

Forestry and Agriculture Greenhouse Gas Modeling Forum

March 4th, 2024

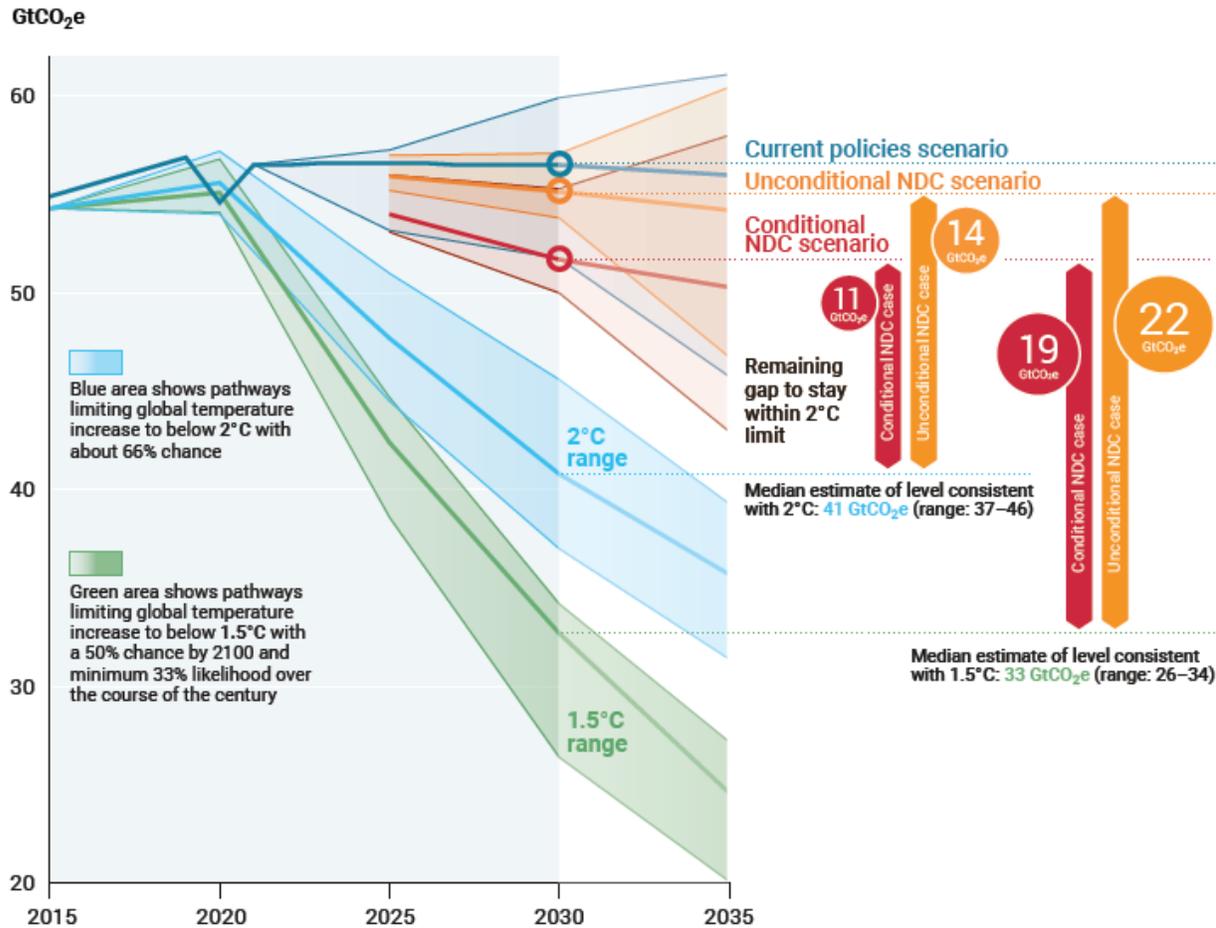
Role of AFOLU in meeting Decarbonization Goals

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Are we doing enough?



