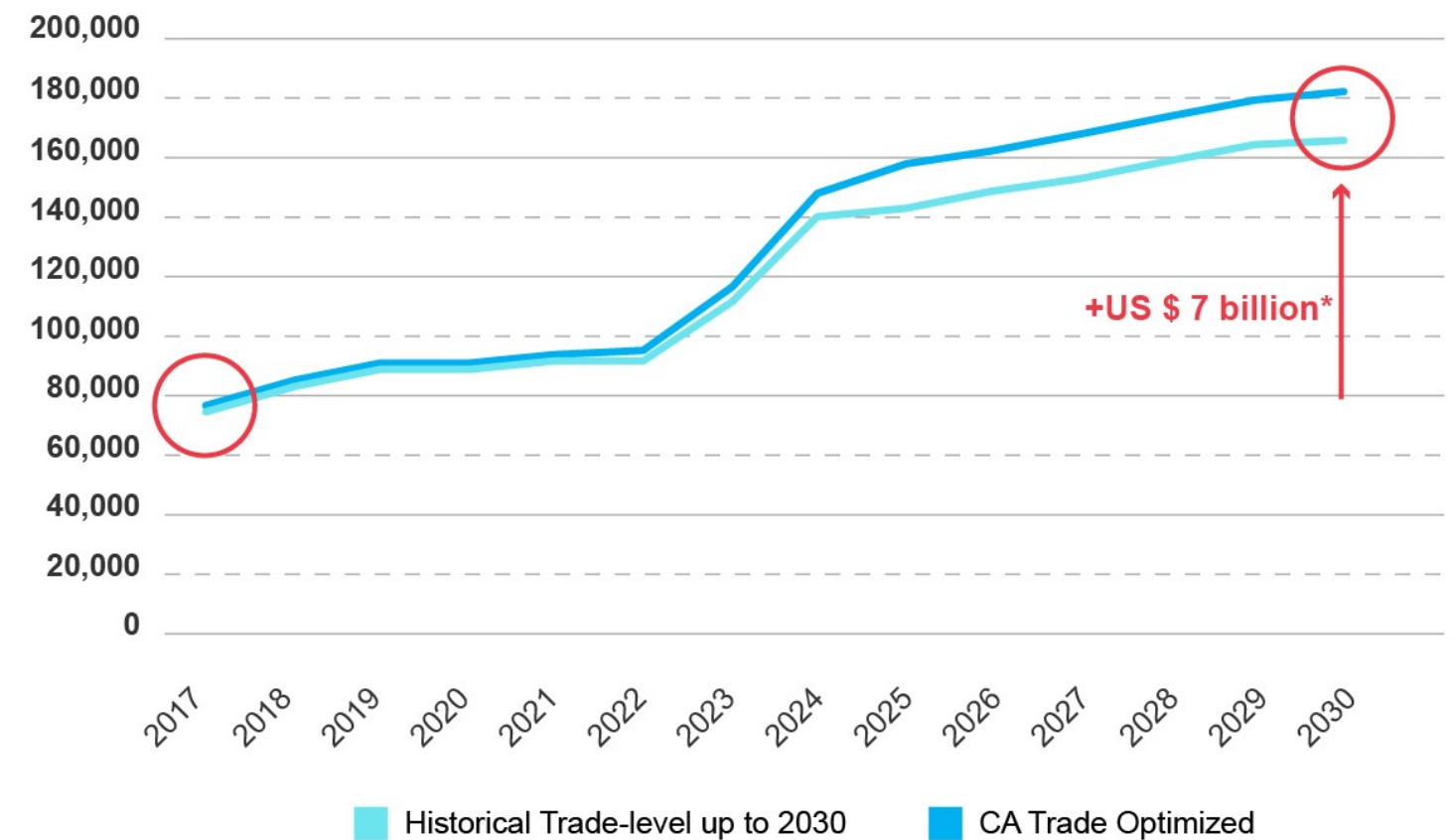
ACTION AREA 3:

Energy Development and Trade as Engine of Growth

Energy by Gas (GWh)



Energy by Water (GWh)



- Increase of trade in energy from water over time
- With increase of water as fuel source, agreements on energy-water trade offs between energy, agriculture and flood protection needed

REGIONAL & NATIONAL AGENDA

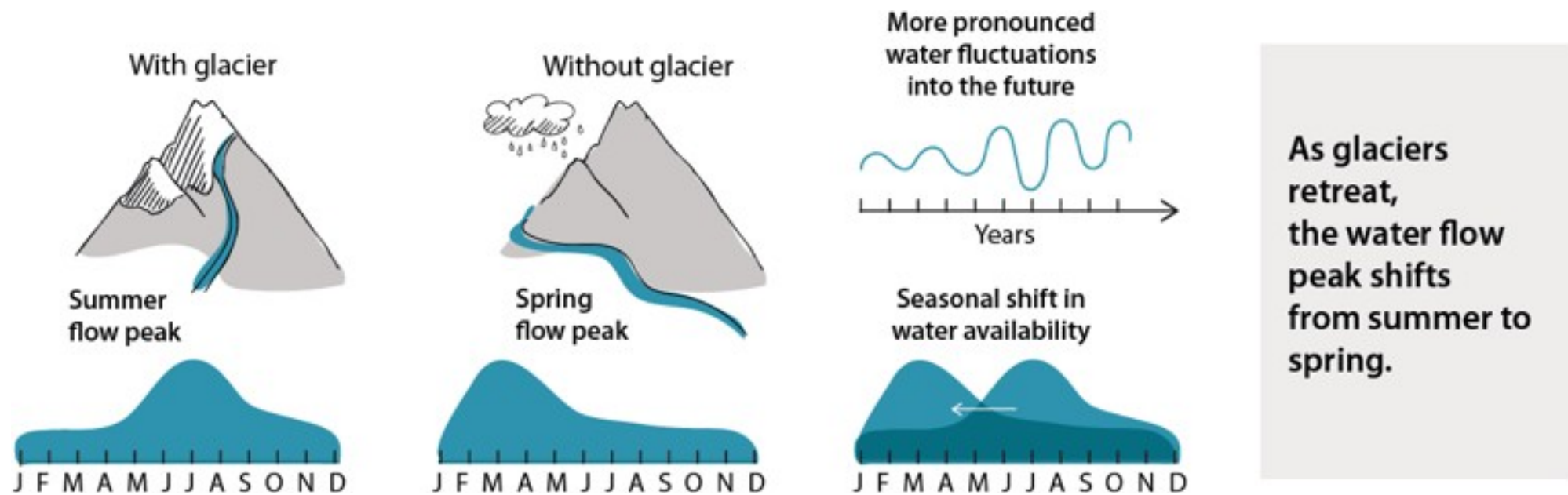


ACTION AREA 4

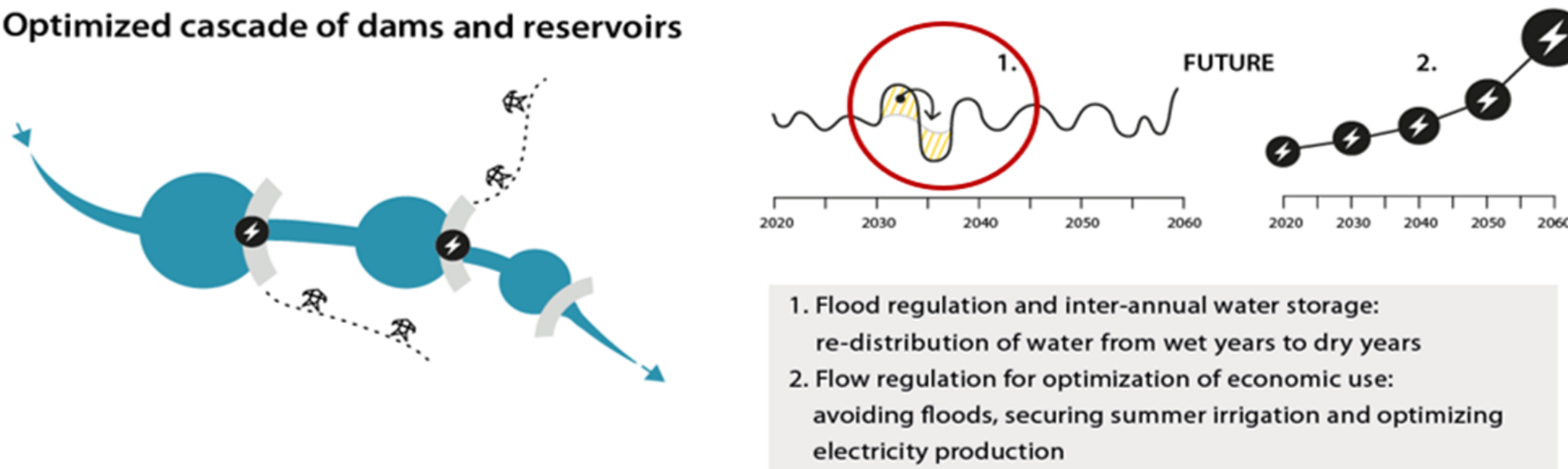
Adaptation and Resilience to Climate
Change for Economic and Social Security
and to Avoid Costs

ACTION AREA 4:

Adaptation and Resilience to Climate Change for Economic and Social Security and to Avoid Costs



