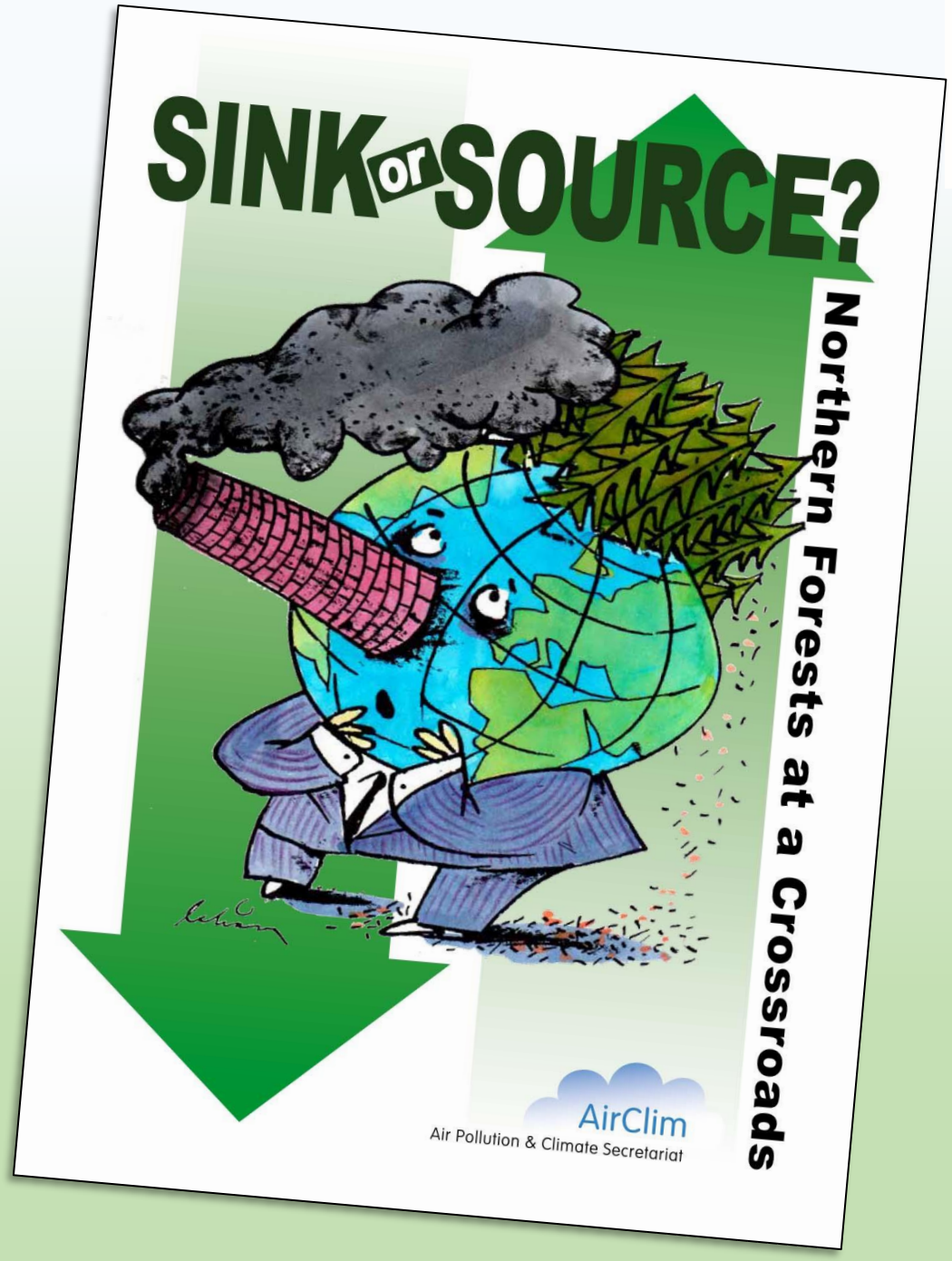
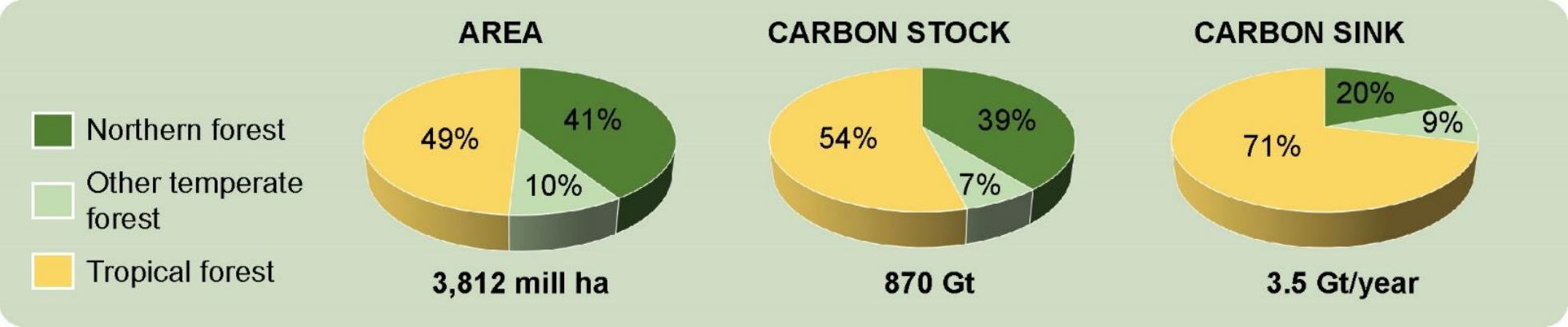
”In general it is assumed that forests in Annex 1 countries are not under threat, or at least less threatened than tropical forests. This is a misconception.”



