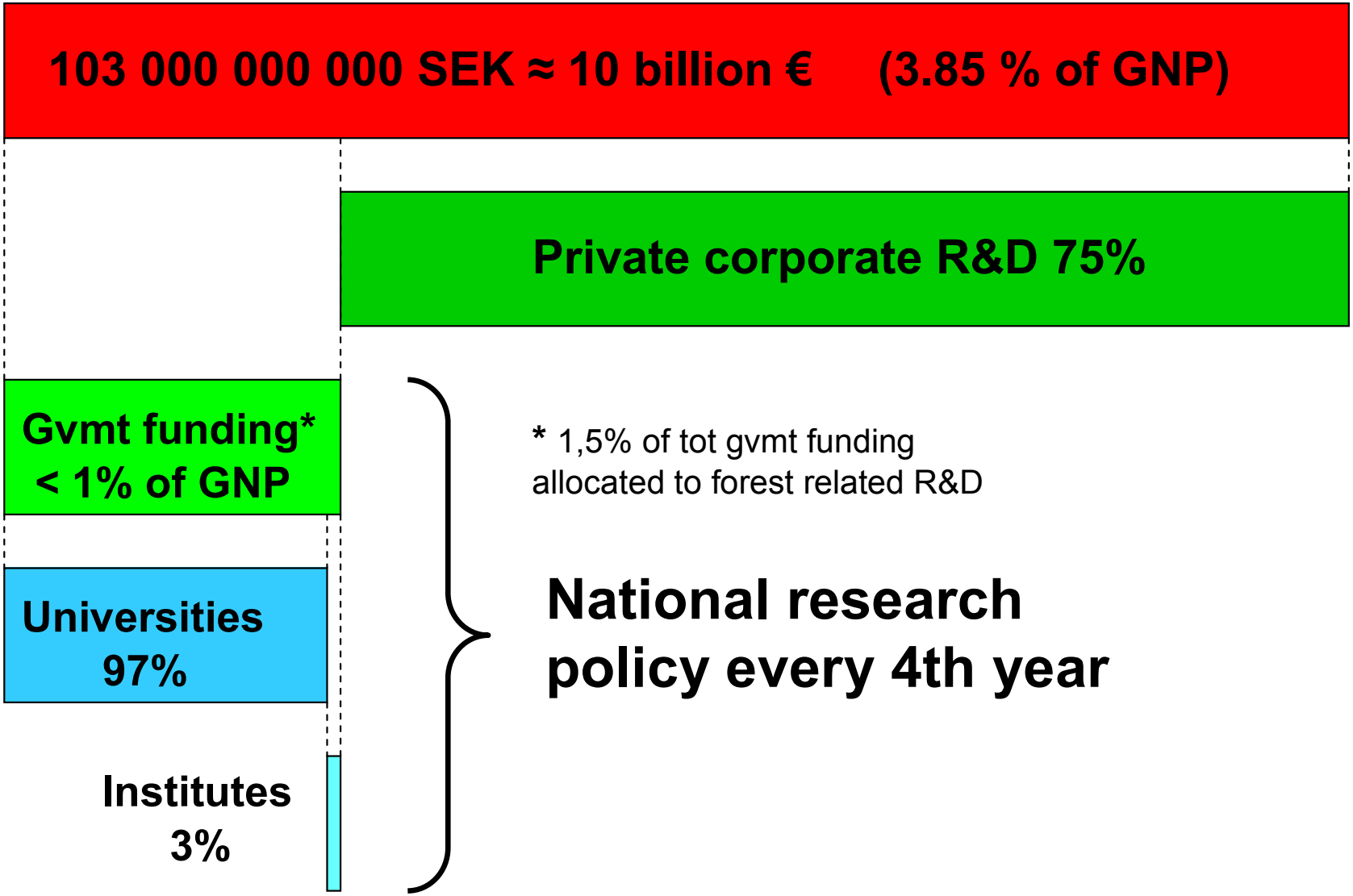
Forschungsorganisation und Forschungsthemen der schwedischen Forstwirtschaft

