# Importance of Forest Conservation in the Context of the SR 1.5

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Satellite Technology for Mitigating Deforestation

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# Global Warming of 1.5°C

Limiting global warming to 1.5°C until the end of this century requires unprecedented changes in all aspects of society.

Significant decreases of $CO_2$ emissions are necessary, reaching net zero by 2050, concomitant with deep cuts in non-$CO_2$ emissions and other climate drivers.

***Systemic Changes for 1.5°C Consistent Pathways***
Energy System transition, ***Land and Ecosystem Transition***, Urban and Infrastructure Transition, Industrial System Transitions

# Mitigation Potentials in Land

Mitigation potentials are dominated by

- Reduced deforestation
- Afforestation and reforestation
- Forest management

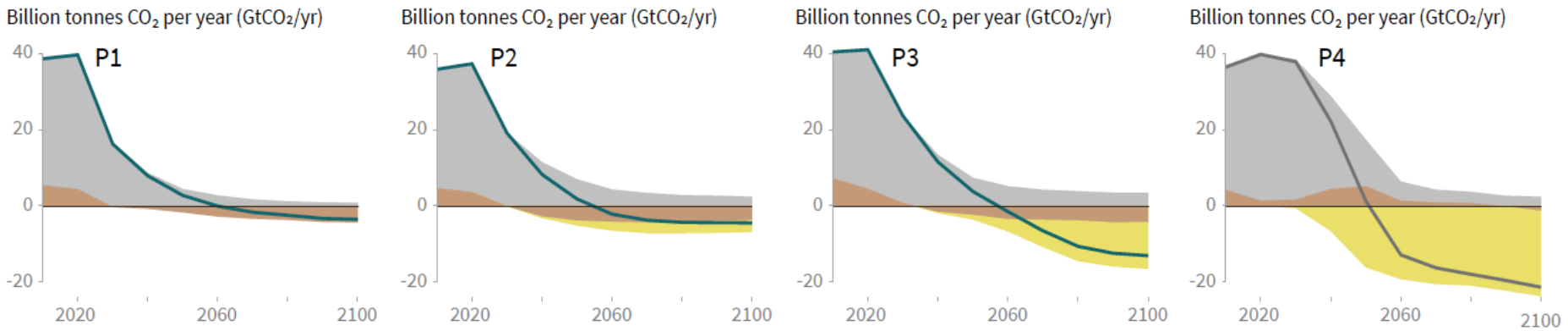
Other activities contemplated:

- Conservation
- Restoration
- Improved land management

Importance of Afforestation and Reforestation as a Carbon Dioxide Removal Measure (possibility of need for large-scale implementation).

## Breakdown of contributions to global net $CO_2$ emissions in four illustrative model pathways

Fossil fuel and industry  AFOLU  BECCS




**P1:** A scenario in which social, business, and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A down-sized energy system enables rapid decarbonisation of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

**P2:** A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

**P3:** A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

**P4:** A resource and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.

# Importance of Satellite Data

Satellite data are already being extensively used by many countries to monitor changes in forest cover, including deforestation, degradation from selective logging and fire, and reforestation, and is a instrumental tool to support REDD+ implementation.

Japanese Earth Resources Satellite, the JERS
Advanced Earth Observing Satellites, ADEOS
***Advanced Land Observing Satellite, ALOS***

Improvement of climate change governance :
- Holistic and integrated management systems; improving collaborative processes; implementing monitoring programs; increasing the capacity of local authorities.

# Atmospheric Satellite Monitoring

Many of the findings in the last assessment report of the IPCC were derived from improved observations by satellite :
– data completeness have increased and this has allowed a better understanding of trends in GHG emissions and concentrations.

Examples where satellite data have been instrumental to provide information :

- the observation of the decline in carbon monoxide over a number of polluted regions in Europe, North America and Asia.;
- the identification of strong regional differences in trends of some gases – Nitrogen Dioxide has decreased between 30-50% in Europe and America and increased by more than 2 times in Asia since mid-1990s;
- the availability of new sea surface temperature products;
- Identification of an increase in the frequency of the heaviest rainfall during warmer years.