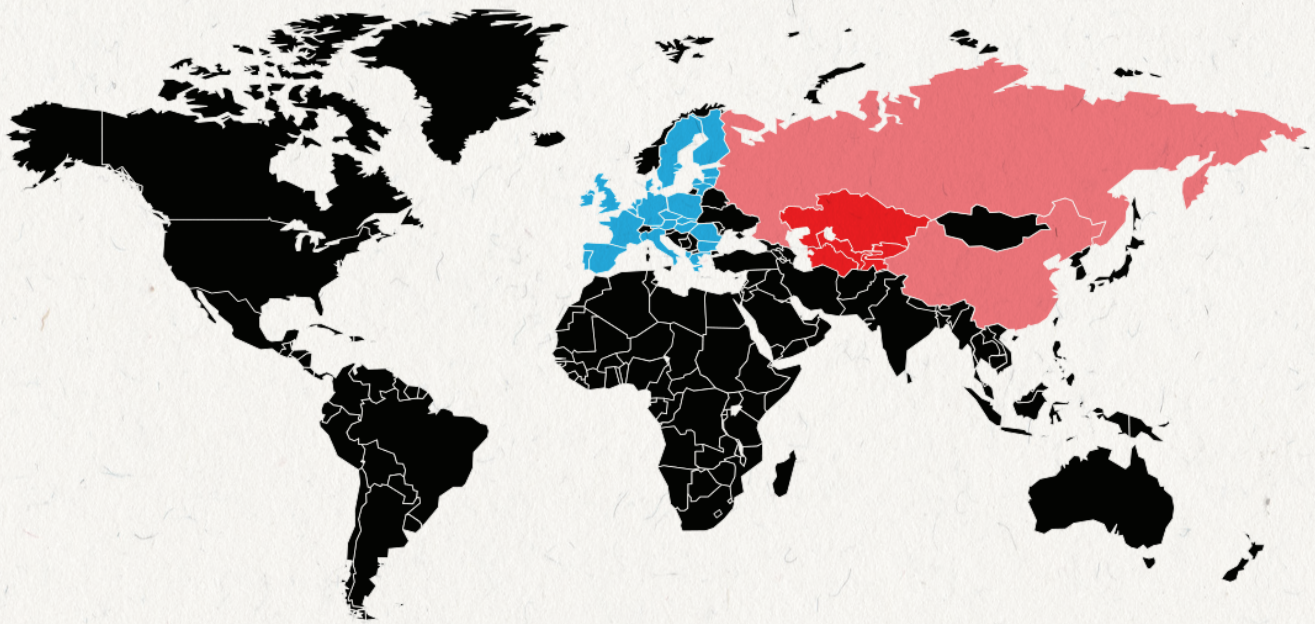
POLICY BRIEF
INTERACTIONS BETWEEN EUROPE AND CENTRAL ASIA

INTEGRATED SOLUTIONS TO ADDRESS HIGH LEVELS OF CLIMATE CHANGE

Region: Central Asia **Scale**: International **Sectors**: Agriculture, Water, Energy

This case study considered the implications for Europe of high levels of climate and socio-economic change outside the EU. After consulting the European Commission and External Action Service, the case study was focused on the five post-Soviet Central Asian republics of Kazakhstan, Turkmenistan, Uzbekistan, Tajikistan and Kyrgyzstan, which lie in a highly strategic position in the heart of Eurasia. The natural environment in this region is rich but fragile, and the impacts of climate change have hardly been studied at the regional scale. Future developments here – as identified and explored during a series of three stakeholder workshops in Almaty (2015), Baku (2016) and Berlin (2017) – will have profound implications for the wider region, including Russia, China and the European Union.



The case study focuses on the dark red areas, which show the five Central Asia republics. The light red region shows Russia and China; we considered how changes in Central Asia would affect – and be affected by – developments in these two external regional powers. Responses from Europe (in blue) were explored in light of these potential changes.