Dr. Jan Fryk

Skogforsk

29. Freiburger Winterkolloquium 29-30 Januar 2009

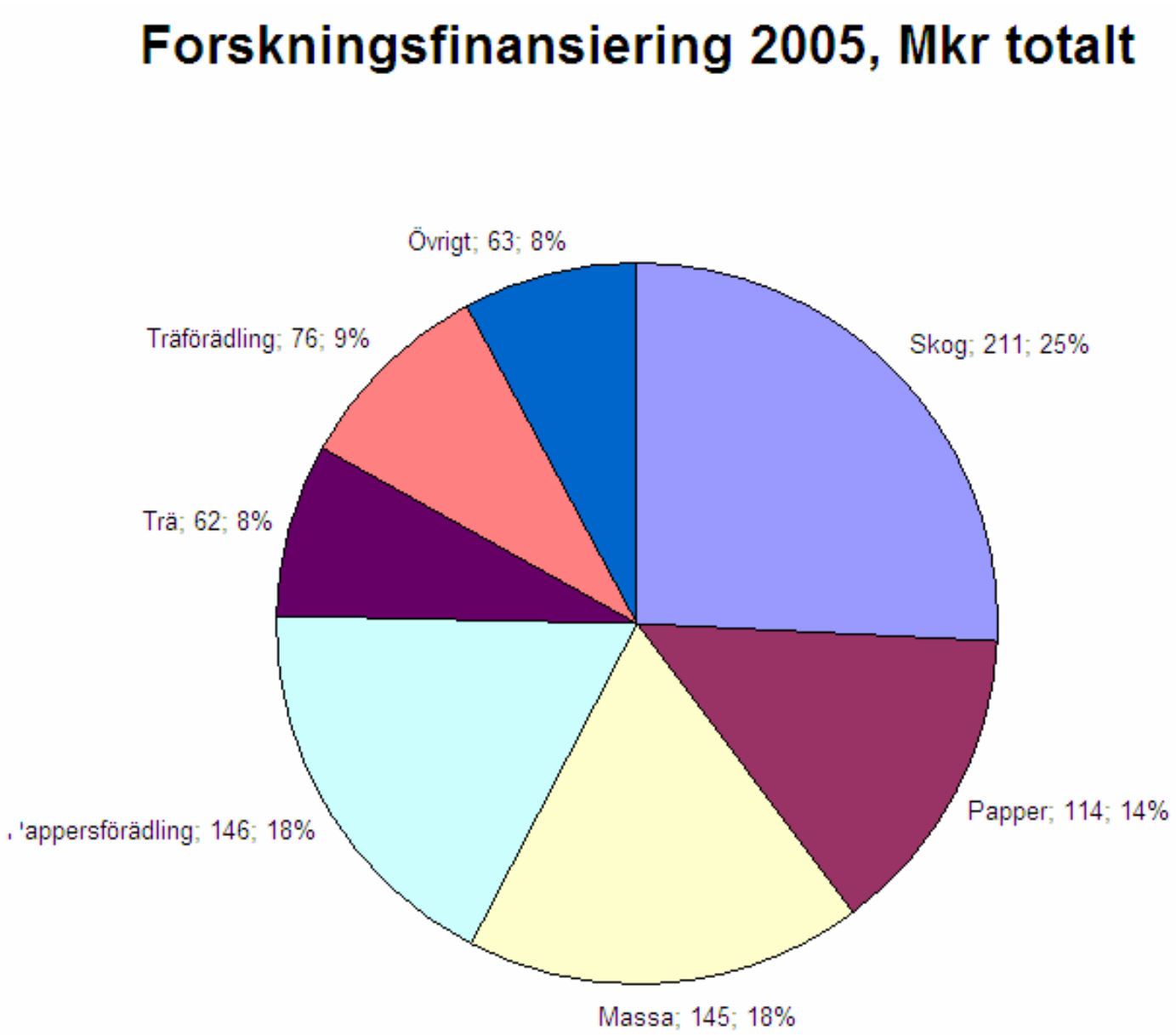
Swedish national R&D funding (2007)



Swedish forest research funding 2007 (~Mill €)

Swedish Univ. of Agriculture, Faculty of Forestry	40		
STFI-Packforsk (pulp, paper, packaging)	29	Institutes	Private funding ~ 70%
The Forestry Research Institute of Sweden	13		
SP Trätek (wood technology)	7		
Total	89		
Other universities & colleges	25		
Corporate inhouse forest industry R&D ?	130		

Joint R&D funding 2005



25%

Pa

Pulp 18%

Skogforsk

Forwarding forestry for the future

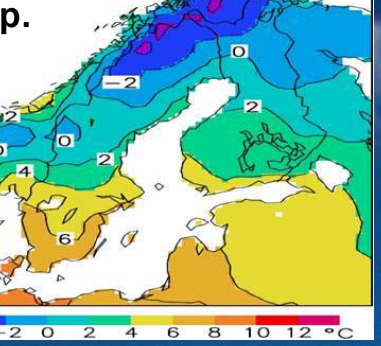
- Applied research & development
- A partnership between the forestry sector and the Government
- 100 staff at three locations in Sweden
- Research fields:
  - Forest production
  - Wood supply
- Knowledge transfer

