Using a Risk-Risk analysis to support informed decision-making

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HLPF Side Event – ECLAC C2G

Risk-risk analysis and governance of solar radiation modification to safeguard sustainable development

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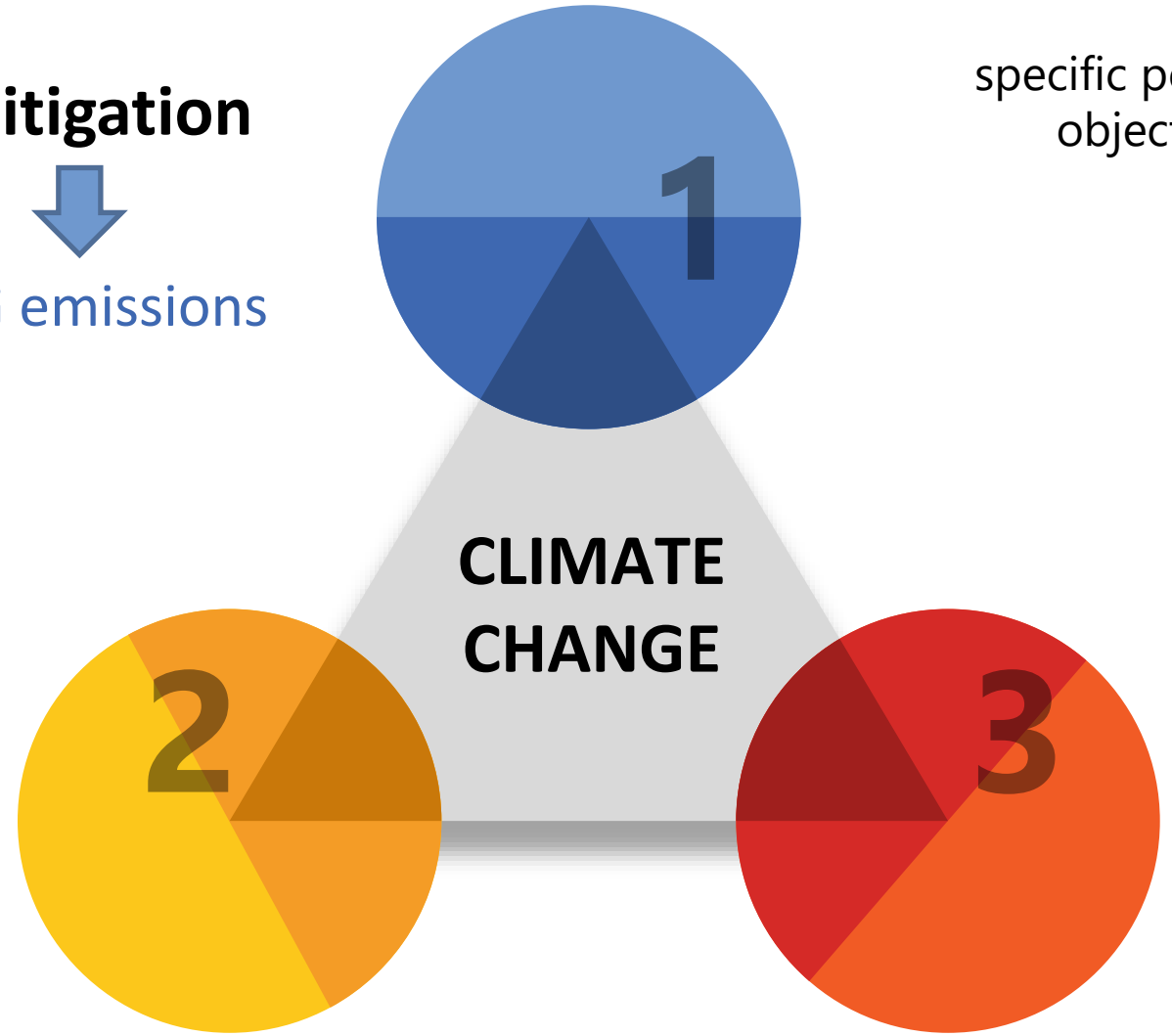
Existing risk management strategies

