



Climate Change and Growth in the CAREC Region

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The Following Presentation is Adapted from Recent Fund Publications for the CCA and ME&CA on Climate Risks

INTERNATIONAL MONETARY FUND


MIDDLE EAST AND CENTRAL ASIA DEPARTMENT

Paving the Way to More Resilient, Inclusive, and Greener Economies in the Caucasus and Central Asia

Prepared by a team led by Nikoloz Gigineishvili and including Iulia Ruxandra Teodoru, Narek Karapetyan, Yulia Ustyugova, Jean van Houtte, Jiri Jonas, Wei Shi, Shant Arzoumanian, Kalin Tintchev, Maxwell Tuuli, Faten Saliba, Farid Talishli, Moataz El Said, and Fernanda Brollo

DP/2023/004

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JUN



DEPARTMENTAL PAPER

INTERNATIONAL MONETARY FUND

MIDDLE EAST AND CENTRAL ASIA DEPARTMENT

Feeling the Heat

Adapting to Climate Change in the Middle East and Central Asia

Prepared by IMF team led by Christoph Duenwald, Yasser Abdih, Kerstin Gerling, and Vahram Stepanyan, and including Lamiae Agoumi, Abdullah AlHassan, Gareth Anderson, Anja Baum, Mehdi Benatiya Andaloussi, Chen Chen, Sahra Sakha, Sergejs Saksonovs, Faten Saliba, and Jesus Sanchez

DP/2022/008

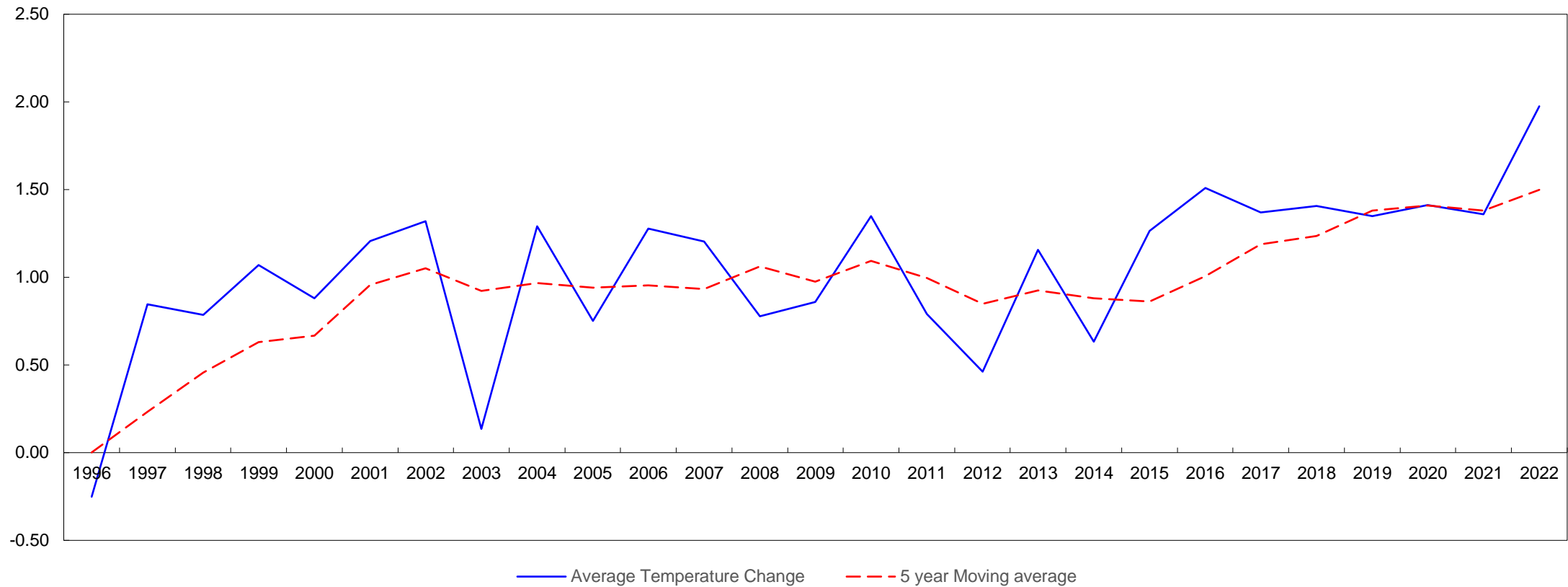
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Average temperatures in the CAREC region have risen significantly since the mid 90's

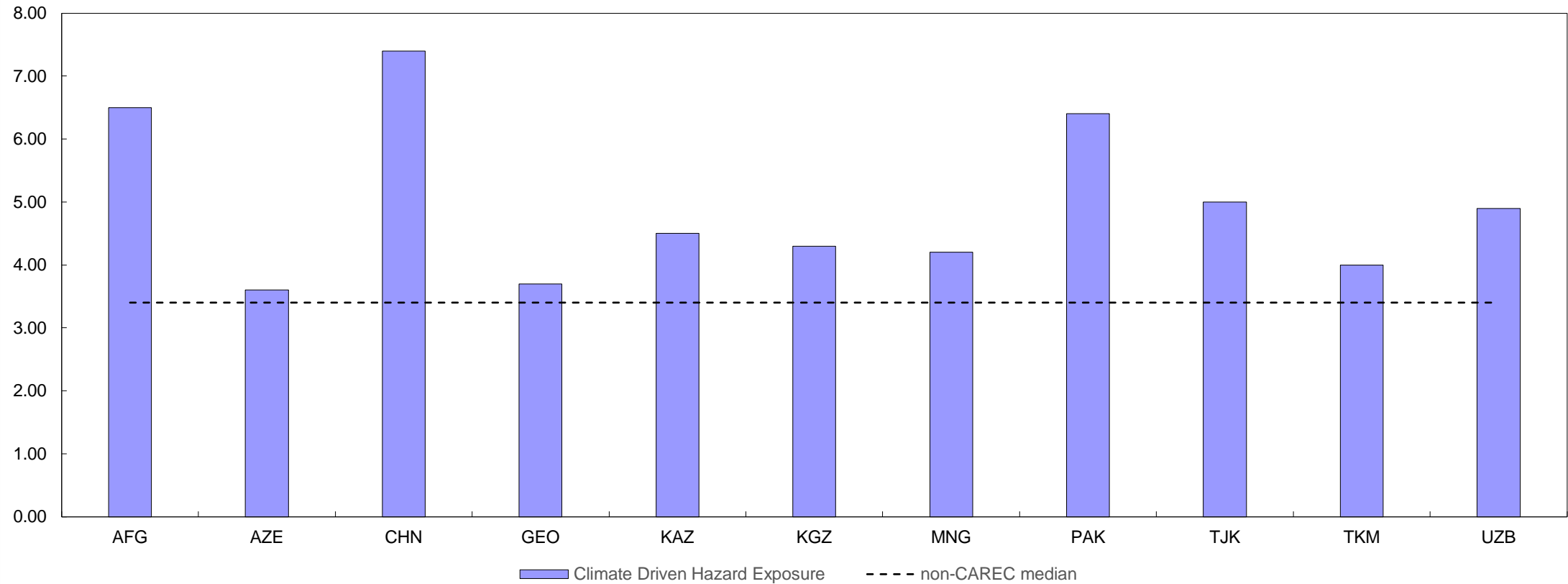
Average Temperature Change Relative to 1992-96



Sources: FAOSTAT; and IMF staff calculations.

And CAREC exposures to climate driven hazards are above the global median

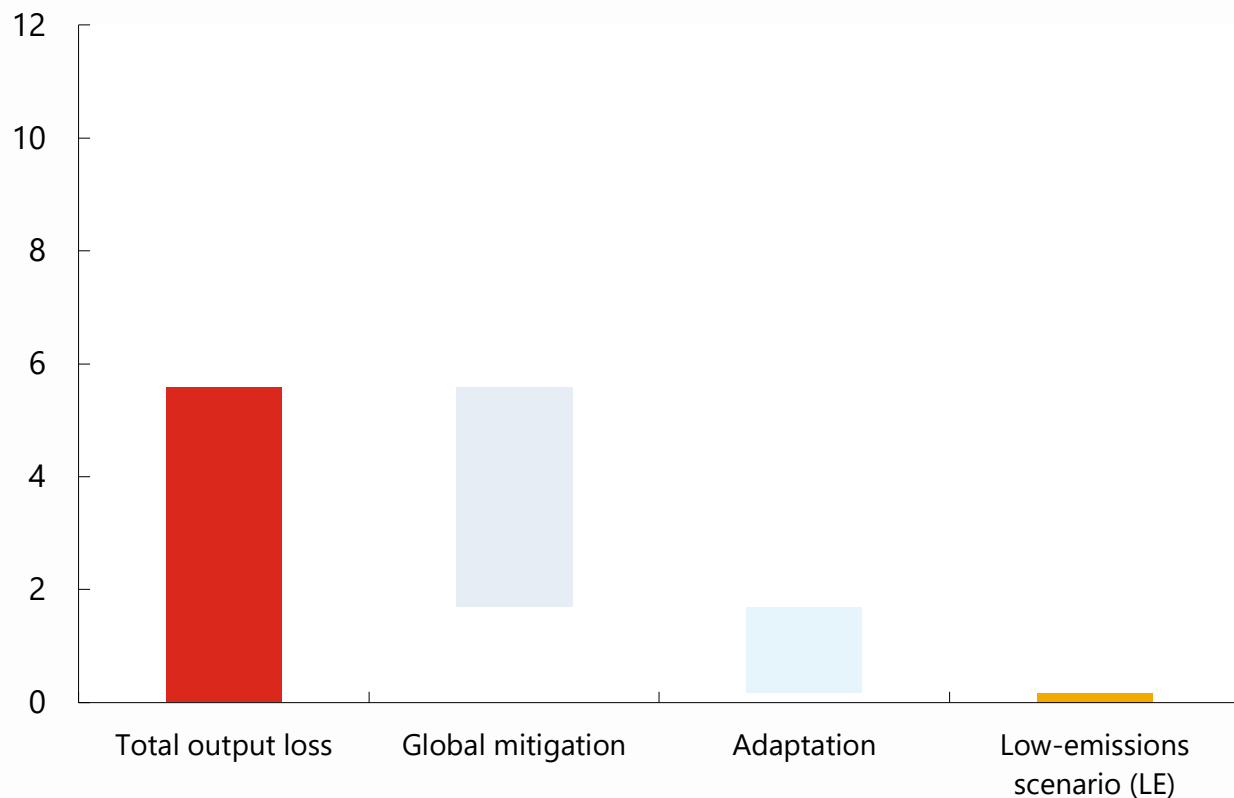
Climate Driven Hazard & Exposure (INFORM index 0-8) Compared to Global Average



