

Emissions Gap Report 2022



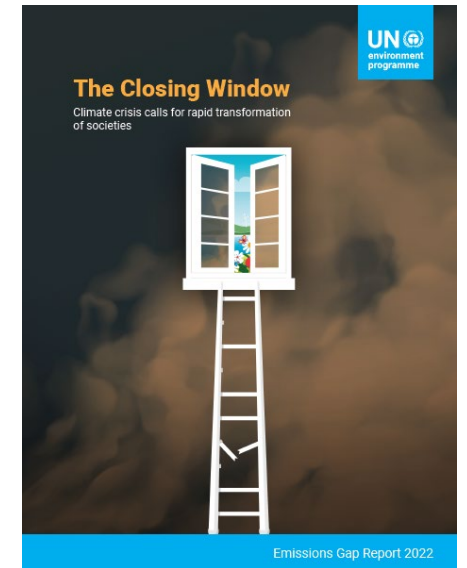
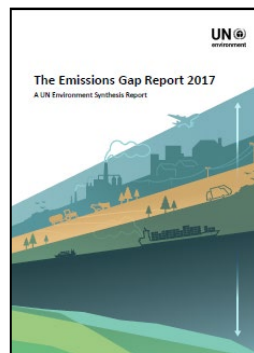
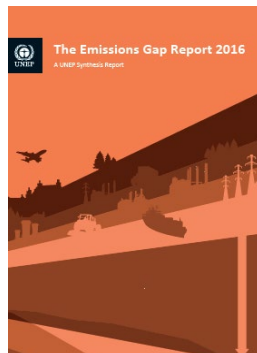
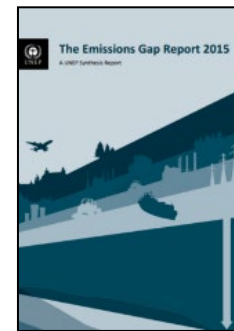
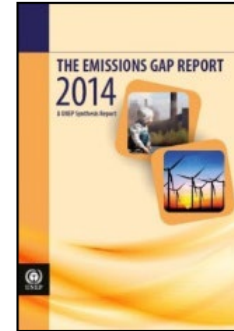
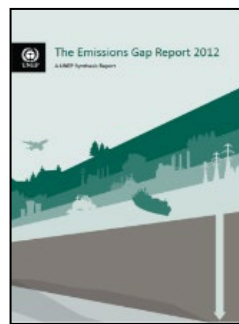
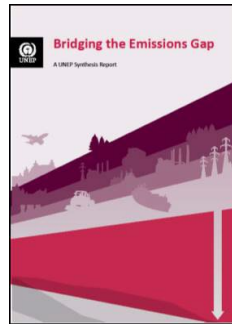
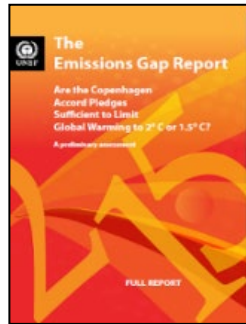
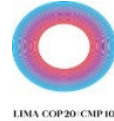
The Closing Window

Climate crisis calls for rapid transformation of societies



Emissions Gap Reports

Annual science-based assessment reports since 2010



Key questions of the Emissions Gap Report 2022

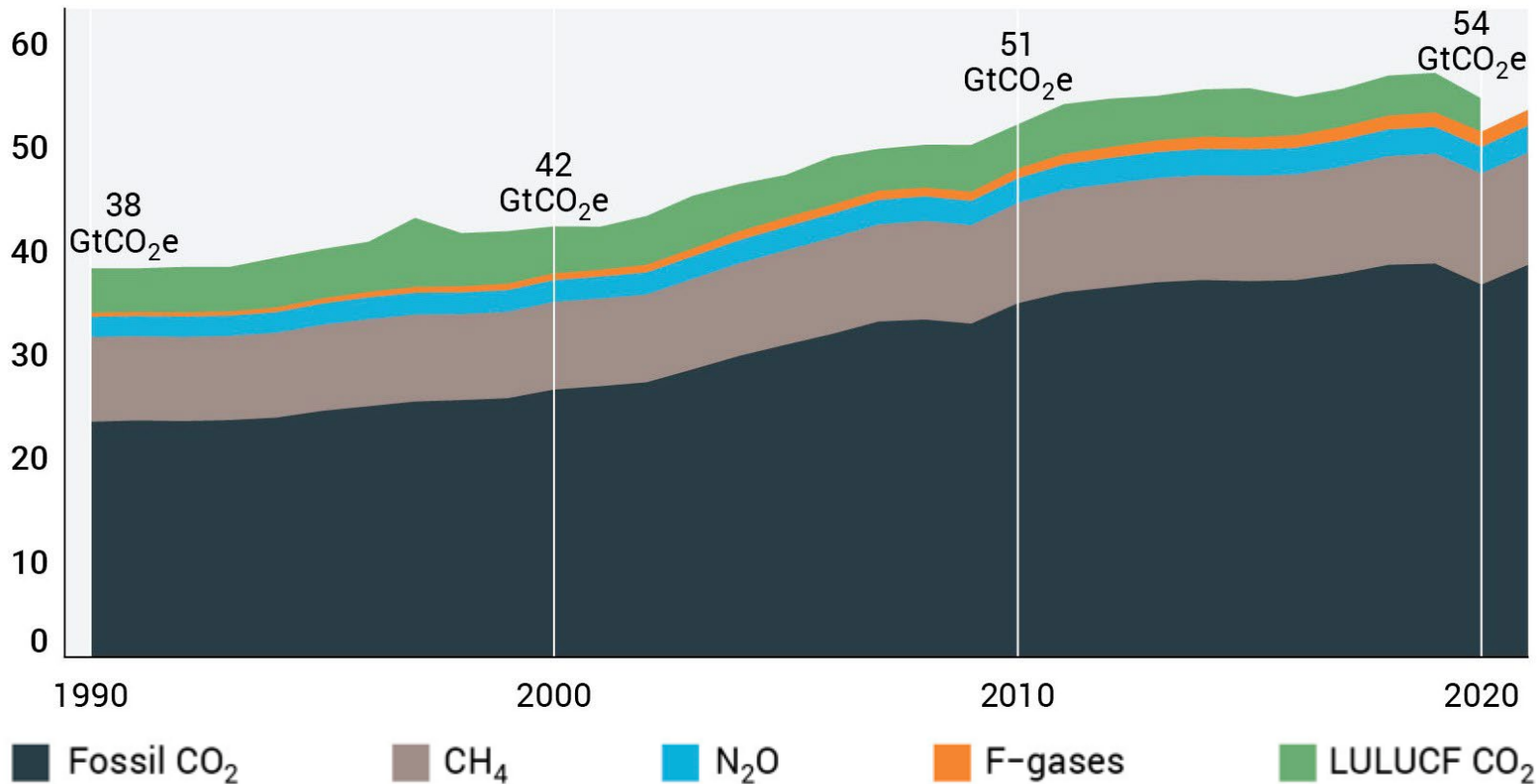
- What progress has been made in ambition and action since COP 26 in Glasgow?
- How can the necessary economy-wide transformations be initiated and accelerated?

