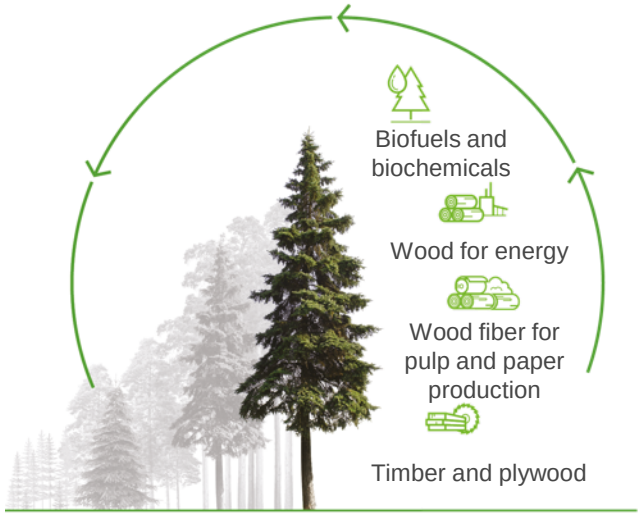
Climate change and forestry

Sami Lundgren, Vice President, Responsibility

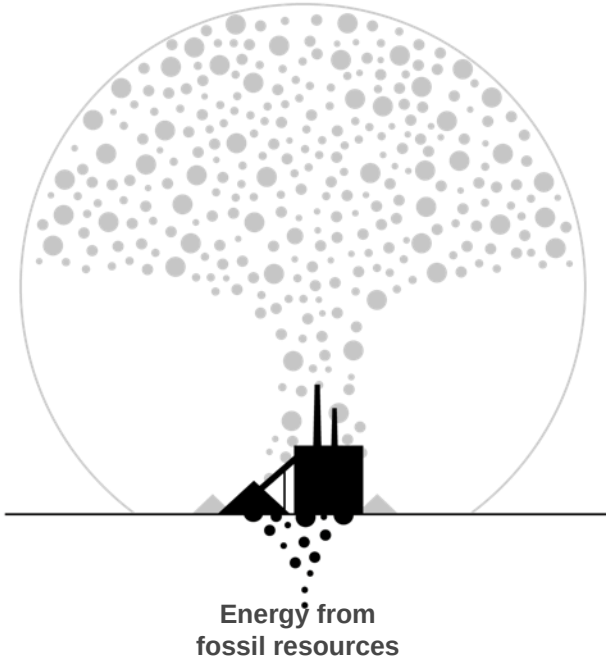
UPM BIOFORE – BEYOND FOSSILS

Bioeconomy offers a sustainable alternative to fossil-based economy

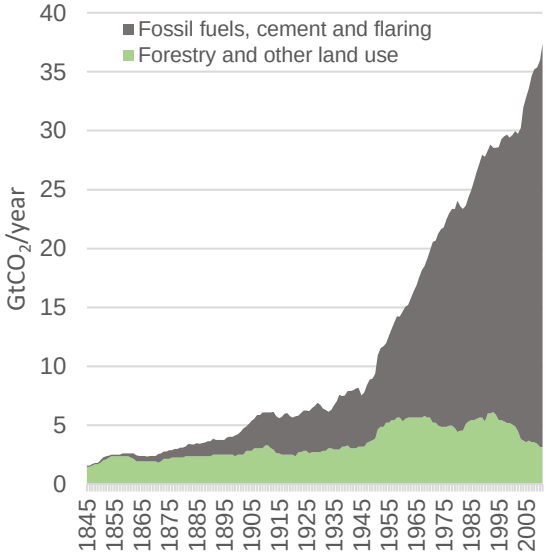
Biomass use is not increasing CO_2 to carbon cycle



Use of fossil resources increases CO_2 amount



Use of fossils has increased global CO_2 -emissions



Source: IPCC AR5

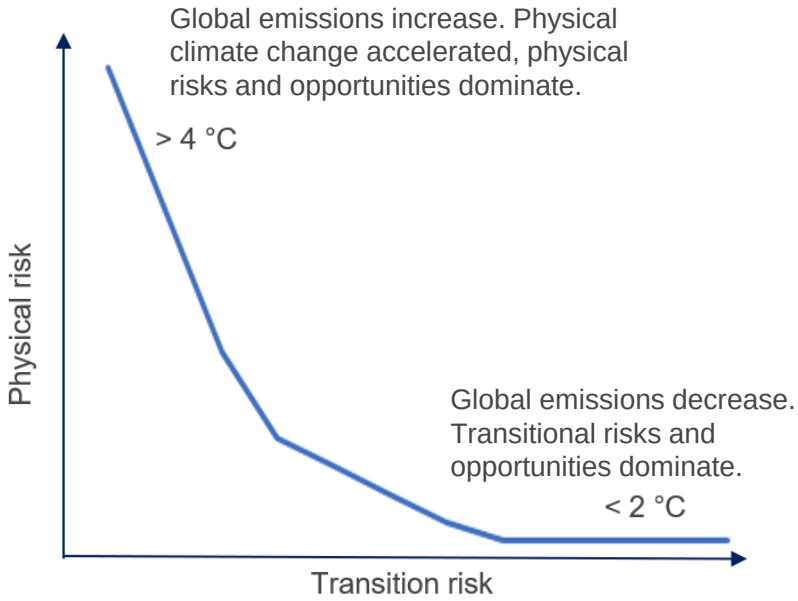
Climate change will significantly change our business environment – direction of the change is uncertain