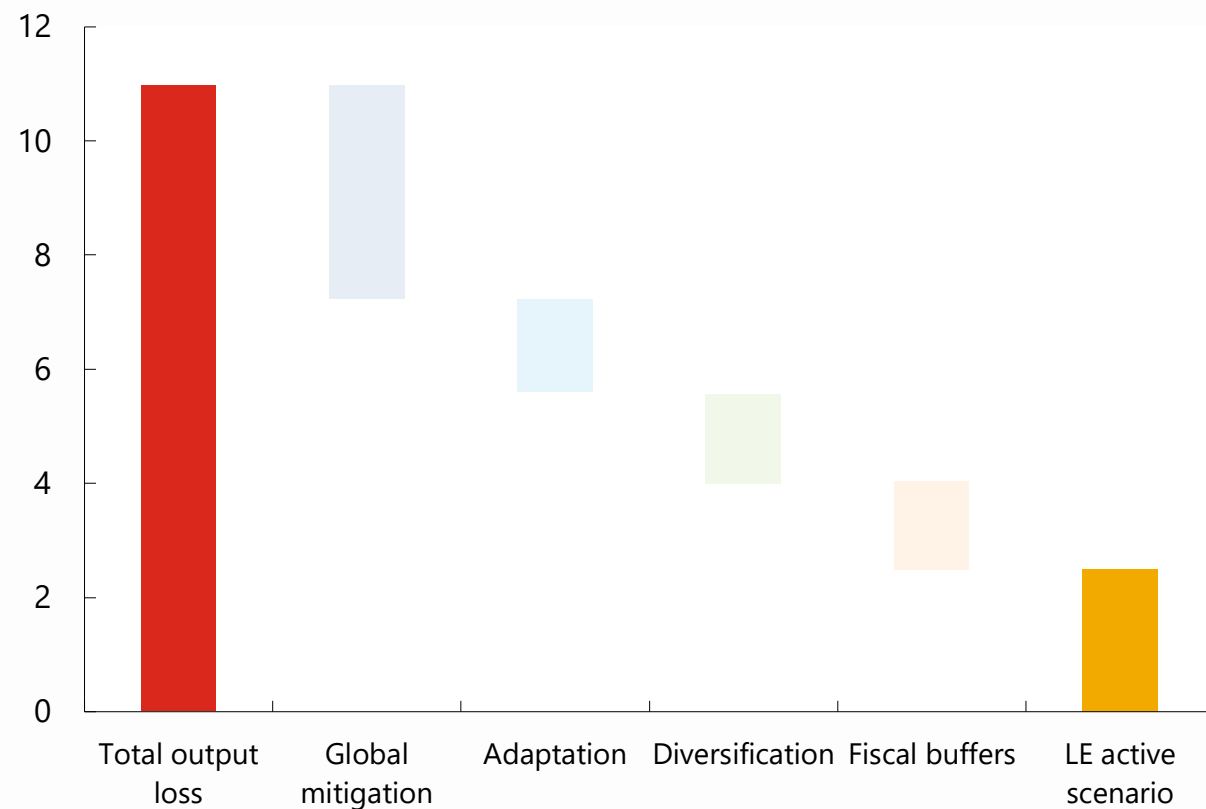
Sources: INFORM Risk; and IMF staff calculations.

Rising temperatures are a risk to long run output

CAREC oil importers
(2060 percent losses in per capita GDP)



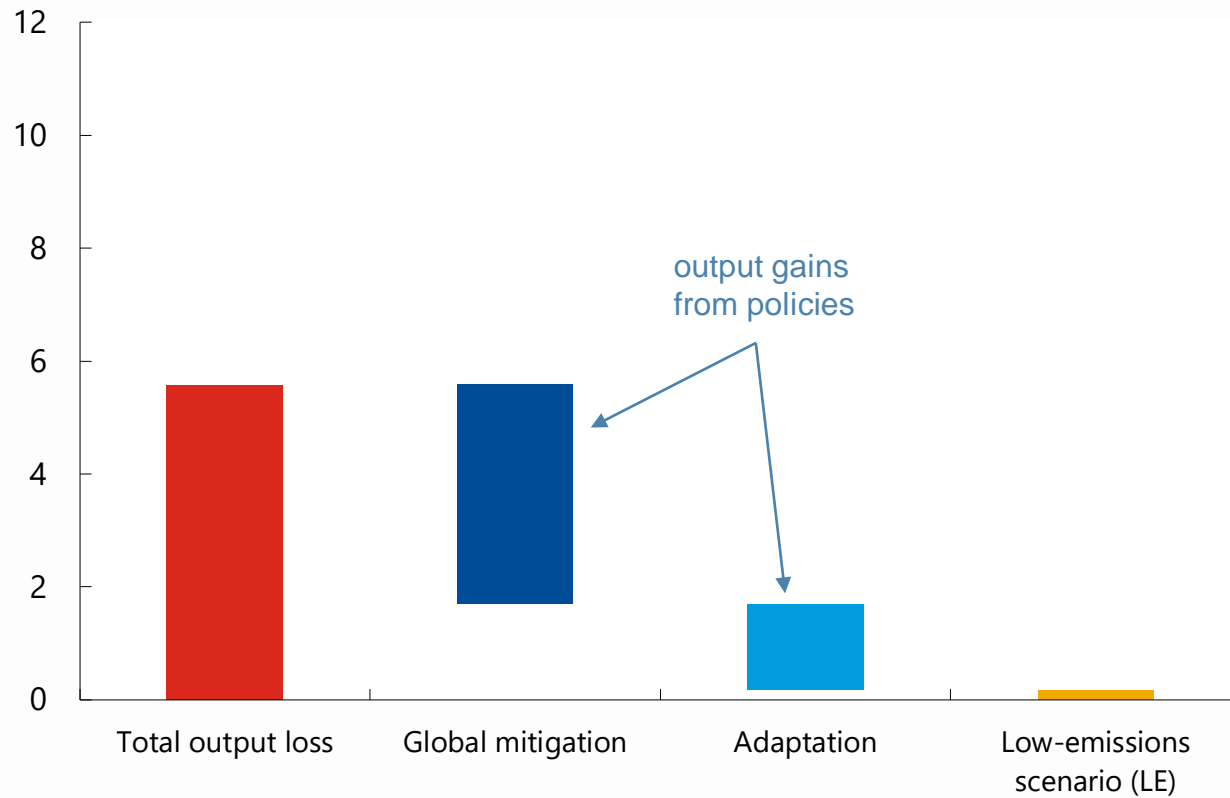
CAREC oil exporters
(2060 percent losses in per capita GDP)



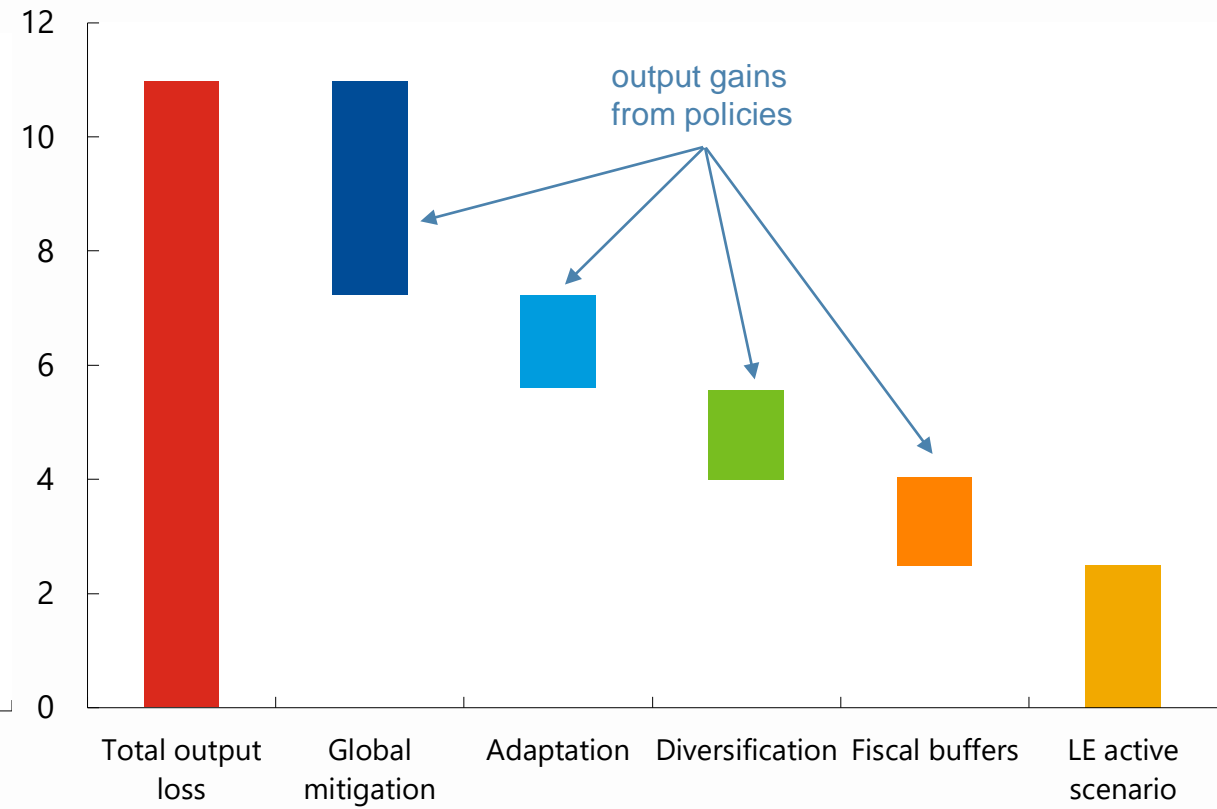
Sources: IMF (2023) – ‘Paving the Way to More Resilient, Inclusive, and Greener Economies in the Caucasus and Central Asia’; and further IMF Staff Calculations