Mitigation

GHG emissions

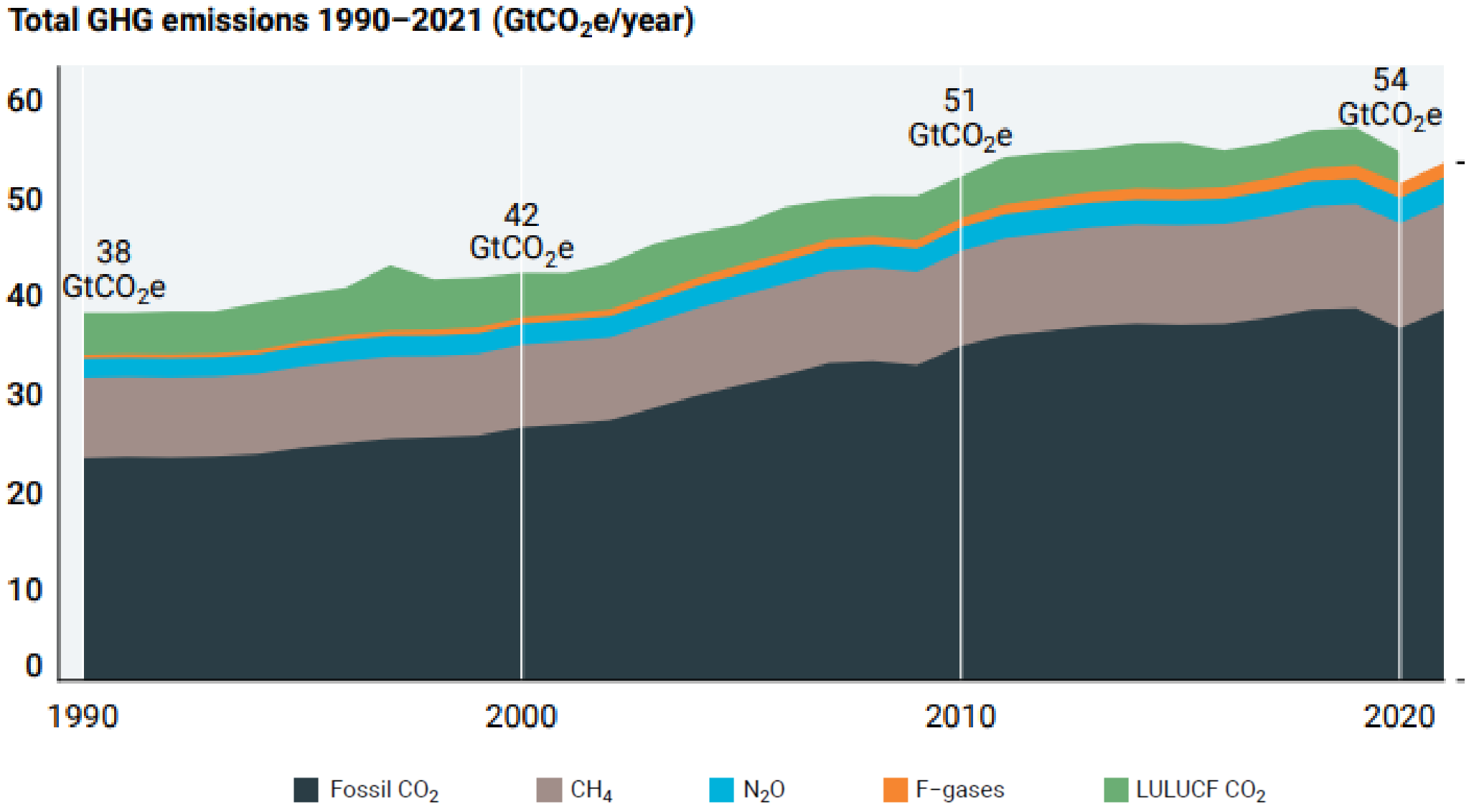
specific policy objectives

- SDGs
- Paris: 1.5° or 2.0°C
- SLR
- economic
- other climatic goals…



Carbon Dioxide Removal (CDR)