Key Messages

- **The EU will have to adapt to climate changes beyond its borders** at the same time as adapting to the impacts of high climate change at home. A set of scenarios describing changes in Europe and Central Asia have been co-developed with stakeholders to re-think EU strategy in this strategically important region. The dynamic effects of changes in Central Asia, Russia and China, and the implications of possible responses from outside the region were also considered.
- **The EU's current Central Asia Strategy is not robust to a range of different plausible futures in the region;** it does not take proper account of the way in which external actors might respond to changes in Central Asia, particularly under conditions of extreme climate change.
- **Central Asia is highly vulnerable to climate change**, but it is also one of the regions with the poorest data and thinnest evidence bases on future climate change impacts. Stakeholder-led scenarios offer a powerful tool for exploring future risks and opportunities in a data-poor but strategic region like Central Asia under conditions of deep uncertainty.
- **Cross-sectoral and transboundary climate change impacts could destabilise the region** because of its delicate resource interdependencies and growing tensions.
- **However, climate change offers an unlikely opportunity to build regional resilience.** Achieving a new regional transboundary water sharing agreement would be a positive "tipping point", unlocking huge potential for adaptation and mitigation. Also, external interest in connecting Central Asia to markets in China and Europe could boost adaptive capacity in Central Asia.

What could a future above 2°C look like?

Four scenarios were co-created with stakeholders during a series of workshops, to reflect contrasting plausible futures for Central Asia to 2100 (see opposite). These were based on the global Shared Socio-economic Pathways (SSPs), adapted for Central Asia and Europe, paired with relevant climate scenarios based on the IPCC Representative Concentration Pathways (RCPs). Two fossil-fuel dependent scenarios (SSP3 and SSP5) were paired with the highest warming scenario (RCP8.5), which is expected without additional climate change mitigation action, and two low carbon scenarios (SSP1 and SSP4) were paired with a lower warming scenario (RCP4.5).

	High development	Low development
Additional climate change mitigation, warming 2.7°C (RCP4.5)	**Utopistan** - *cooperation, cultural values, harmonisation*. Sustainable socio-economic development (SSP1) brings the region together, despite climate change of 2-3°C (RCP4.5).  SSP1 Despite increased flood risk (e.g. Kazakh rivers), landslides (e.g. Kyrgyzstan) and drought (e.g. Uzbekistan and Turkmenistan), regional agreements on water, energy and trade achieve diversification and growth in agriculture, small businesses and rural livelihoods. Foreign investment drives transitions from cotton and hydrocarbon economies, towards sustainable alternatives, reducing out-migration, conflict and authoritarianism. New large-scale hydropower is balanced to ensure irrigation downstream and to manage variable flows from glacial melt and extreme precipitation. Central Asia becomes the cross-roads of Eurasia. Europe no longer requires access to Central Asian oil and gas in this scenario, but China is the dominant external influence, leading finance and cultural exchanges in Central Asia. Russia becomes a stable neighbour.	**A Game of Elites** – *regime stability, repression, collusion*. Severe inequality, but strategic leadership (SSP4) means a lucky few can cope with climate change of 2-3°C (RCP4.5); the masses cannot.  SSP4 A globally well-connected second generation of Central Asian elites consolidate state power and effectively suppress dissent whilst integrating their economies and infrastructure enough to mitigate many local environmental and resource risks. Regional agreements are struck, for example on water management, securing resource access for well-connected business interests, but at the expense of many households, who increasingly suffer from poor health, low education and under-investment as climate change bites. EU elites are able to strike deals in Central Asia. Russia is the key regional military, energy and technology power; an increasingly self-sufficient China plays a softer role as investor, prioritising stability over resource access.
Lower climate change mitigation, average warming 5.1°C (RCP8.5)	**Fossil-fuelled development** –*productivity, exchange, investment*. Markets and technology drive progress for all (SSP5), but climate change of 4-6°C (RCP8.5) eventually proves too great a challenge.  SSP5 Technology-based adaptation is effective. Mechanised agriculture booms. Water is used efficiently for food and fibre. Kazakhstan, Uzbekistan and Turkmenistan move up the value chain (e.g. garments industry); Tajikistan and Kyrgyzstan develop slower, but enjoy cheap energy imports. Educated households build resilience to accelerating heat and health impacts and participate more meaningfully in politics. Development-centred SDGs are met. Disaster risk is well managed. The region as a whole stabilises and retains mobile young talent. Growing populations eventually reach the limits of techno-adaptation and are left to pay the price. Tax revenues and social cohesion crumble in a climate crisis. Investors flee. Central Asia is linked to Europe, Russia and China (the leading world power) in a web of infrastructure, trade, technology and investment flows.	**Regional Rivalry** – *competition, depletion, intervention*. Conflict (SSP3) worsened by climate change of 4-6°C (RCP8.5) leads to regional breakdown and invasion.  SSP3 A fragmented region is eroded by ecological crises and undermined by resource hungry foreign powers. Dams are built to export electricity, irrigated crops are exported for cash, skilled workers migrate. Soil degradation and desertification fuel local conflicts over increasingly scarce resources, leaving the population vulnerable. Shadow economies and illicit trade prevail. Transboundary infrastructure is put at risk. Heat mortality increases twenty-fold; precipitation and drought extremes increase 20%. Water sharing breaks down completely in 2030: water is weaponised and conflict between downstream and upstream states ratchets up. Populations become cut off from each other and from global markets. Foreign powers intervene to impose stability and maintain access to resources, bringing them into conflict with one another. Europe faces its own internal rivalries and is ineffectual in Central Asia; Russia and China vie for influence.