UNEP Gap, 2023

Global Climate Plans Still Fall Short

Estimated global median temperature increase by 2100, by scenario



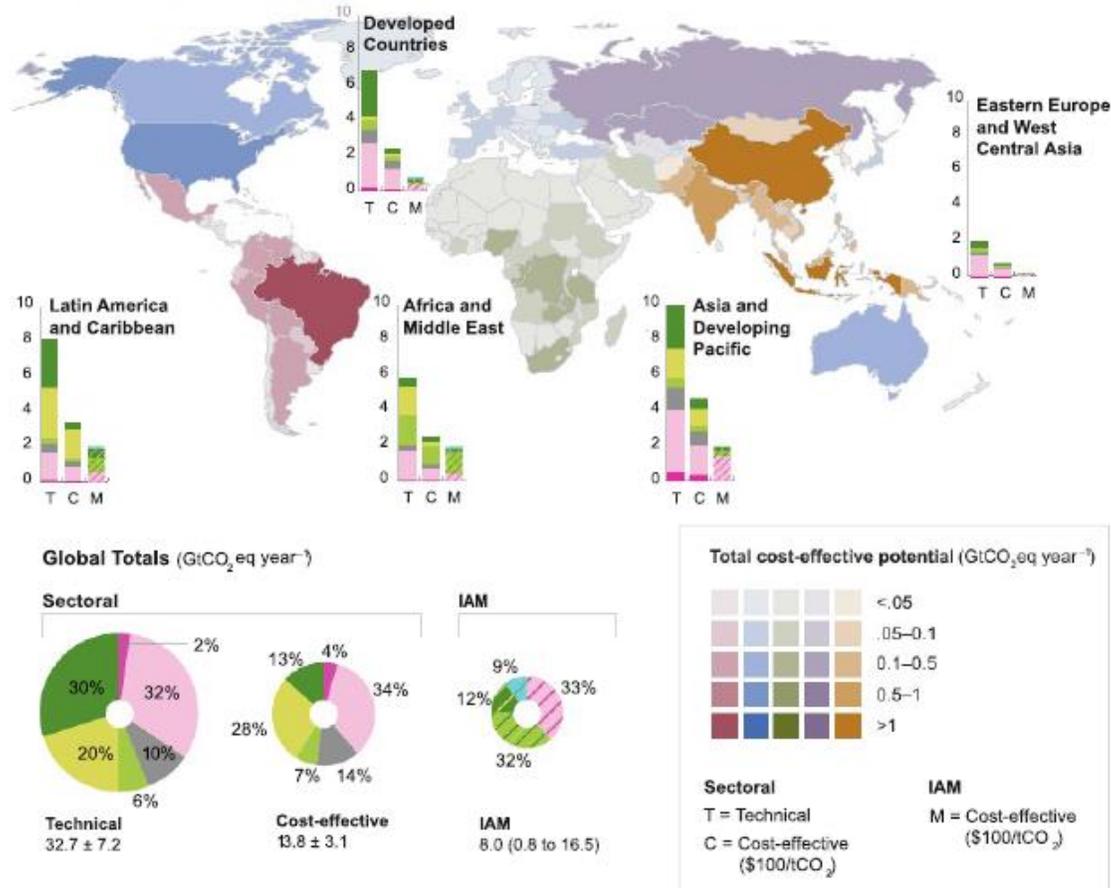
As of November 2022. Figures in gray represent upper/lower estimates

* Based on net-zero pledges

Source: Climate Action Tracker



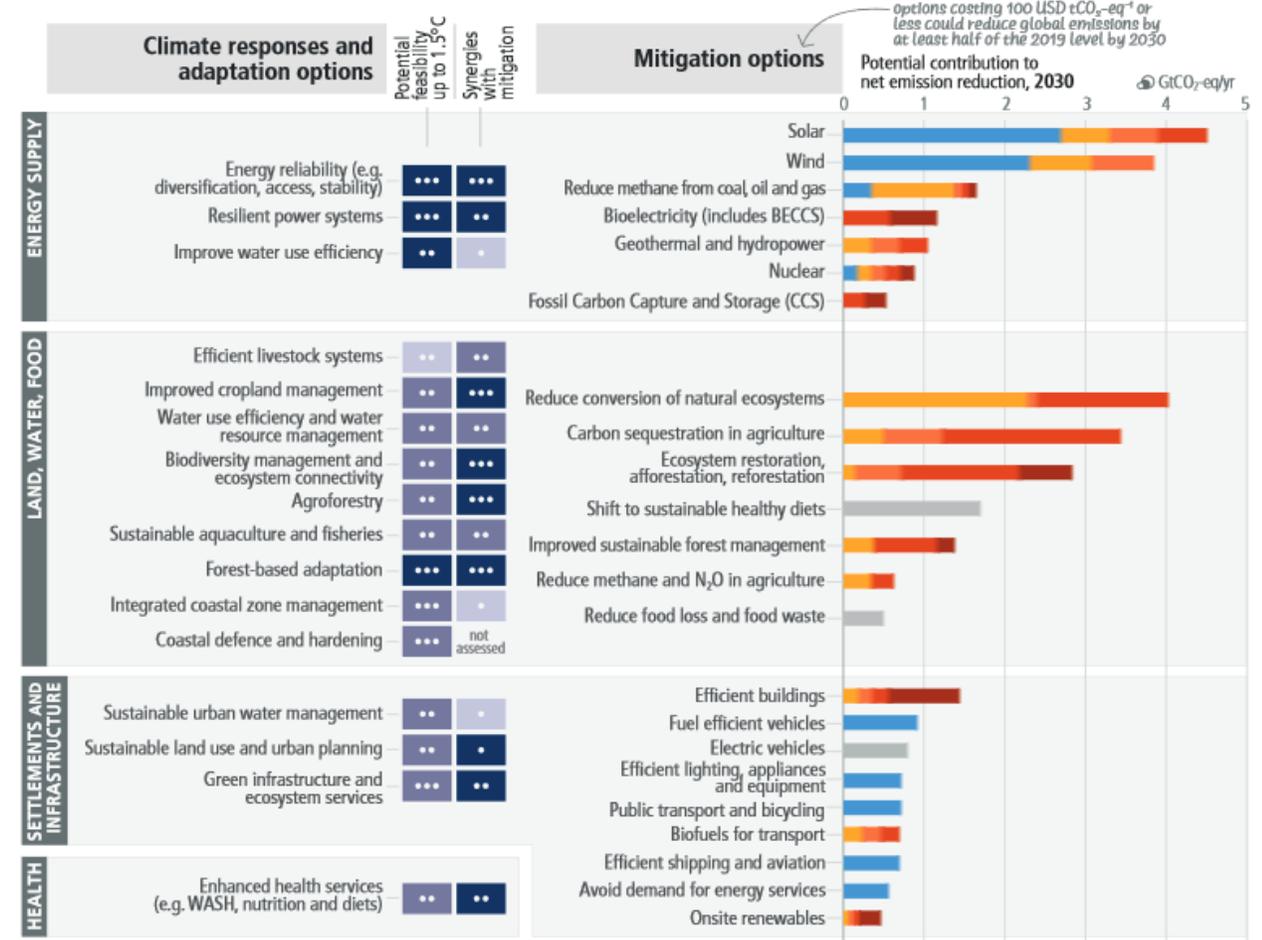
Potential contribution of land-based measures



