

# Possible approaches to regulating the use of woody biomass to ensure climate benefits

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Our story begins...

*"Just encourage the use of woody biomass for energy to get climate benefits because bioenergy is carbon neutral"*

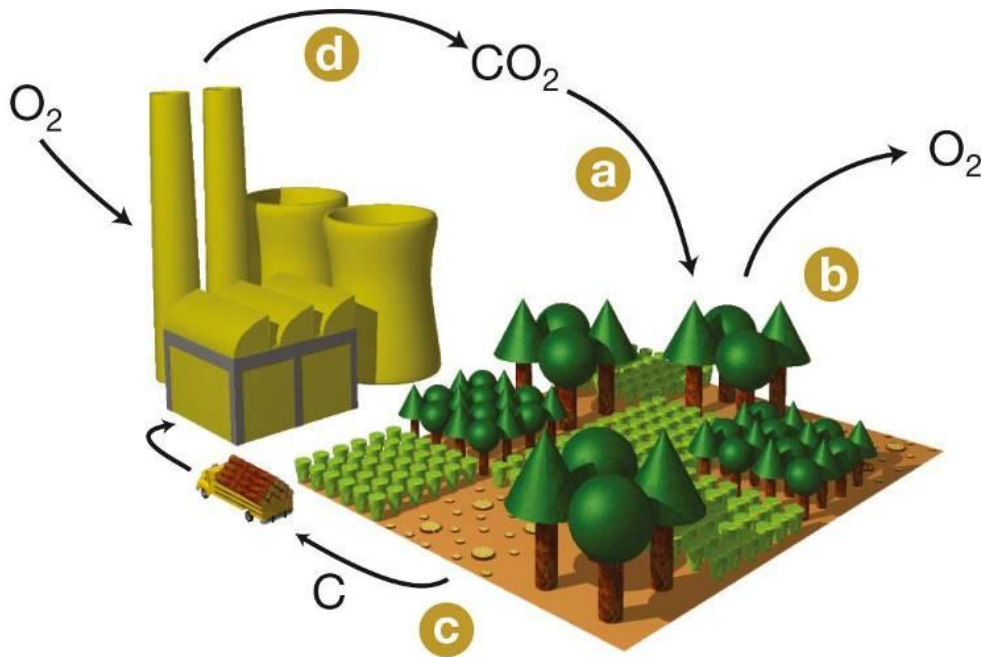
What could possibly go wrong?

How did we start here and where are we now?

(The discussion will focus on bioenergy from forests because this is where the most complexity and controversy exists)



## Where did this idea come from? Some history



- "It's all the fault of UNFCCC GHG emissions reporting"
- Emissions reflected in the LULUCF Sector
- Zero emissions in Energy Sector (to avoid double-counting of emissions)
- "This has led to the notion of carbon neutrality".

- Not really anything to do with GHG reporting/ accounting
- (Although this does send misleading signals)
- It is what people actually thought about bioenergy
- "We can sequester the carbon and then harvest it"
- This "belief" had a big influence on policy.

# What are the impacts of harvesting and using wood?



Bernhard Schlamadinger  
formerly Joanneum Research  
Austria



Sampo Soimakallio  
SYKE, Finland  
Photo:  
Annuikka Pakarinen  
Kone Foundation