NORTHERN FORESTS IN THE GLOBAL CONTEXT



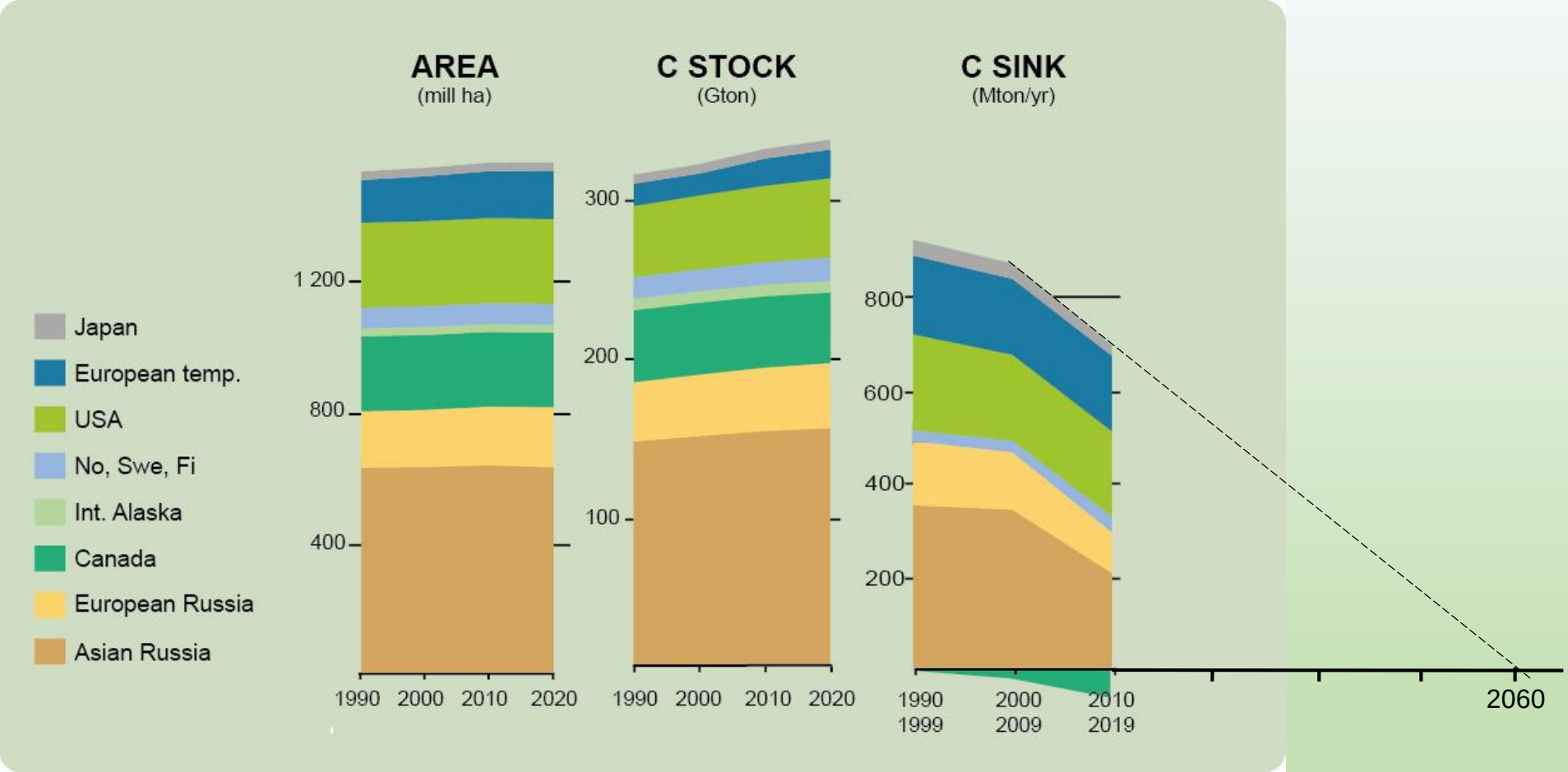
Provide 75 % of global industrial roundwood supply