Skogforsk

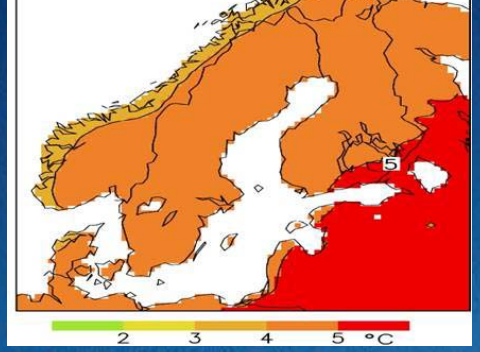
Tot funding 2007, 129 MSEK (~ 13 M€)

Framework program, 4 yr		Contract	Funds	Info
Forest sector 50%	Government 50%			
58 msek (45%)		26 msek (20%)	40 msek (31%)	5 msek (4%)

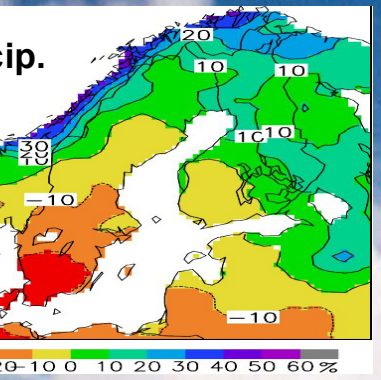
Total: Forest sector 70%, government 30%



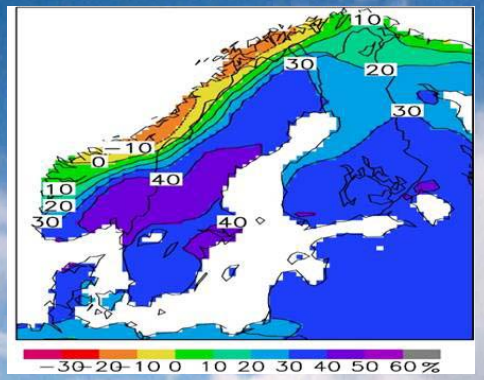
?



?



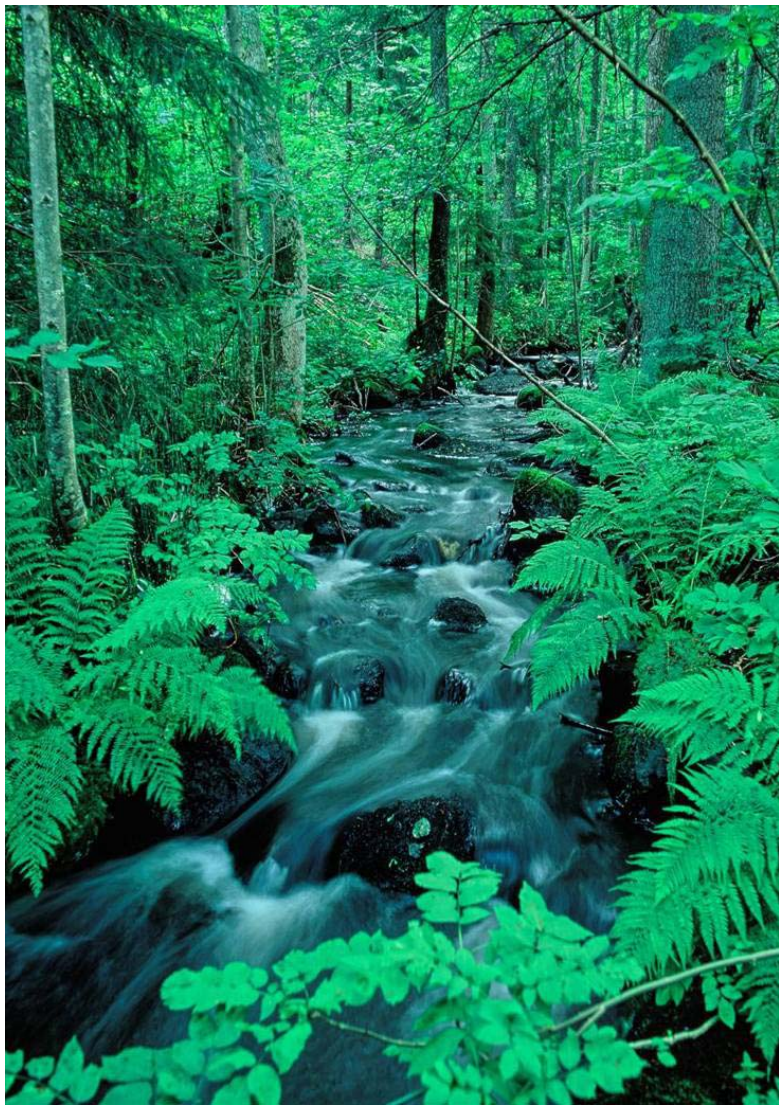
?



