

# Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (SDG 9)

SONCA SDG Forum, October 2022

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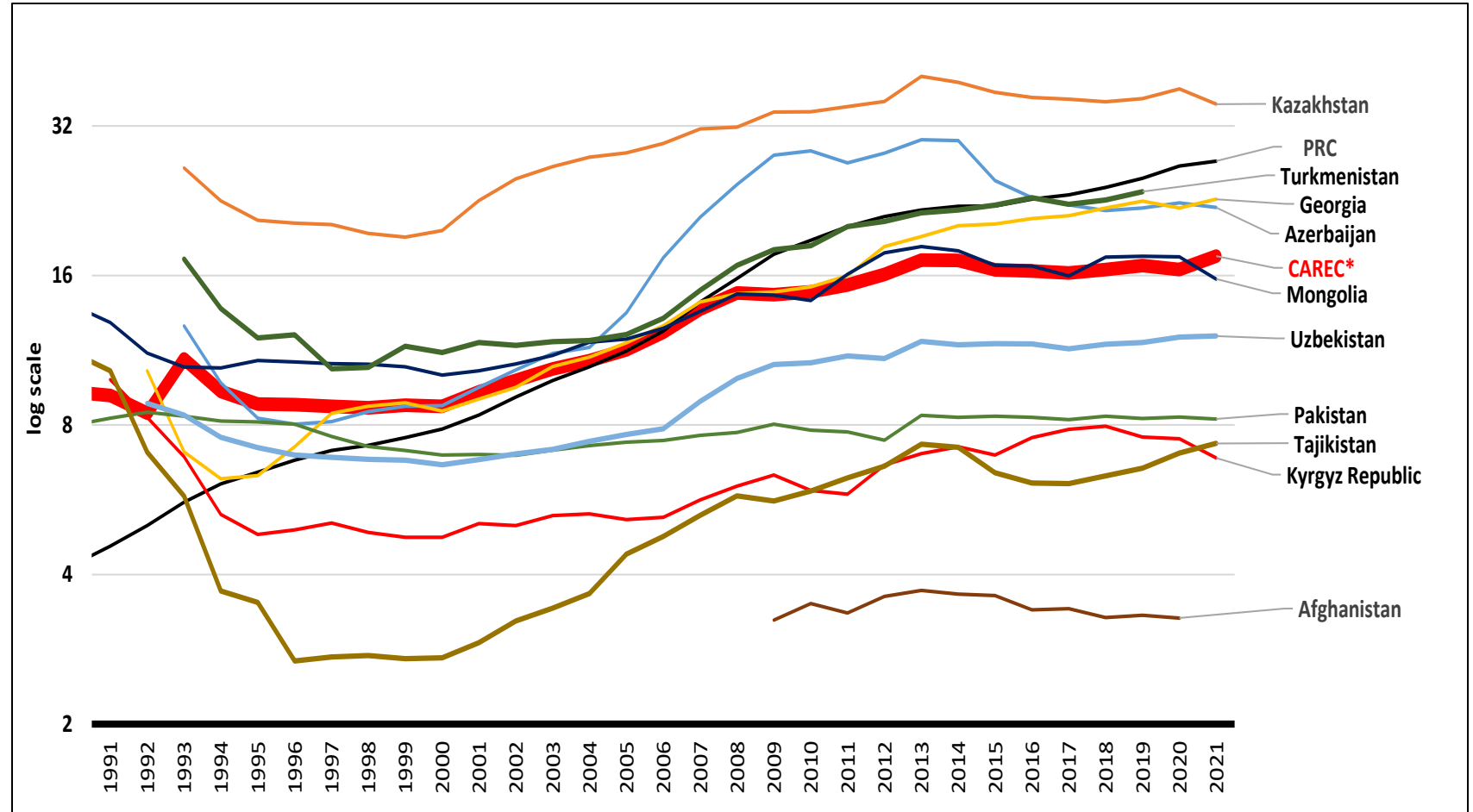


