



Life cycle assessment

– a fruitful methodology for land use studies?

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Tune Landbrugsskole

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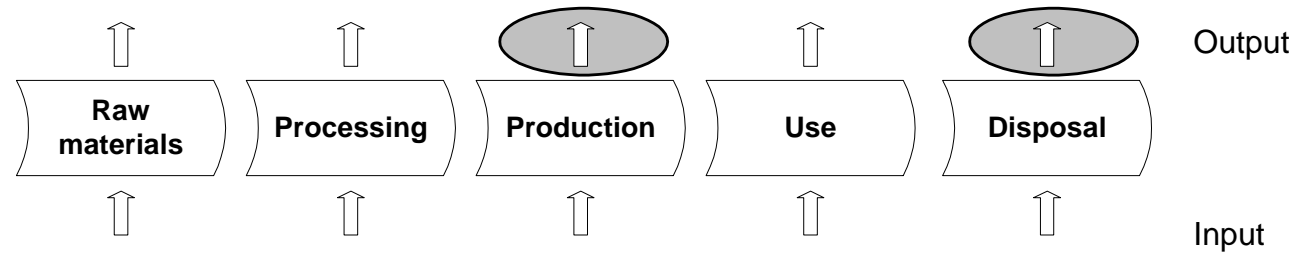


Content of presentation

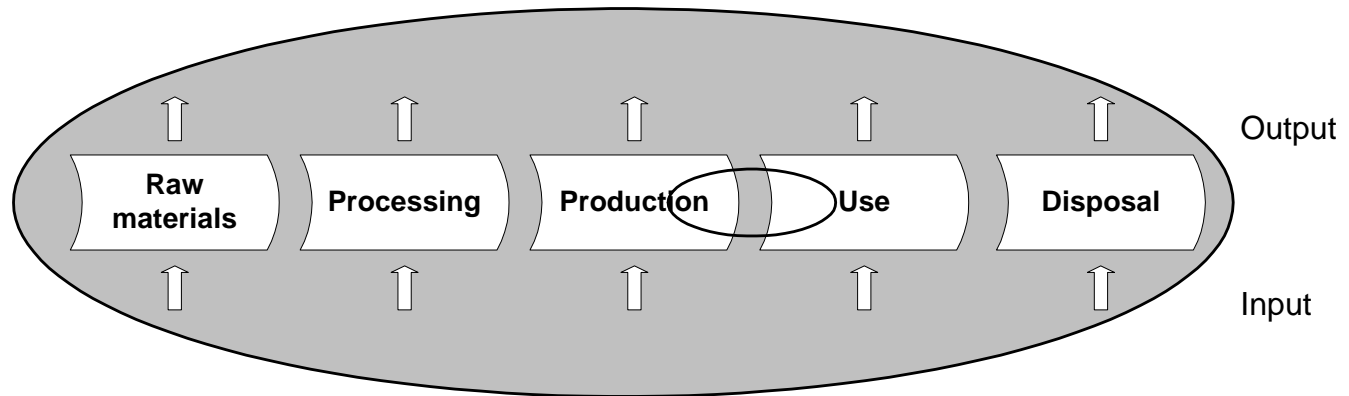
- EAG-group Aalborg University
- LCA methodology
- Changing geographical distribution of impacts
- Decision Chains and impacts on land use
- Future research – biofuel and its impact on global biodiversity