75 % of the area managed for timber production

Rotation forestry with clear-cut harvesting dominates

Less than 10% under protection

NORTHERN FORESTS 1990 - 2020



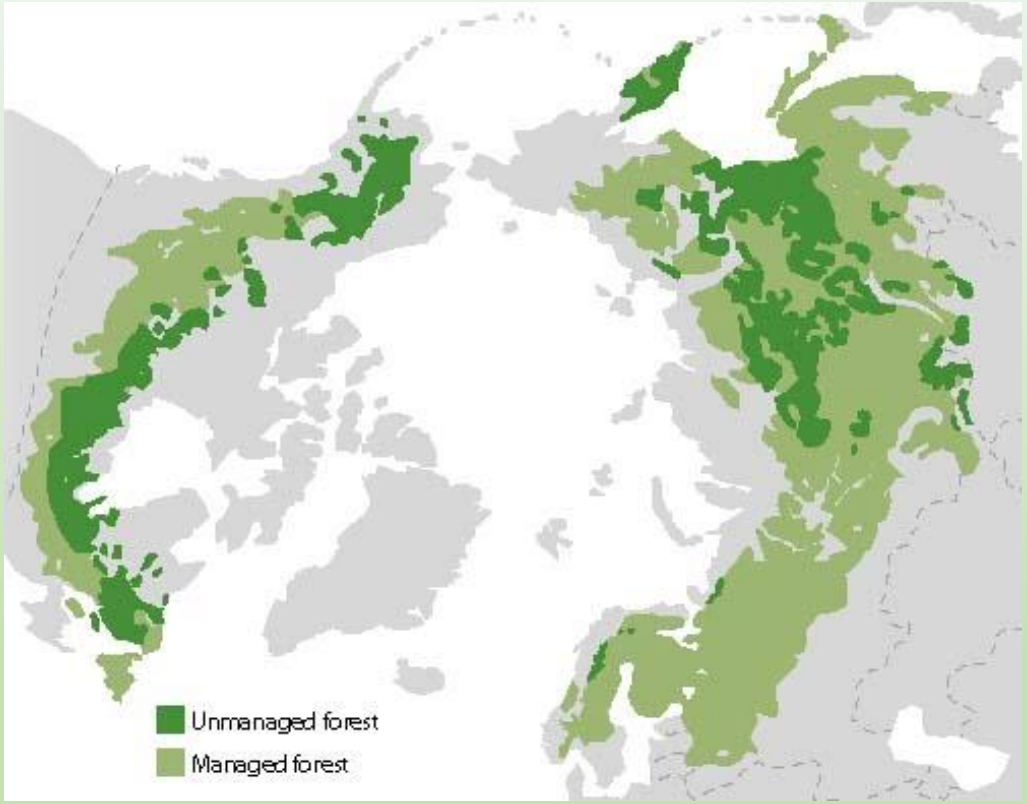
THE DRIVERS

Climate-induced increase in disturbances