An assessment of:

- ✓ Trends in global greenhouse gas emissions
- ✓ Updates of nationally determined contributions and net-zero emissions pledges
- ✓ Progress of G20 members
- ✓ The emissions gap in 2030 and implications for projected temperature increase
- ✓ Needs and options to initiate and accelerate transformations of:
 - Electricity supply, industry, buildings and transport sectors
 - Food systems
 - The financial system

Total global greenhouse gas emissions could set new record in 2021

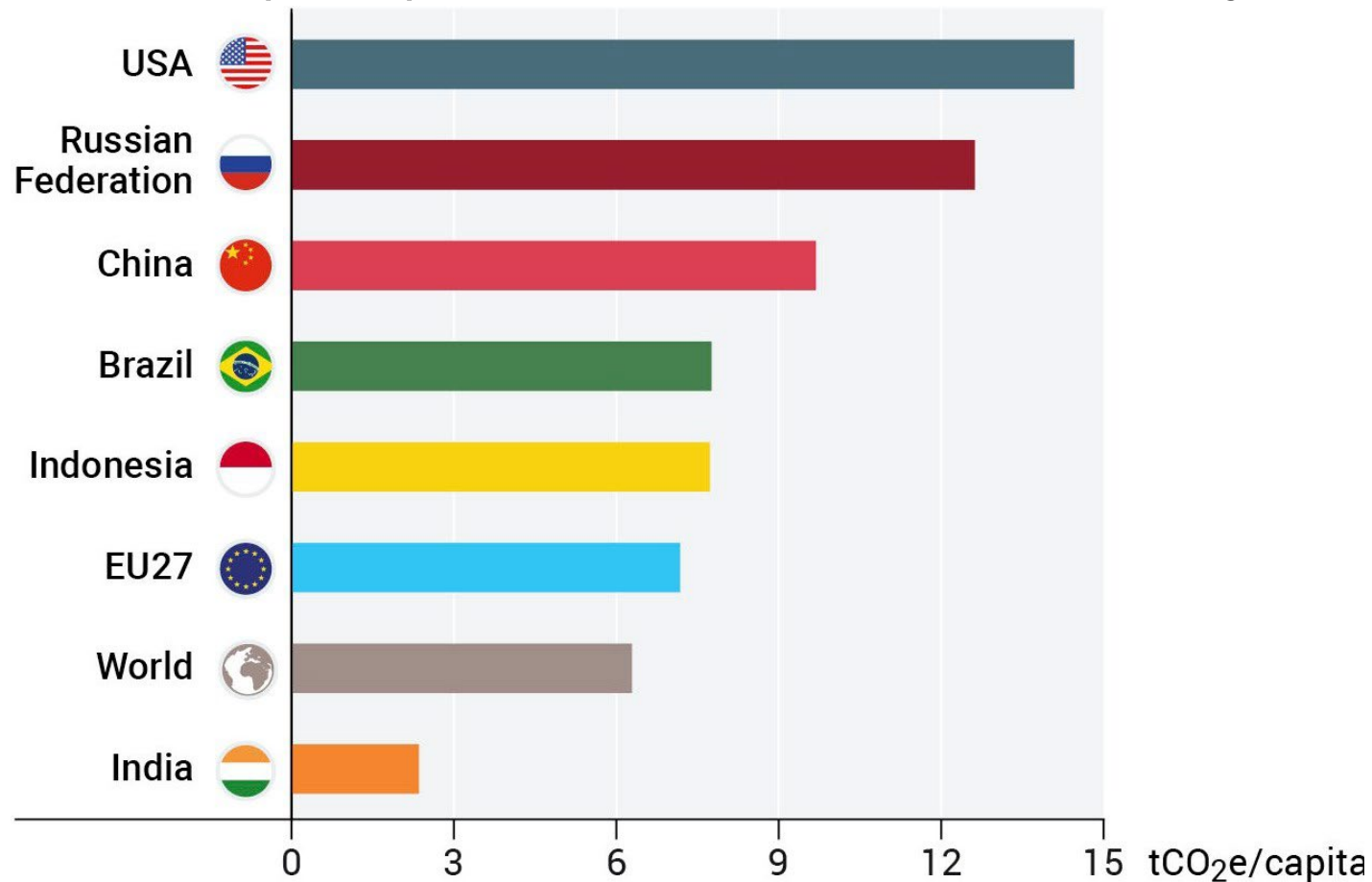
Total GHG emissions 1990–2021 (GtCO₂e/yr)



- The rate of growth in GHG emissions slowed from 2.6%/yr between 2000 and 2009, to 1.1%/yr between 2010 and 2019
- Total GHG emissions in 2021 (excluding land use, land-use change and forestry) exceeded 2019 levels
- Methane and nitrous oxide emissions remained steady from 2019 to 2021. Fluorinated gases continued to surge

Emissions are highly unequal between and within countries I

Territorial per capita GHG emissions of the seven largest emitters in 2020



- World average per capita GHG emissions (including LULUCF) were 6.3 tCO₂e in 2020
- On average, least developed countries emit 2.3 tCO₂e per capita annually

Emissions are highly unequal between and within countries II

Emissions associated with both household consumption and public and private investments allocated to households and grouped by GHG emissions (excluding LULUCF)



- The bottom 50% emit on average 1.6 tCO₂e/capita and contribute 12% of the global total
- The top 1% emit an average of 110 tCO₂e/capita and contribute 17%
- High-emitting households are present across all major economies
- Large inequalities exist both within and between countries.