Roe, 2021

There are multiple opportunities for scaling up climate action

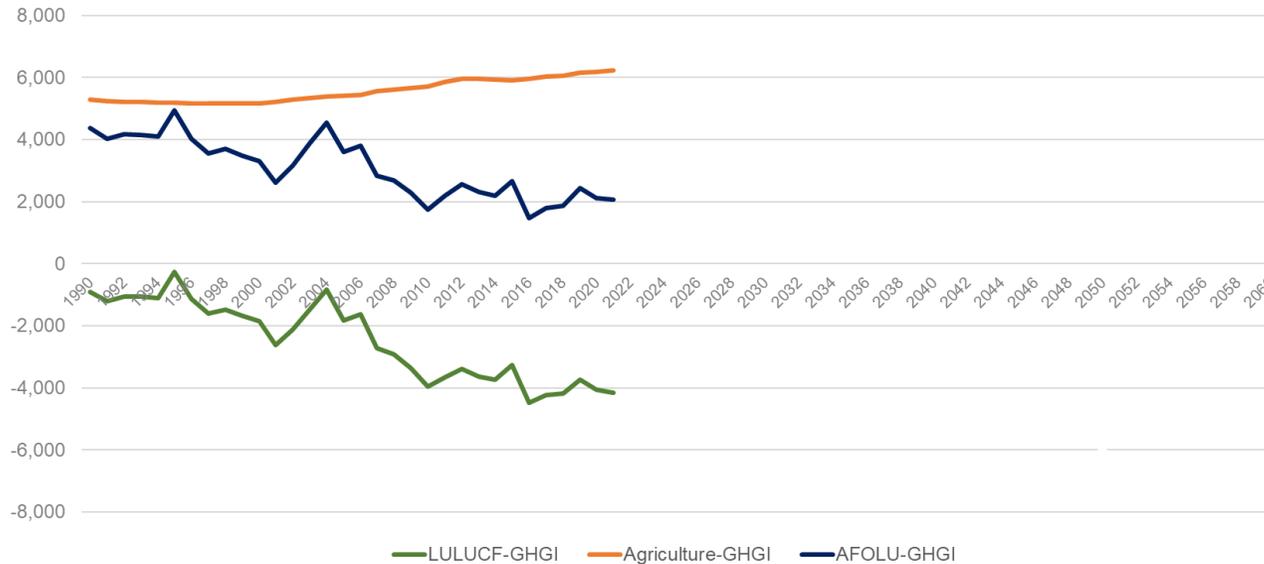
a) Feasibility of climate responses and adaptation, and potential of mitigation options in the near term



