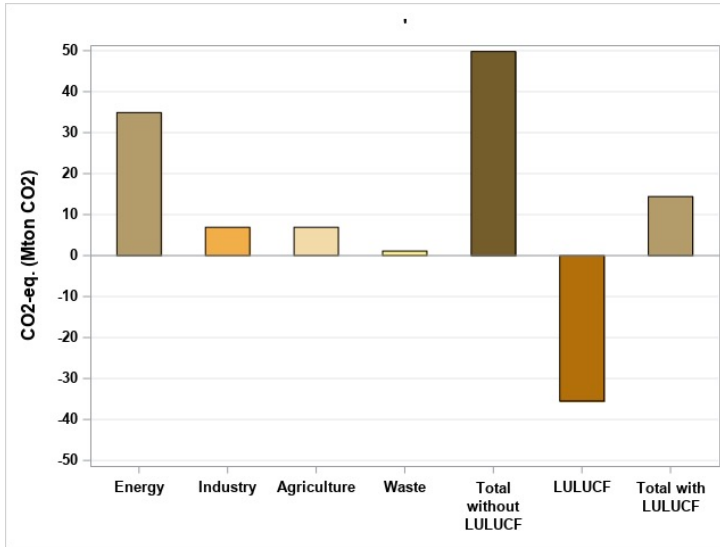


Climate change and land-use perspectives – from the Swedish forest carbon sink to to Ethiopian charcoal production