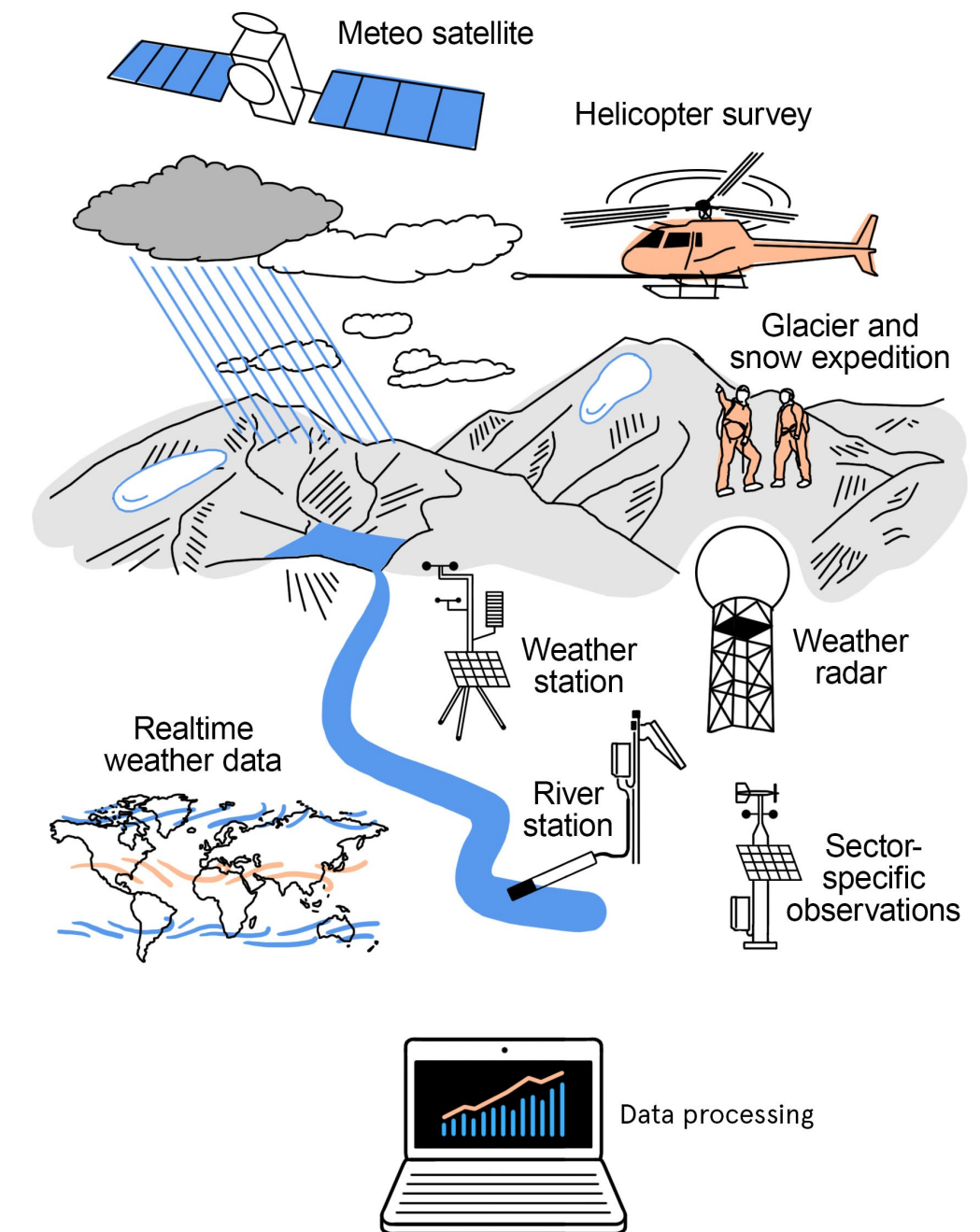
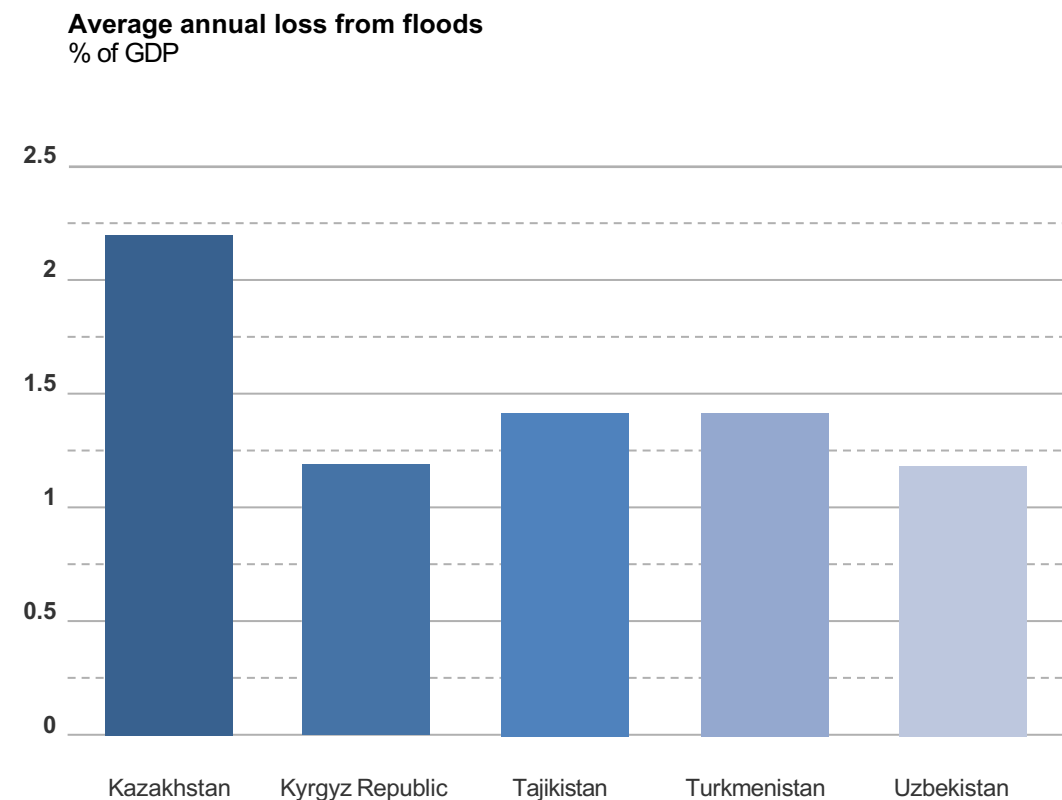
Optimized cascade of dams and reservoirs



→ Countries need to prepare for a post peak-water future to secure water services, energy security and mitigate impacts of extreme hydrologic events.