Historical cumulative emissions are highly unequal

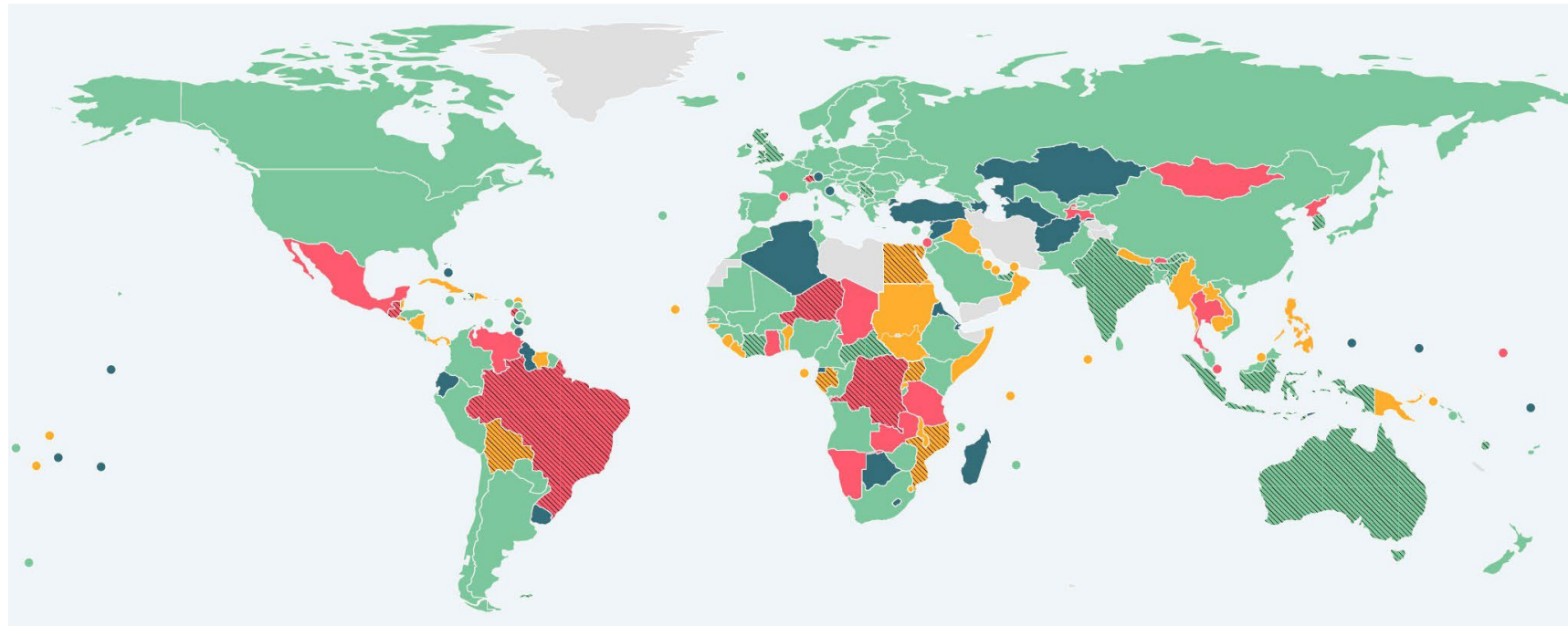
Contributions to historical cumulative CO₂ emissions (excluding LULUCF) from 1850 to 2019:

- United States of America: 25%
- European Union: 17%
- China: 13%
- Russian Federation: 7%
- India: 3%
- Indonesia: 1%
- Brazil: 1%

Least developed countries contributed 0.5% to historical fossil fuel and industry CO₂ emissions between 1850 and 2019