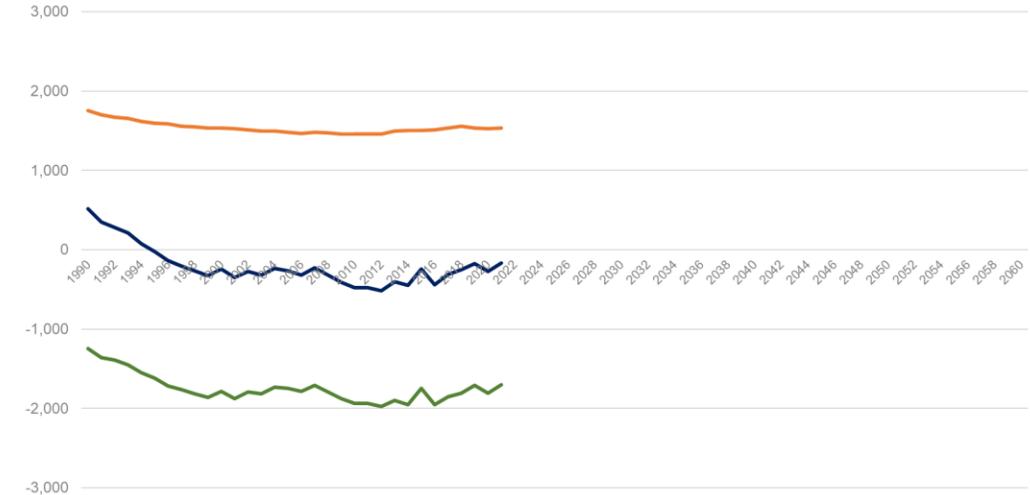
IPCC, 2023

Current AFOLU emissions according to countries

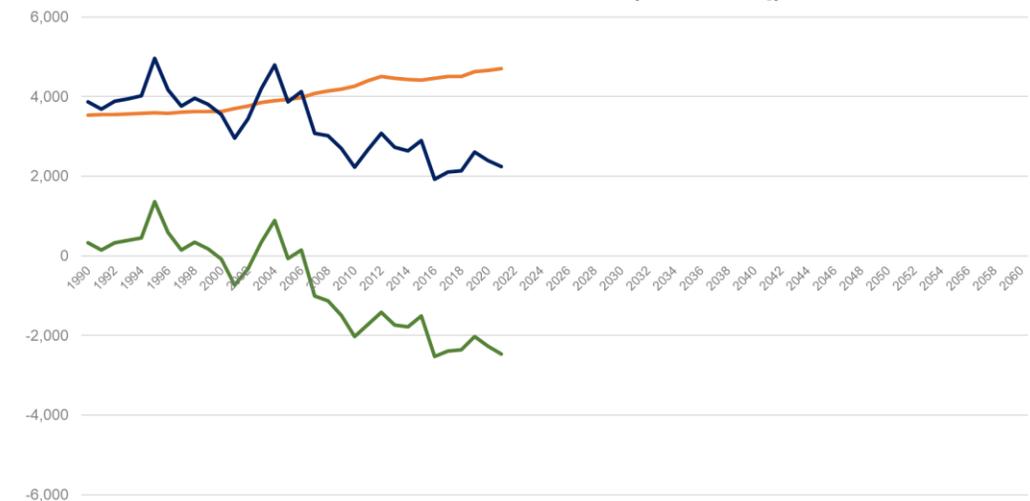
Global emissions (MtCO₂eq)



Annex 1 emissions (MtCO₂eq)



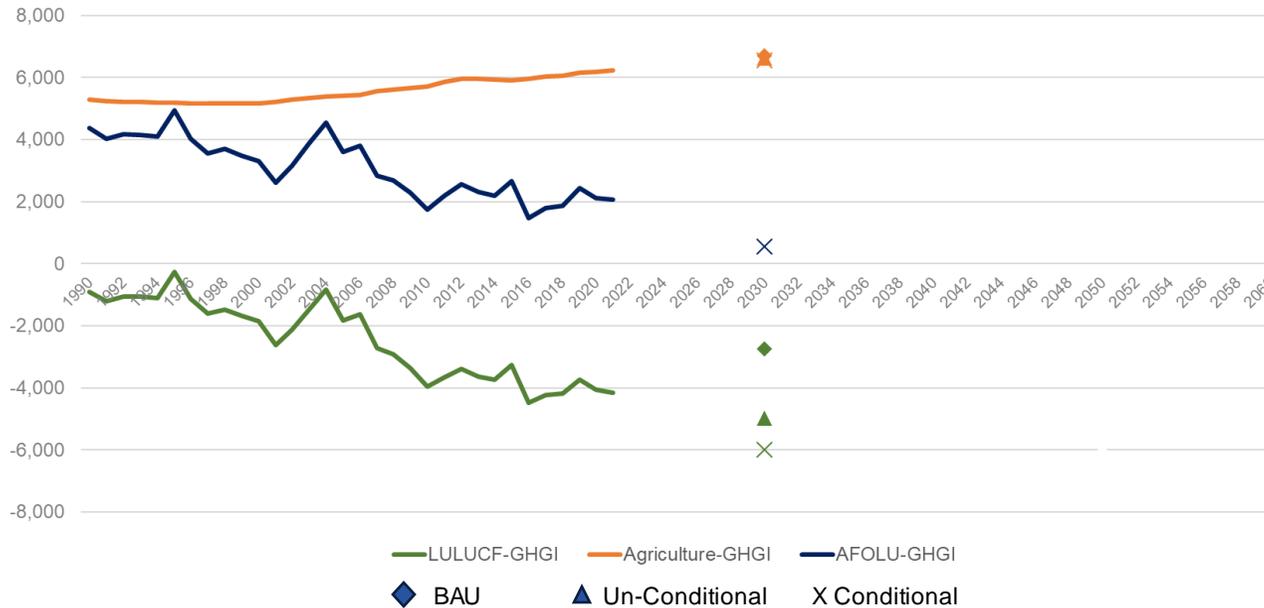
Non-Annex 1 emissions (MtCO₂eq)



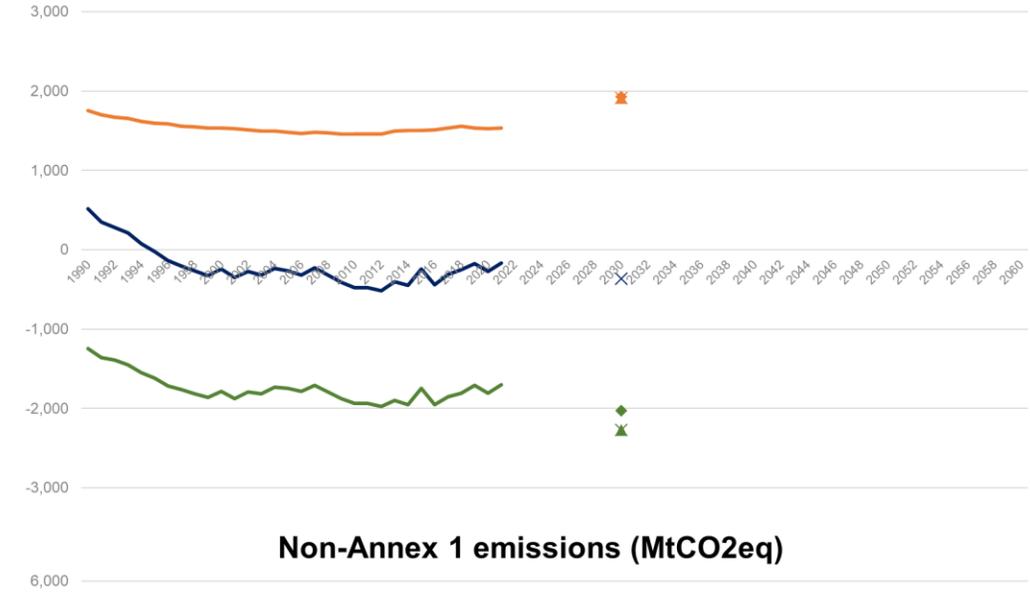
- Historical emissions are based on countries reporting to the UNFCCC (e.g., NGHGI, NC, BUR).
- Globally, net AFOLU emissions have slowly declining from 1990 to 2020, mainly due to an increase of LULUCF removals in non-Annex I countries.
- Agricultural emissions are still increasing in non-Annex I countries, but may have peaked in Annex I countries.