*Knowledge for Prosperity*

**Catching up with developed economies has slowed.**

**A new productivity push is needed.**

**Gross National Income (GNI) per capita, PPP (current international US\$), in % of US GNI per capita**



\* Simple CAREC average

Source: World Bank, World Development Indicators, authors' calculations

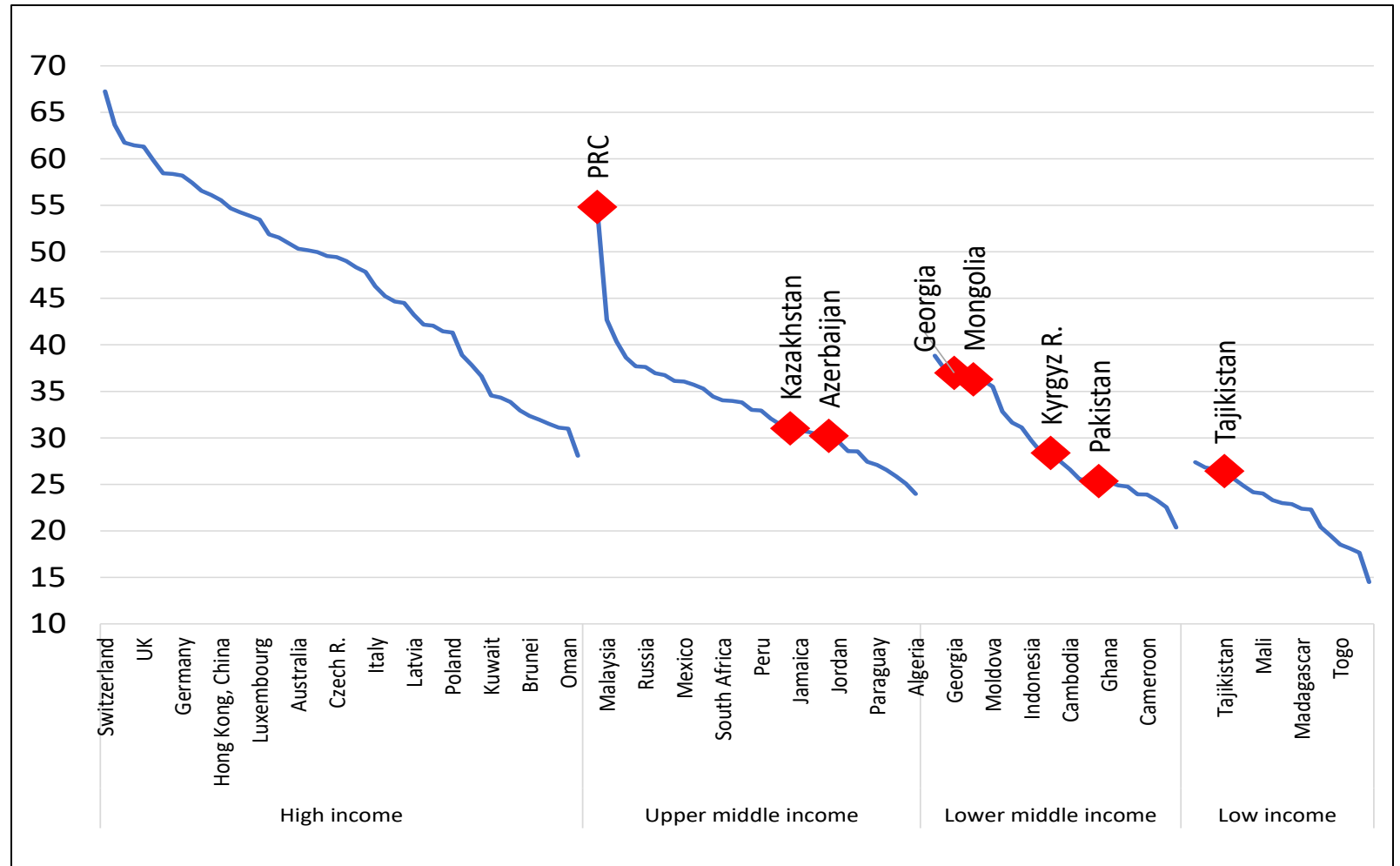
Where is the productivity to come from?

**Innovation, digitalization, technology**

**foreign trade and utilizing comparative advantages,**

**FDI, technology and management transfer, economies of scale**

Global Innovation Index 2019



Source: Cornell University, INSEAD, WIPO, Global Innovation Index

## The CAREC Digital Strategy 2030:

“ ...**digitalization** will not only help COVID-19 recovery but also allow member countries to develop robust solutions in important areas such as health care, education, agriculture, finance, trade, and tourism.”

### Digital Adoption Index (DAI)

Country	Digital Adoption Index (Rank)*	Digital Adoption Index
Kazakhstan	45	0.671
Georgia	68	0.599
Azerbaijan	71	0.594
PRC	74	0.586
Mongolia	84	0.538
Kyrgyz Rep.	<i>96</i>	<i>0.499</i>
Uzbekistan	<i>121</i>	<i>0.401</i>
Pakistan	<i>122</i>	<i>0.400</i>
Afghanistan	<i>134</i>	<i>0.343</i>
Tajikistan	<i>141</i>	<i>0.323</i>
Turkmenistan	<i>154</i>	<i>0.272</i>
<b>Average of 180 countries</b>	<b>90.5</b>	<b>0.516</b>

\* Among 180 countries;