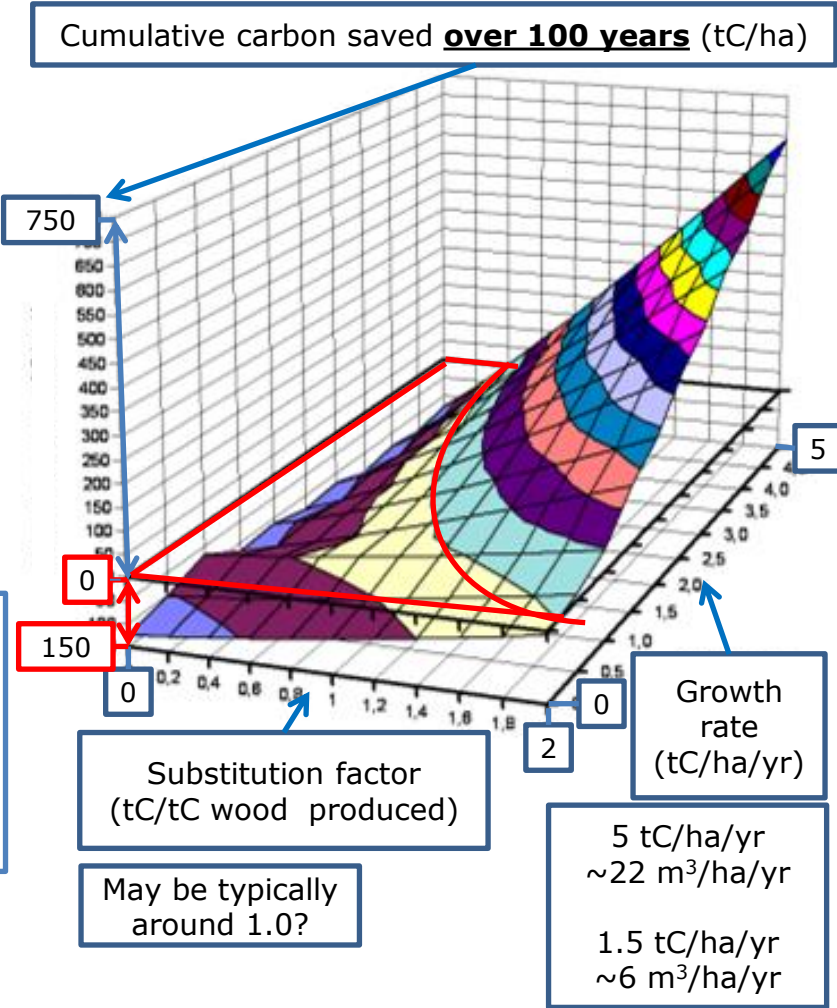


Kim Pingoud,  
formerly VTT, Finland



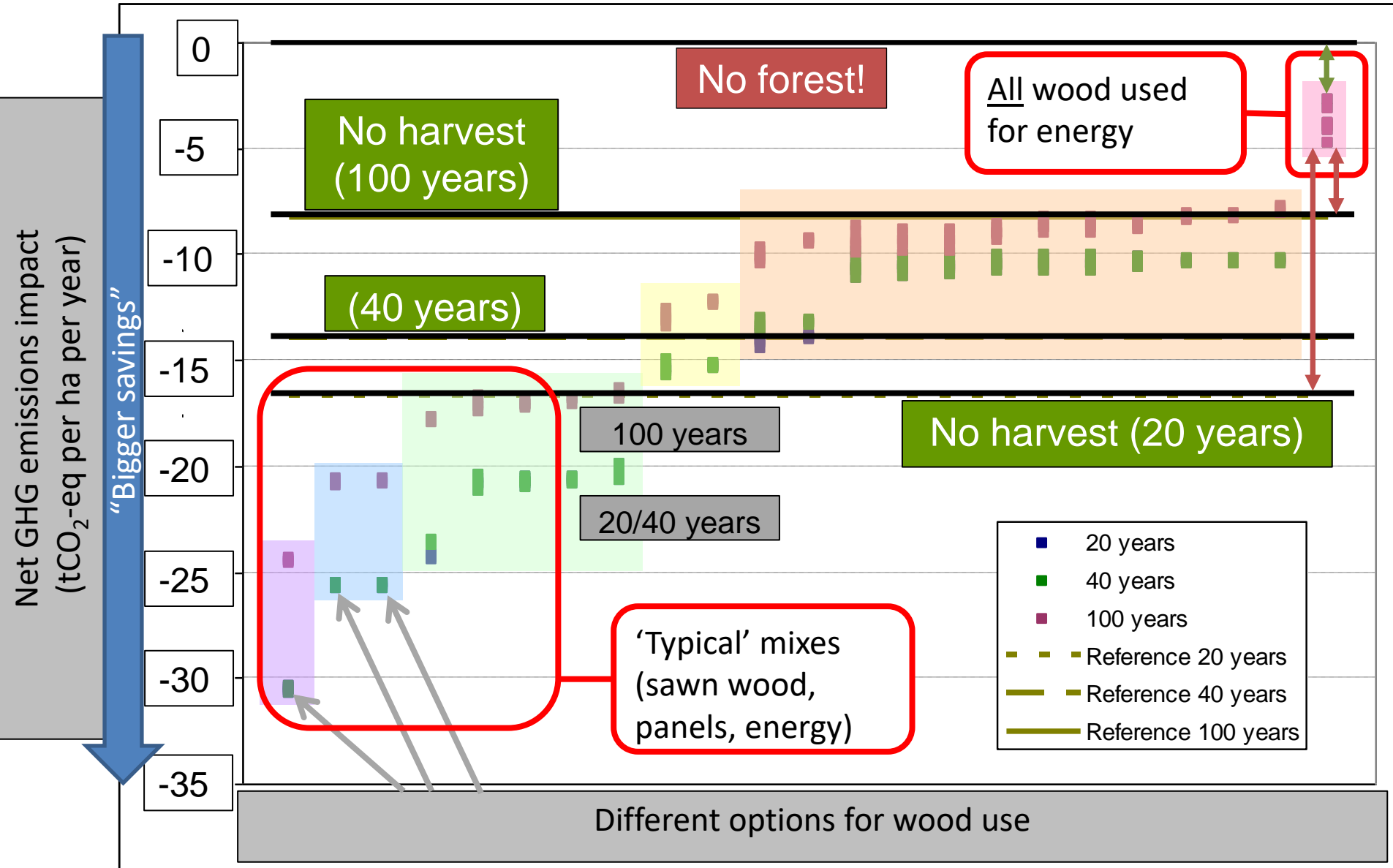
Neil Bird  
Joanneum Research  
Austria

Diagram from  
(Gregg) Marland  
(USA) and  
Schlamadinger,  
1997



- The answer was always there
- It can be very variable
- The variability is systematic.

- Example for coniferous forests in UK only
- Manage for wood production with “conventional” thinning and rotations
- Compared against option of leaving forests unmanaged (no harvesting) as “benchmark”
- Looked at global impacts of utilising wood for different end products or combinations, including energy
- Consider three time horizons from now (20, 40 and 100 years).
- N.B. just 1 forest type, 2 management options!