New and updated NDCs – modest progress since COP 26



■ New or updated NDC with lower 2030 emissions than initial NDC

■ New or updated NDC with equal or higher 2030 emissions relative to initial NDC

■ Updated NDC since COP 26

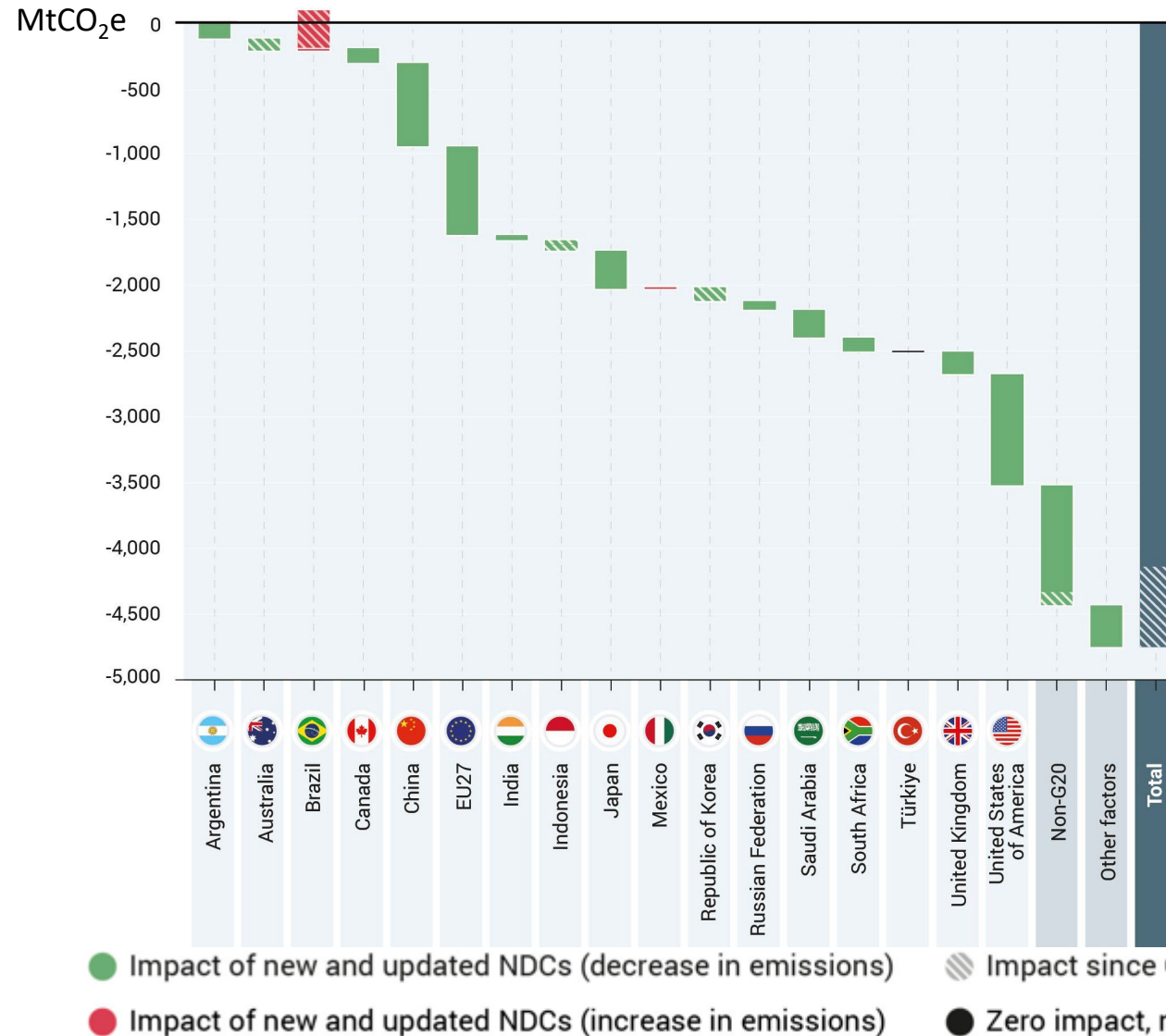
■ New or updated NDC not comparable to initial NDC

■ No new or updated NDC submitted

- 166 parties representing around 91% of global GHG emissions have submitted new or updated NDCs, up from 152 parties as of COP 26
- About half of these (representing 77% of global emissions) lower 2030 emissions
- 23 (representing 9% of global emissions) imply equal or higher 2030 emissions
- The effect of the remaining NDCs (representing 5% of global emissions) is unclear as they are not comparable to the prior NDCs

Despite the call for countries to revisit and strengthen their 2030 targets, global progress since COP 26 is highly inadequate

Impact on global GHG emissions in 2030 of new and updated unconditional NDCs relative to initial NDCs



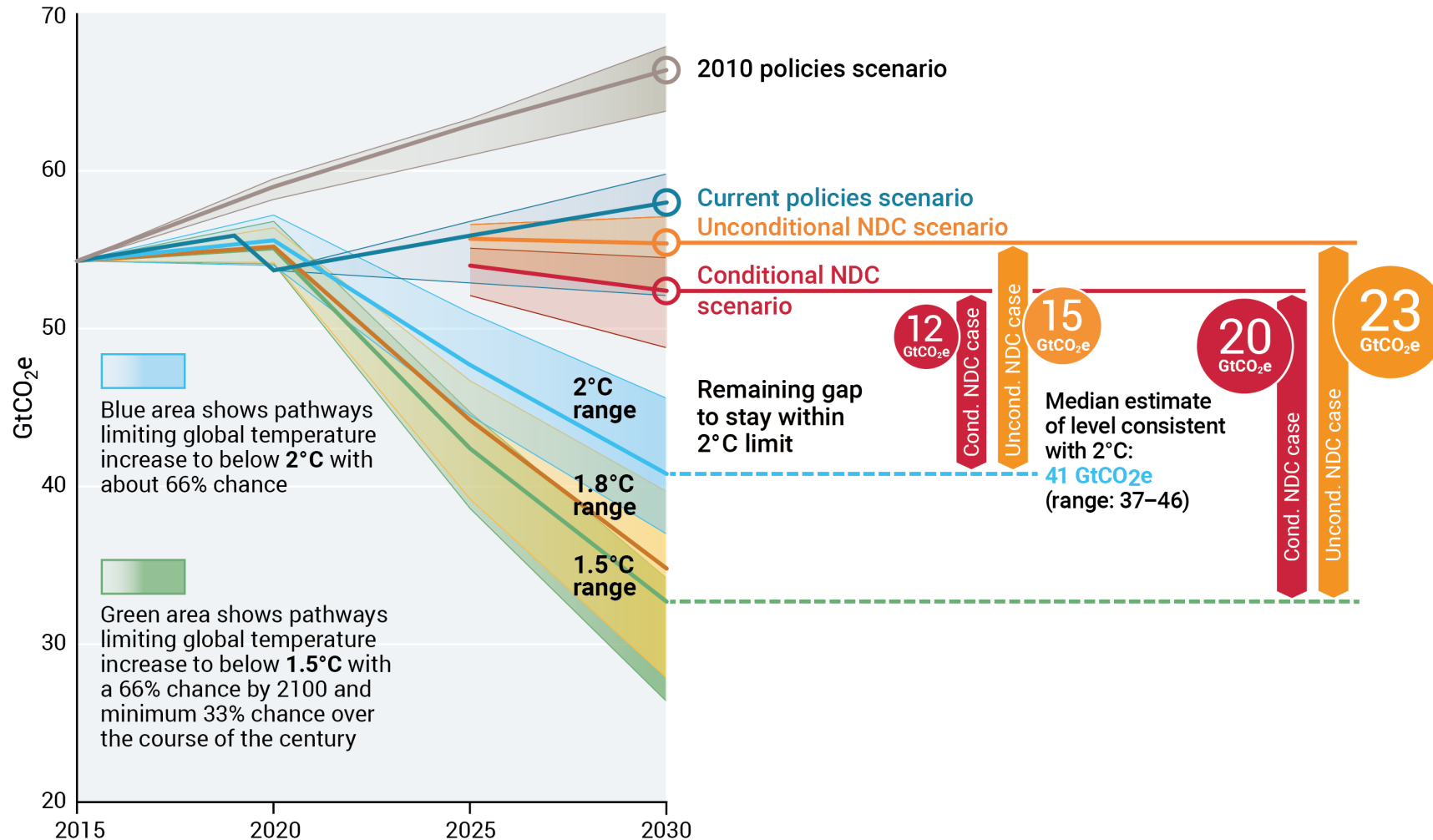
- Collectively and if fully implemented, new and updated unconditional NDCs result in an annual reduction of global GHG emissions of about 4.8 GtCO₂e by 2030 relative to the initial NDCs
- Progress since COP 26 amounts to about 0.5 GtCO₂e annually by 2030