ACTION AREA 4:

Adaptation and Resilience to Climate Change for Economic and Social Security and to Avoid Costs



→ Up to 50% of annual losses from floods are preventable

→ Rate of return on investments in improved weather services up to 200-400%*

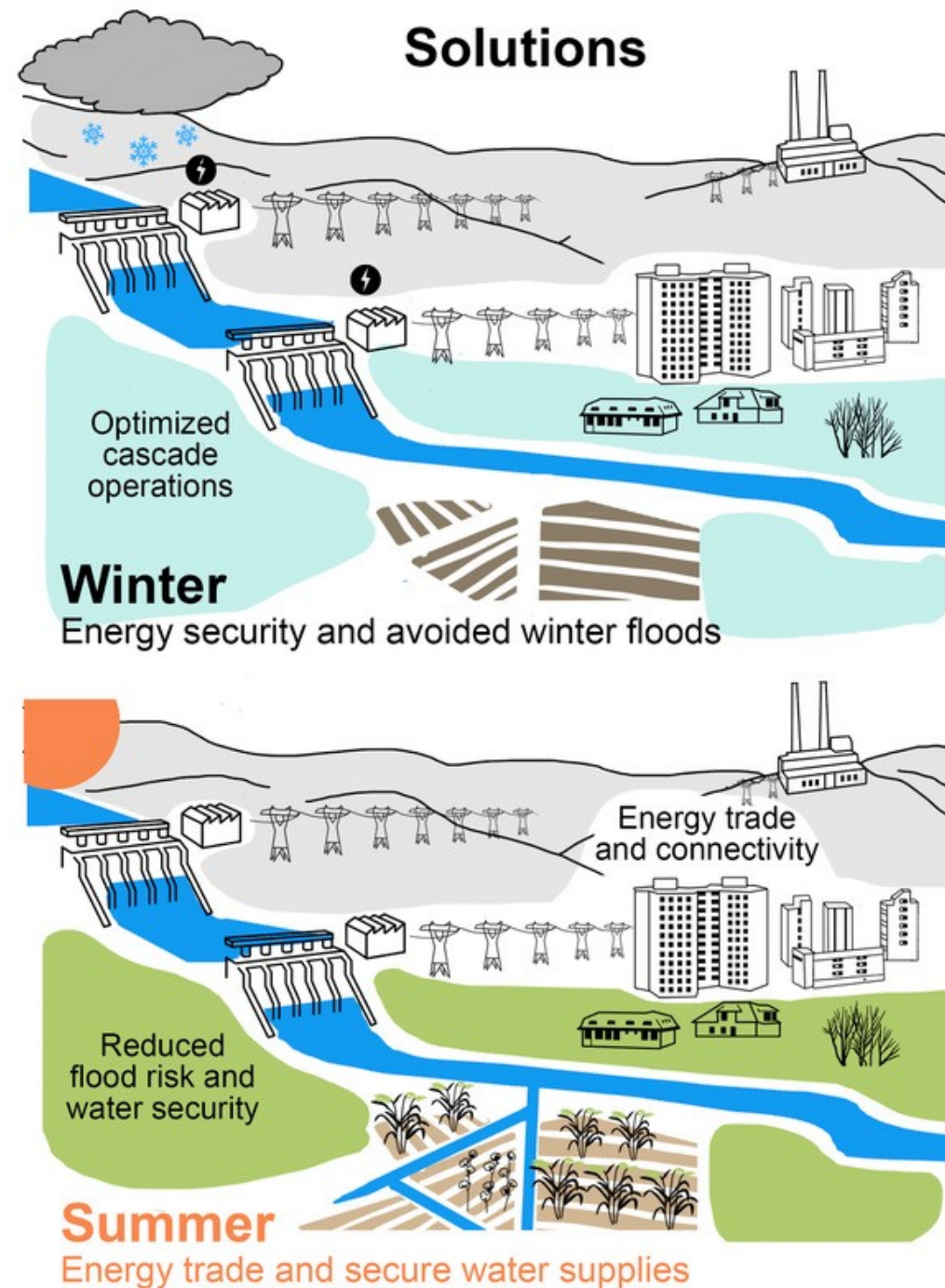
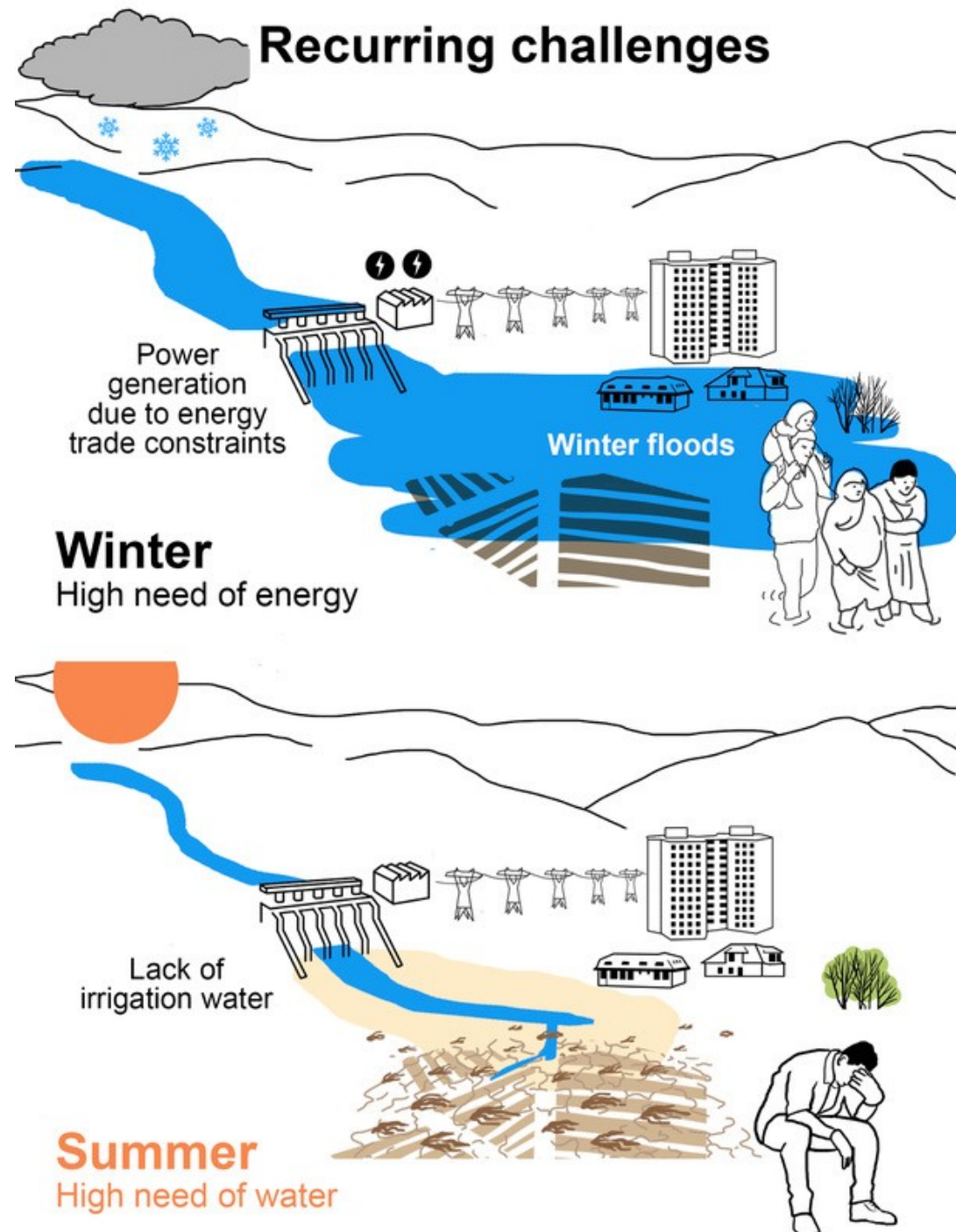
*(% over 7 years)