Adaptation

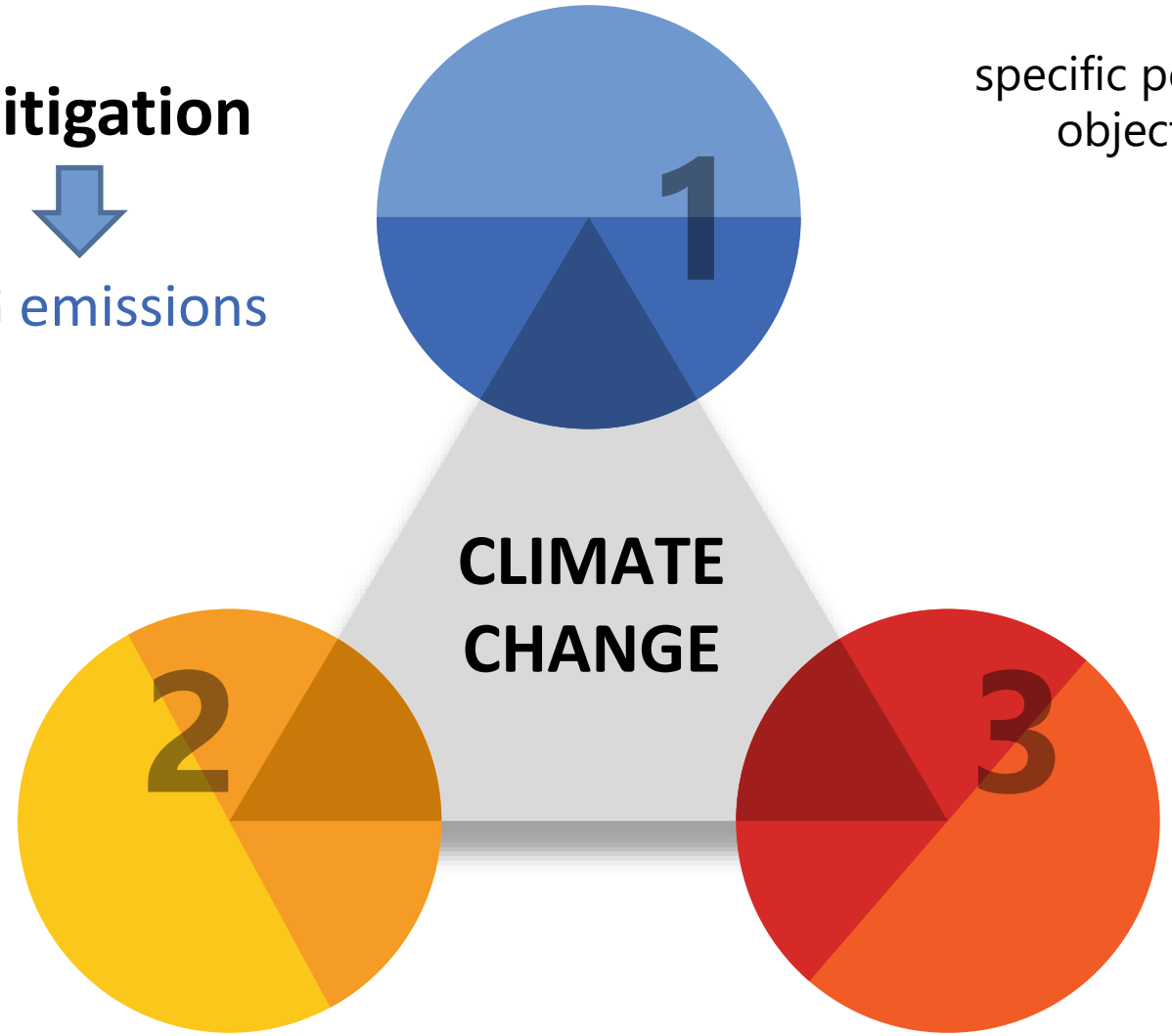

Total GHG emissions 1990–2021 ($GtCO_2e$/year)
60
50
40
30
20
10
0
38 $GtCO_2e$
42 $GtCO_2e$
51 $GtCO_2e$
54 $GtCO_2e$
1990
2000
2010
2020
Fossil CO_2
CH_4
N_2O
F-gases
LULUCF CO_2

UNEP (2022)

Existing risk management strategies

Mitigation

GHG emissions



specific policy objectives

- SDGs
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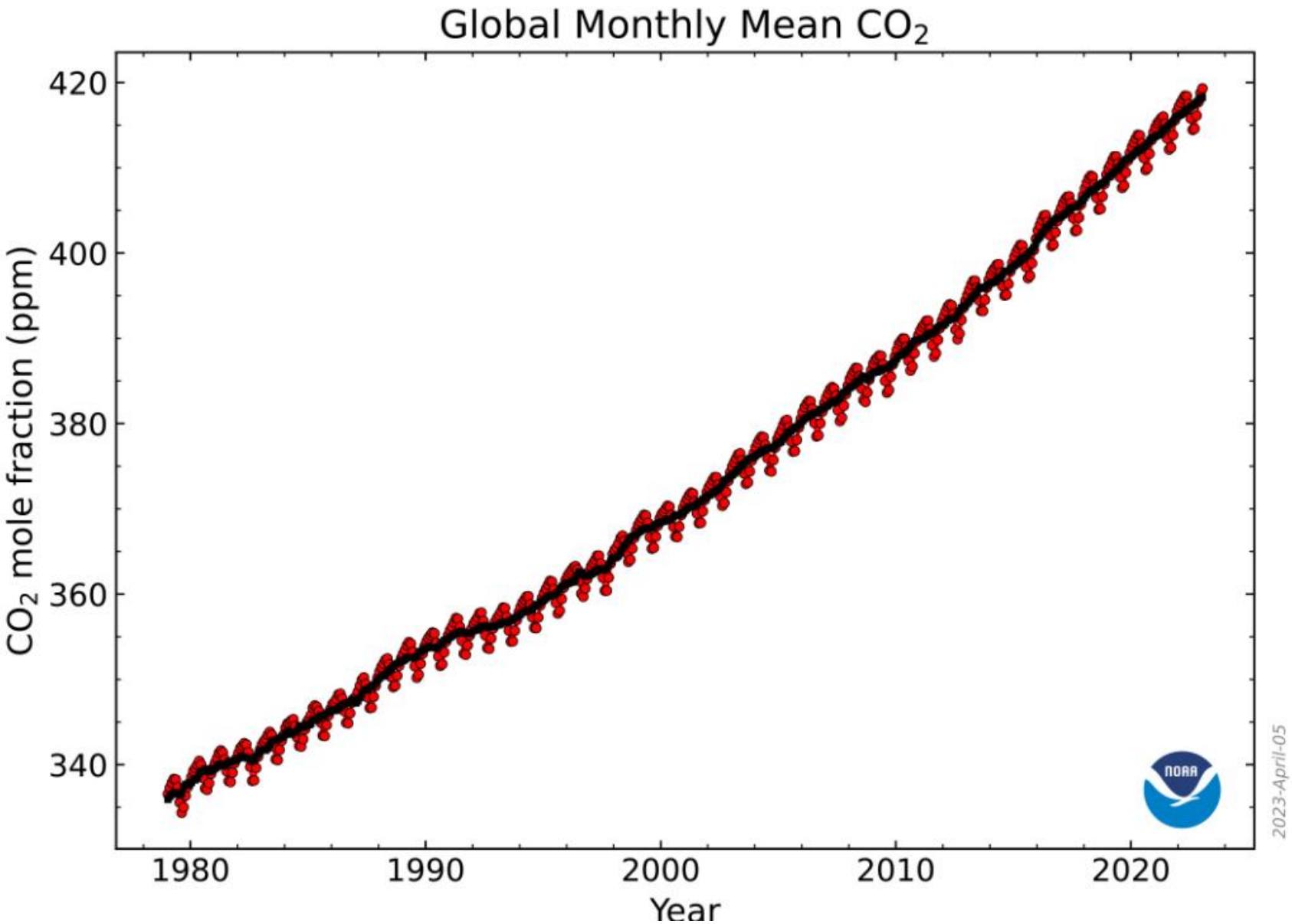
Carbon Dioxide Removal (CDR)