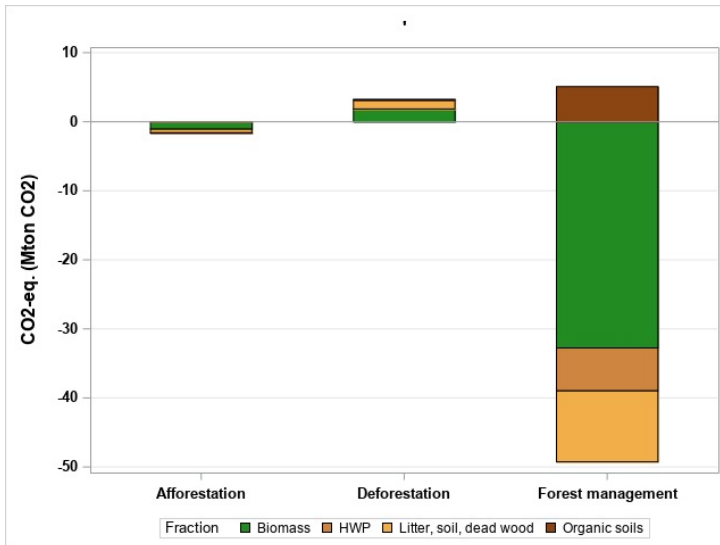
Erik Karlton

Department for Soil and Environment, SLU

The Swedish land-use carbon sink

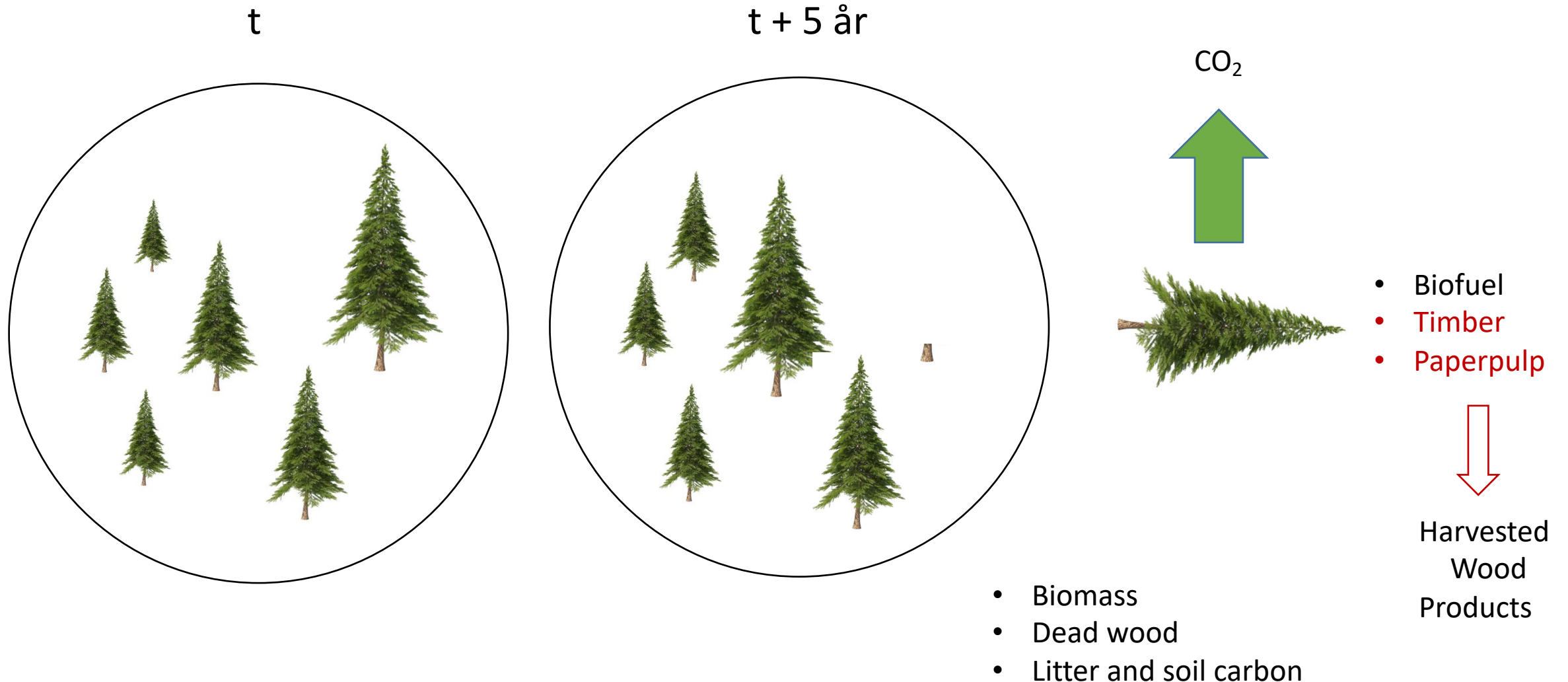


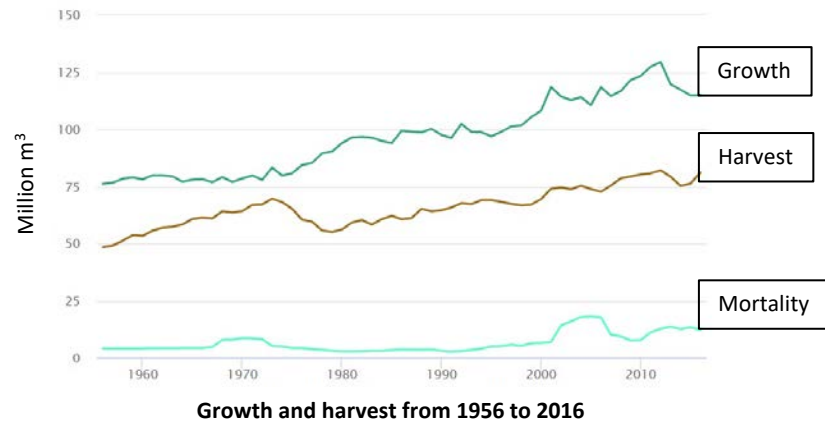
The Swedish land-use sink balances out 70% of anthropogenic GHG emissions from all other sectors