CENTRAL ASIA WATER FUTURES

CENTRAL ASIA

Future Outlook with Action

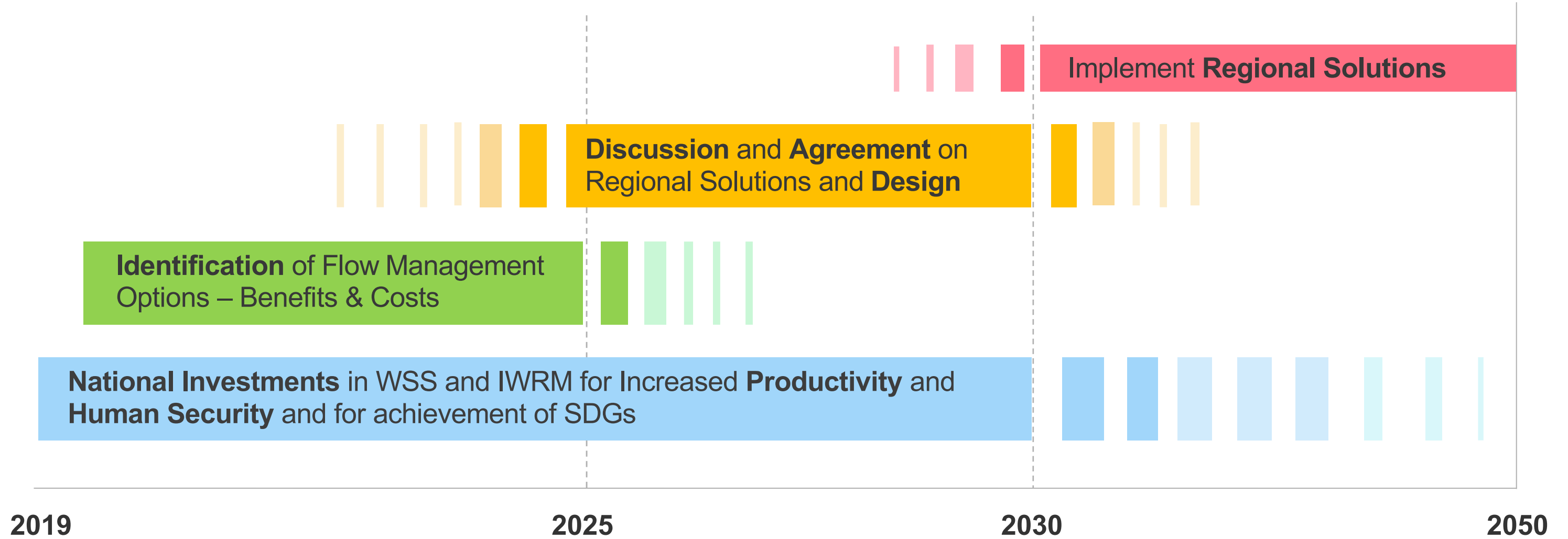


→ With the right policy mix and allocation of water to more productive uses, Central Asia stands to gain.