Physical risks and opportunities

- Chronic changes like increasing temperature, increased or decreased precipitation and sea level rise and more frequent and severe extreme weather events
- Physical risks dominate if emissions are higher (and corresponding transitional risks are lower)

Transitional risks and opportunities

- Move towards low-carbon economy will bring changes in climate and energy policies, shift to low-carbon technologies, and changes in up- and downstream markets
- Transitional risks dominate if emissions are lower (and corresponding physical risks are lower)



Active risk and opportunity management: Key findings from climate change scenarios

Physical changes in climate

- Site risks mostly relate to more frequent and severe extreme weather events locally
- Forests will grow faster in Finland, although this may be partly offset by increasing disturbances
- In Uruguay, projected changes are limited to slight increase in rainfall, continuing to support forestry and industrial operations

Low-carbon transition

- UPM is well positioned due to its renewable raw materials, circular economy practices, significant opportunity to lower fossil emissions and a range of products that replace fossil-based materials

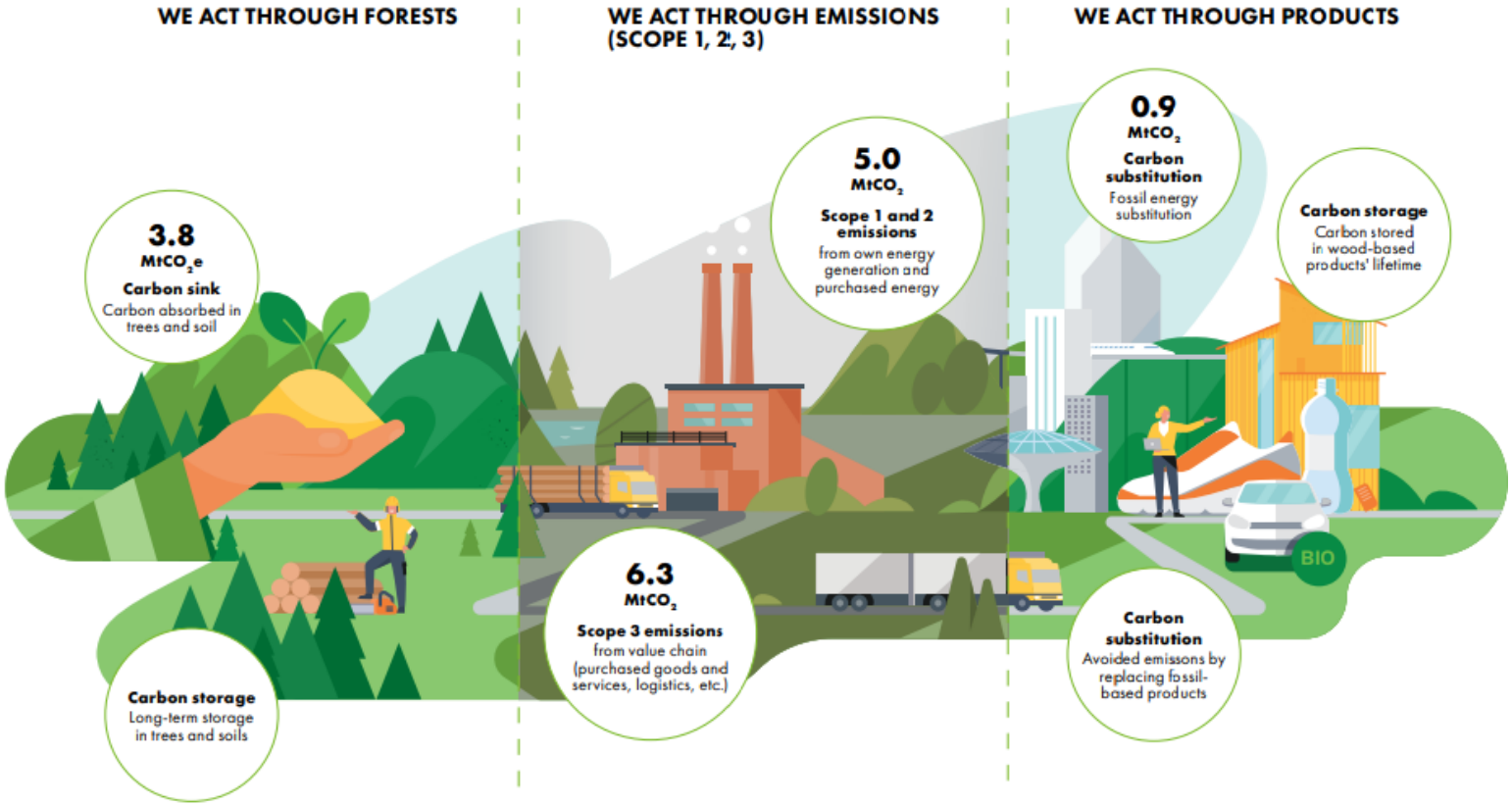
Conclusions:

- In the low- and medium-emission scenarios the transition impacts play a bigger role
- UPM is well positioned, as our business portfolio allows for flexibility to manage recognized risks and to capture the opportunities

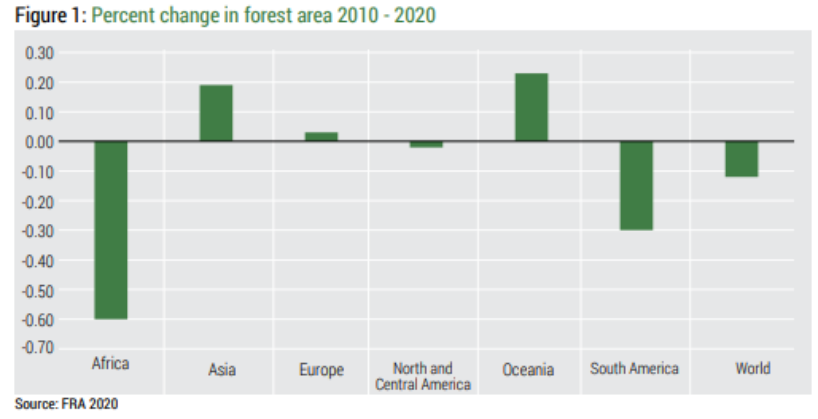
Our thinking

- It’s crucial to understand how our business model, operations and assets can be affected by physical climate change and by transitional aspects
- Understanding the exposures to risks and opportunities of changing climate helps us in building the response and taking actions that help adaptation to possible future scenarios.
- There is a growing need for consistent, scientific and forward-looking information on climate change and its impacts on environment and societies.
  - Finnish Meteorological Institute (FMI) studied the physical impacts of climate change
  - Finnish Centre of Natural Resources (LUKE) studied carbon sinks and storages in our forests
  - Institut für Energie- und Umweltforschung Heidelberg (IFEU) and Finnish Environment Centre (SYKE) studied climate impacts of our products
- Credible and transparent reporting as basis

Towards net-zero



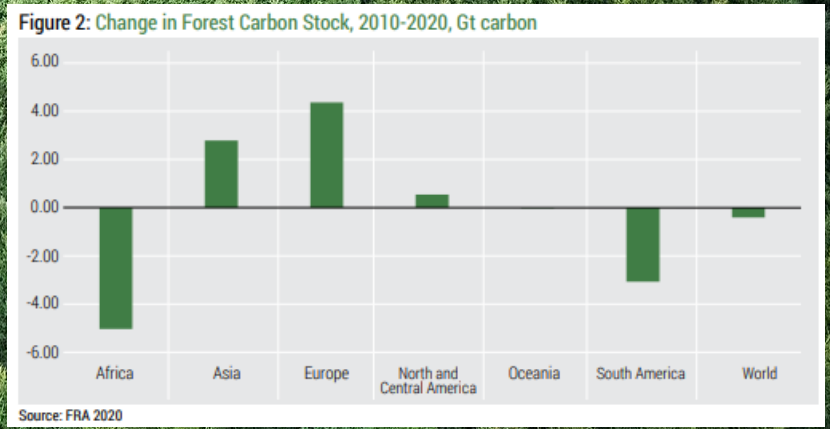
The state of world's forests



Forest cover 31% of the global land area

Decrease of 1.2% 2010-2020 - net loss substantially decreased due to reduction of deforestation, afforestation and natural expansion

Still, deforestation, i.e. conversion of forest to other land use, stood at 10.2 million ha per year



Forests are the 2nd largest carbon sink after oceans

The 2020 global forest stock stayed at the 2010 levels thanks to the increases in the carbon stock of Asia, Europe, and North and Central America

Source: Global Forest Resource Assessment 2020 in the UN Global Forest Goals Report 2021

UPM's forestry fundamentals

Knowing the origin of wood

Zero deforestation

Maintaining carbon sinks

Protecting waters

Improving biodiversity

Respecting stakeholders

FOREST ACTION

The UPM Forest Action programme takes a holistic view, covering the five fundamentals of responsible forestry:

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