But policy actions, particularly global mitigation, can greatly reduce these costs

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(2060 percent losses in per capita GDP)



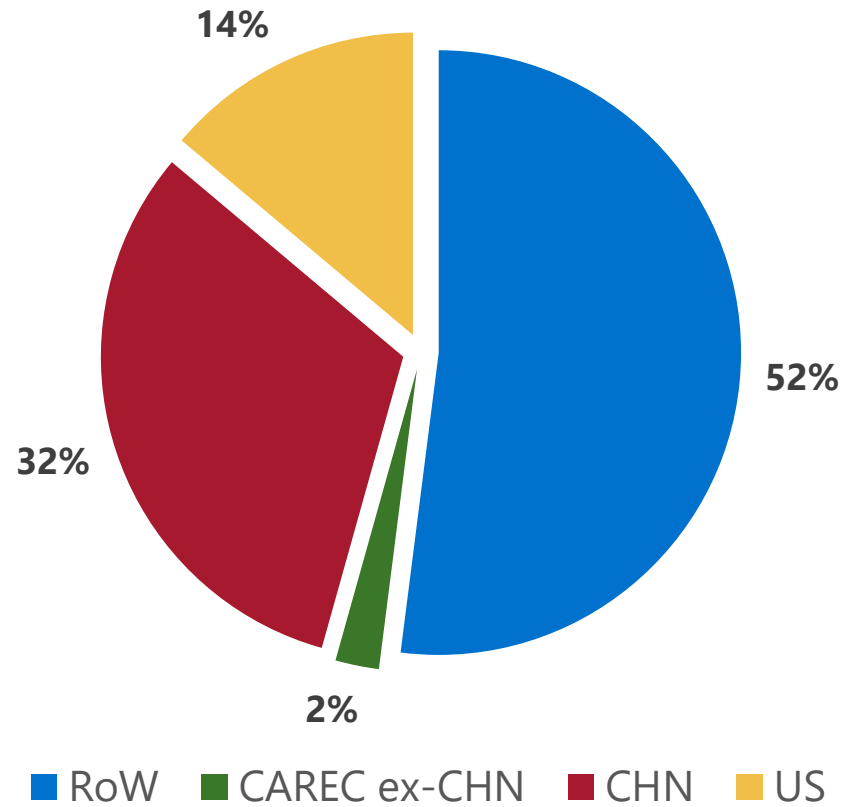
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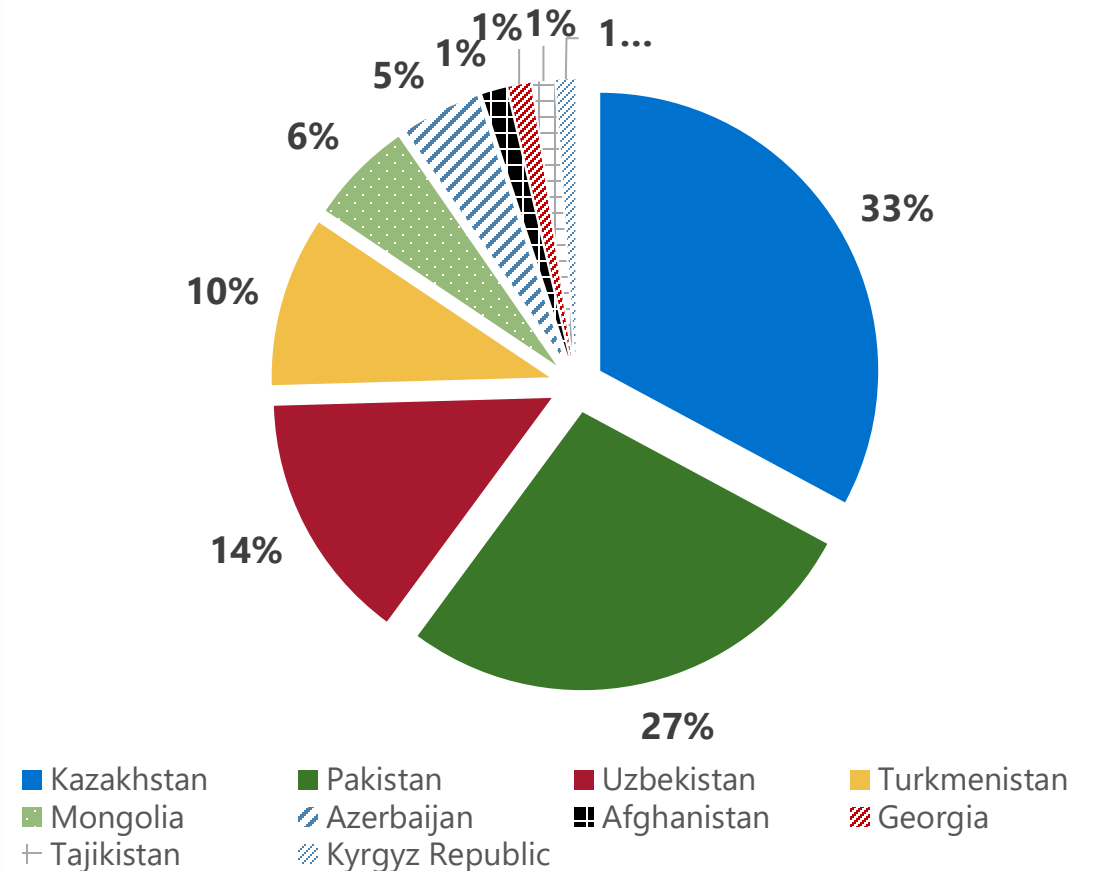
Sources: IMF (2023) – 'Paving the Way to More Resilient, Inclusive, and Greener Economies in the Caucasus and Central Asia'; and further IMF Staff Calculations

CAREC emissions, excluding China, are a small share of global emissions. 75% of non-China CAREC emissions are accounted for by Kazakhstan, Pakistan and Uzbekistan.

Share of 2021 CO2 emissions

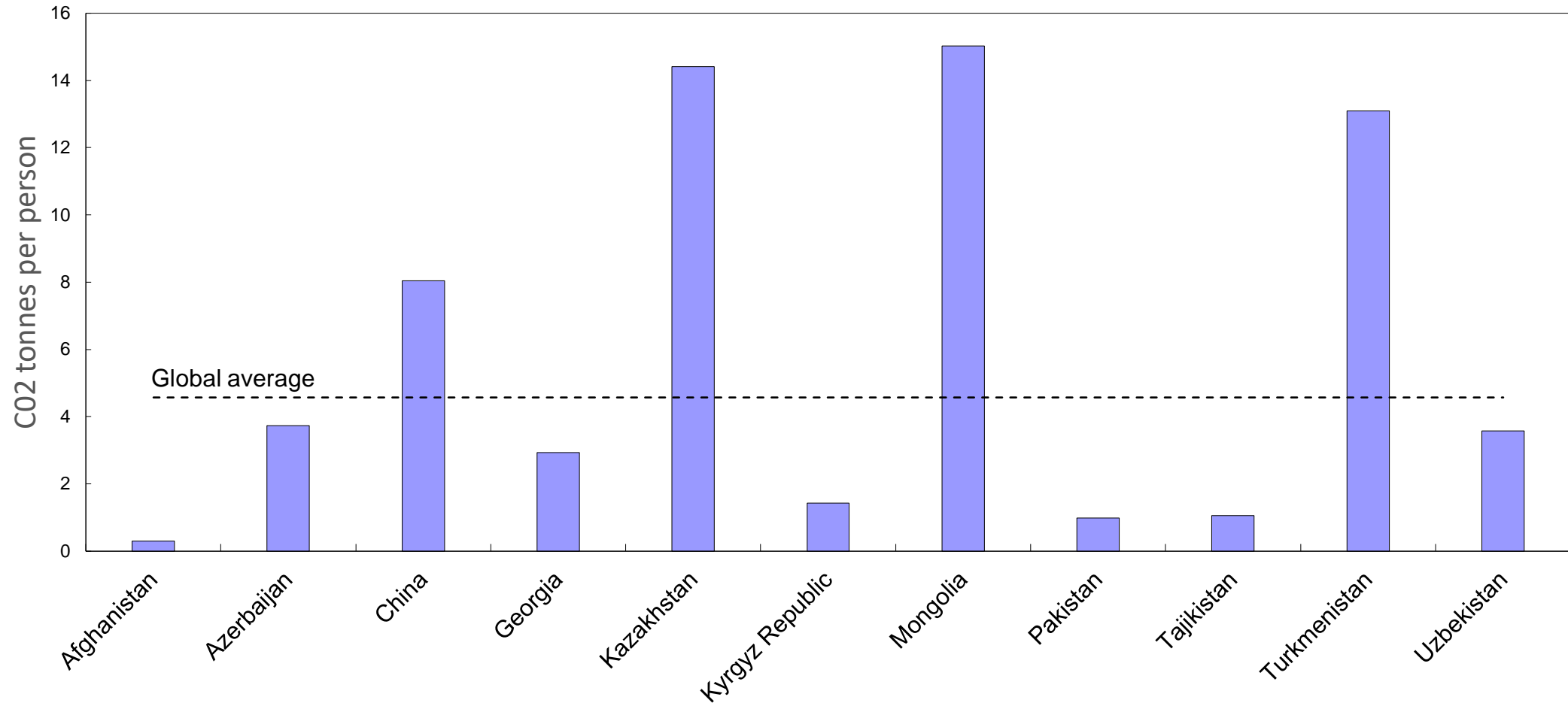


Share of CAREC ex-China emissions



Sources: Our World In Data (2023), Global Carbon Budget (2022) and IMF staff calculations