Collectively, countries are not on track to achieve their NDCs, causing an implementation gap

- For the G20 members, the implementation gap – defined as the difference between projected emissions under current policies and projected emissions under full implementation of the NDCs – is 1.8 to 2.6 GtCO₂e annually by 2030
- G20 members currently projected to meet their NDC targets have either not updated their original NDCs, did not strengthen or only moderately strengthened their 2030 targets
- All other G20 members need additional policies to achieve their NDCs
- Globally, the implementation gap for 2030 is estimated to be around 3 GtCO₂e for the unconditional NDCs and 6 GtCO₂e for the conditional NDCs



The emissions gap in 2030 remains high



Updated NDCs since COP 26 lower projected emissions in 2030 by less than 1%

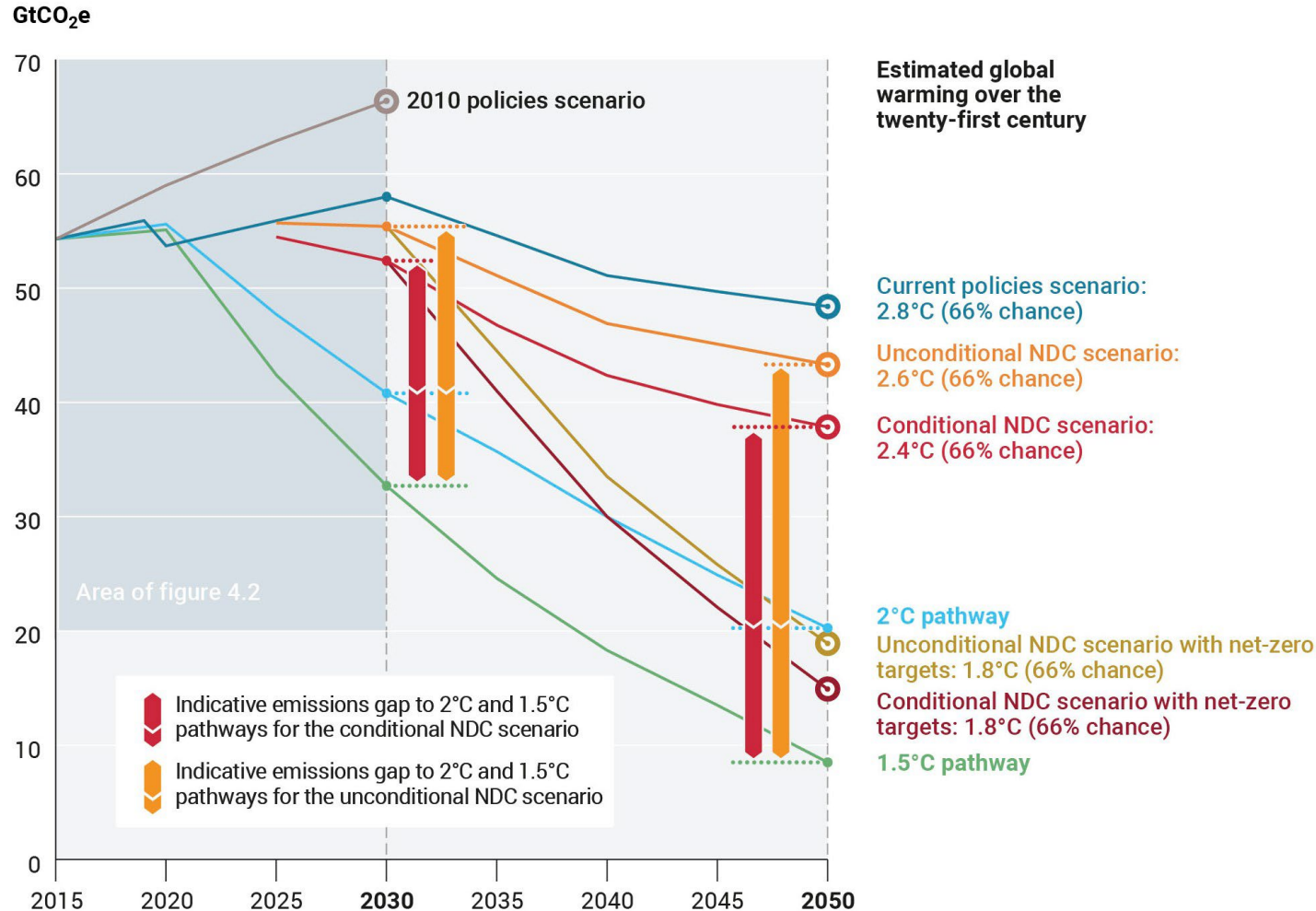
Unconditional NDCs lower projected emissions in 2030 by 5%