Forest carbon stocks and sequestration



Wood harvesting and supply



Wood feedstocks



Displacement



Disposal

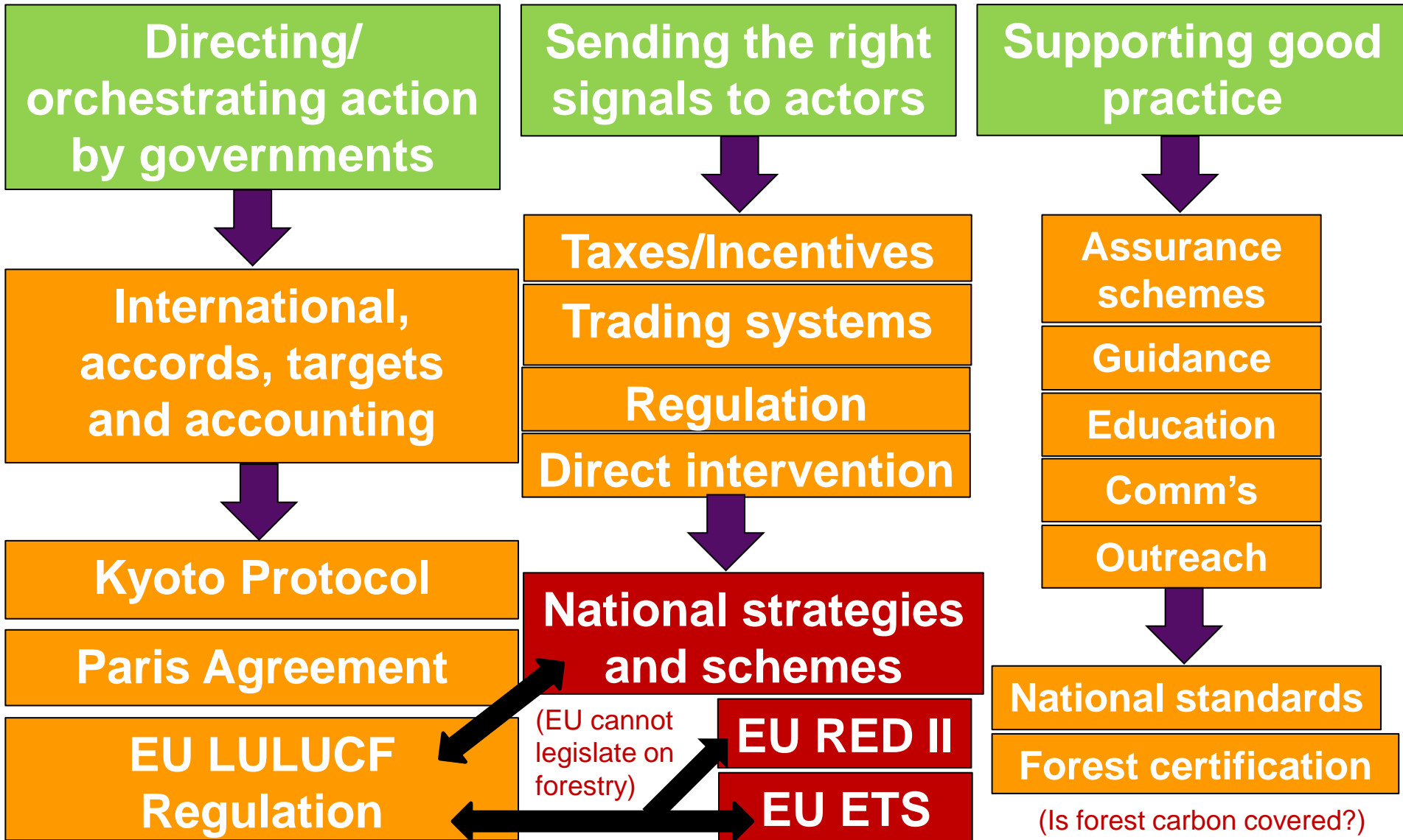
Combination

Within sector

Flanking

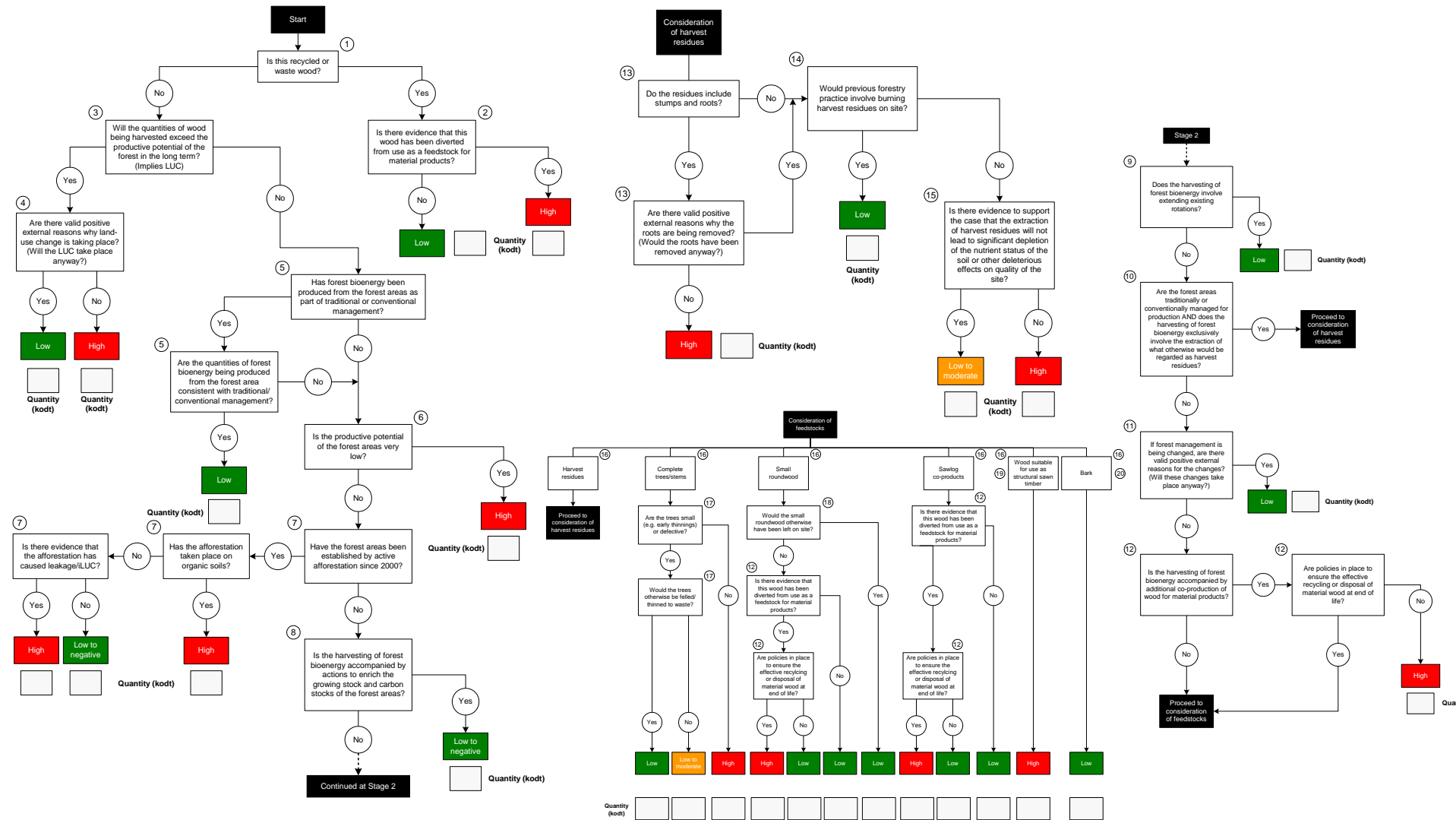
- Avoid negative impacts wherever possible
- Favour activities involving positive impacts.
- Favour wood produced as a by-product or waste product of material uses
- Includes “poor grade” thinnings.
- Avoid “high grade” feedstocks
- Favour waste wood and “low grade” feedstocks.
- Favour displacement of fossil fuels and GHG-intensive materials (co-products).
- Favour wood recycling and disposal with energy recovery.