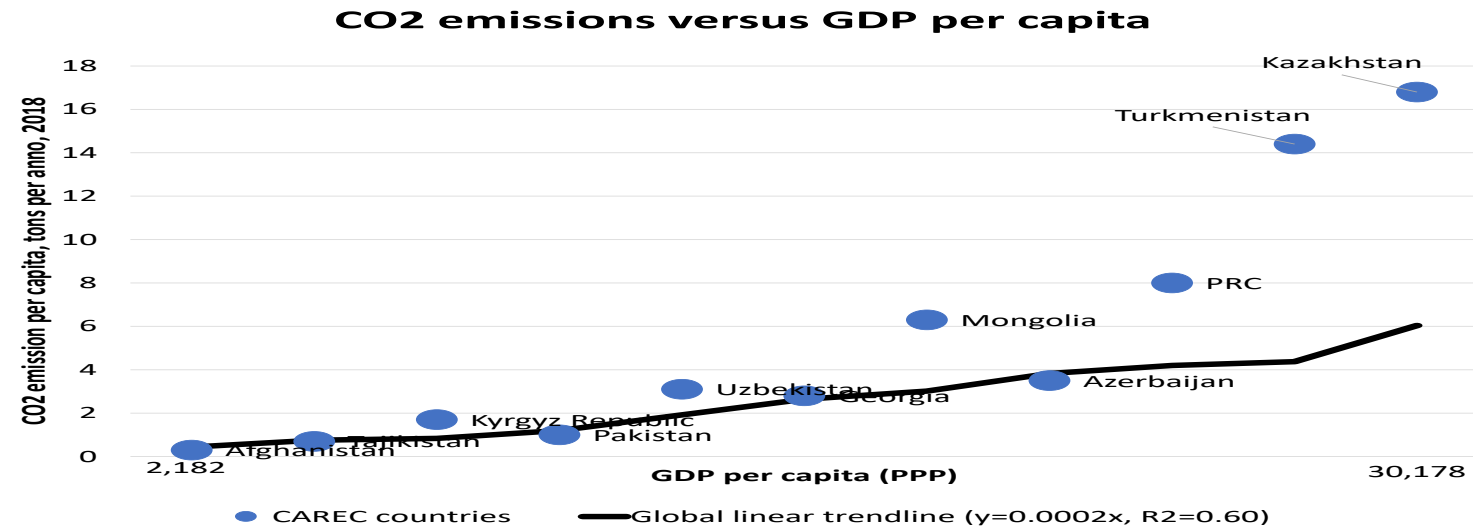
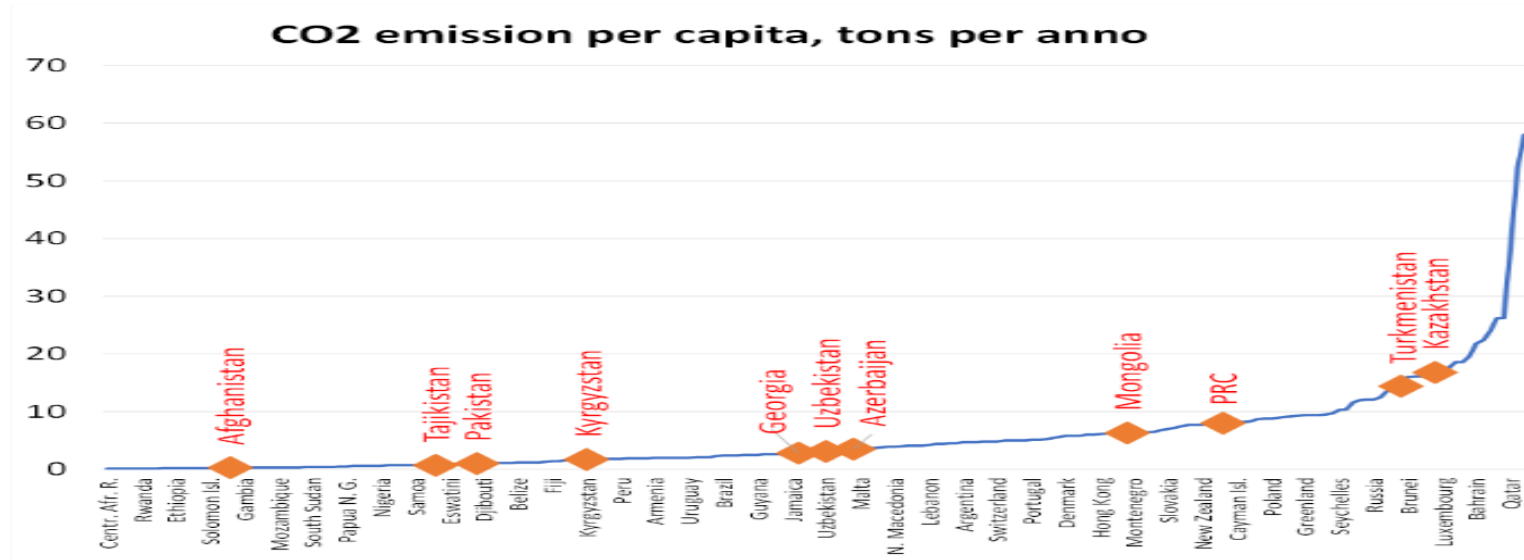
Blue italics indicate scores below global average (assigned by the authors)