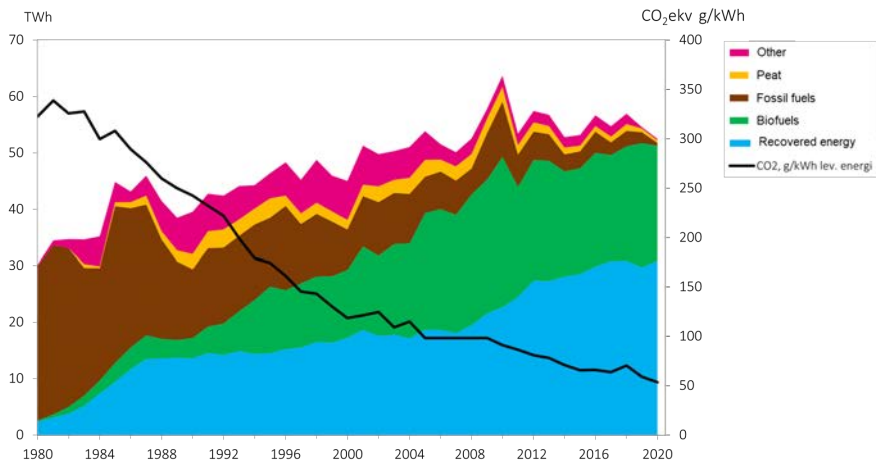
- Activities related to forestry is the by far dominating part of the land-use sink
- Sweden is only allowed to utilize a small part (<5% or 2.5 Mton CO₂) of this sink towards reaching it's international commitments in emission reductions
- The present accounting system requires Sweden to maintain a sink of c. 41 Mton of CO₂ – if less we have to account for an emission

How carbon pools in forest are calculated - stock change method





Source: Naturvårdsverket



Source: Swedenergy (<https://www.energiforetagen.se/statistik/fjarrvarmestatik/fjarrvarmens-koldioxidutslapp/>)

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(<https://www.energiforetagen.se/statistik/fjarrvarmestatik/fjarrvarmens-koldioxidutslapp/>)

The climate impact of forests is positive...

- ...when carbon pools in the forest are increasing
- ...when new forest are established – afforestation
- ...when forest products are substituting fossil fuel