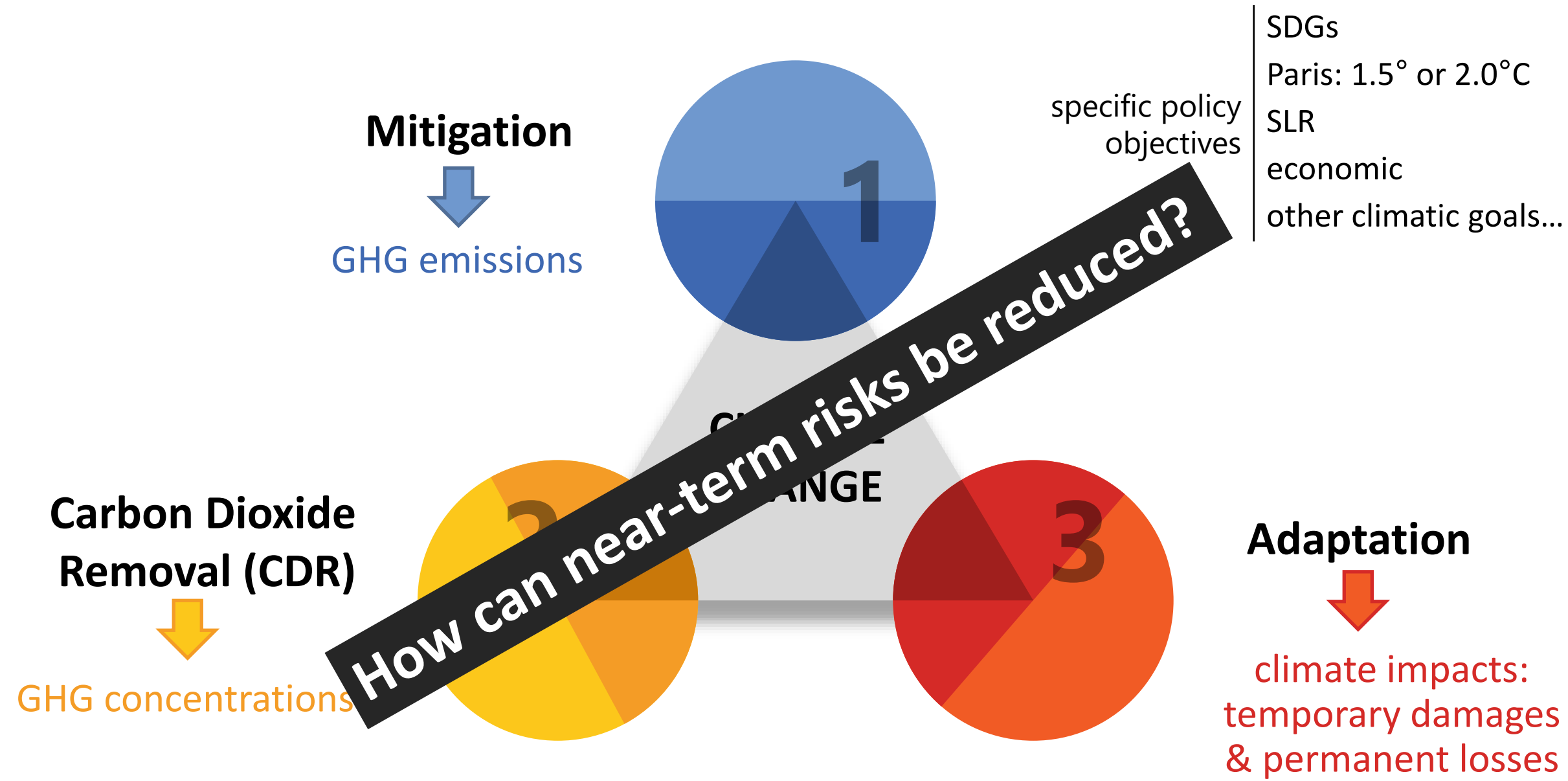
GHG concentrations

Adaptation

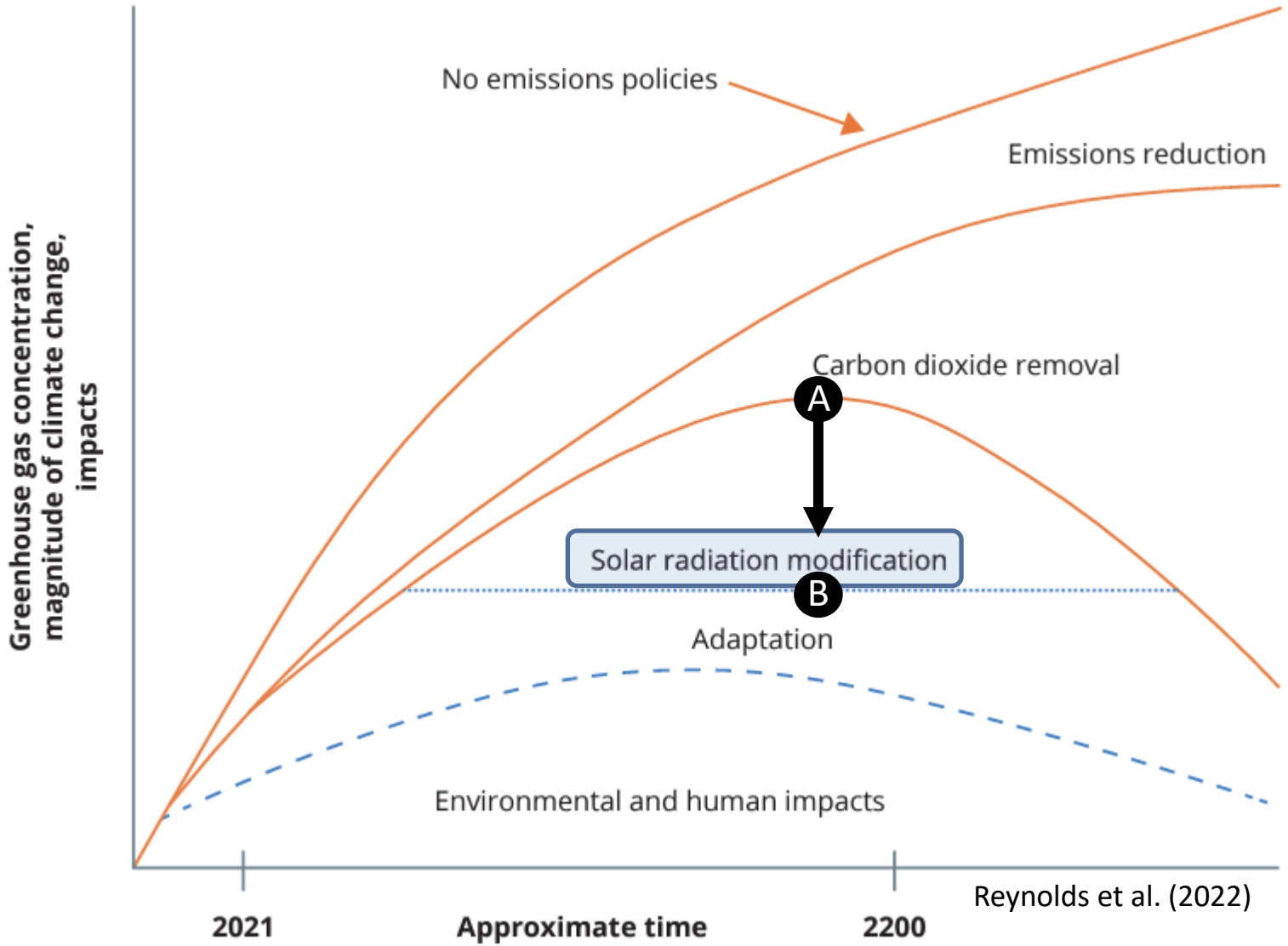

Global Monthly Mean CO_2
CO_2 mole fraction (ppm)
420
400
380
360
340