Pathways to water secure Growth under Climate Change

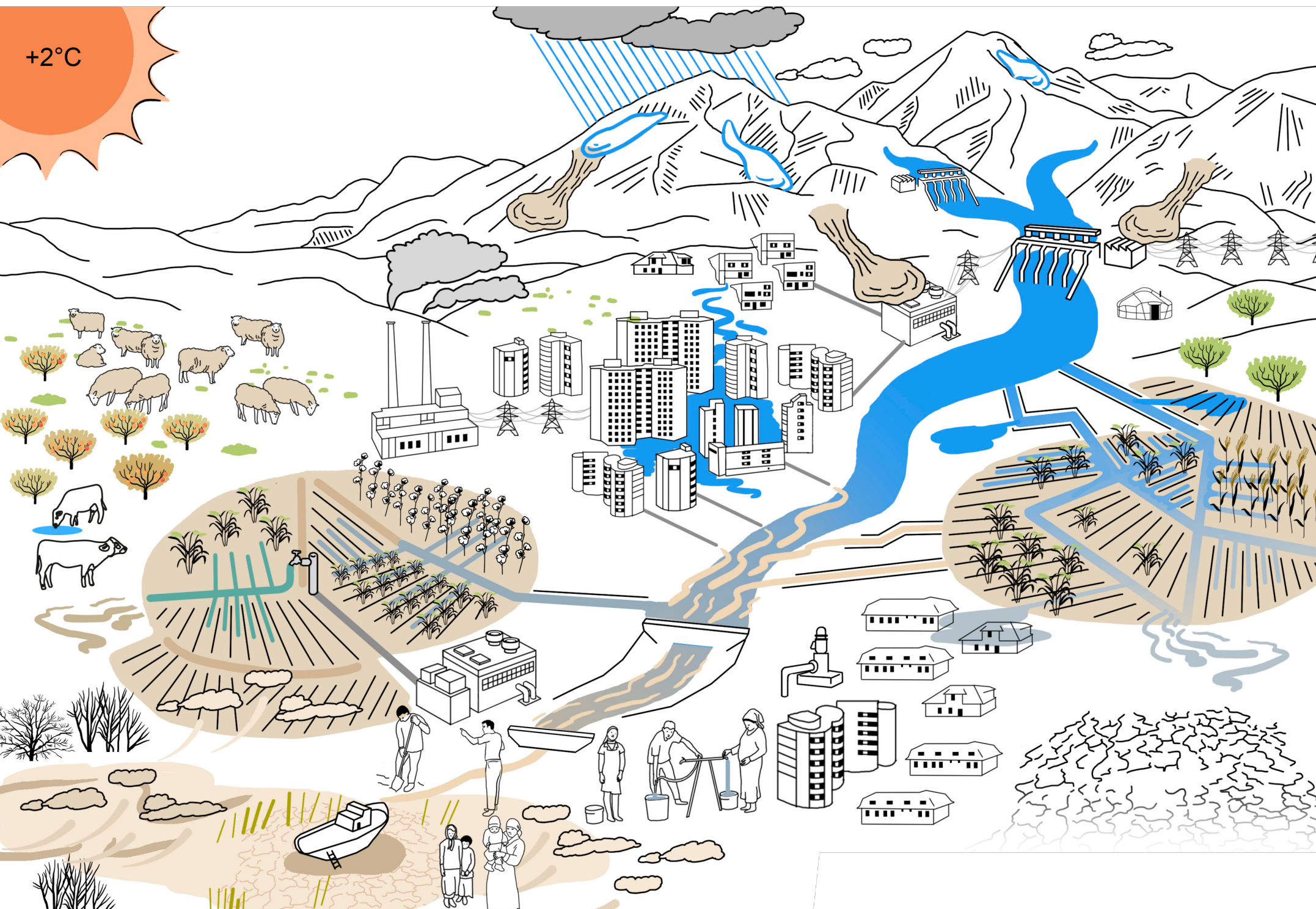


THE GLOBAL GOALS



CENTRAL ASIA

Future Outlook without Action



- Growing population; growing demand
- Increasing temperature; increase in challenges
- Alternative pathways needed to avoid this scenario