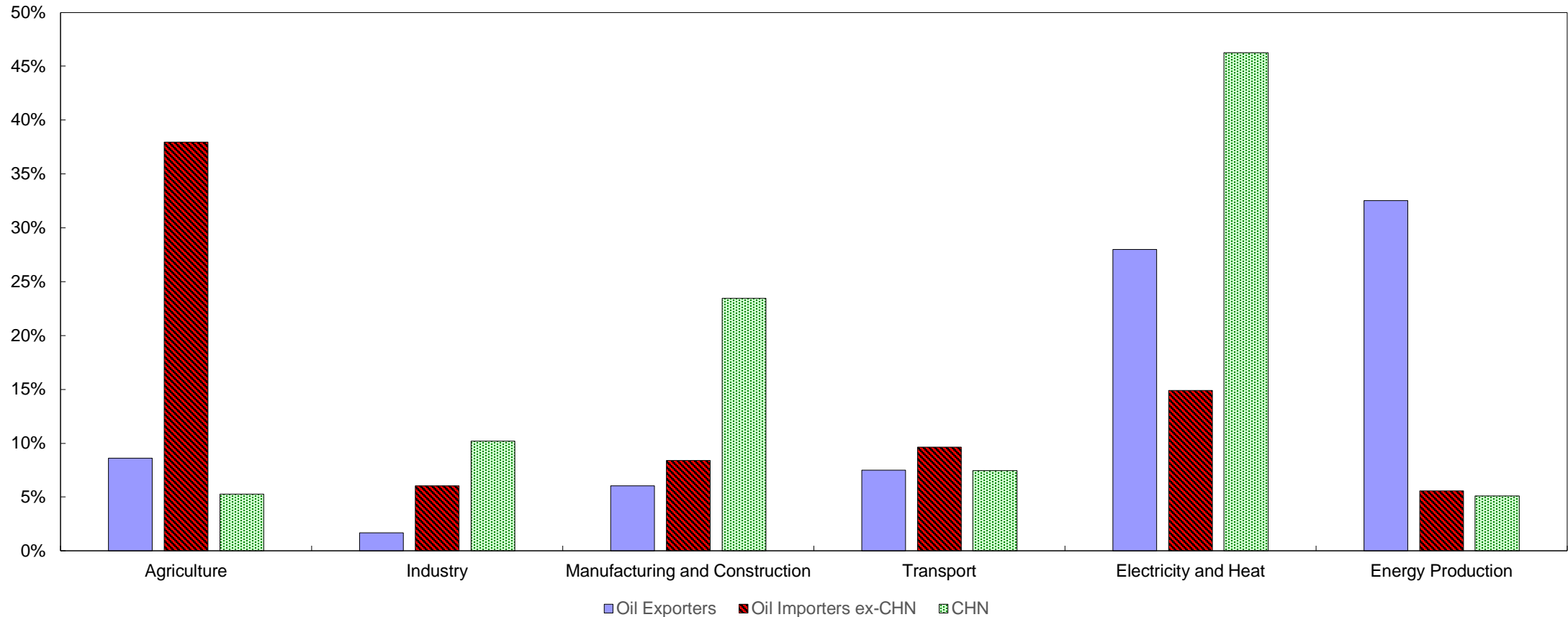
Within CAREC there is large variation in per capita emissions...



Sources: Our World In Data (2023), Global Carbon Budget (2022) and IMF staff calculations

...And the primary source of emissions also varies substantially across CAREC members

Emissions Share by Sector



Sources: Our World In Data (2023), Global Carbon Budget (2022) and IMF staff calculations

Nationally Determined Contributions (NDCs), action plans to cut emissions and adapt to climate impacts have been put in place by all CAREC members

	Afghanistan	Azerbaijan	China	Georgia	Kazakhstan	Kyrgyz Republic	Mongolia	Pakistan	Tajikistan	Turkmenistan	Uzbekistan
Year of NDC	2016	2023	2021	2021	2023	2021	2020	2021	2021	2023	2021
Reference Year	BAU	1990	2005	1990	1990	BAU	BAU - 2010	BAU	1990	2010	2010
Target year	2030	2050	2030	2030	2030	2030		2030	2030	2030	2030
Net Zero Target			2060		2060	2050		2050			
Unconditional Target			65% 'per unit of GDP' + peak of emissions	35%	15%	16%		15%	30-40%		35% 'per unit of GDP'
Conditional Target	14%	40%		50-57%	25%	44%	45%	50%	40-50%	20%	

Sources: UNFCCC and IMF staff calculations

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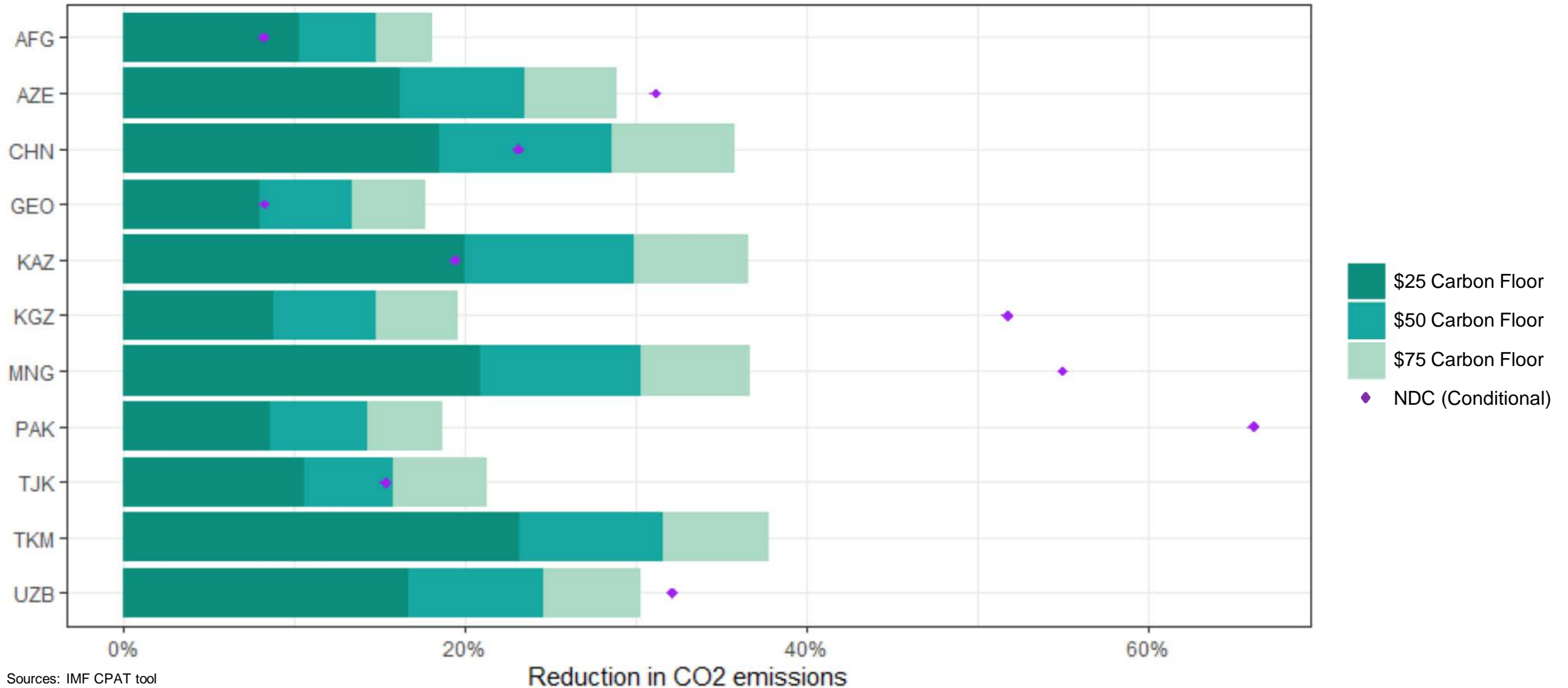
Sources: UNFCCC and IMF staff calculations