What are the impacts and risks in a future above 2°C?

By 2100, average temperature increase in Central Asia will be 50% higher than the global average: a staggering +5.1°C under RCP8.5. The frequency and magnitude of extreme weather events (heat, precipitation and droughts) will increase.

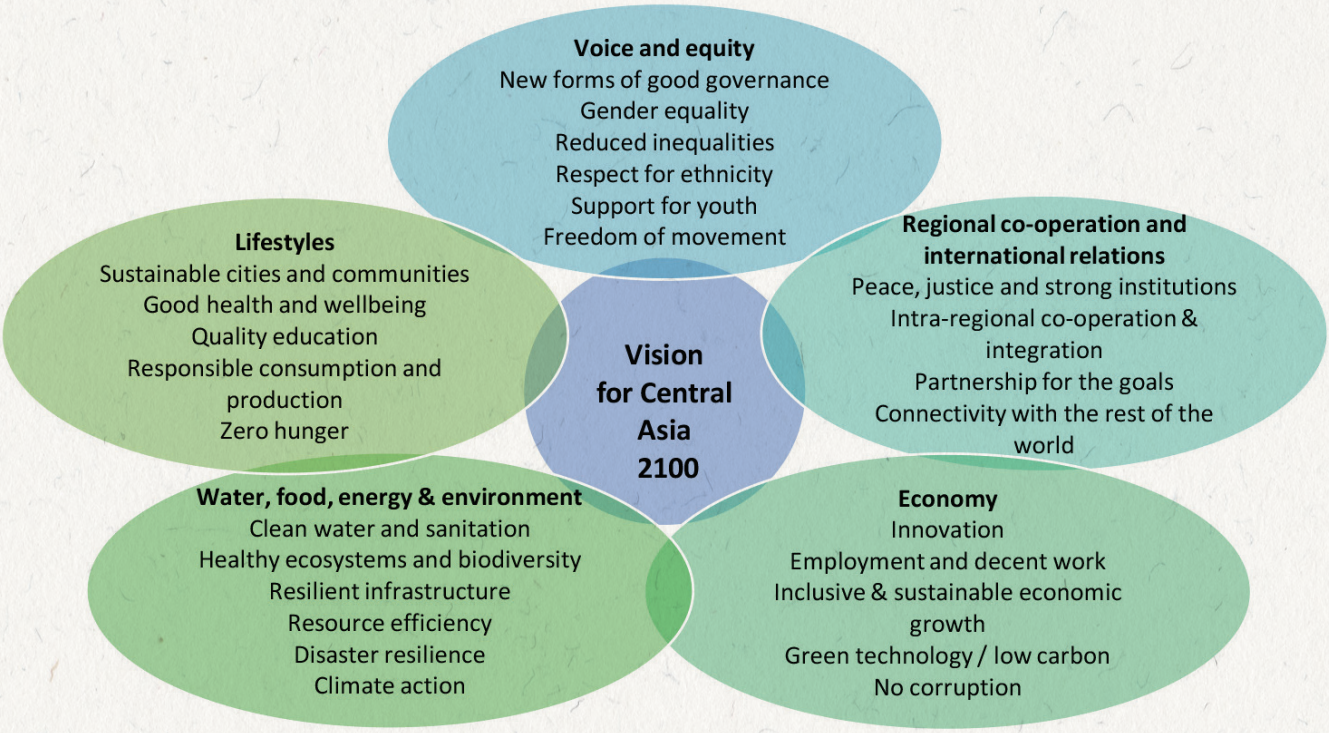
Climate change in 2100 compared to 1981-2000	RCP4.5	RCP8.5
Temperature	+2.7°C	+5.1°C
Extreme heat days	+15%	+37%
Extreme precipitation days	+10%	+19%
Drought duration (in the south)	+5%	+20%