Nationally Determined Contributions (NDCs)

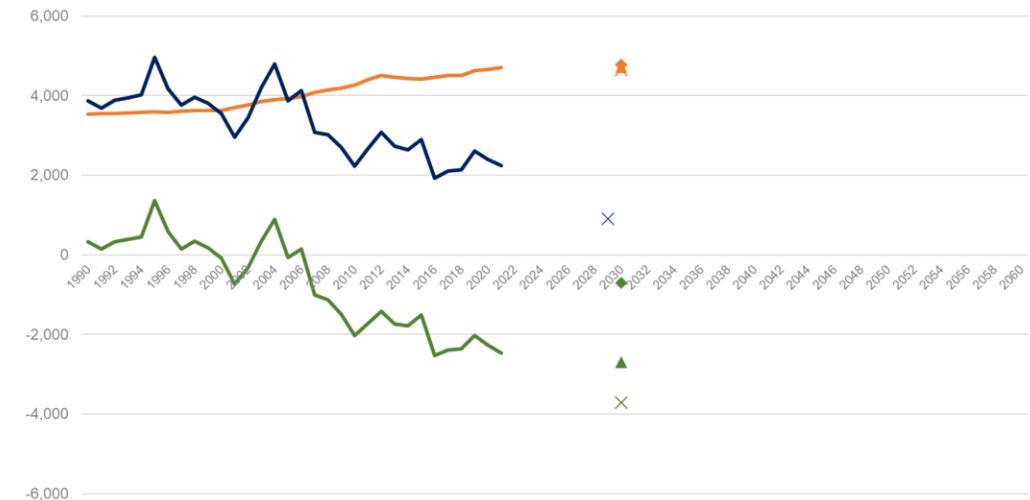
Global emissions (MtCO₂eq)



Annex 1 emissions (MtCO₂eq)



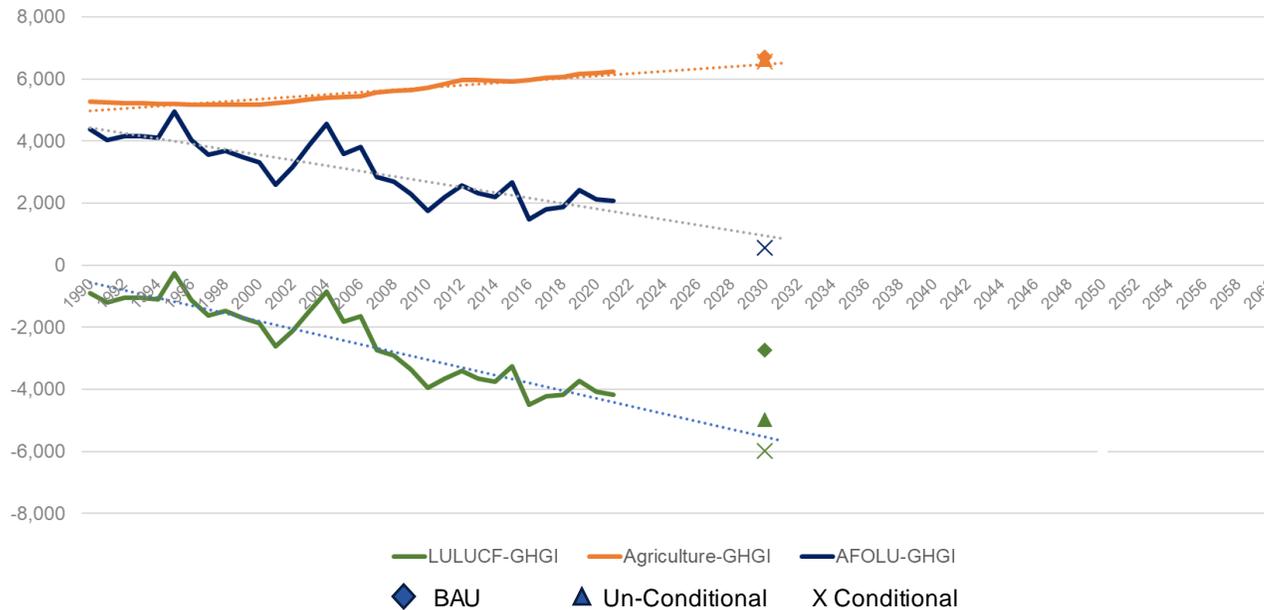
Non-Annex 1 emissions (MtCO₂eq)



- NDC targets collected from UNFCCC webpage utilizing the latest submissions by countries.
- Found LULUCF targets for 79 countries and Agricultural targets for 37 countries out of a total of 250.
- Globally, very limited commitments for the Agriculture sector.
- Strong commitments for the LULUCF sector but BAU assumptions might be inflated in non-Annex I countries.