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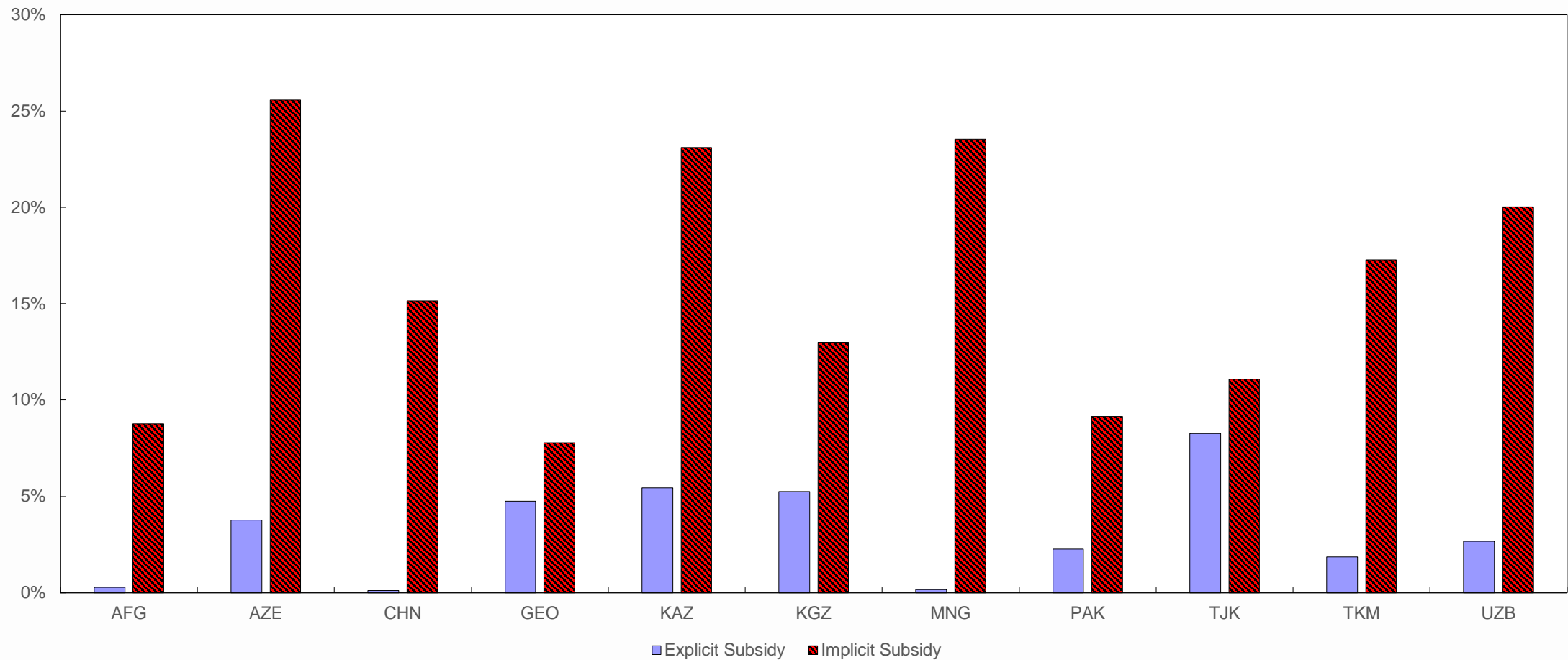
Sources: UNFCCC and IMF staff calculations

The IMF has proposed a differentiated carbon price floor for large emitters from \$25 per ton for low-income countries to \$75 per ton for advanced economies



A broader fuel pricing reform to eliminate implicit and explicit subsidies could support regional mitigation

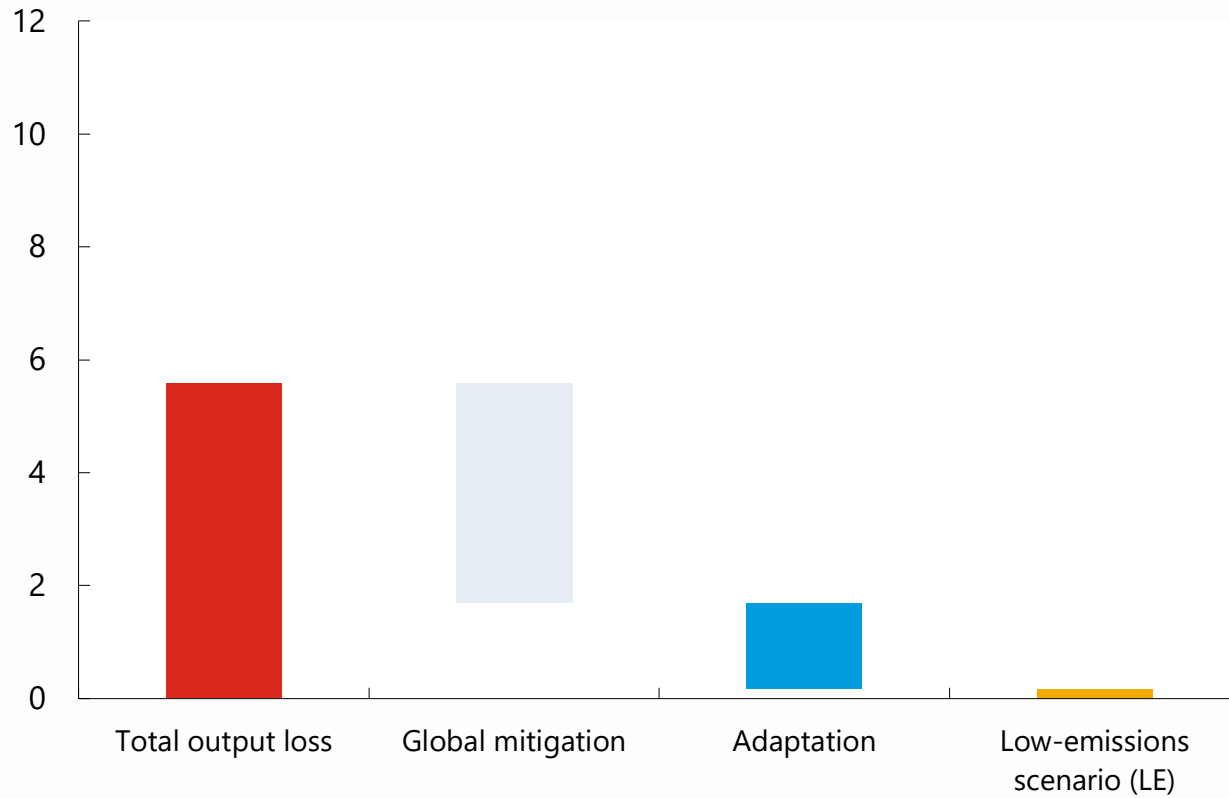
Fossil Fuel Subsidies as a Share of GDP



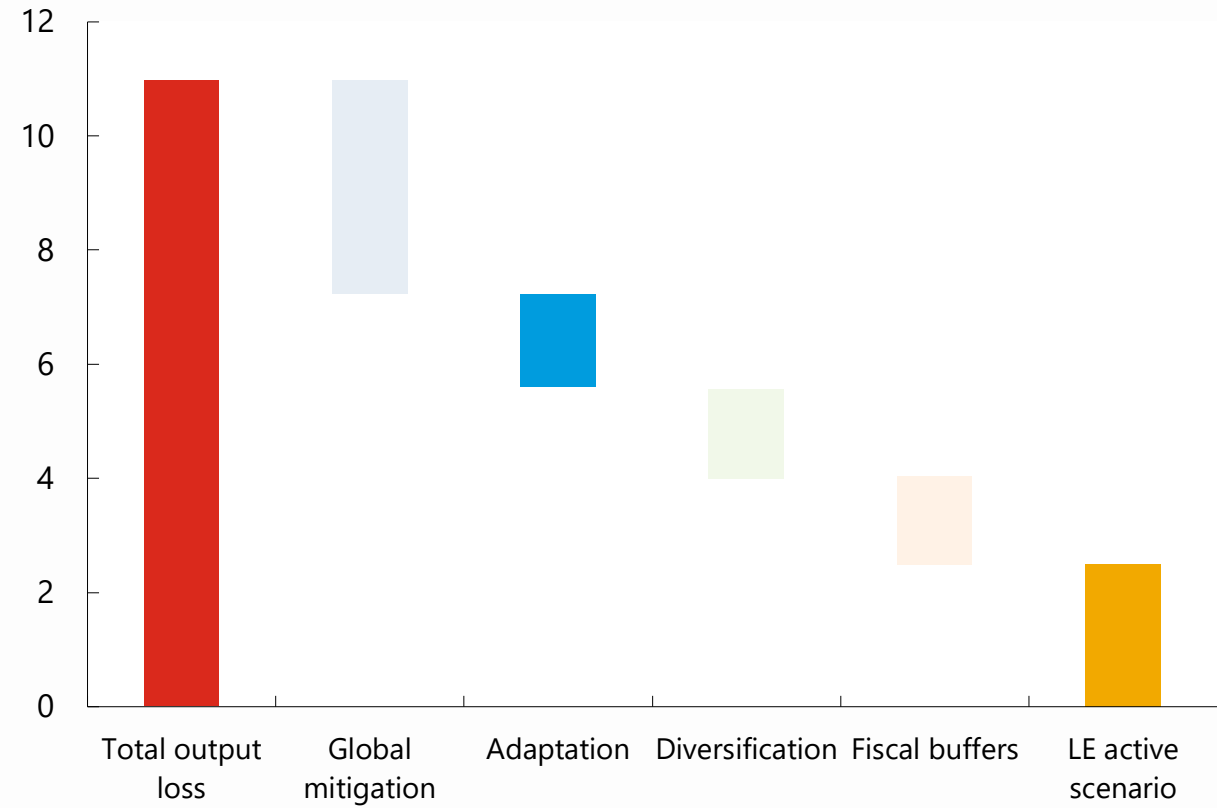
Sources: Parry et al (2021) – ‘Still Not Getting Energy Prices Right: A Global and Country Update of Fossil Fuel Subsidies’ and IMF staff calculations

While global mitigation is the most important policy response to climate change, adaptation can also do much to reduce the economic damage

CAREC oil importers
(2060 percent losses in per capita GDP)



CAREC oil exporters
(2060 percent losses in per capita GDP)



Sources: IMF (2023) – ‘Paving the Way to More Resilient, Inclusive, and Greener Economies in the Caucasus and Central Asia’; and further IMF Staff Calculations

Adaptation is necessary, because some degree of warming is inevitable even with strong mitigation measures