## What are the three threads needed? What have we got?



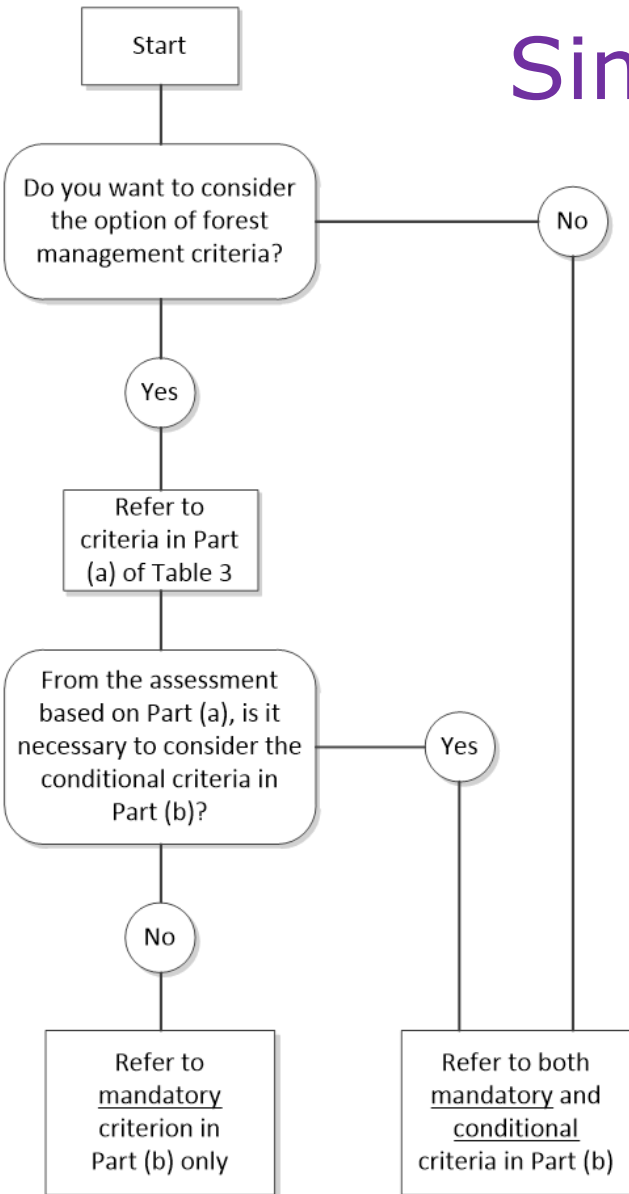


- Require quantified GHG reductions
  - Would need an agreed methodology
  - Complicated
  - Expensive
  - What is the cumulative effect of several actors?
- Require *actions* giving GHG reductions
  - Would need agreement on the “good” actions
  - How to verify?
- Stick to “safe” options
  - Would need agreement on the “safe” options
  - “Significantly sub-optimal”
- Feedstock regulation
  - “Blunt instrument”.



- Use decision tree to sift cases/activities (regulation + guidance)
- Further assessment if cases look promising (sample audit based?)

## Simplification of decision tree



- Straightforward table of criteria
- Voluntary criteria for forest management approaches
- Mandatory and conditional criteria for wood feedstocks
- If forest management criteria are assessed and “passed”, no need to consider conditional criteria for wood feedstocks
- Otherwise, need to consider all wood feedstock criteria
- Very simple decision tree for guiding application of the criteria.

Criterion	Practice	RED II
Deforestation	Disallow supplies of forest bioenergy that lead to deforestation.	
Afforestation	Strongly favour supplies of forest bioenergy where these are explicitly associated with afforestation activities. However, avoid afforestation activities: <ul style="list-style-type: none"> <li>• On soils with existing high organic carbon content;</li> <li>• That lead to high risks of indirect land-use change.</li> </ul>	
Improvement of growing stock	Strongly favour supplies of forest bioenergy where these are explicitly associated with activities to conserve and enhance forest growing stock, carbon stocks and forest	
Growth rate	Disfavour forest bioenergy production from forest areas with low growth rates. Tentatively, low growth rate is defined as 2 m <sup>3</sup> ha <sup>-1</sup> yr <sup>-1</sup> or less. Possible exemptions in some cases, e.g. disease infested forest areas.	
Thinning and (clear)felling	<p>If the level of supply of forest bioenergy from thinning and felling activities in forest areas is consistent with long-term historical levels, and with the principle of sustainable yield, then risks of issues with GHG emissions are low.</p> <p>If the level of forest bioenergy from thinning and felling activities in forest areas involves increased supply compared with long-term historical levels, then favour production from thinning over production from felling, with the aims of: <ul style="list-style-type: none"> <li>• Improving the quality of the remaining growing stock;</li> <li>• Minimising disturbance of litter and soil carbon.</li> </ul> </p> <p><b>If, and only if, the level of forest bioenergy from thinning and felling activities in forest areas involves increased supply compared with long-term historical levels, then it is necessary to consider the conditional criteria as well as the mandatory criteria regarding use of wood feedstocks for bioenergy in Part (b).</b></p>	