Source: Digital adoption index 2016

**Industries need to become greener!**

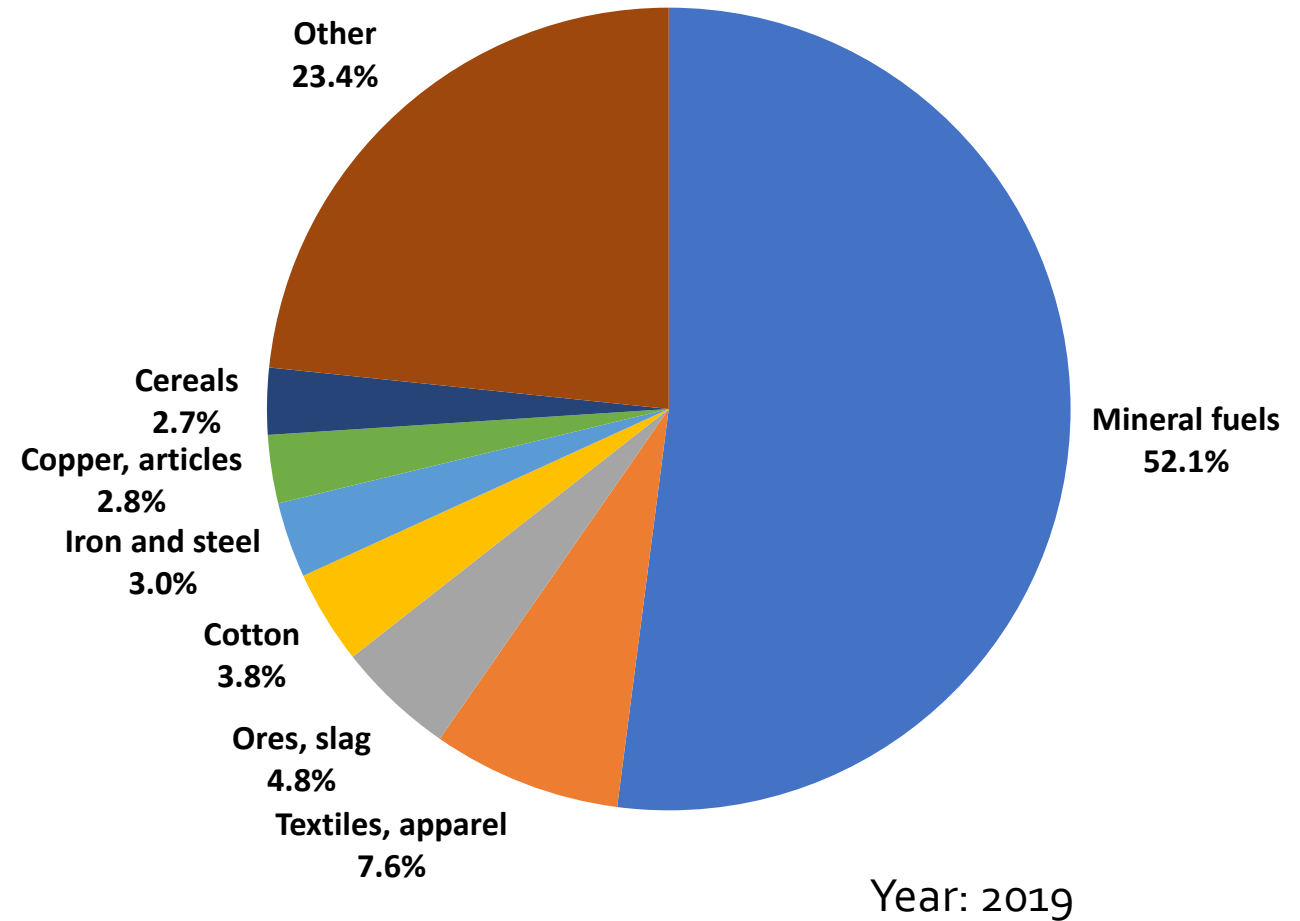
**Some CAREC economies are substantial greenhouse-gas emitters.**

**Mongolia, the PRC, Turkmenistan, and Kazakhstan emit significantly more CO2 per unit GDP than the World on average.**



Source: Emissions Database for Global Atmospheric Research (EDGAR), national statistics agencies, calculations and chart by the author

### The CAREC region's (excluding the PRC) exports by product



Source: TradeMap, chart by the author

**Global decarbonization is a challenge for exports: more than one-half of CAREC (excluding PRC) exports are mineral fuels.**