1980
1990
2000
2010
2020
Year
2023-April-05

+50%

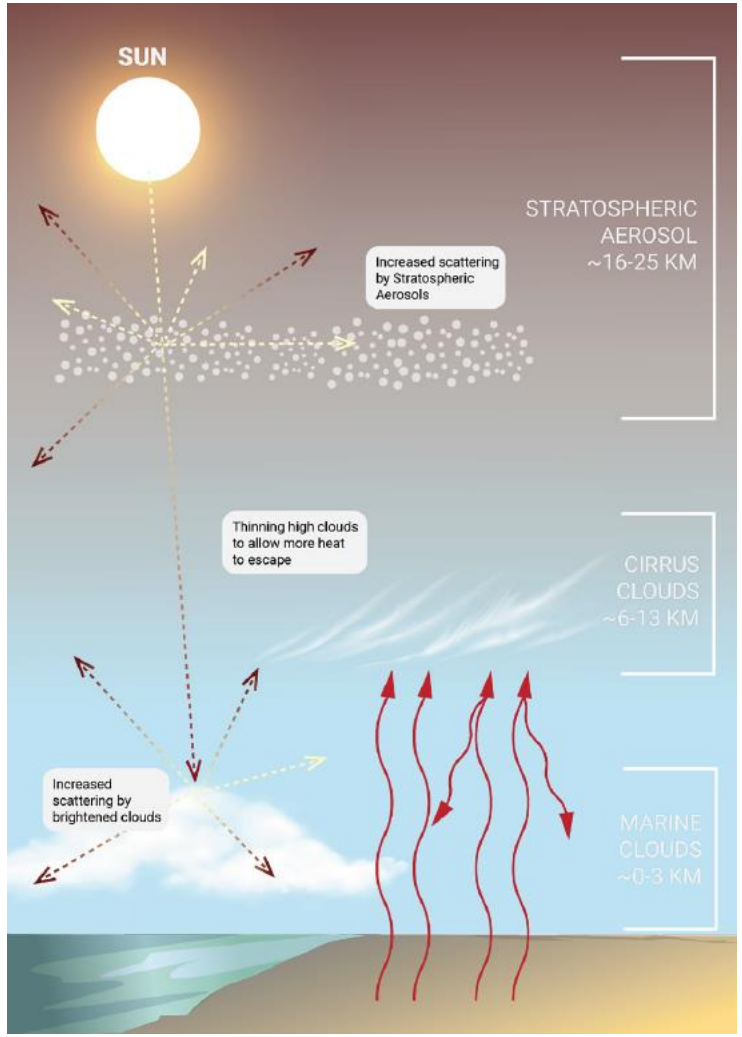
Existing risk management strategies



The peak-shaving diagram



Reynolds et al. (2022)