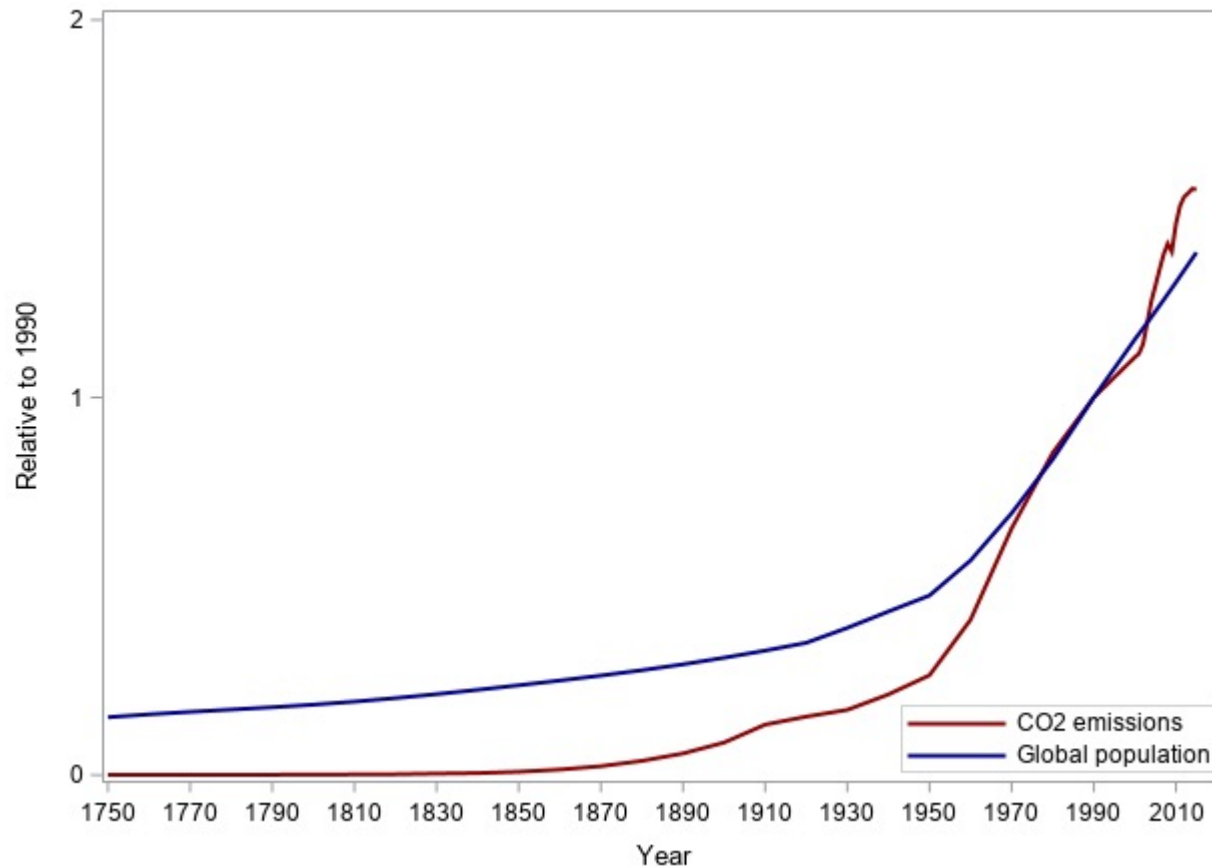


The Swedish forest carbon sink – a result of successful natural resource management or “one of the greatest lies of our time”?

- Sweden is the third largest exporter of forest products in the world
- The early expansion of the forest industry more than 100 years ago led to shortage of wood supply. Realization that forest was a limited – but potentially renewable resource - opened up for modern forestry methods (planting, plant breeding, even aged stand management)
- First comprehensive legislation on forest governance came 1903.
- Large proportion of private forest owners with a long-term perspective (generations) on forestry
- Swedens forest sector under strong debate – concerns on the effect of biodiversity, its “real” climate impact and arguments in favour of decreasing harvest to increase the sink
- Management from a production perspective is far from optimal
- Forest products traded on an open global market

DN Debatt. “Emissions are emissions, it does not matter if they come from combustion of oil, garbage or forest”.
Isadora Wronski, Greenpeace

Increasing global demand for forest products – friend or foe for the climate?



- At least 30 000 homes need to be built every day the coming 80 years just to cope with population increase
- “Until 2030 reduce at least by half the proportion of men, women and children of all ages living in poverty (SDG 1)”
- “Until 2030 increase substantially the share of renewable energy in the global energy mix (SDG 7)”
- “At least 7% economic growth per year in least developed countries (SDG 8)”

- Many of the least developed countries are in a situation where Sweden was in the early 1900's – countryside is deforested, urbanisation is kicking in and economies grow
- There are in the order of 1 - 2 billion ha land globally that potentially could be afforested – forests or cropland not included
- Forestry is emerging in response to local markets - in Ethiopia small-scale *Eucalyptus* and *Acacia* plantations are popping up on agricultural land