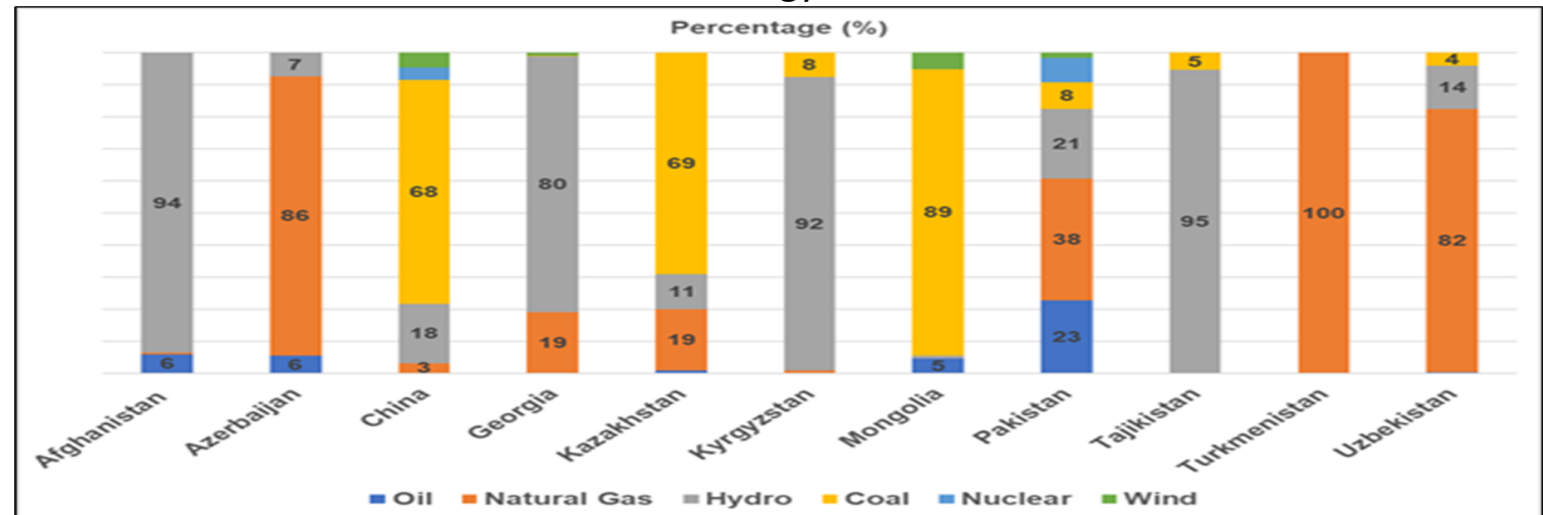
**The rest is also highly energy- and water-intensive.**

**Most CAREC economies must substantially accelerate their energy transition.**

### Energy Transition Index (ETI)

Rank	Name	ETI	System Performance	Transition Readiness
33	Georgia	65.15	67.4	52.9
44	Azerbaijan	62.90	69.5	56.3
68	China	56.70	55.4	58.0
75	Tajikistan	55.00	55.7	54.3
83	Kazakhstan	53.75	64.1	43.4
94	Kyrgyzstan	51.30	52.3	50.3
104	Pakistan	48.90	56.2	41.6
113	Mongolia	44.25	51.5	37.0

Source: World Economic Forum, Global Energy Transition Index 2021



Source: CAREC Institute, 'Climate Vulnerability, Infrastructure, Finance and Governance in CAREC Region.' Research report, 2020

**Beside energy, agriculture is one of the sectors where major changes are imminent.**

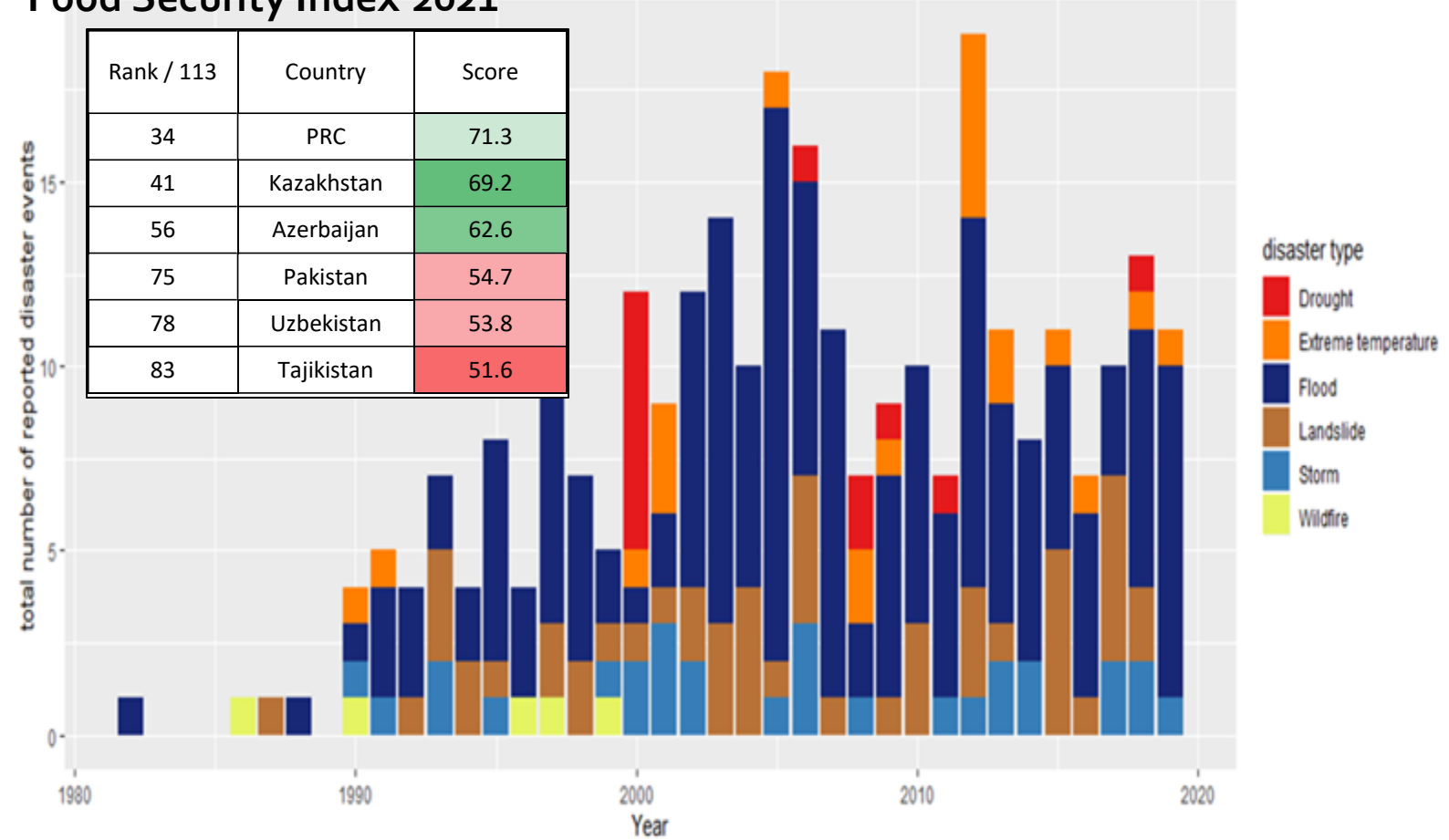
**Climate change is altering environmental conditions, and the CAREC region is strongly exposed.**