Industrial forestry - 75 % of total area

Loss of primary/old-growth forests

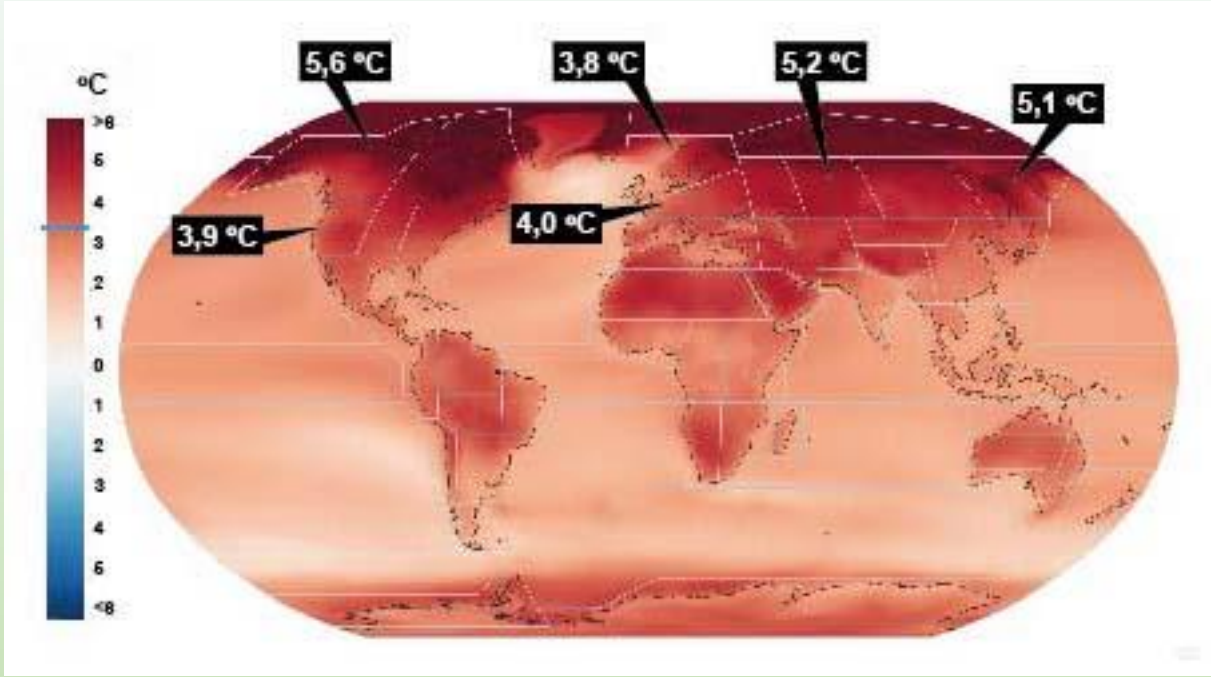
Decreasing positive growth effects of warming and CO_2 fertilisation?



After IIASA 2021, Kraxner et al 2017, Ogle et al 2018, NFIS Canada.