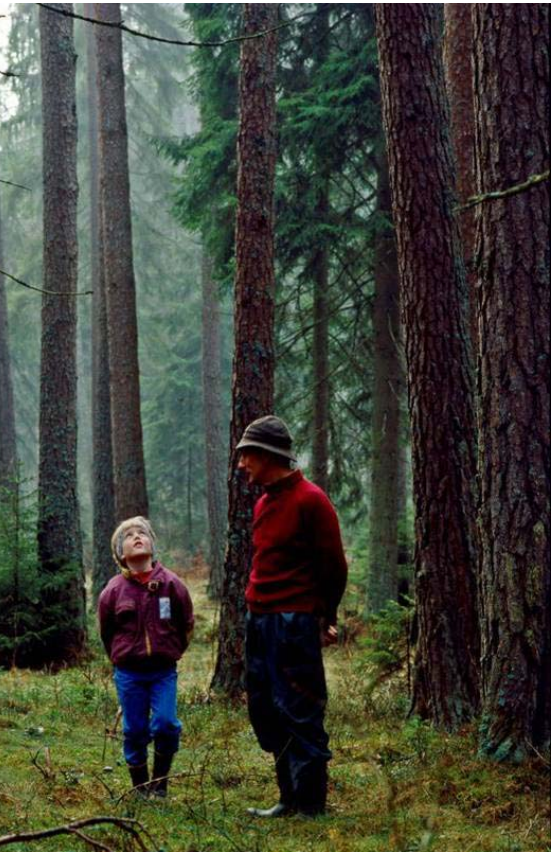
Climate change effects

Conservation & biodiversity

Forests & water



Social, recreational and cultural values



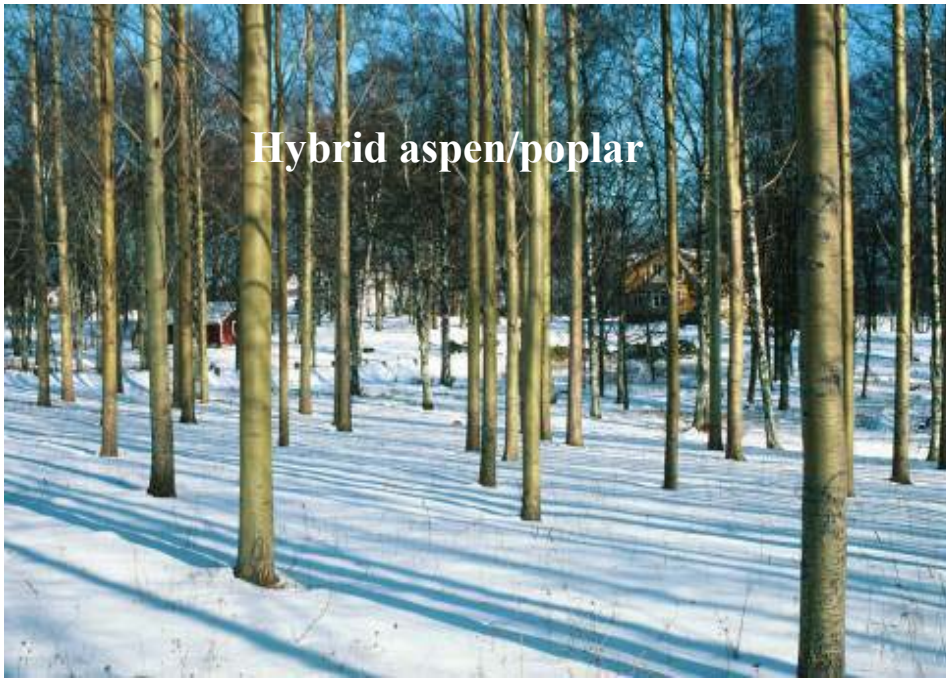
Swedish government bill 2007/08:108 on national forest policy…

”…it is entirely possible to increase forest production by 25-50 % within 10-60 years.”