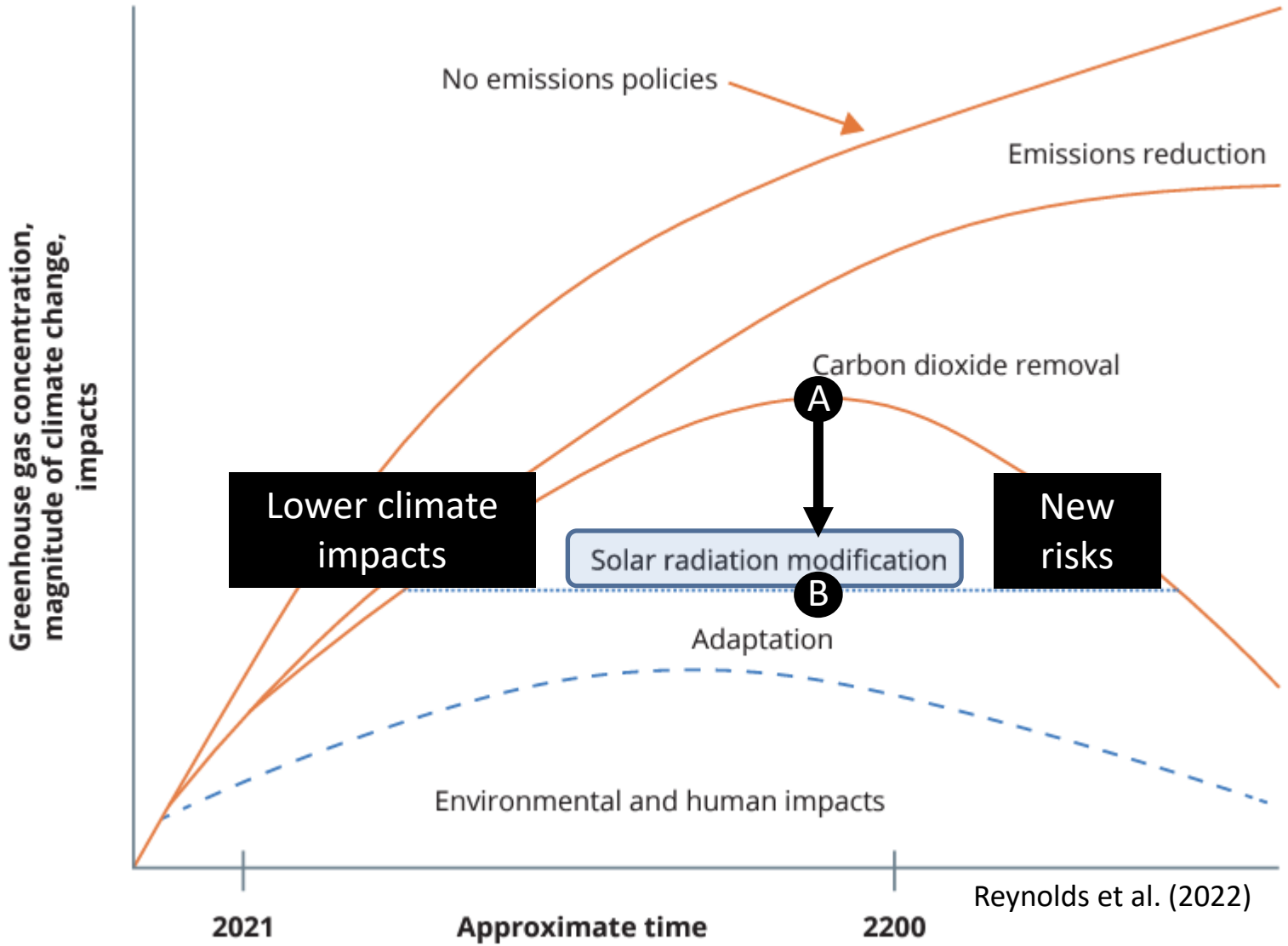


UNEP (2023)

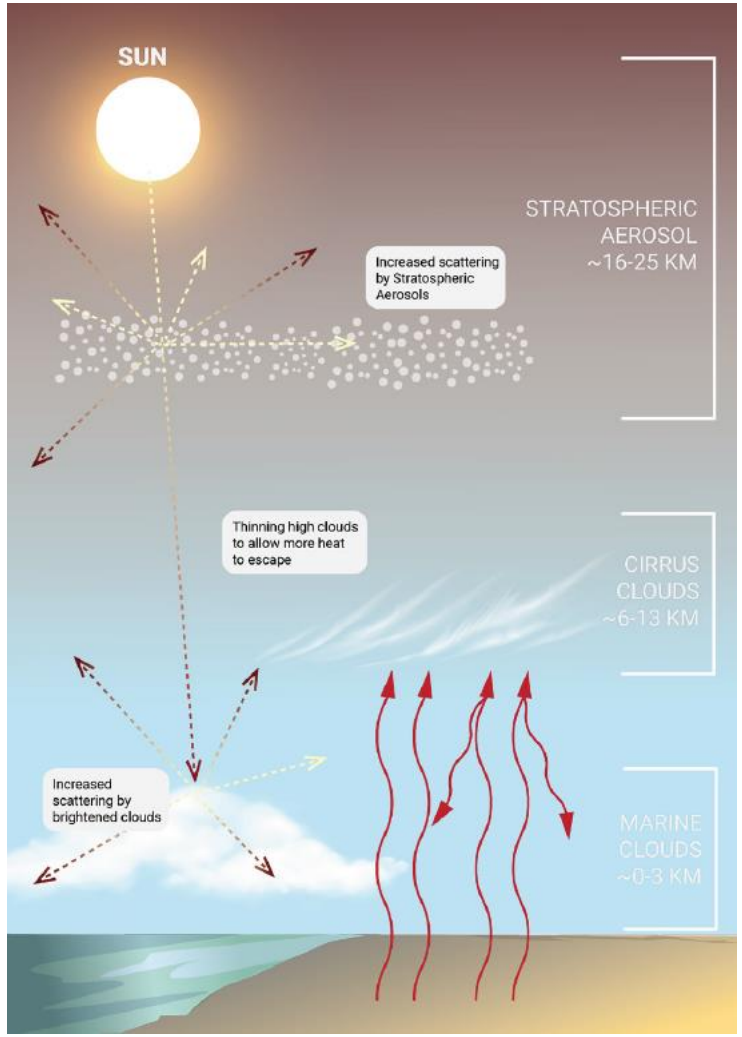
"**SRM is the only option that could cool the planet within years.** To be effective at limiting global warming, SRM would need to be maintained for several decades to centuries, depending on the pace of emissions reductions and carbon removal. "

UNEP (2023)

The peak-shaving diagram



Reynolds et al. (2022)