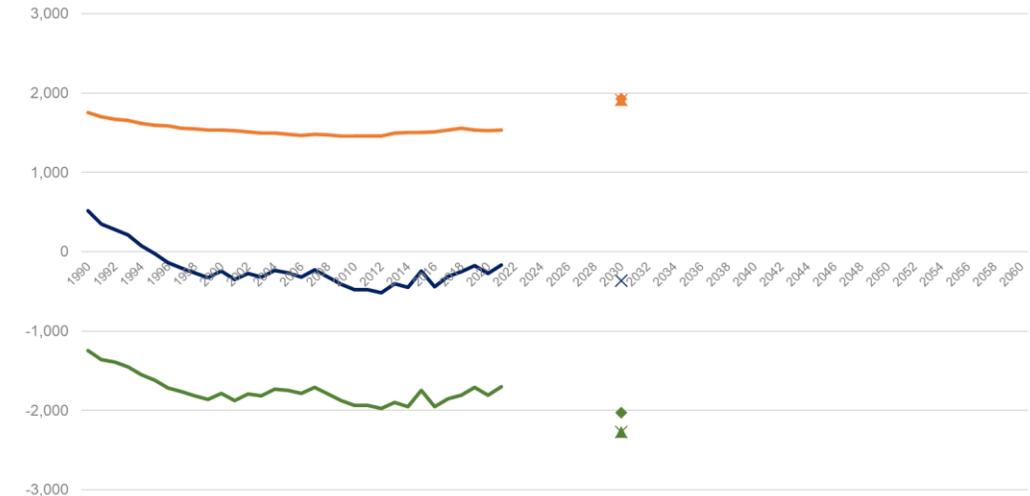
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Annex 1 emissions (MtCO₂eq)

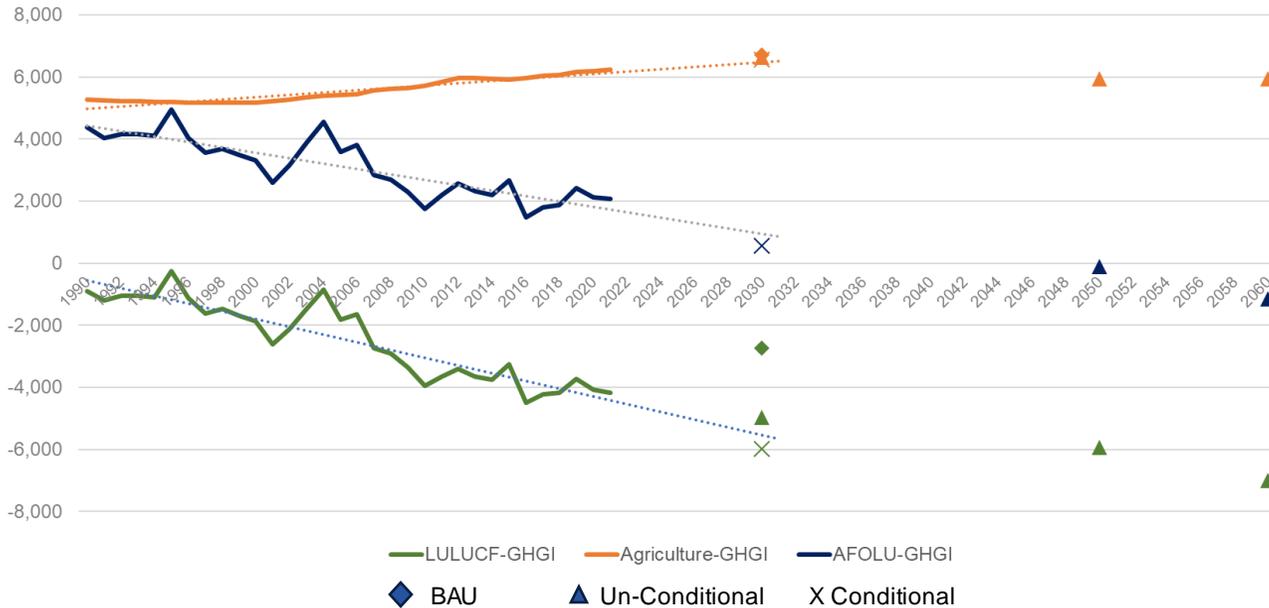


Non-Annex 1 emissions (MtCO₂eq)

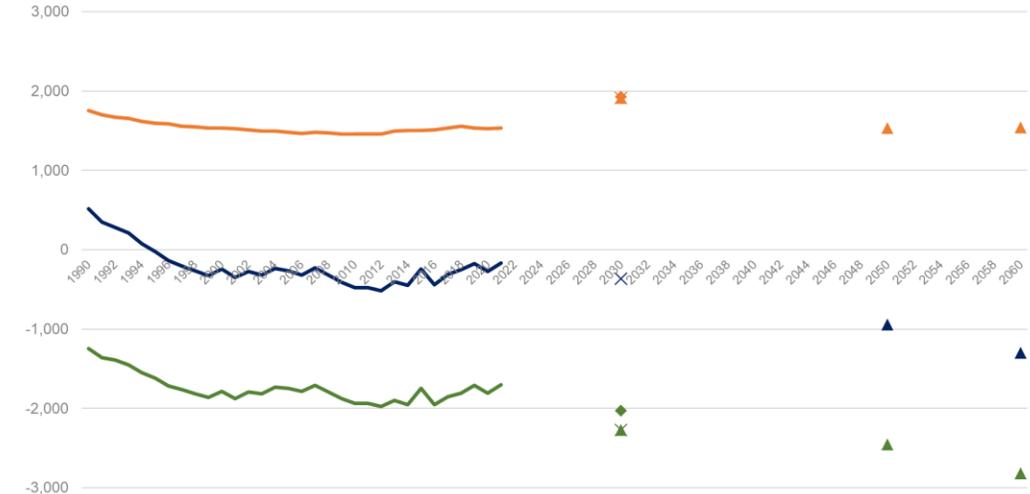


Long-term Low Emission Development Strategies (LT-LEDS)