”…should be promoted through continued active forest policy, high quality research and intensified silviculture…”

Tree breeding is efficient and profitable – each extra future m3 produced costs less than 1 SEK (0,1 €)


Tailor made GMO-trees for ”fiber farming



Faster growing tree species

Improved and more efficient silviculture

sing demand for forest bioenergy

Forest policy statement:

”Utilization of tops and branches should be increased…”

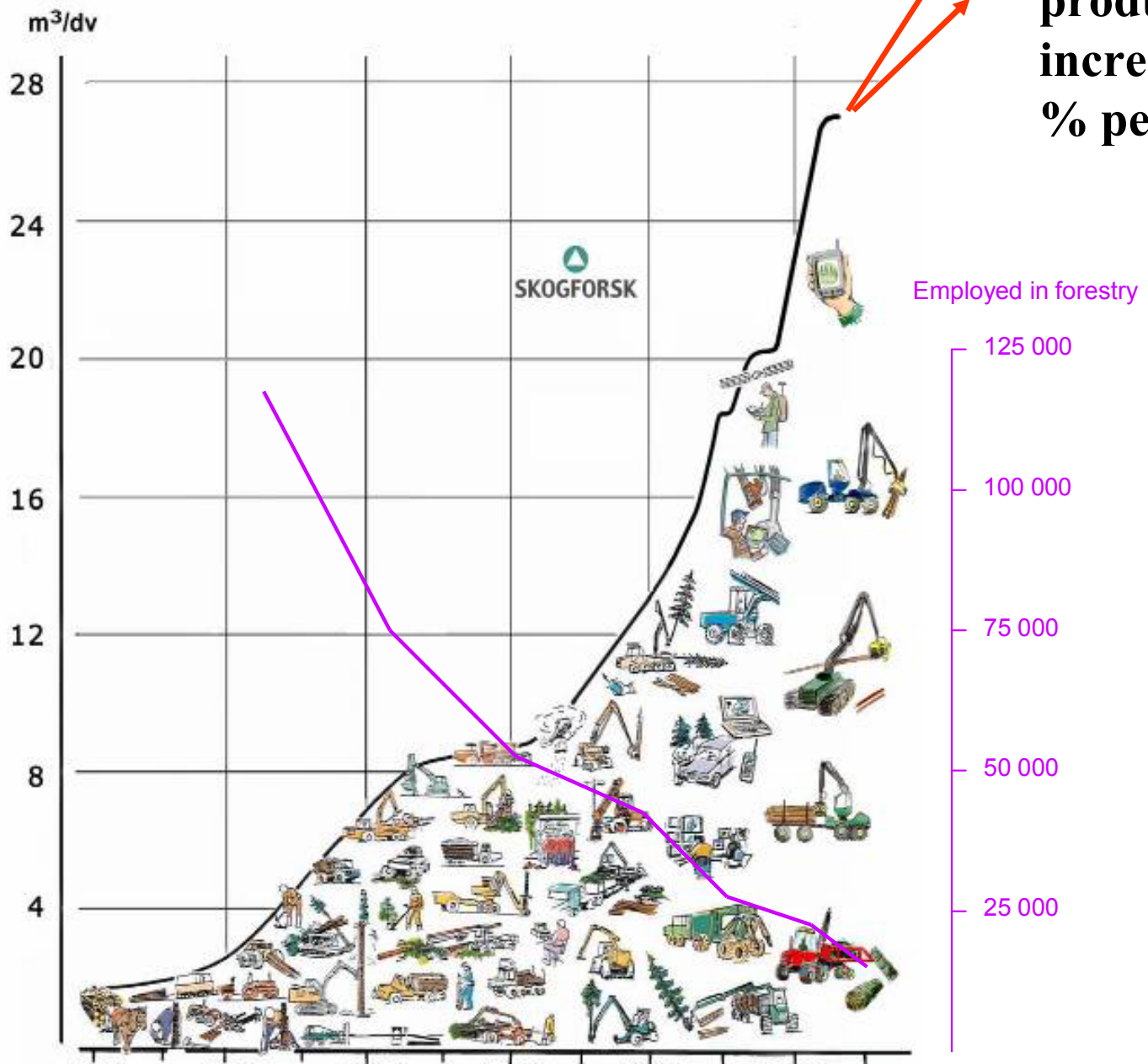
More efficient forest fuel supply systems

…. here multi tree handling of fuel assortments in weak first thinning

Stump harvesting

rest policy statement:

Productivity m3/day, average all forestry work



Required productivity increase 2-4 % per year

Autonomous machines

Potential: reduced logging costs by 5-10 %

ast

anned
er
d from
wo

ers acting
es

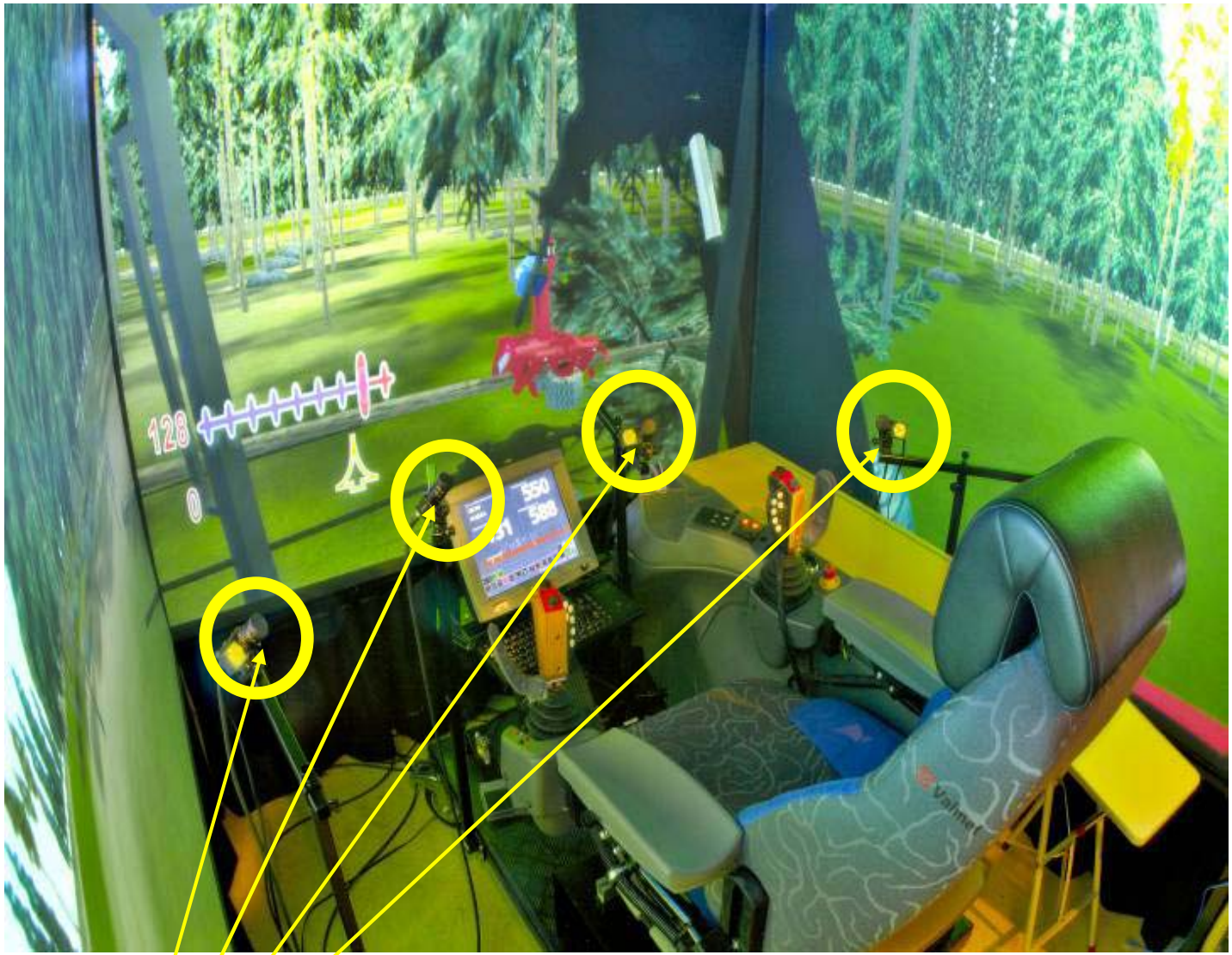
rator adapded nology based on

I – Human chine Interaction

- improved
- ork conditions
- ductivity
- ood utilization

Gaze tracking

Test equipment in Skogforsk´s harvester simulator



Cameras registering eye movements

Diameter:

Camera + line laser

Length:

Microwave sensor

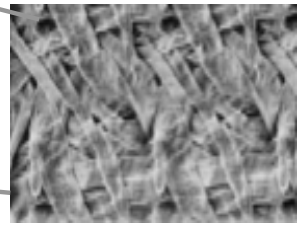
Fibre ang

Camera +
point lase

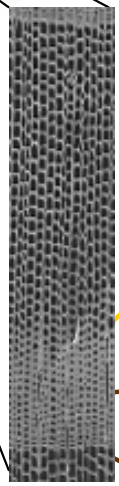
Non contact measuring

mproved wood utilization

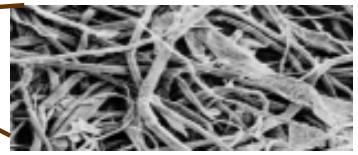
Fibre for different paper qualities



Grea
proo



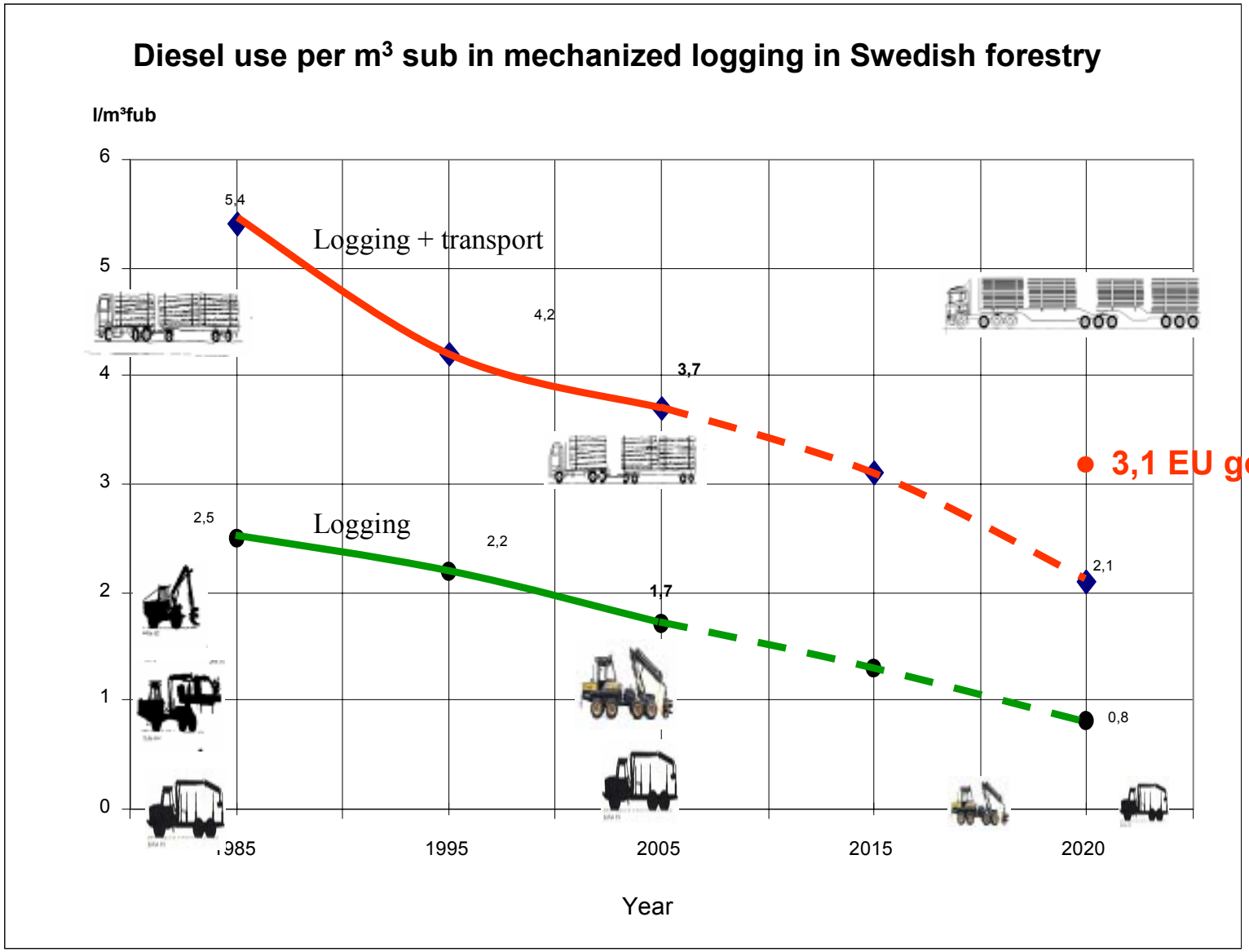
Print



Filte

Potential: 20 % increased timber value

40 % reduction of diesel consumption and CO_2- emissions to 202



LF Forest F14 hybrid forwarder

Assumed advantages cf conventional technique:

Less fuel consumption
Less emissions
Less damages on remaining trees
Less soil impact

”One more pile”

30 m, 90 ton GVW

Assumptions cf. 60 ton GVW and same transport volume

No of trucks reduced by 25 %

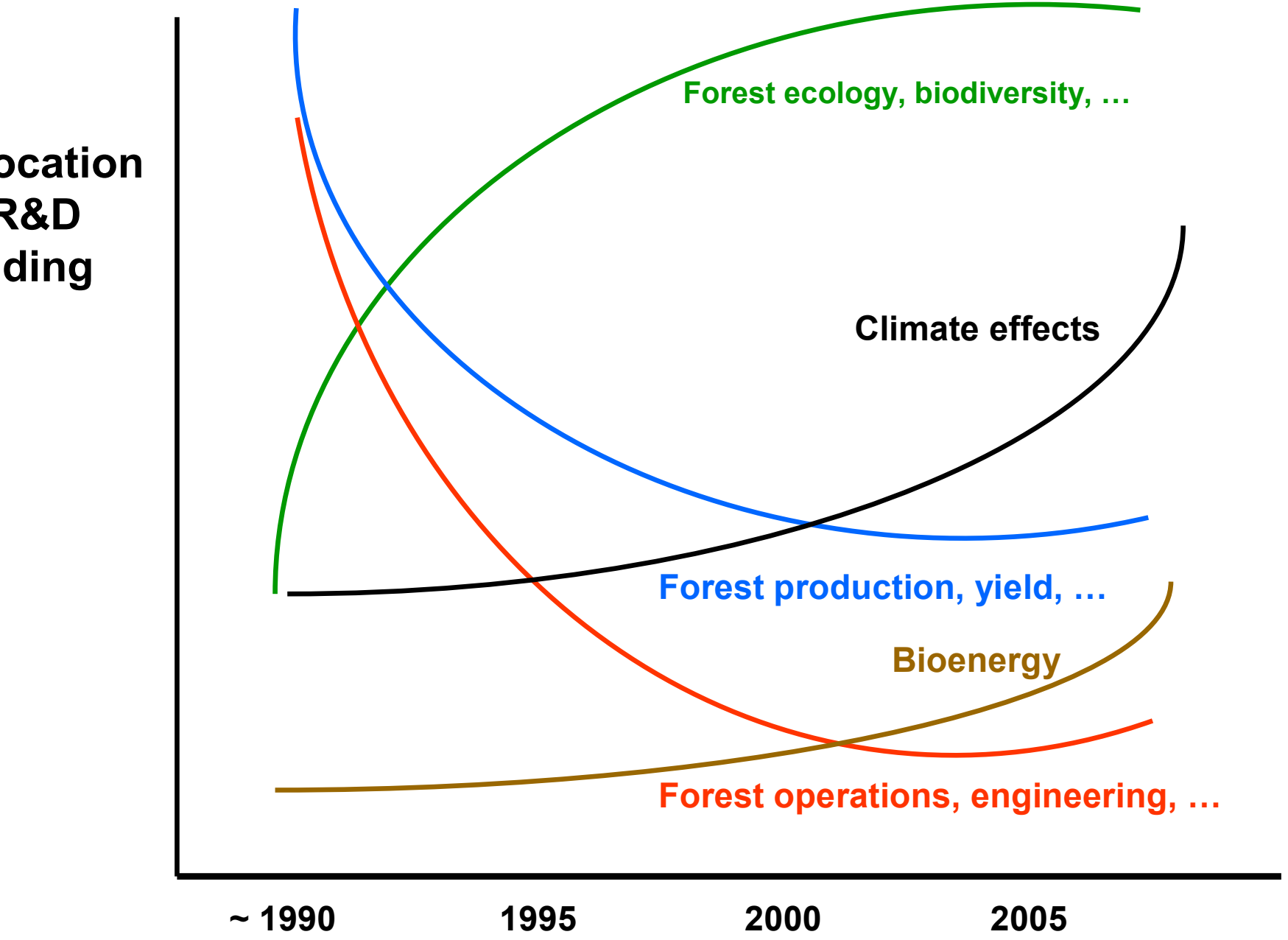
Reduced fuel consumption by 20-25 %

Reduced CO2-emissions by 20-25 %

Lesser wear and tear on roads

Improved traffic safety

Bridges a critical factor


ocation
R&D
ding
Forest ecology, biodiversity, …
Climate effects
Forest production, yield, …
Bioenergy
Forest operations, engineering, …
~ 1990
1995
2000
2005

Vielen Dank für Ihre Aufmerksamkeit!