Impacts on water are critical. Glaciers are already shrinking but may reduce by 60% or more by the end of the century, increasing peak river flows. Flows in the two main catchments - Amu Darya and Syr Darya – are predicted to increase by 5-8% this century and up to 20-30% in springtime. Combined with precipitation changes, this fundamentally changes the long-term prospects for sustainable water management in Central Asia.

Changes to run-off in the "water tower" of Central Asia will literally and metaphorically cascade down into other sectors and systems. The risks depend critically on the extent to which agreement can be reached to build dams, regulate flows and optimise trade-offs between energy production (in winter) and irrigation (in summer). These dynamics – and the range of possible adaptation measures – are poorly modelled, but impacts on food security and agricultural exports could be severe. Cotton production – a key economy since the Soviet era in downstream countries – could decrease between 11% and 23% by 2050; wheat production might experience significant losses or even productivity gains of up to 10% if irrigated and optimally managed. Cross-sectoral and cross-scale interactions add further uncertainty and complexity. Limiting climate change to below 2°C also poses risks of a different nature in Central Asia, specifically to oil and gas exporting regimes like Kazakhstan, Turkmenistan and Uzbekistan. Leaving Central Asian fossil fuels in the ground, which would be necessary to meet the goals of the Paris Agreement, would also fundamentally change the nature of the EU's interests in Central Asia, which are currently influenced heavily by energy.

What do we want our future to look like?

Stakeholders from Central Asia developed a 'Vision' for the region in 2100 that was based upon the attainment of the Sustainable Development Goals (SDGs). The Vision addressed issues of voice and equity, lifestyles, economy, resources, environment and regional co-operation. However, visions can be contested. External players like the EU, as well as influential powers such as Russia and China, may wish to see the region develop in different ways, depending on their strategic interests and based on their own "competitive advantages" to engage in the region. When developing strategies to bring about transformative change for sustainability, power and political strategy cannot be ignored.



How can the EU help Central Asia to achieve a sustainable future?

The EU envisions its future role in the world via the 2016 Global Strategy – Shared Vision, Common Action: A Stronger Europe, which acknowledges the need to address fragility in Central Asia by building "state and societal resilience". The EU will promote human rights "in the most difficult cases", pursuing "principled pragmatism" to seek a "connected Asia" by acting as "an agenda-shaper, a connector, coordinator and facilitator within a networked web of players". Central Asia poses a number of challenges to this vision, not least because of the limited reach of EU diplomacy and the existence of competing "regional cooperative orders", such as the Eurasian Economic Union and the Shanghai Cooperation Organisation.