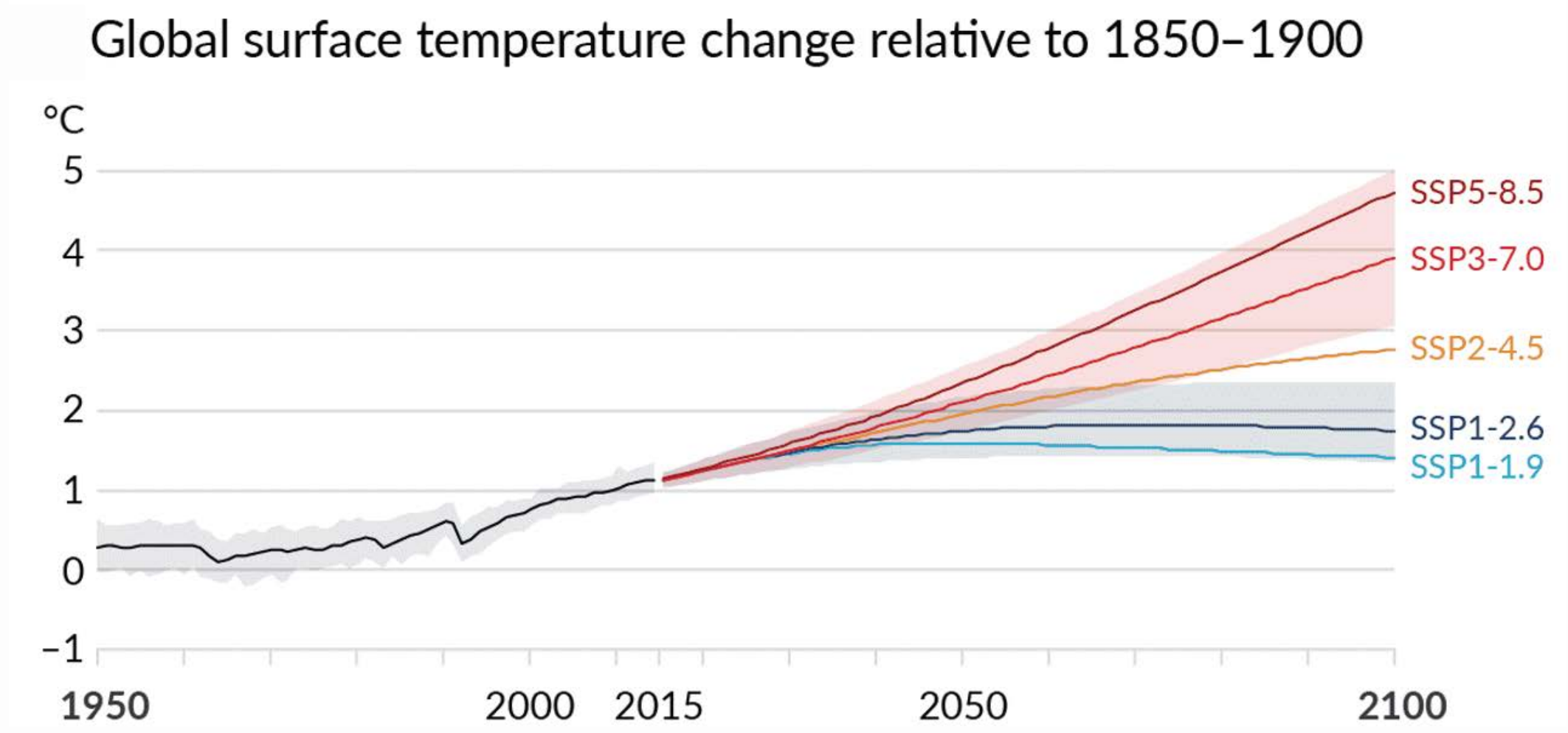
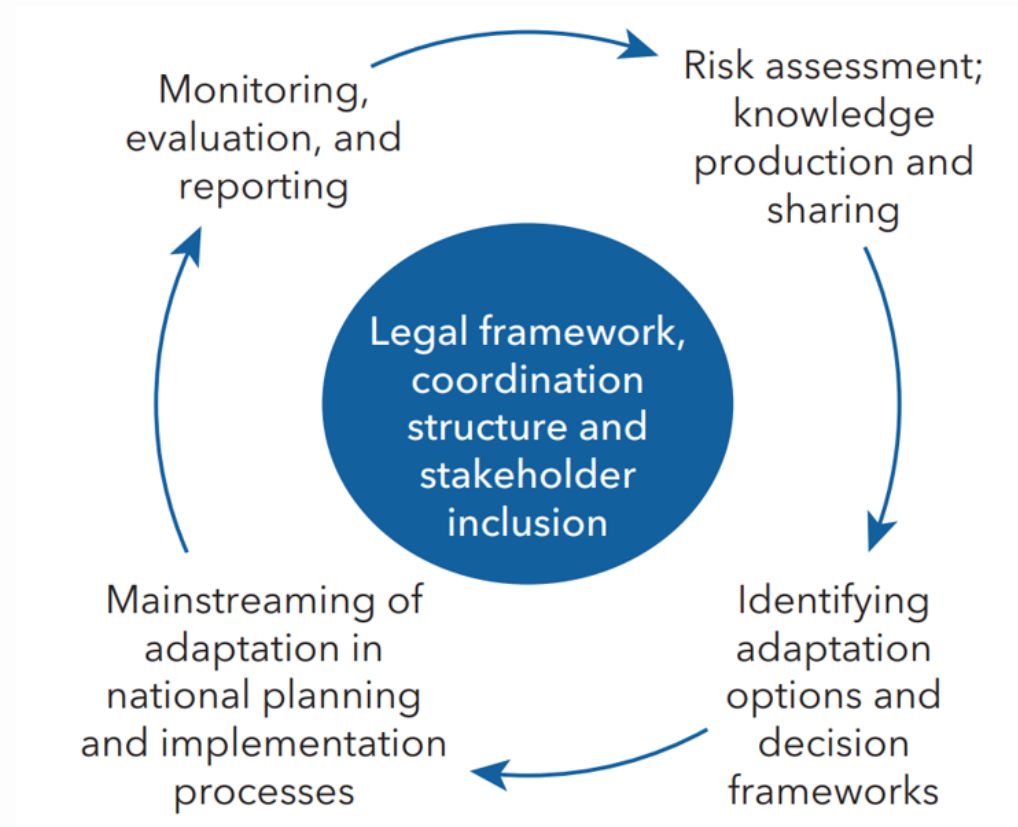


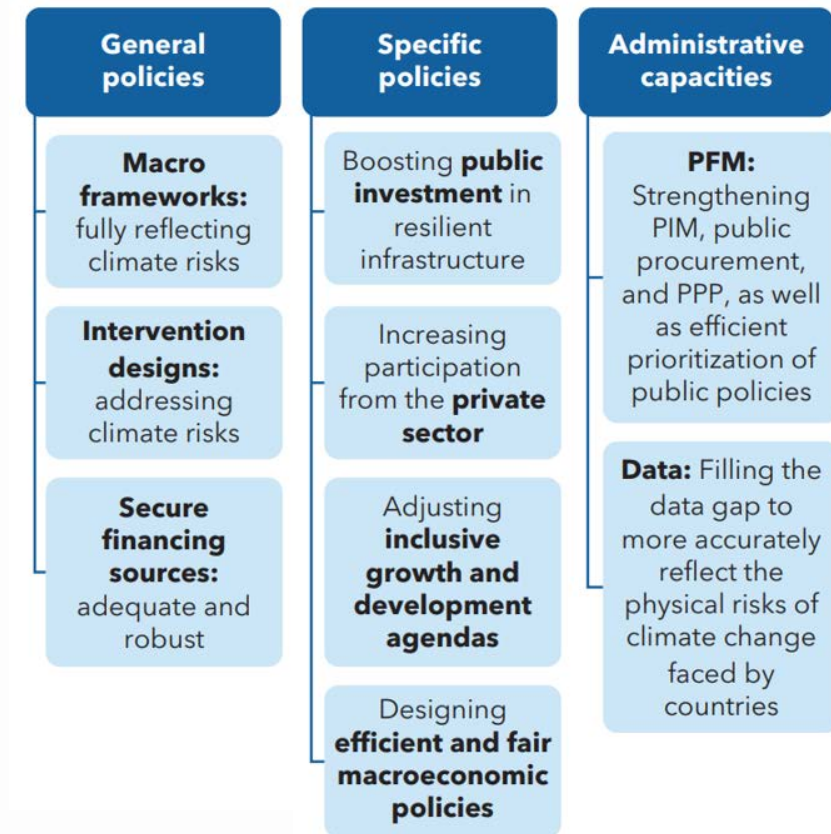
Figure SPM.8 in IPCC, 2021: Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3–32, doi: [10.1017/9781009157896.001](https://doi.org/10.1017/9781009157896.001).]

Adaptation policies range from integrating climate into broad based macro policy, to specific investments in public infrastructure. Ideally these are part of National Adaptation Plans (NAPs).