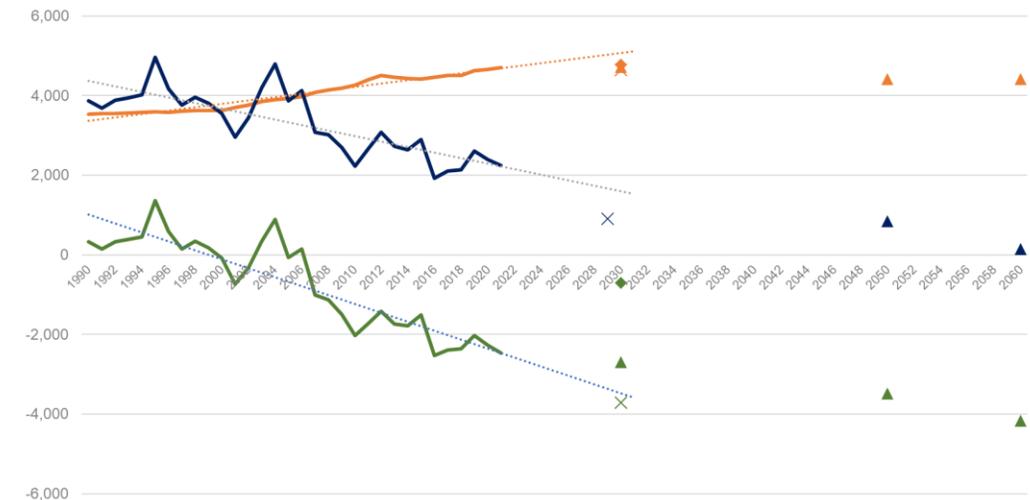
Global emissions (MtCO₂eq)



Annex 1 emissions (MtCO₂eq)



Non-Annex 1 emissions (MtCO₂eq)



- LT-LEDS targets collected from UNFCCC webpage utilizing the latest submissions by countries.
- Found LULUCF targets for 41 countries, Agricultural targets for 34 countries, and AFOLU targets for 5 countries.
- Relatively limited commitments for the AFOLU sector.
- Globally, the AFOLU sector may reach climate neutrality as a sector by 2040-2050.

Final comments and conclusions

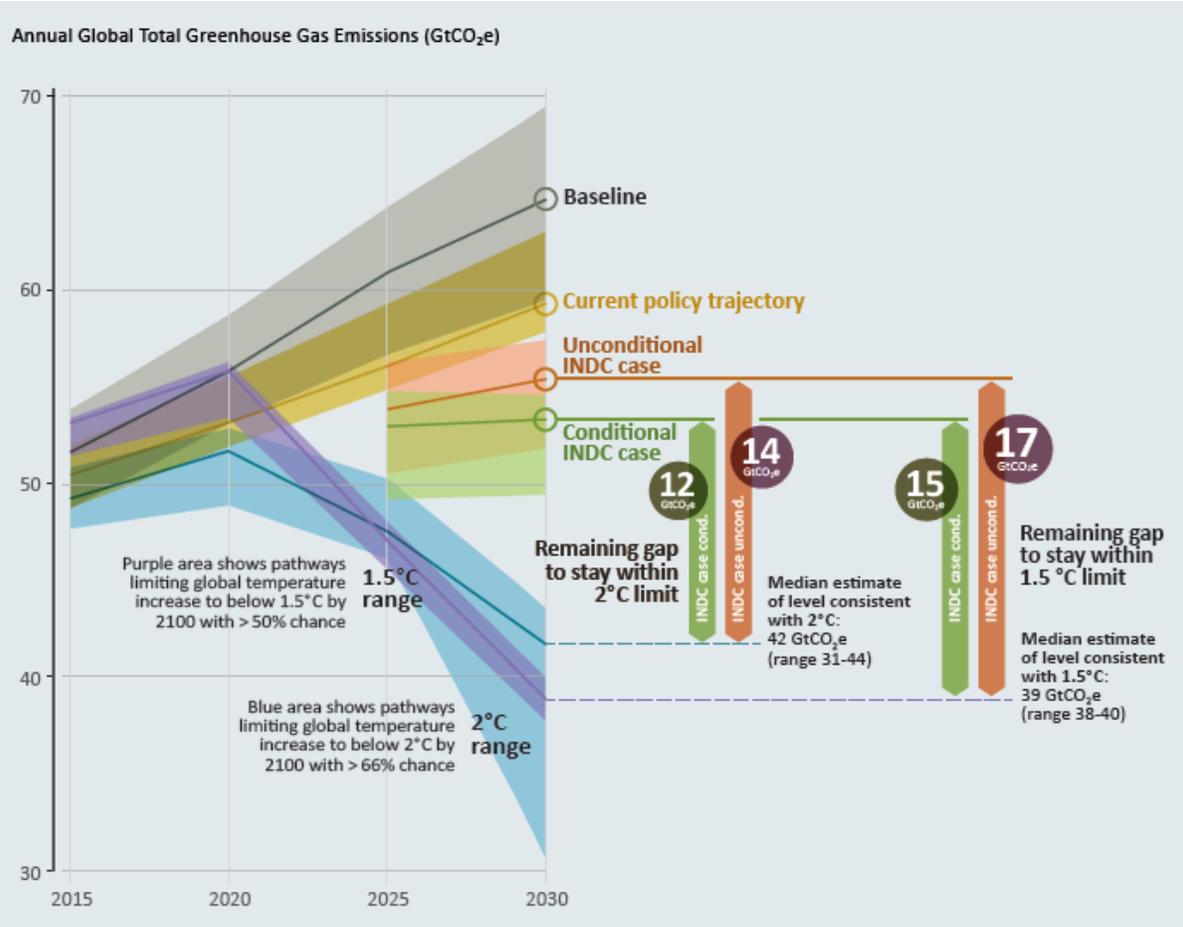
- Globally, net AFOLU emissions appear to have been slowly declining from 1990 to 2020, mainly due to an increase of LULUCF removals in non-Annex I countries.
- Fulfillment of NDC targets are set to stabilize Agriculture emissions and continue the enhancement of the net LULUCF sink by 2030.
- Countries are putting forward stronger commitments for the LULUCF sector than that of the Agriculture sector, both in terms of their NDCs and LT-LEDs targets.
- By 2030, net global AFOLU emissions may decrease by 0.6-1.7 GtCO₂eq as compared to 2020 levels. By 2050-2060, net global AFOLU emissions may decrease by 2.3-3.4 GtCO₂eq as compared to 2020 levels.
- The assessment showcase a sizable gap between targets and overall mitigation potential for the AFOLU sector.
- Overall, more transparency and bolder actions are needed in terms of AFOLU sectorial commitments as we move forward.