However, the EU's competitive advantages in Central Asia include high capacities and credibility on education, environment, private sector, trade, rural development and health, all of which were deemed of high relevance to the sustainable future of Central Asia by stakeholders. In seeking to complement the role of other potentially like-minded external actors in Central Asia, the EU is viewed as particularly strong in regulatory design – principally for private sector governance, trade facilitation, quality control, training and research and development.

What are the transformative solutions?

Transboundary water governance – Reaching agreement on how to manage transboundary water would create positive ripple effects for adaptation across borders and sectors in Central Asia, from energy to food to health and regional trade, however unlikely that prospect currently appears.

Regional connectivity – Ambitious attempts to revive the Silk Roads of old, by connecting Central Asia internally and to its neighbours, could boost stability and development. Sustainable versions of China's Belt and Road Initiative therefore hold potential to transform Central Asia in ways that support climate resilient societal transformations.

Policy Recommendations

- Continue to pursue a regional approach, in addition to bilateral agreements, that articulates how the EU will work with other partners in Central Asia to support transformations towards a sustainable future.
- Conduct a thorough needs assessment of Central Asia stakeholders to inform future iterations of the Central Asia Strategy.
- Better align long-term objectives with short-term priorities of Central Asian republics, including job creation and stimulating investment; accepting that trade-offs will be necessary.
- Launch a new "European Energy Diversification Initiative" to implement a phased transformation to clean energy economies in Central Asia, featuring a catalogue of activities and providers from Europe.
- Improve data, monitoring and access to finance for meeting environmental challenges in Central Asia, particularly by making better use of climate change instruments at the EU and global level.
- Raise the profile, ambition and coordination of water diplomacy in Central Asia with China and other countries in the region (e.g. Afghanistan and Pakistan). There has been an insufficient debate in Europe on the overlap between EU and China's interests in Central Asia, to the possible detriment of people living in the region.
- Build on the EU-China Connectivity Platform as a mechanism for linking the trans-European transport network (TEN-T) with China's Belt and Road Initiative in Central Asia. The EU should be more proactive in complementing China's hard infrastructure ambitions with its expertise on soft infrastructure to facilitate trade.
- Prepare strategic responses to the plausible, undesirable, futures in which Europe becomes further marginalised in Central Asia. Such an assessment should be used to assess EU willingness to engage in more transformative action in Central Asia that helps people there to define their own sustainable future.

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Find out more:

Benzie, M. et al. (2017) Implications for the EU of cross-border climate change impacts, IMPRESSIONS Deliverable D3A.2, available from www.impressions-project.eu.

Benzie, M. et al. (2016) Introducing the Transnational Climate Impacts Index, SEI Working Paper, available from https://www.sei.org/publications/transnational-climate-impacts-index/

Nowak et al. (2018) Comparisons of results across scale, IMPRESSIONS Deliverable n°: D3.2

Carter TR, Fronzek S, Alkemade R, Holman I, Honda Y, Ito A, Jäger J, Leemans R, Nunez S, Oka K, O'Neil N, Onigkeit J, Pedde S, Rounsevell M, Takahashi K, Wimmer F, Yoshikawa M (2016). Global scale application of climate change impact, adaptation and vulnerability (CCIAV) models. EU FP7 IMPRESSIONS Project Deliverable D3A.1.

Fronzek S, Benzie M, Carlsen H, Alkemade R, Flörke M, Honda Y, Jones B, Kok K, Kovats S, Leemans R, Lloyd S, Nunez S, O'Neill B, Onigkeit J, Pedde S, Takahashi K, Wimmer F, Yoshikawa M, Carter T (in preparation). Modelling impacts of climate change on key sectors in former Soviet central Asia under four SSP/RCP-based scenarios, manuscript in preparation.