**This is one of the reasons for the transformation of agriculture.**

### Climate induced disasters in the CAREC region from 1980 to 2019

Food Security Index 2021

Rank / 113	Country	Score
34	PRC	71.3
41	Kazakhstan	69.2
56	Azerbaijan	62.6
75	Pakistan	54.7
78	Uzbekistan	53.8
83	Tajikistan	51.6



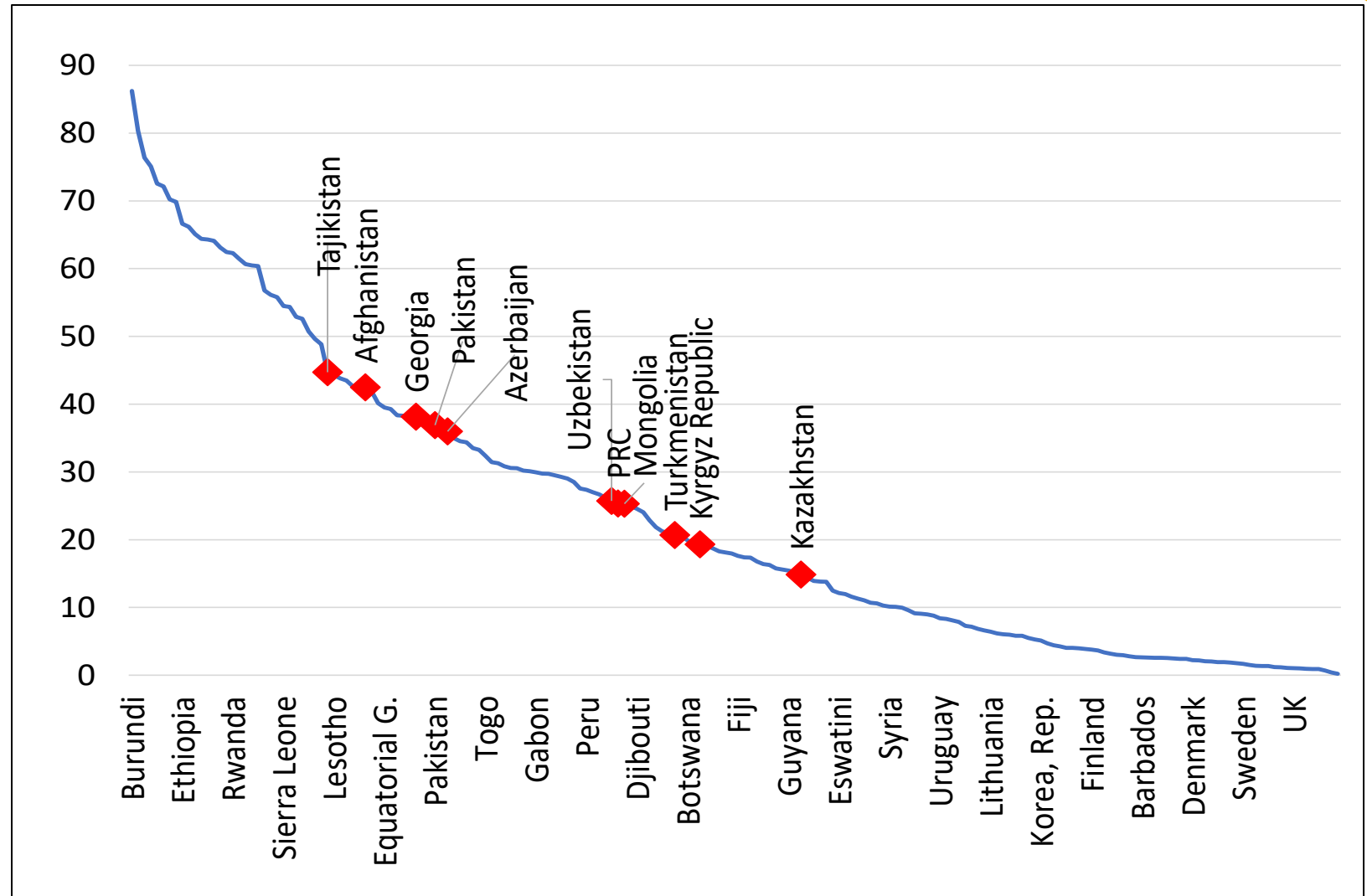
Source: CAREC Institute, Climate Vulnerability, Infrastructure, Finance and Governance in the CAREC Region. Research report, 2020