Thanks for your attention

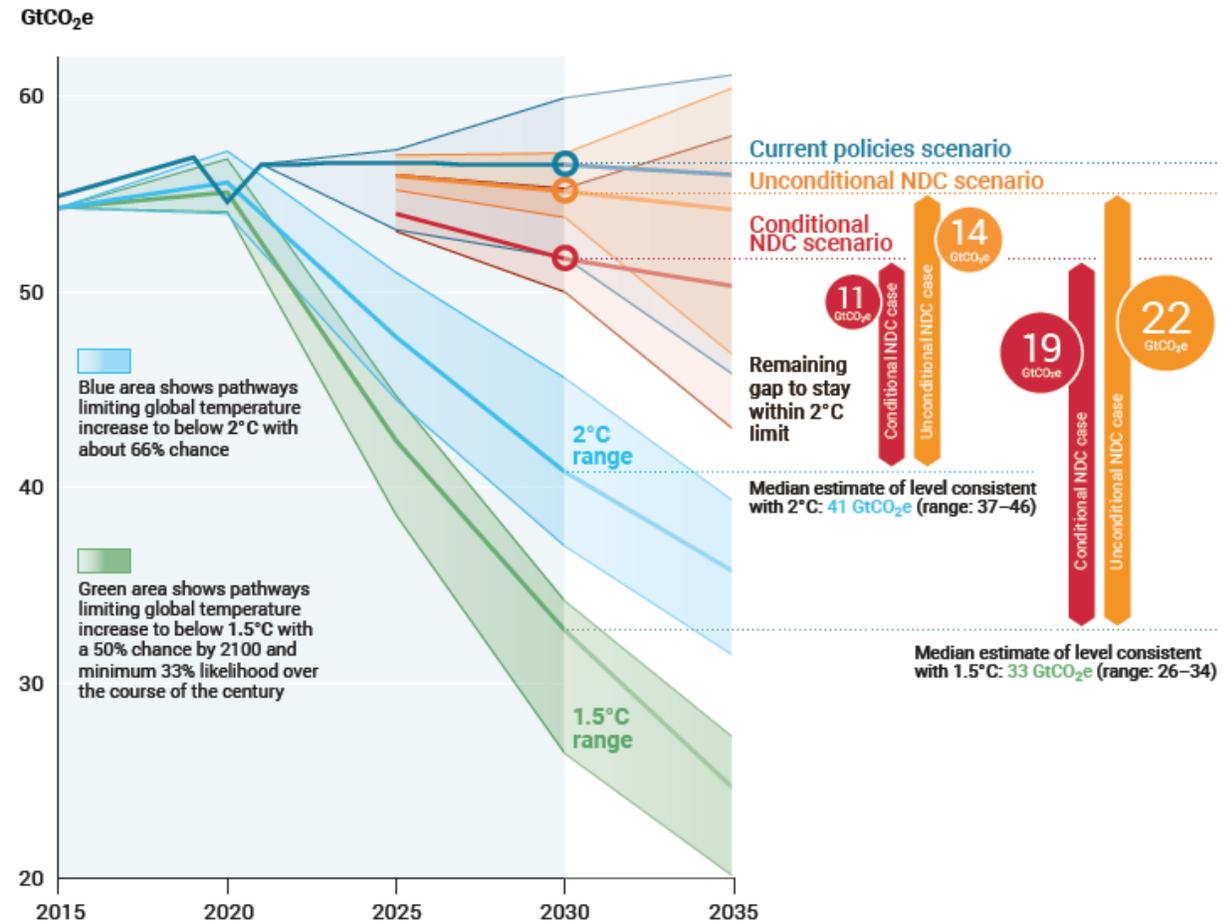
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How far have we come?



UNEP Gap, 2016



UNEP Gap, 2023