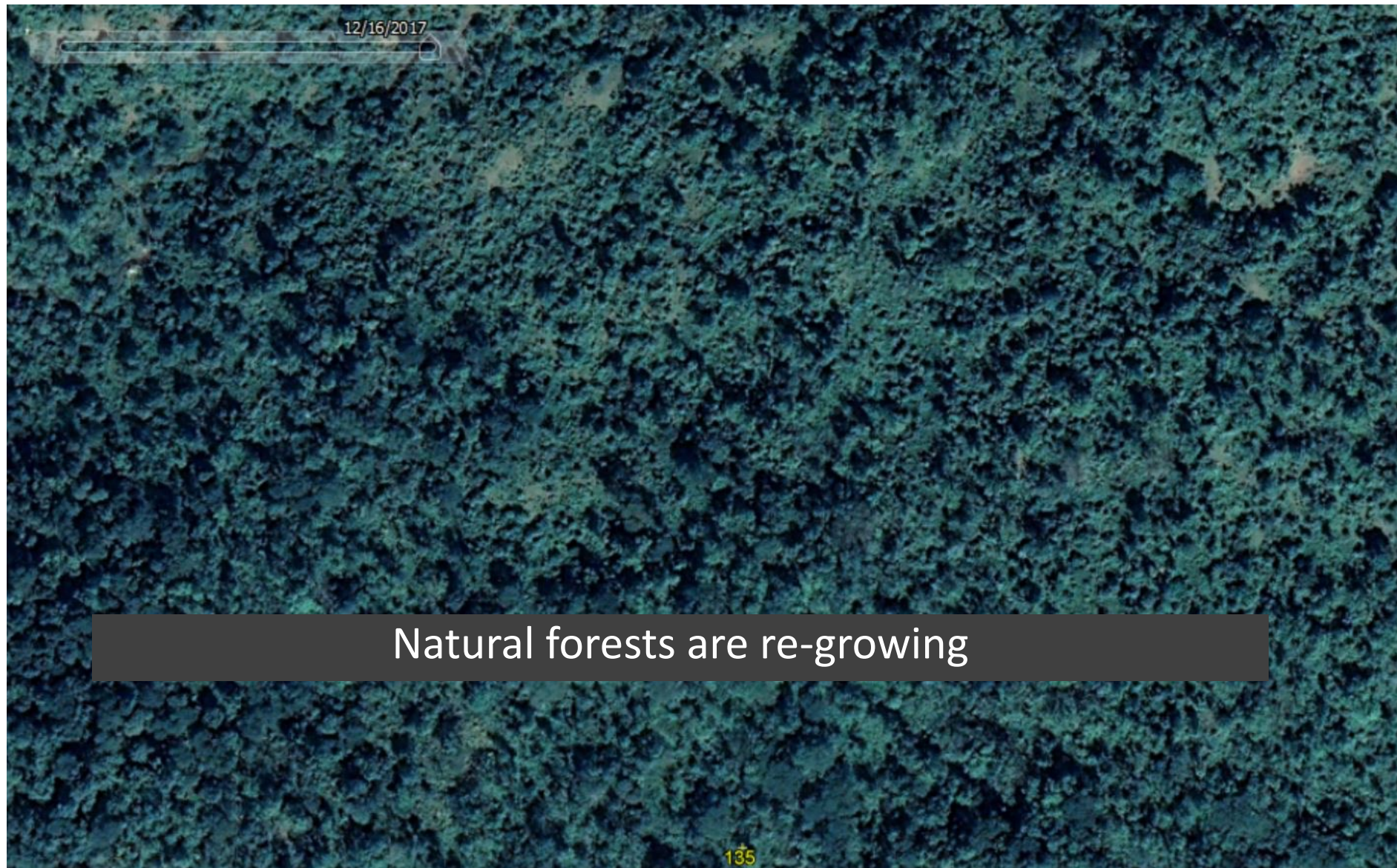






From 3 to 42 houses with corrugated iron roofs





Natural forests are re-growing

Impact in one district

- The charcoal from 1 years production had an estimated value of 450 million Birr (15.3 million USD) on the market and created a local tax revenue of 40 million Birr
- The afforestation has led to an estimated carbon sink of at least 0.5 – 1 Mton CO₂
- Farmer families now talking about poverty in past tense:
“...earlier, when we were poor...”



How shall the need for the climate and economic benefits of production forestry be reconciled with the strong ambition for conservation – in Sweden and in low income countries?