THE DRIVERS OF THE DRIVERS

Global warming

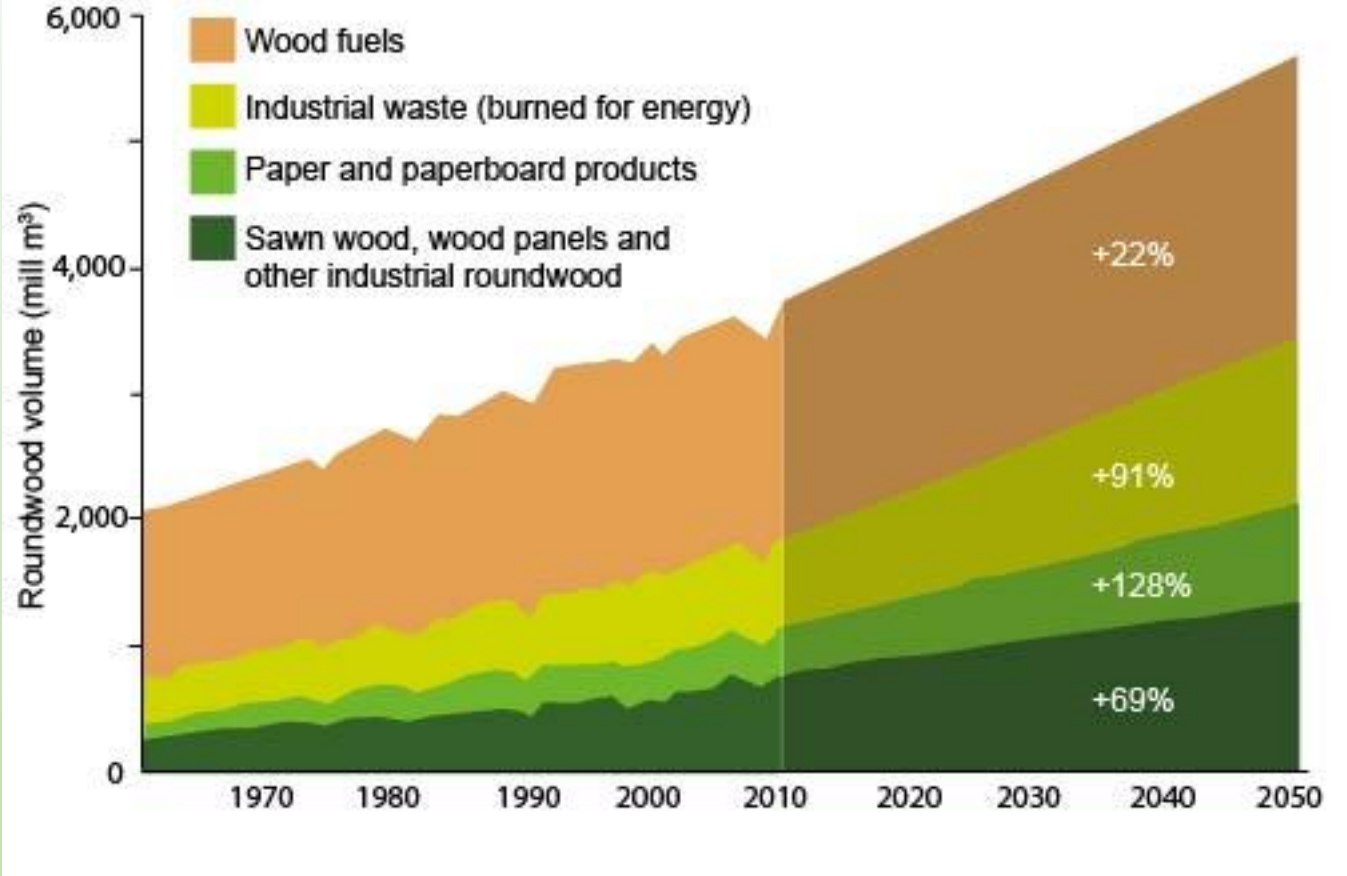


After IPCC 2025

THE DRIVERS OF THE DRIVERS

Global warming

Consumption of wood products



After Peng et al 2023

THE IMPACT

Loss of climate mitigation potential
- approaching a tipping point

Loss of ecosystem integrity / complexity

- **loss of resilience – ability to adopt**
- **loss of biodiversity**

WHY BIODIVERSITY IS A CLIMATE ISSUE

Loss of biodiversity is loss of ecosystem integrity and thus loss of resilience.

The more diverse a forest stand is (in terms of tree species), the higher its productivity and thus its capacity to store carbon.