Feedstock	Practice	RED II
Scale of forest bioenergy use: <b>Mandatory criterion</b>	Aim for levels of forest bioenergy use that are well within the long-term sustainable-yield capacity of the supplying forest areas. When setting levels for bioenergy use, take account of the consumption of biomass for other uses (i.e. materials) and levels of biomass consumption outside the EU region.	
Stumps including roots: <b>Mandatory criterion</b>	Strongly disfavour supplies of forest bioenergy from stumps including roots.	
Post-consumer waste wood: Conditional criterion	Strongly favour supplies of forest bioenergy from post-consumer waste wood. Particularly favour such sources where the waste wood would otherwise be burnt or put in landfill without energy recovery. Also favour use of waste wood at levels that do not compete with current levels of consumption of such feedstocks for material uses (e.g. wood-based panels).	
Industrial residues: Conditional criterion	Strongly favour supplies of forest bioenergy from industrial residues. Particularly favour such sources where the residues would otherwise be burnt as waste without energy recovery. Also favour use of industrial residues at levels that do not compete with current levels of consumption of such feedstocks for material uses (e.g. wood-based panels).	
Forest residues: Conditional criterion	Strongly favour supplies of bioenergy from fast-decaying forest residues (i.e. apart from stumps including roots or other large residues) provided this avoids levels of extraction of forest residues that lead to high risks of degradation of site/soil quality (e.g. carbon stocks, nutrient status, water balance).	
Salvage logging: Conditional criterion	Favour supplies of wood biomass from salvage logging where a simply calculated but robust estimate of GHG emissions meets a defined minimum threshold.	
Whole tree stems: Conditional criterion	Restrict supplies of forest bioenergy from whole tree stems to small/early thinnings, with the aim of improving the quality of the remaining growing stock. Favour situations in which, otherwise, there would be limited incentives to thin and improve forest stands. Alternatively, favour supplies of wood biomass from small/early thinnings where a simply calculated but robust estimate of GHG emissions meets a defined minimum threshold.	
Small roundwood: Conditional criterion	Favour supplies of forest bioenergy from small roundwood at levels that do not compete with current levels of consumption of such feedstocks for material uses. Particularly favour such sources where the small roundwood would otherwise be burnt without energy recovery or sent to landfill.	
Sawn timber, especially suitable for construction uses: Conditional criterion	Strongly disfavour supplies of forest bioenergy from wood feedstocks suitable for use for sawn timber products.	
Co-production: Conditional criterion	Strongly favour the supply of forest bioenergy as a by-product of wood harvesting for the supply of long-lived material wood products. However, it is very important to ensure that flanking measures are in place to ensure that other feedstock criteria above are met and to encourage the disposal of material wood products at end of life with energy recovery and/or in a way that ensures low GHG emissions.	

- We're not there yet
  - Regulation is getting better but there are still gaps
- But don't give up, there could be options
  - But there are challenges
  - Generally, black and white rules are not effective
- Make sure the policy works for the purpose
  - International direction/co-operation
  - Sending the right signals to actors
  - Supporting good practices
  - Flanking (e.g. supporting use of wood products)
- Balance between perfection and practicality
- "Do's" are at least as important as "don'ts".

A large, stylized tree graphic in a lighter shade of purple, centered on the page. The tree has a thick trunk and a rounded, cloud-like canopy. To the right of the tree, the text "Thank you" is written in white.

Thank you