Conditional NDCs lower projected emissions in 2030 by 10%

A 30% reduction is needed to get on track to 2°C

A 45% reduction is needed to get on track to 1.5°C

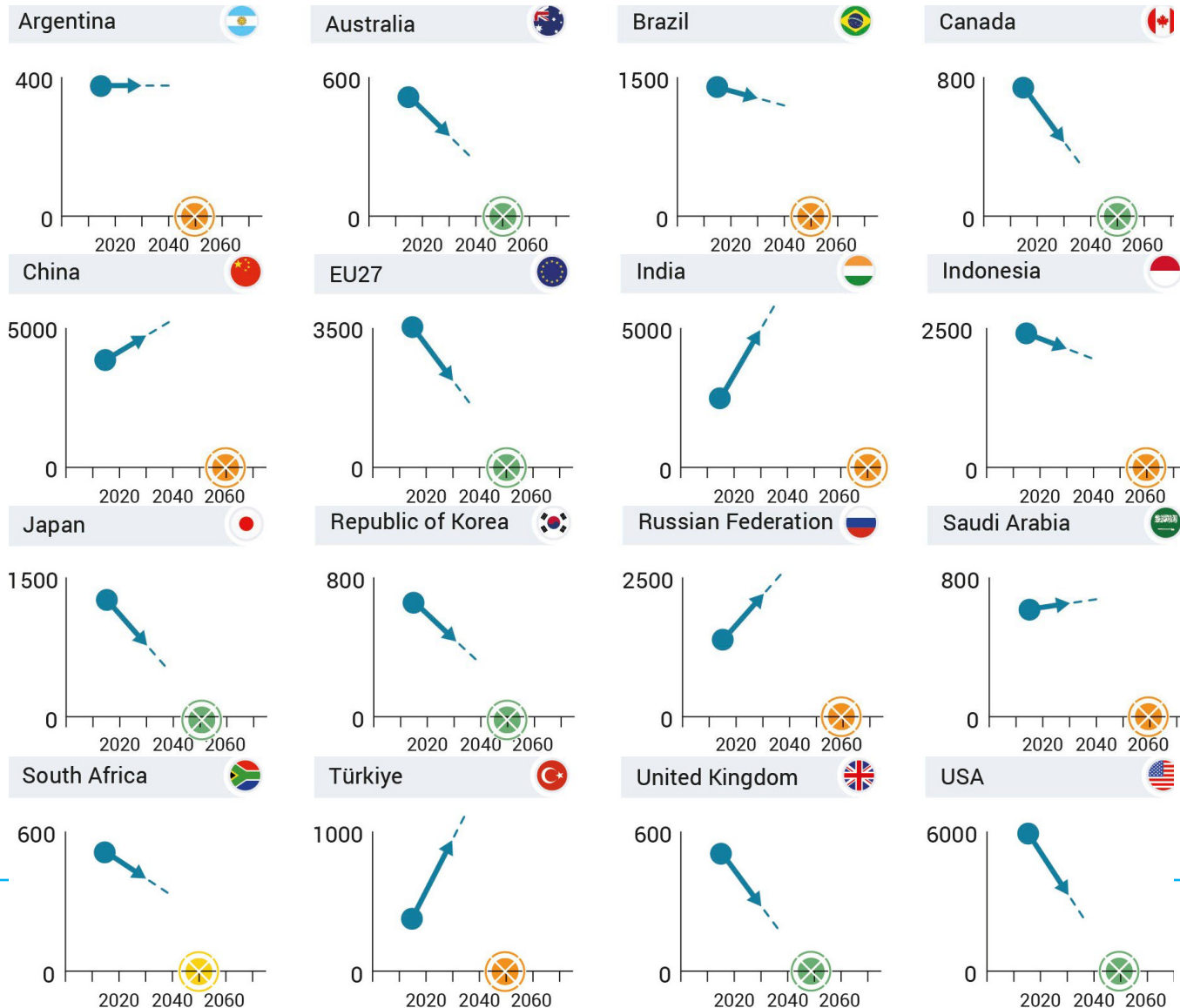
Lack of progress leaves the world on a path towards global warming far above the Paris Agreement goal of well below 2°C, preferably 1.5°C



Without further strengthening:

- Policies currently in place limit global warming to 2.8°C (range: 1.9–3.3°C)
- Unconditional NDCs lowers this to about 2.6°C (range: 1.9–3.1°C)
- For conditional NDCs, the projection is 2.4°C (range: 1.8–3.0°C)
- Implementation of all NDCs plus net-zero commitments point to a 1.8°C increase (range: 1.8–2.1°C)