**The share of agriculture in employment is still high in the CAREC region and is set to fall.**

**Accelerated urbanization and major effects also on the rural social fabric are to be expected.**

Share of agriculture in employment, 2019, (%)



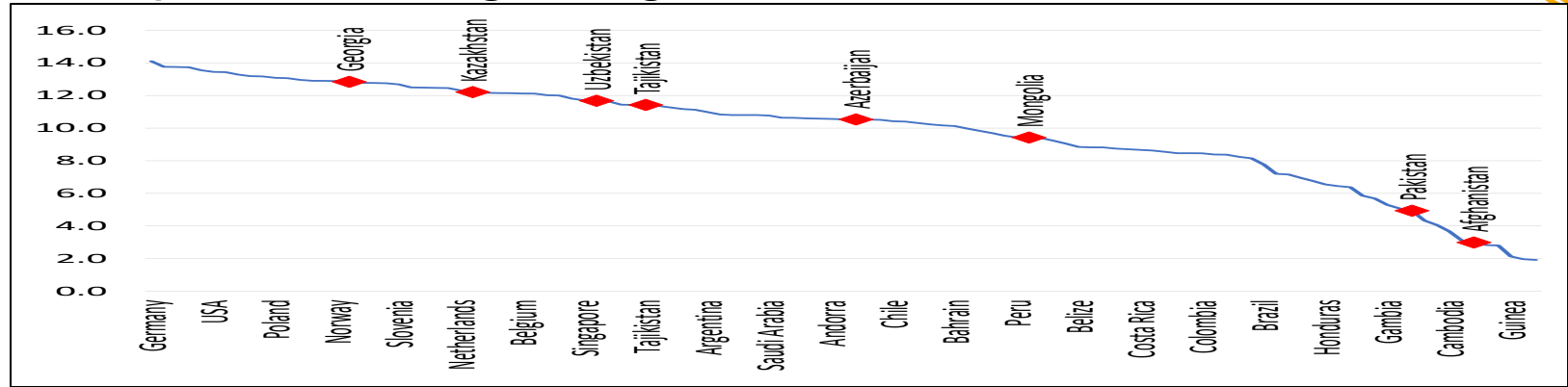
Source: World Development Indicators database, authors' calculations

For raising productivity and the green transition higher technical education and vocational training (TVET) are essential.

Some CAREC members need also faster improvement in basis education (PISA).

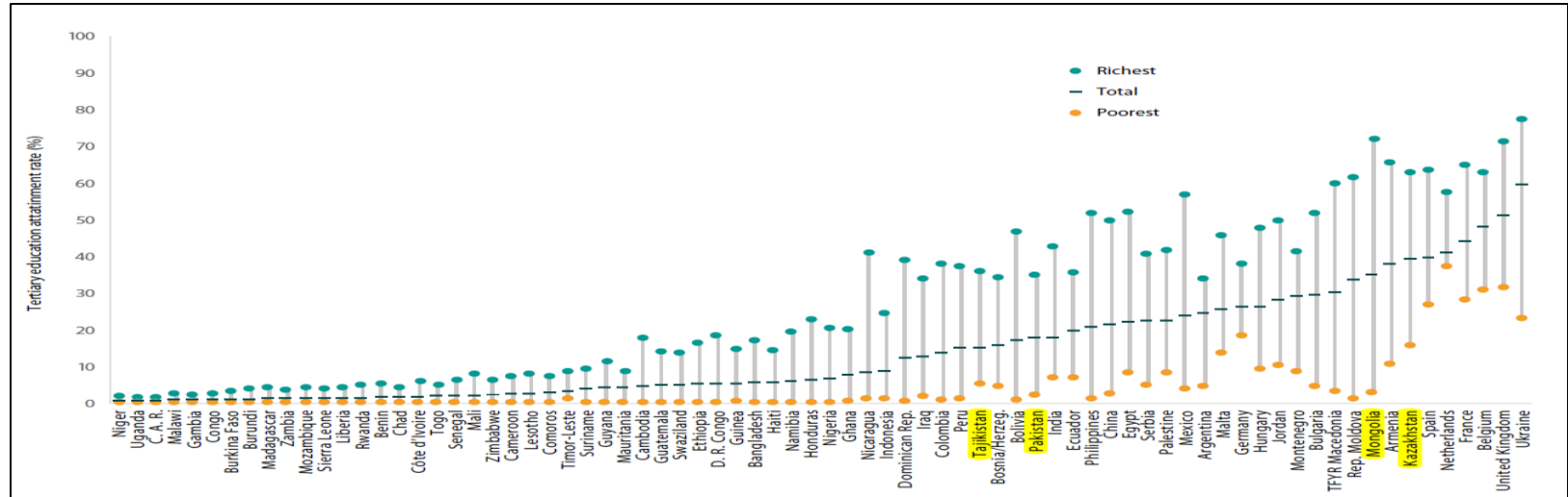
In higher education social barriers need to be further reduced.