Stylized NAP Framework



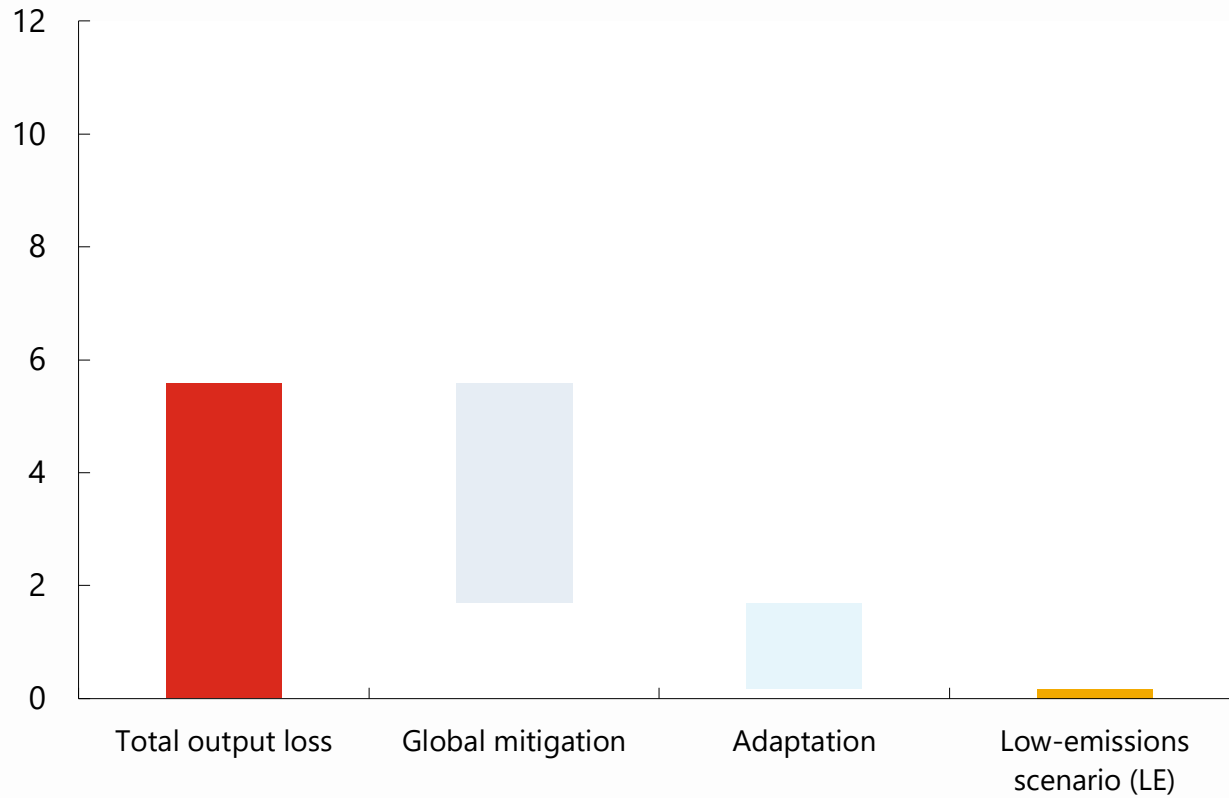
Adaptation Policies



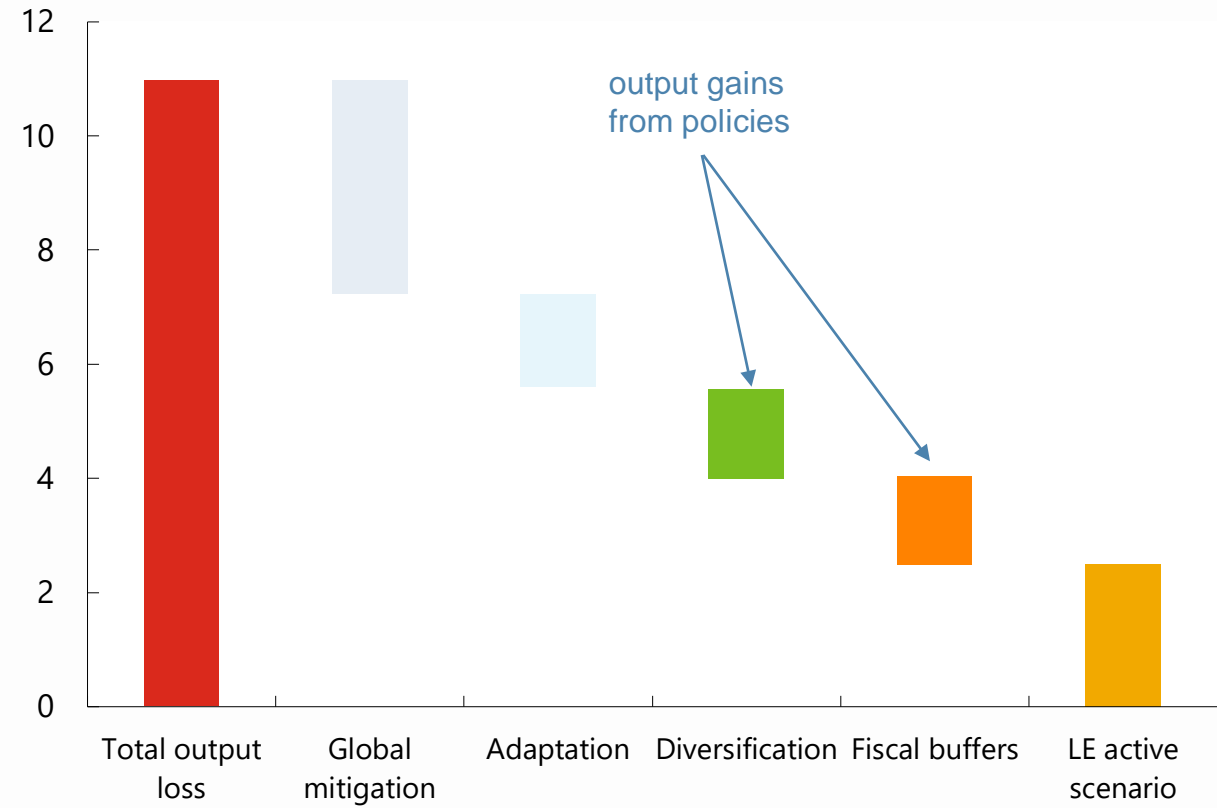
Sources: IMF (2022) – ‘Feeling the Heat: Adapting to Climate Change in the Middle East and Central Asia’; IMF (2023) – ‘Paving the Way to More Resilient, Inclusive, and Greener Economies in the Caucasus and Central Asia’; and further IMF Staff Calculations

Finally, economies dependent on fossil fuels will also need to diversify their economy and build fiscal buffers to minimize transition risks

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(2060 percent losses in per capita GDP)



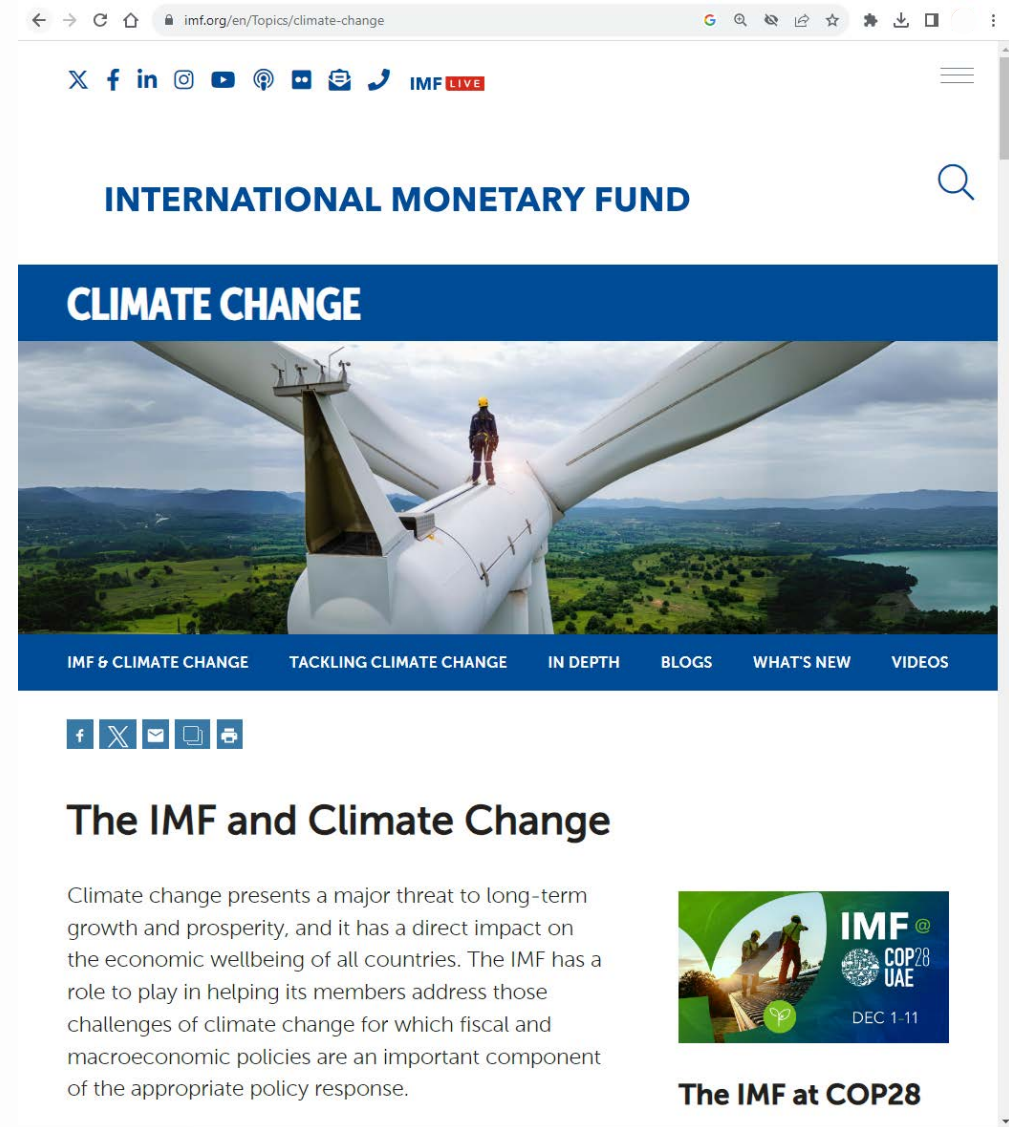
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(2060 percent losses in per capita GDP)



Sources: IMF (2023) – ‘Paving the Way to More Resilient, Inclusive, and Greener Economies in the Caucasus and Central Asia’; and further IMF Staff Calculations

The IMF is engaging in several ways to help tackle climate change:

- **Data**
- **Macroeconomic Surveillance**
- **Financial Stability Assessment Programs**
- **Capacity Development**
- **Resilience and Sustainability Trust**



The screenshot shows the IMF website's climate change page. The browser address bar displays 'imf.org/en/Topics/climate-change'. The page features a navigation bar with social media icons and 'IMF LIVE'. The main header reads 'INTERNATIONAL MONETARY FUND' and 'CLIMATE CHANGE'. Below this is a large image of a person standing on a wind turbine. A secondary navigation bar includes links for 'IMF & CLIMATE CHANGE', 'TACKLING CLIMATE CHANGE', 'IN DEPTH', 'BLOGS', 'WHAT'S NEW', and 'VIDEOS'. The main content area is titled 'The IMF and Climate Change' and contains a paragraph about the IMF's role in addressing climate change challenges. To the right, there is a promotional graphic for 'IMF @ COP28 UAE' dated 'DEC 1-11' with the title 'The IMF at COP28' below it.