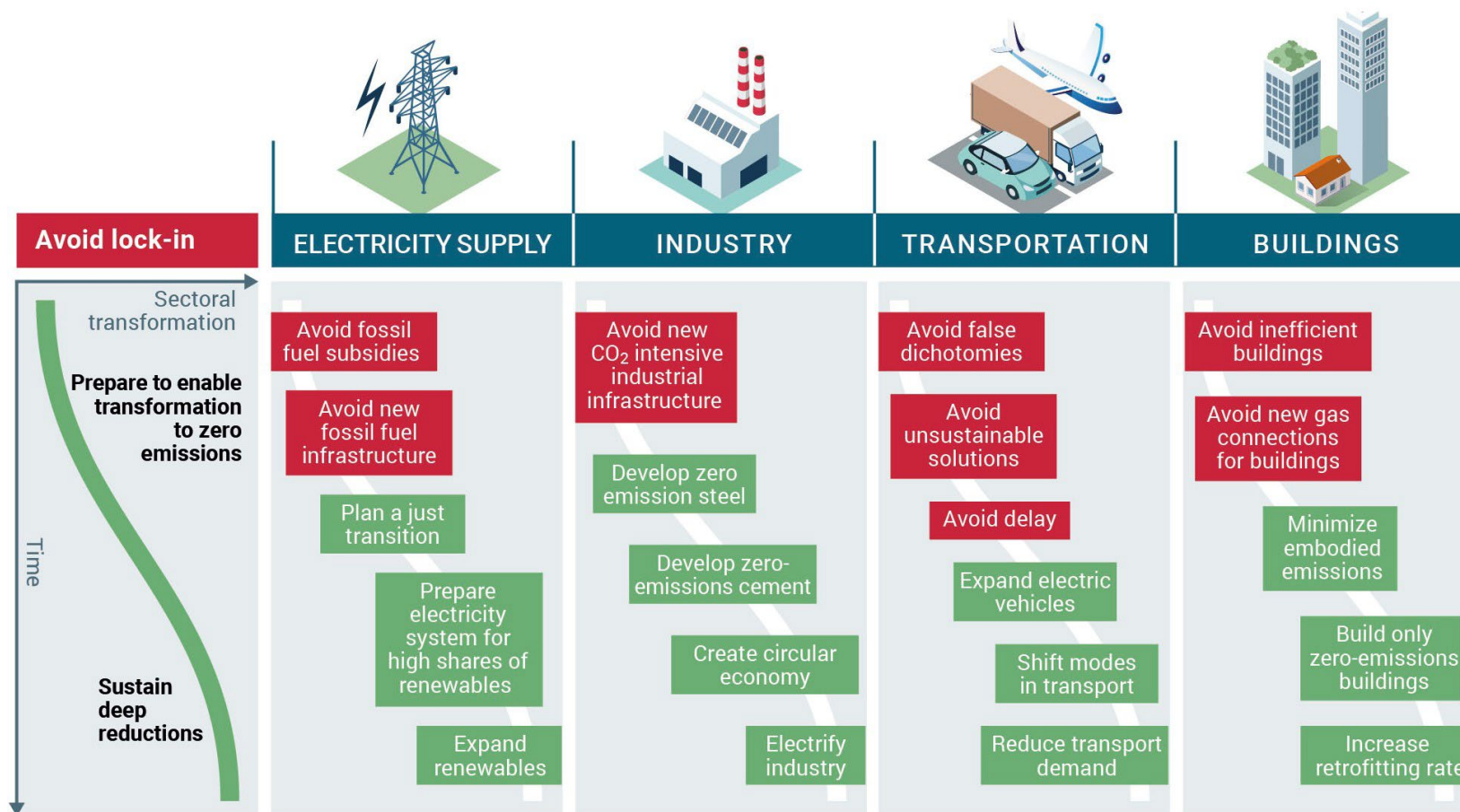
The credibility and feasibility of the net-zero emission pledges remains highly uncertain



- Emissions trajectories implied by NDC and net-zero targets of G20 members highlight discrepancies between short-term policy implementation, NDC targets and long-term net-zero targets
- Low confidence that the nationally determined net-zero targets will be achieved

National emissions in MtCO₂e/year

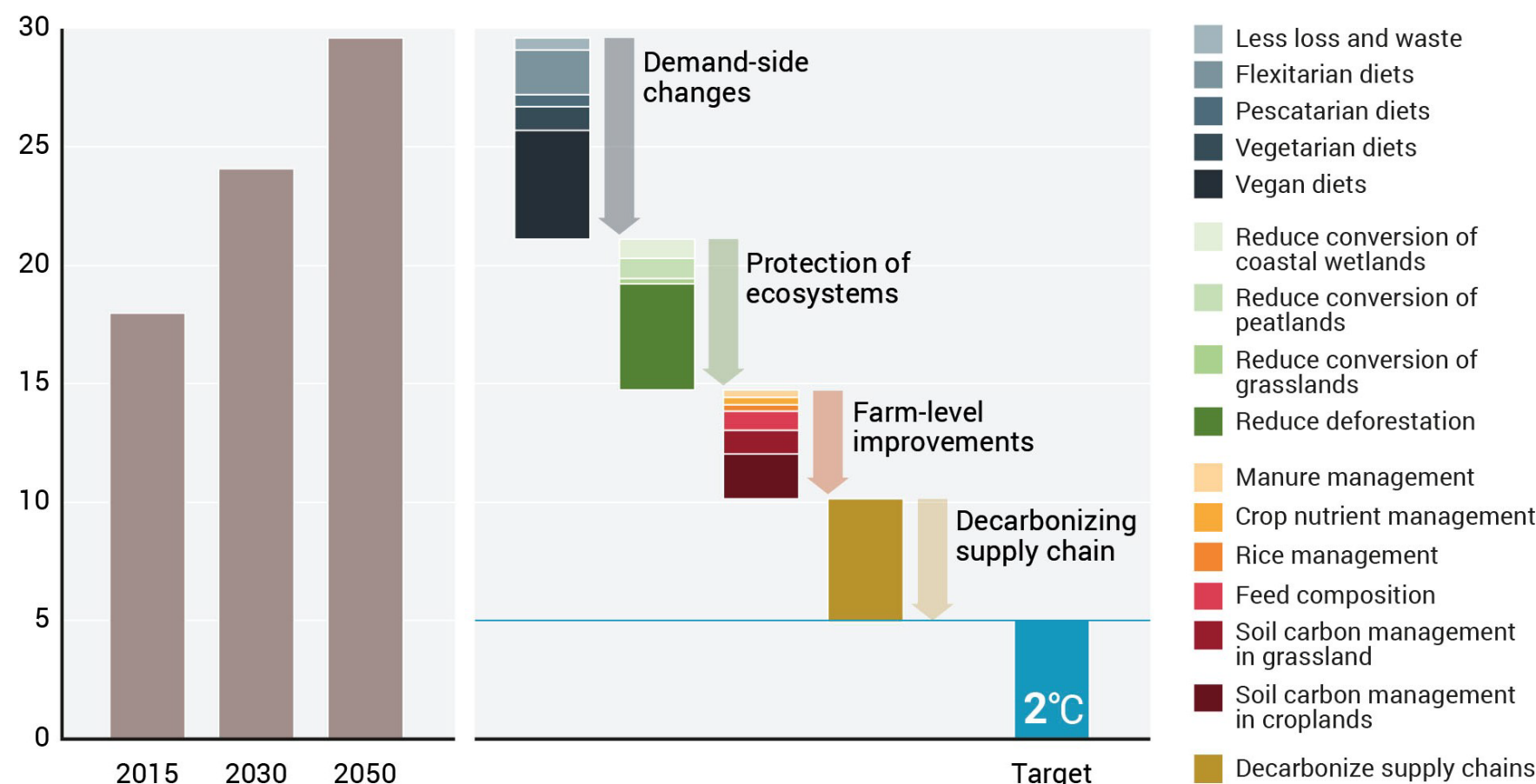
Large-scale, rapid and systemic transformation is essential



