

6th Gathering of the ParlAmericas Parliamentary Network on Climate Change

Realizing our Green Future: The Road to Low Emissions

# <u>Agriculture, Forests and Other Land</u> <u>Uses (AFOLU): Trends and</u> opportunities

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INTERCOVERNMENTAL PANEL ON CLIMPTE CHARGE

#### Climate Change 2022 Mitigation of Climate Change



Working Group III contribution to the Sath Assessment Report of the Intergovernmental Panel on Climate Change



2010-2019: **Average annual** greenhouse gas emissions at highest levels in human history

[Matt Bridgestock. Director and Architect at John Gilbert Architects]

WGIII

# We are not on track to limit warming to 1.5 °C.

Global net anthropogenic emissions have continued to rise across all major groups of greenhouse gases



#### Global net anthropogenic GHG emissions 1990-2019

Emissions have grown in most regions but are distributed unevenly, both in the present day and cumulatively since 1850.





## ipcc 🏩 座

# b. Historical cumulative net anthropogenic $CO_2$ emissions per region (1850–2019)

#### c. Net anthropogenic GHG emissions per capita and for total population, per region (2019)



...but there is increased evidence of climate action





#### **Increased evidence of climate action**





Some countries have achieved a **steady decrease** in emissions **consistent** with limiting warming to **2°C**. Zero emissions targets have been adopted by at least 826 cities and 103 regions

#### **Increased evidence of climate action**



In some cases, costs for renewables have fallen below those of fossil fuels.

Market cost

----- AR5 (2010)

Electricity systems in some countries and regions are already predominantly powered by renewables.

Adoption (note different scales)

Fossil fuel cost (2020)



# Unless there are immediate and deep emissions reductions across all sectors, 1.5°C is beyond reach.



#### Limiting warming to 1.5 °C

- Global GHG emissions peak before 2025, reduced by 43% by 2030.
- Methane reduced by 34% by 2030

#### Limiting warming to around 2°C

• Global GHG emissions peak before 2025, reduced by 27% by 2030.

(based on IPCC-assessed scenarios)



There are options available **now** in every sector that can at least **halve** emissions by 2030



**Demand and services** 



Energy





Industry



Urban



**Buildings** 



Transport



#### **AFOLU**

- The sector contributes 22% of global emissions.
- can provide large-scale emissions reductions and remove and store CO<sub>2</sub> at scale
- protecting and restoring **natural ecosystems** to remove carbon: forests, peatlands, coastal wetlands, savannas and grasslands
- competing demands have to be carefully managed
- cannot compensate for delayed emission reductions in other sectors
- Well-designed, land-based mitigation options can also benefit biodiversity and ecosystems, assist our adaptation to climate change, secure livelihoods, improve food and water security.



## **Carbon Dioxide Removal**

- required to counterbalance hard-to-eliminate emissions
- through **biological** methods: reforestation, and soil carbon sequestration
- new technologies require more research, up-front investment, and proof of concept at larger scales
- essential to achieve net zero
- **agreed methods** for measuring, reporting and verification required



[Forest Service Northern Region CC BY 2.0, Fiston Wasanga/CIFOR CC BY-NC-ND 2.0, Climeworks]



# Potencial regional de mitigação - AFOLU





#### Between 2020 and 2050:

- mitigation measures in forests and other natural ecosystems provide the largest share of the economic (up to USD100 tCO<sub>2</sub>-eq<sup>-1</sup>) AFOLU mitigation potential,
- followed by agriculture and demand-side measures

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Many options available now in all sectors are estimated to offer substantial potential to reduce net emissions by 2030. Relative potentials and costs will vary across countries and in the longer term compared to 2030.





#### **Demand and services**

- potential to bring down global emissions by
   40-70% by 2050
- walking and cycling, electrified transport, reducing air travel, and adapting houses make large contributions
- lifestyle changes require systemic changes across all of society
- some people require additional housing, energy and resources for human wellbeing



Demand-side mitigation can be achieved through changes in socio-cultural factors, infrastructure design and use, and end-use technology adoption by 2050.

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## **Closing investment gaps**

- financial flows: 3-6x lower than levels needed by 2030 to limit warming to below 1.5°C or 2°C
- there is sufficient global capital and liquidity to close investment gaps
- Total mitigation investments (public, private, domestic, and international) would need to increase across all sectors and regions.
- Mitigation investment gaps are wide for all sectors, and widest for the AFOLU sector in relative terms and for developing countries.









#### **Realizing the potential of the sector**

Knowledge, experience, and respect for the rights of Indigenous Peoples and local communities are crucial for land-based mitigation.

In Latin America and Caribbean, forests cover more than 80% of the area occupied by indigenous peoples (330 million hectares) which points to their critical role for forest governance.

Realizing the potential of the sector implies overcoming institutional, economic, and political constraints and managing potential trade-offs.

## **Technology and Innovation**

- investment and policies push forward low emissions technological innovation
- effective decision making requires assessing potential benefits, barriers and risks
- some options are technically viable, rapidly becoming cost-effective, and have relatively high public support.
   Other options face barriers

Adoption of low-emission technologies is slower in most developing countries, particularly the least developed ones.





#### Policies, regulatory and economic instruments

Realising the mitigation potential of the AFOLU sector depends strongly on policies that directly address emissions and drive the deployment of land-based mitigation options, consistent with carbon prices in deep mitigation scenarios.

Examples of successful policies and measures include:

- establishing and respecting tenure rights and community forestry,
- improved agricultural management and sustainable intensification,
- biodiversity conservation, payments for ecosystem services,
- improved forest management and wood chain usage,
- bioenergy,
- voluntary supply chain management efforts, consumer behaviour campaigns,
- private funding and joint regulatory efforts to avoid, for example, leakage.

# Association of driver variables with more or less deforestation.



For each category of explanatory variables (left-hand side), the meta-analysis determined whether the driver variables in that category were consistently associated with higher rates of deforestation, lower rates of deforestation, or neither (not consistent).

For example, a ratio of -4x indicates that a variable is associated with less deforestation four times as often as it is associated with more deforestation.

Source: Busch and Ferretti-Gallon (2017).



#### Policies, regulatory and economic instruments

The efficacy of different policies, however, will depend on numerous regionspecific factors.

In addition to funding, these factors include governance, institutions, longterm consistent execution of measures, and the specific policy setting.

Land use decisions are often spread across a wide range of landowners; demand-side measures depend on billions of consumers in diverse contexts.

Importance of governance that emphasizes integrated land use planning and management, framed by the **Sustainable Development Goals**.



Accelerated climate action is critical to sustainable development

# SUSTAINABLE GOALS



#### Mitigation options in agriculture and forestry

Carbon sequestration in agriculture<sup>1</sup> Reduce CH<sub>4</sub> and N<sub>2</sub>O emission in agriculture Reduced conversion of forests and other ecosystems<sup>2</sup> Ecosystem restoration, reforestation, afforestation Improved sustainable forest management Reduce food loss and food waste Shift to balanced, sustainable healthy diets Renewables supply<sup>3</sup>

#### **Relation with Sustainable Development Goals**



The evidence is clear:
The time for action is now



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# Thankyou

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