CONCLUSIONS

- Temperatures have already risen across CAREC countries
- CAREC countries are on average more exposed to climate related hazards
- A BAU approach is likely to incur high costs
- Mitigation and adaptation policies will be required to reduce these costs
- The IMF will provide member nations support along several dimensions

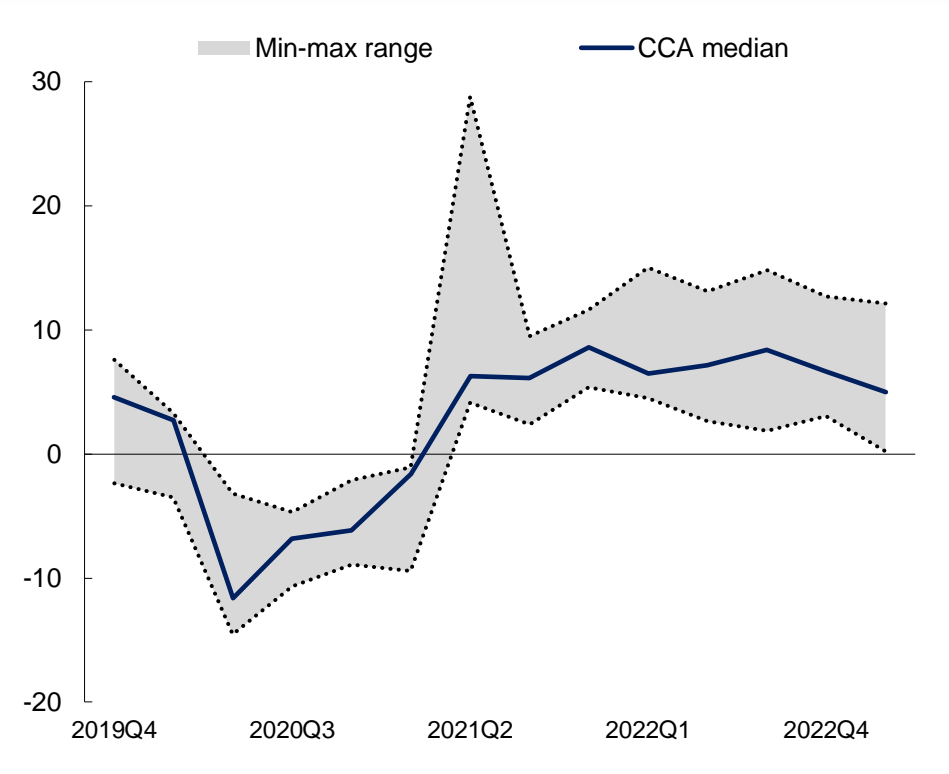
Regional Economic Outlook for the CCA

Growth in the CCA is slowing, amid declining inflation

Growth has slowed across the region...

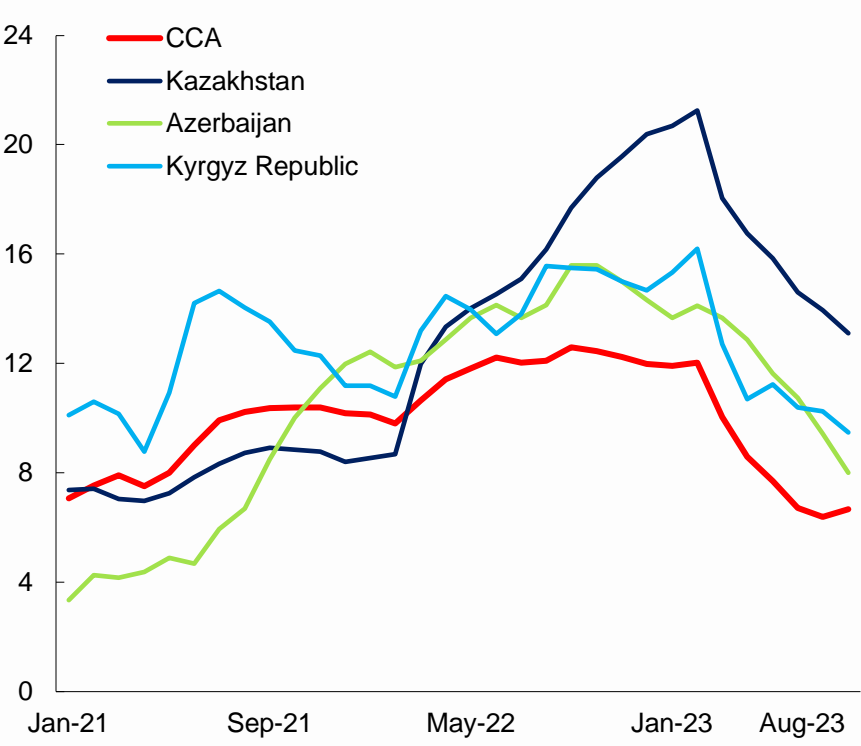
...and inflation has declined, but remains high in some countries

CCA: Real GDP Growth
(Year-over-year percent change)



Sources: Haver Analytics; and IMF staff calculations.

CCA: Headline Inflation
(Year-over-year percent change, simple average)



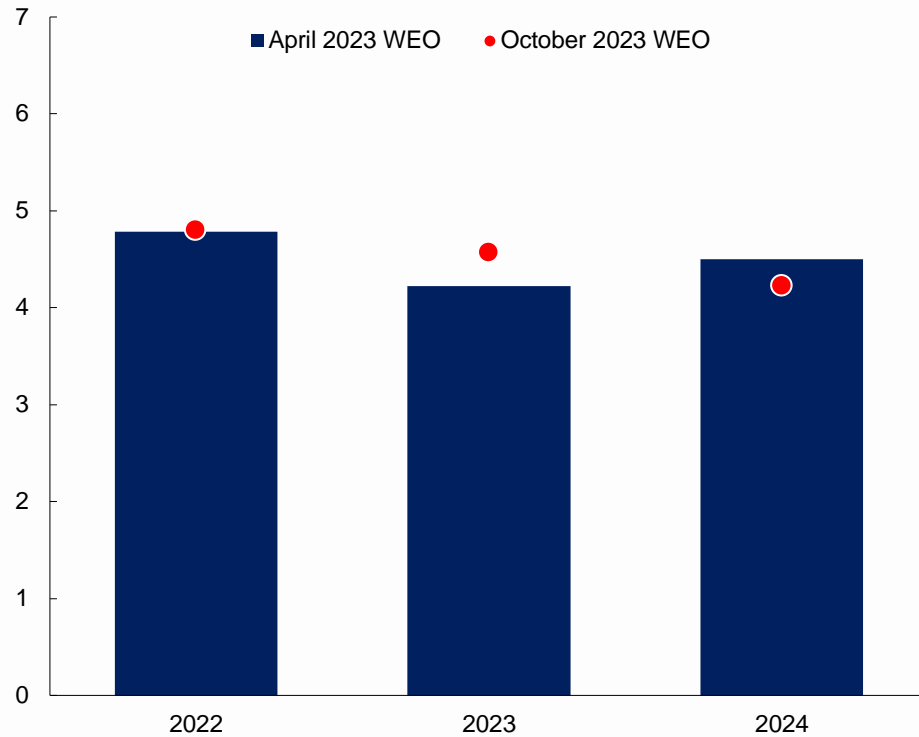
Sources: Haver Analytics; national authorities; and IMF staff calculations.

Outlook: Growth is set to decelerate in 2023 while inflation to abate gradually

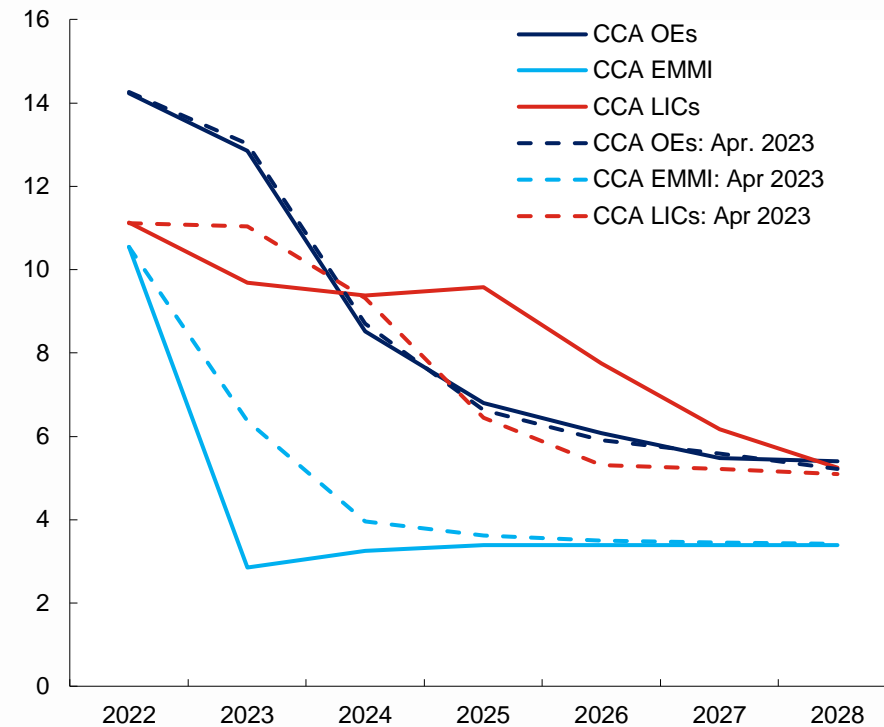
CCA growth is expected to gradually weaken ...

In some CCA countries inflation is declining rapidly, while it is projected to be more persistent in others

CCA: Real GDP Growth
(Year-over-year percent change)



CCA: Headline Inflation
(Year-over-year percent change)



Sources: IMF, World Economic Outlook database; and IMF staff calculations.

Risks: While the balance of risks has improved since April, it remains tilted to the downside