THE NEED FOR NEGATIVE EMISSONS

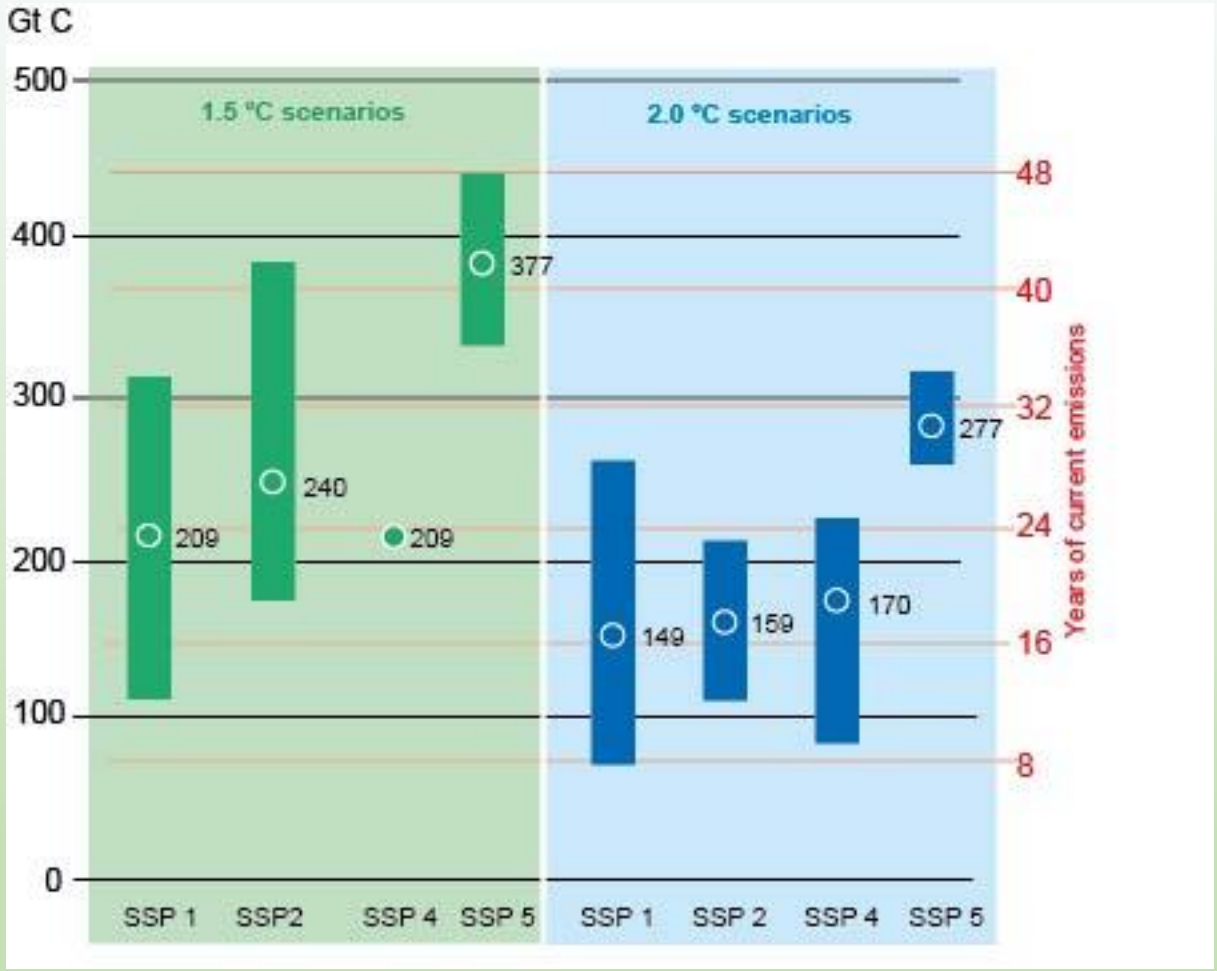
To limit warming to 1.5ºC:

+ 100 - 400 Gt C 2005-2100

= + 1 - 4 Gt C/year

Present global forest sink is 3.5 Gt/year

Present northern forest sink is 0.7 Gt/year



After Evans & Hausfather / Carbon Brief.

INTENSIFIED FORESTRY IS NOT AN OPTION

Harvest and use of wood products is not ”carbon neutral”

Of one tonne of C removed from the forest today, 830 kg will return to the atmosphere before 2050, and most of it even before 2030.

While harvest of industrial roundwood increased by 50 % 1990-2010, the carbon pool in HWP increased by 1 %.

The true carbon cost of global timber harvest is 0.7-0.8 Gt/year. Projected increase to 2050 will add another 0.2 Gt/year.

THE POTENTIAL – REPAYING THE CARBON DEBT

139 Gt C in existing forests globally at present level of warming and under appropriate management

- about 50 % in northern forests

Another 87 Gt through reforestation

PATHWAYS TO THE FUTURE

1 Reduce greenhouse gas emissions in line with the long-term target of the Paris Agreement.

Further warming will increase disturbances, causing further carbon losses and damage ecosystem resilience.

PATHWAYS TO THE FUTURE

2 Ensure efficient protection of at least 30 % of northern forest ecosystems.

Protecting remaining primary/old-growth forests is a first priority.

The target must be met on a regional level.