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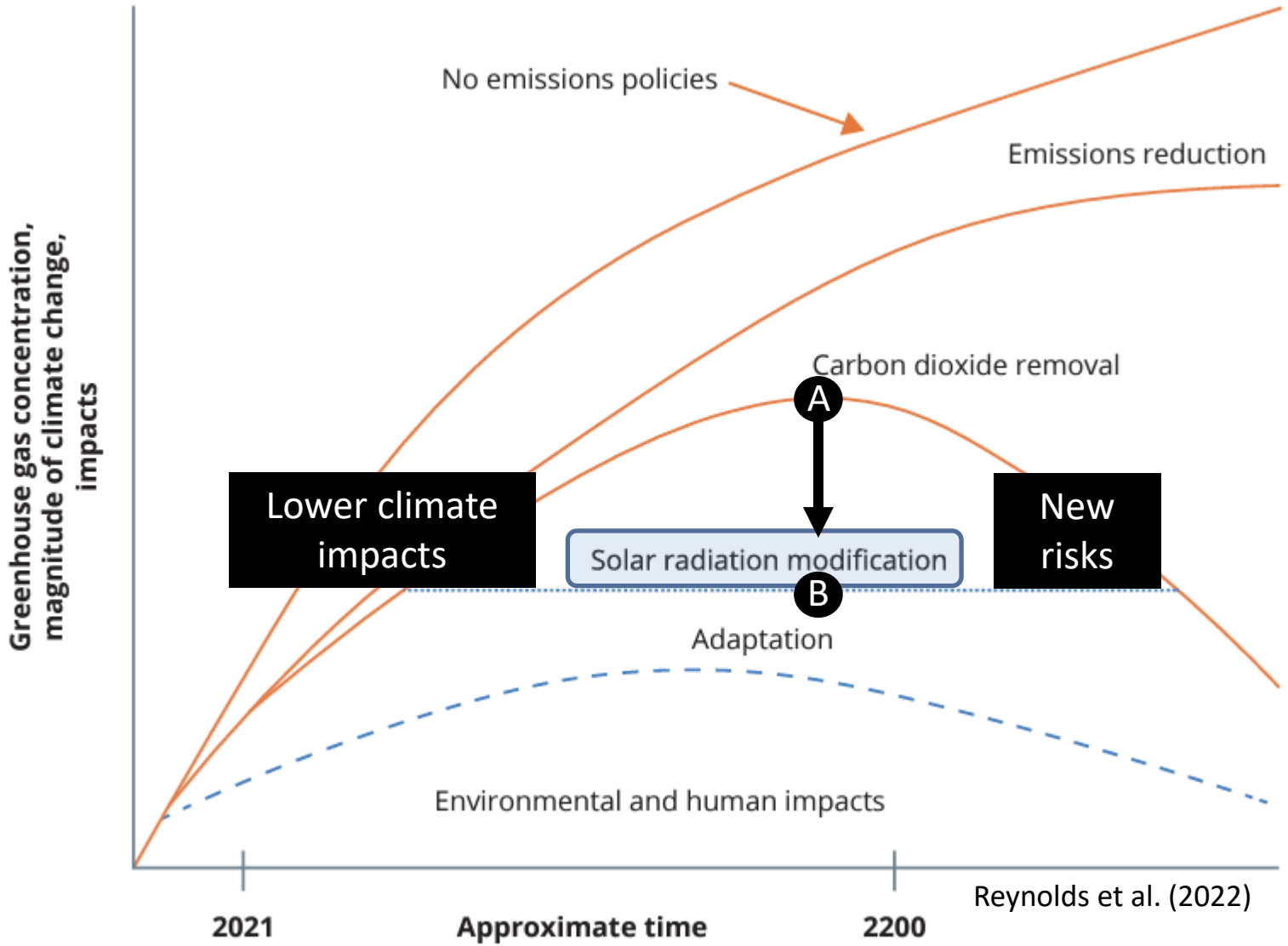


Reynolds et al. (2022)

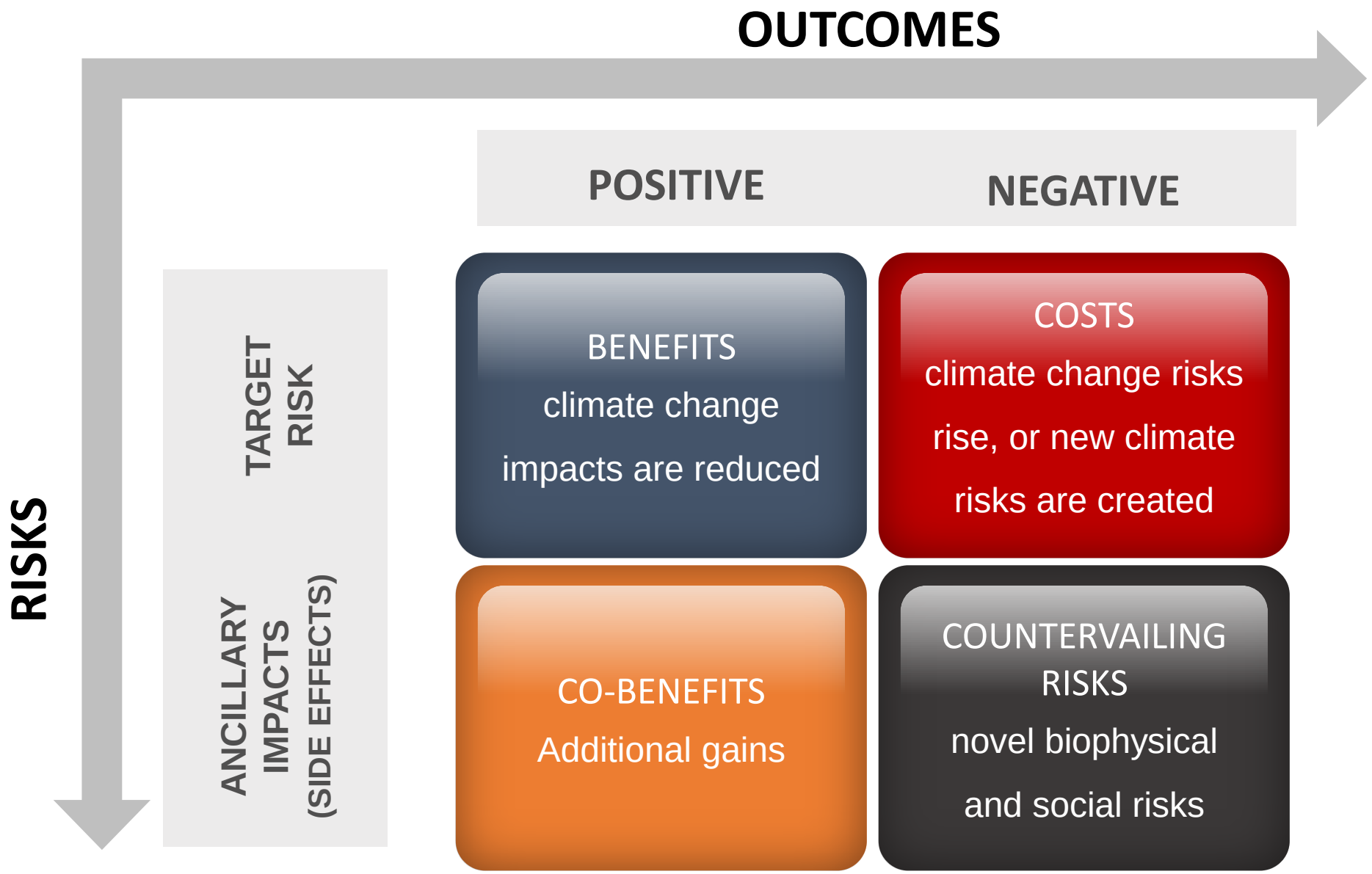
Given the urgent, growing risks of climate change, it is important to understand the feasibility, risks, and benefits of all possible response options