- Electricity supply is most advanced
- For buildings, currently available technologies need to be fully applied
- For industry and transport, zero-emission technology needs to be further developed and deployed
- An immense increase in the scale and speed of transformation is needed

Food systems account for one third of all emissions, and must make a large reduction

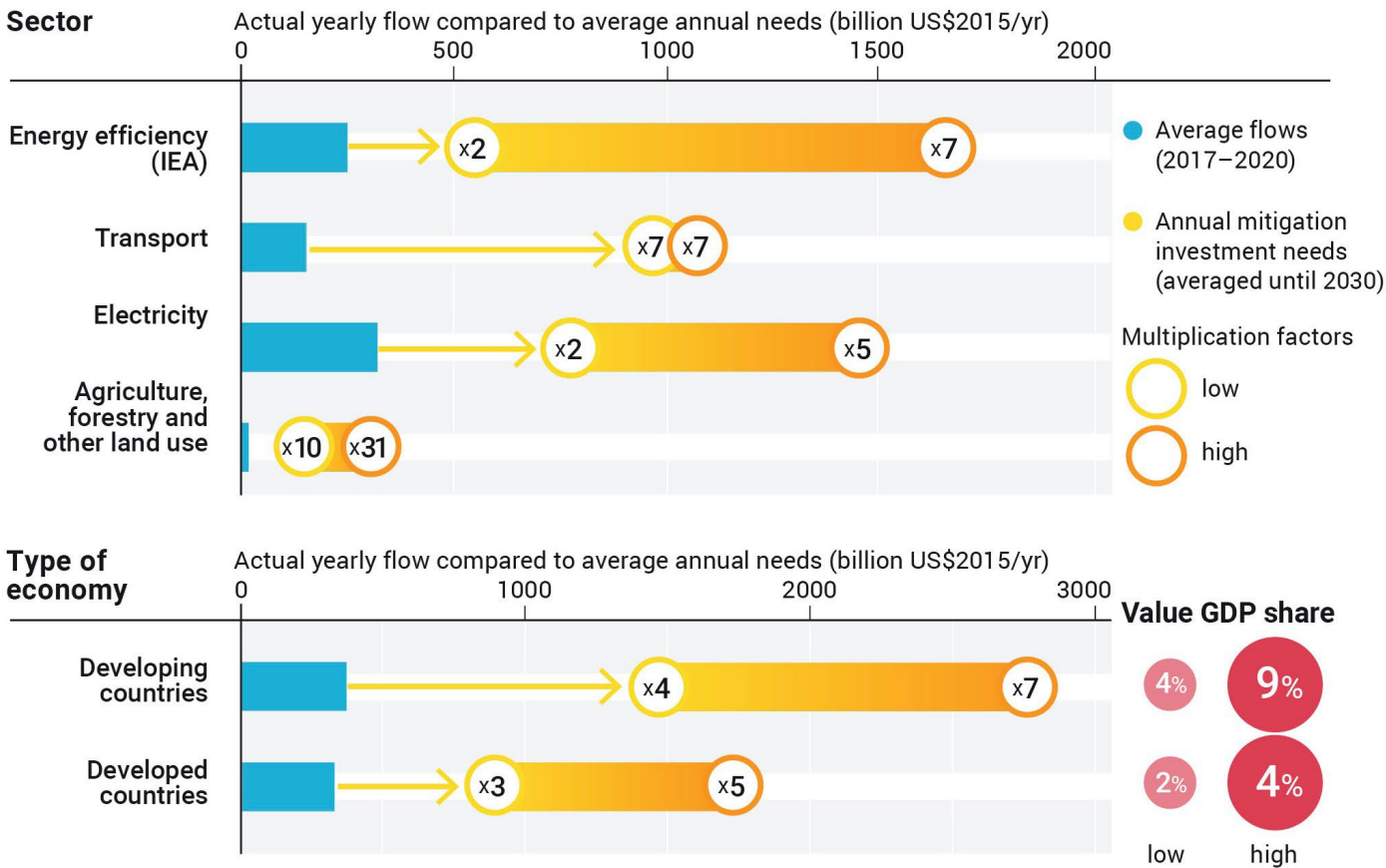
Food systems emissions trajectory and mitigation potentials by 2050 by transformation domain



Transforming food systems is important to address climate change and environmental degradation, and to ensure healthy diets and food security for all

Realignment of the financial system is a critical enabler of the transformations needed

Finance flows and mitigation investment needs per sector and type of economy (averaged until 2030)



A global transformation to a low-carbon economy is expected to require investments of at least US\$4–6 trillion a year

The IPCC assesses that global mitigation investments need to increase by a factor of three to six, and even more for developing countries

In conclusion

Incremental change is no longer an option: broad-based economy-wide transformations are required to avoid closing the window of opportunity to limit global warming to well below 2°C, preferably 1.5°C.

Every fraction of a degree matters, hence so does every ton of greenhouse gas emissions reduced.



Thank you

on behalf of the 77 authors,
14 steering committee members
and the production team of the report

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