PATHWAYS TO THE FUTURE

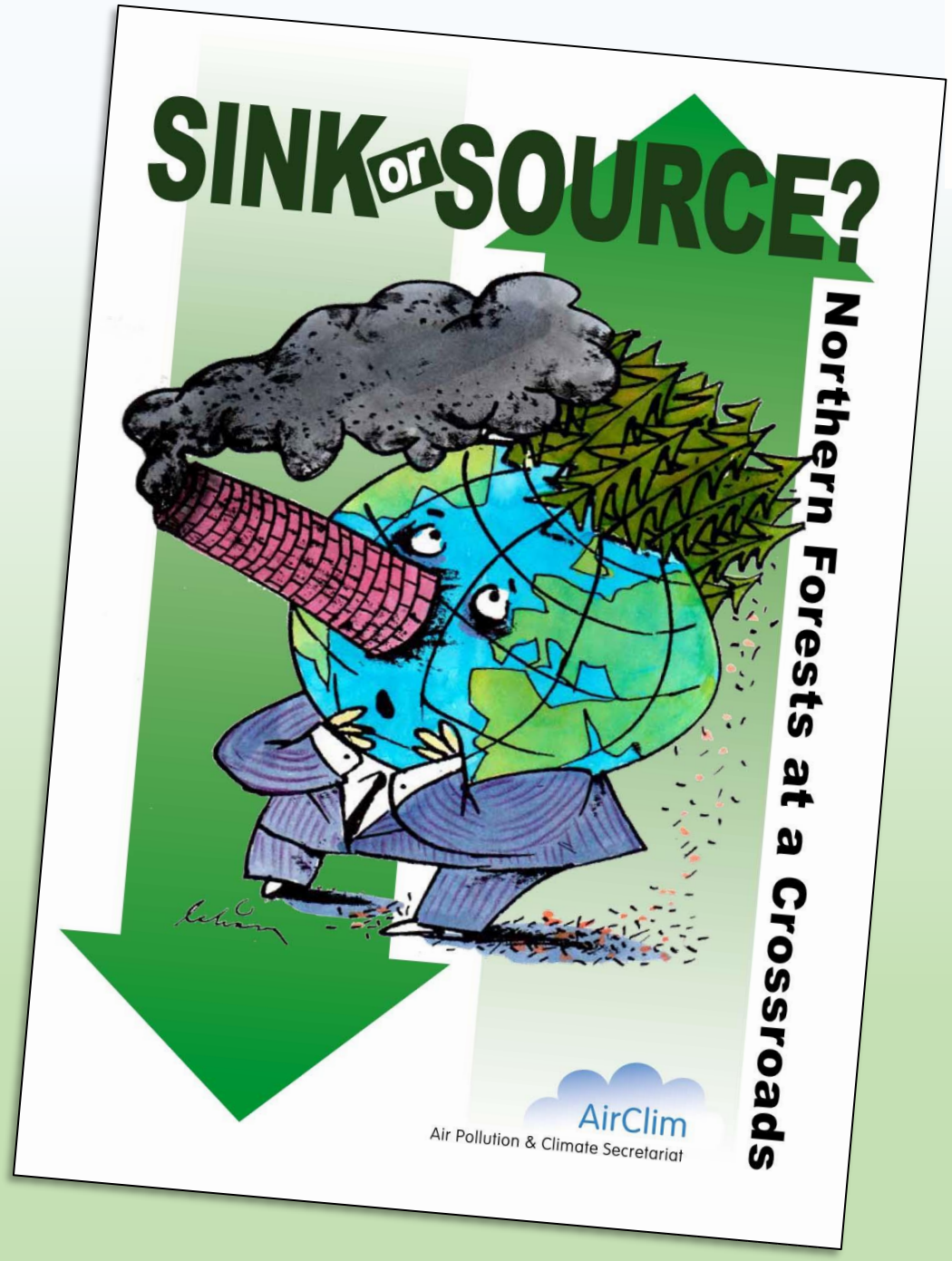
3 Halt ecosystem degradation of managed forests. Restore their resilience and ability to store carbon.

Shift from rotation forestry and clear-cutting to ecosystem forest management / closer-to-nature forestry.

The climate mitigation potential of such a shift in managend northern forests is 0.8 Gt C per year.


Ecosystem-based forest management in Lübeck, Germany
Active, profitable forestry
Restored, resilient ecosystems
+ 54 tonnes of carbon per ha

AirClim



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