Would SRM increase or decrease overall risk?

A key consideration in deciding whether to pursue SRM to offset global warming should be a comparison of the extent of climate risk that the technology is able to reduce against the severity of any countervailing risks that it may engender

The risk-risk framework aims to compare a world with SRM and a world without SRM in addressing climate change

Deploying SRM as a response to climate change



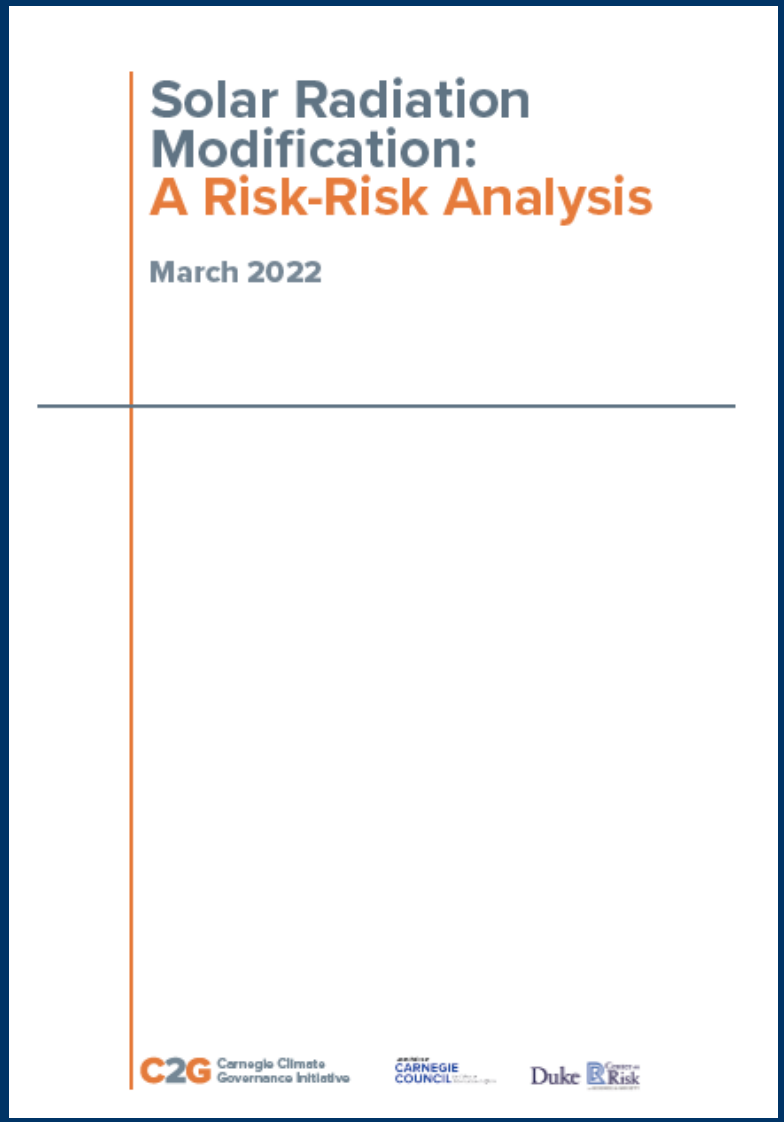
SRM deployment would not occur in isolation, so its benefits and risks would depend on:

- the particular goals of the SRM deployment
- the background emissions pathway and adaptation plans being followed
- the sustainable development goals pursued
- the governance framework

level of residual climate risk that might be addressed by SRM

minimize climate risks, maximize additional gains, and limit its own added climate and countervailing risks

The report *Solar Radiation Modification: A Risk-Risk Analysis* along with Summary versions in English, French, Spanish and Chinese may be downloaded from the C2G website: https://www.c2g2.net/



Felgenhauer, T., Bala, G., Borsuk, M., Brune, M., Camilloni, I., Wiener, J.B., Xu, J. (2022). *Solar Radiation Modification: A Risk-Risk Analysis*, Carnegie Climate Governance Initiative (C2G), March, New York, NY