Mean years of schooling (average 2015-2021)



Source: UNESCO, <http://data.uis.unesco.org/#>, authors' calculations

Percentage of 25-29 year-olds who have completed at least four years of tertiary education, by wealth, selected countries, 2008-2014



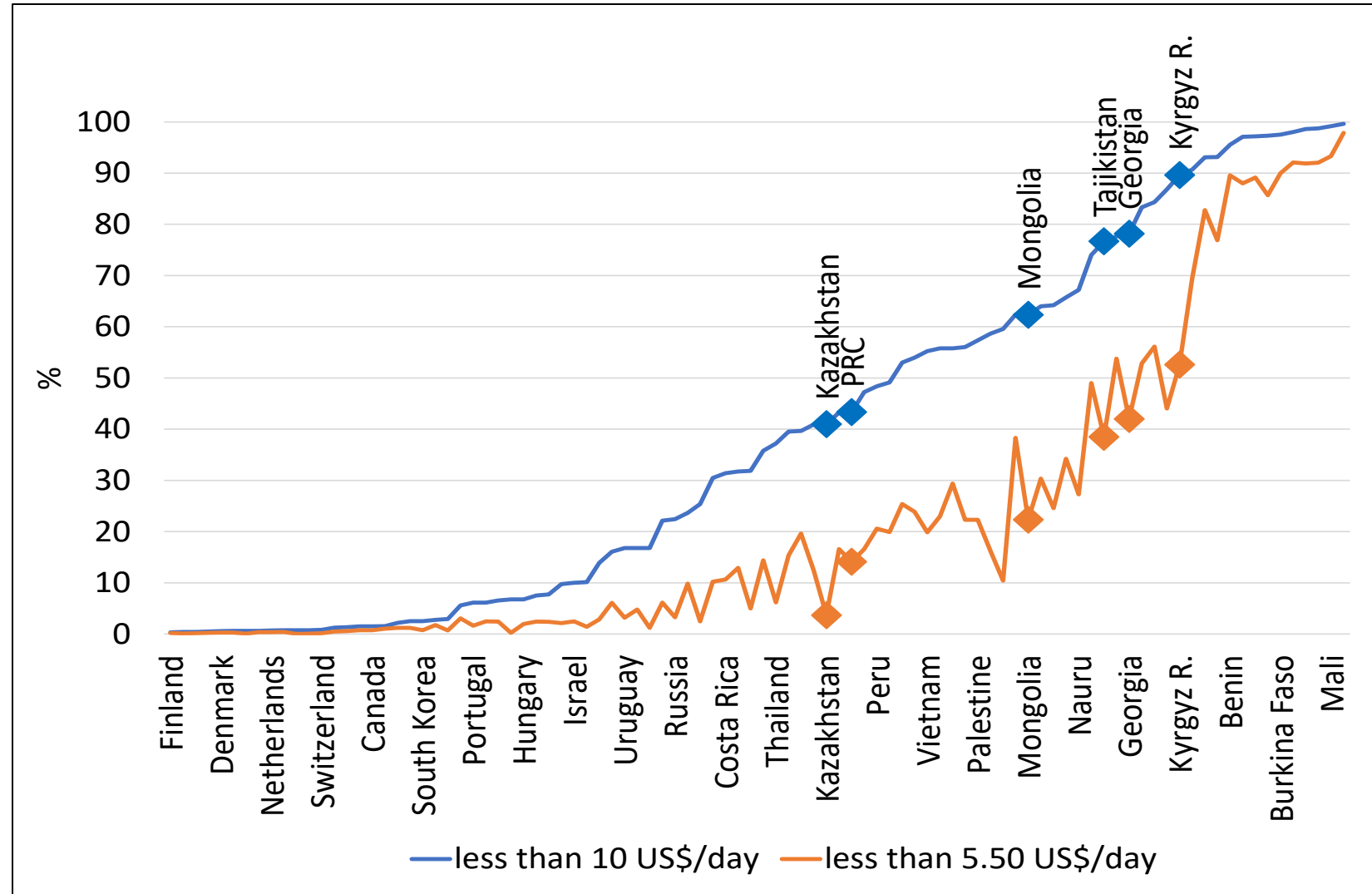
Source: UNESCO 2017, Six ways to ensure higher education leaves no one behind, highlights by the authors

**Low income and poverty, though generally improved, remain a serious issue.**

**COVID-19 and the surge in inflation have re-aggravated the situation.**

**Beside productivity, empowerment of employees, women, and disadvantaged is needed to fight excessive inequality.**

Share of population below US\$ xx daily income (in 2019 or 2018)



Source: WB Worldpopulationreview, author's calculations.

**Looking forward to  
a fruitful exchange of views!**

**A lot to do to  
promote  
SDG9!**

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