From local emissions and recipients to the whole life cycle

The old focus



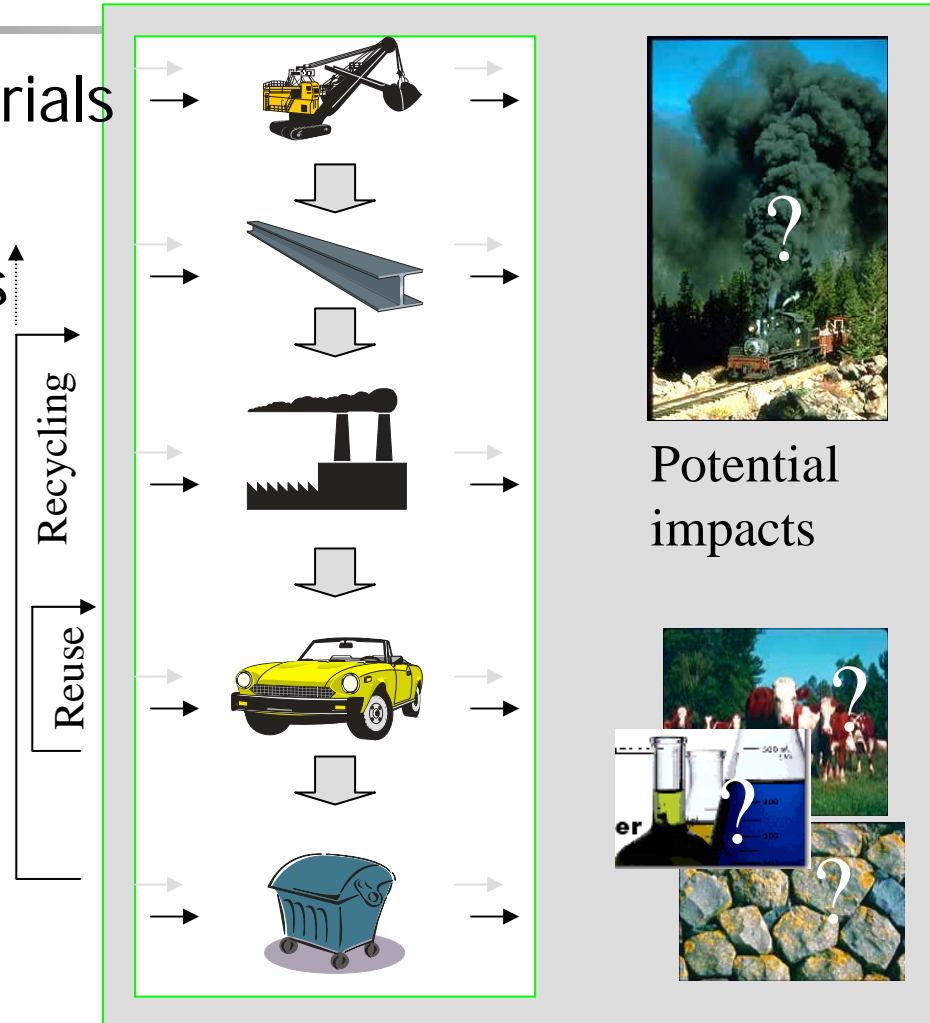
The new focus



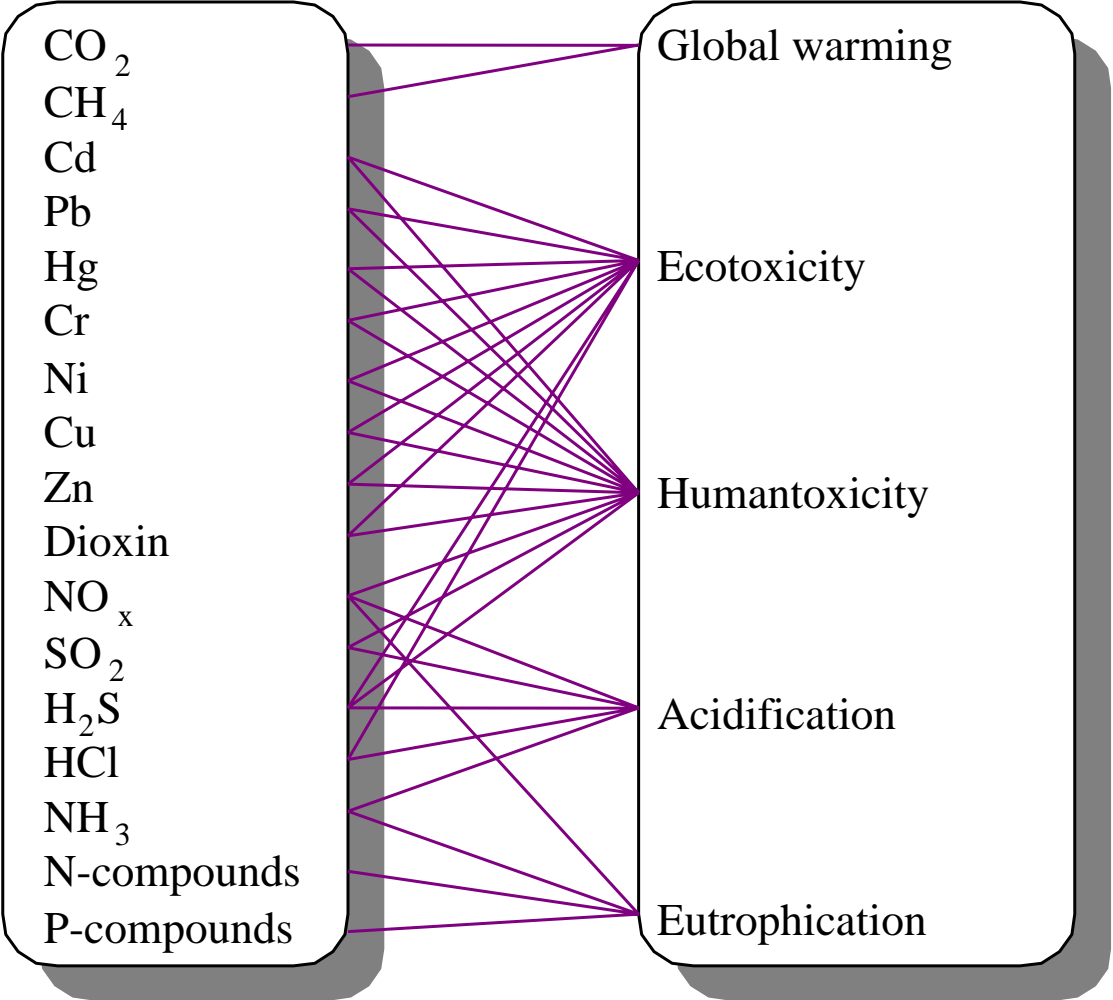
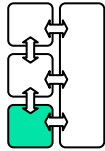
Life cycle – from cradle to grave.....

- Extraction of raw materials
- Processing of materials
- Production
- Use and maintenance
- Disposal

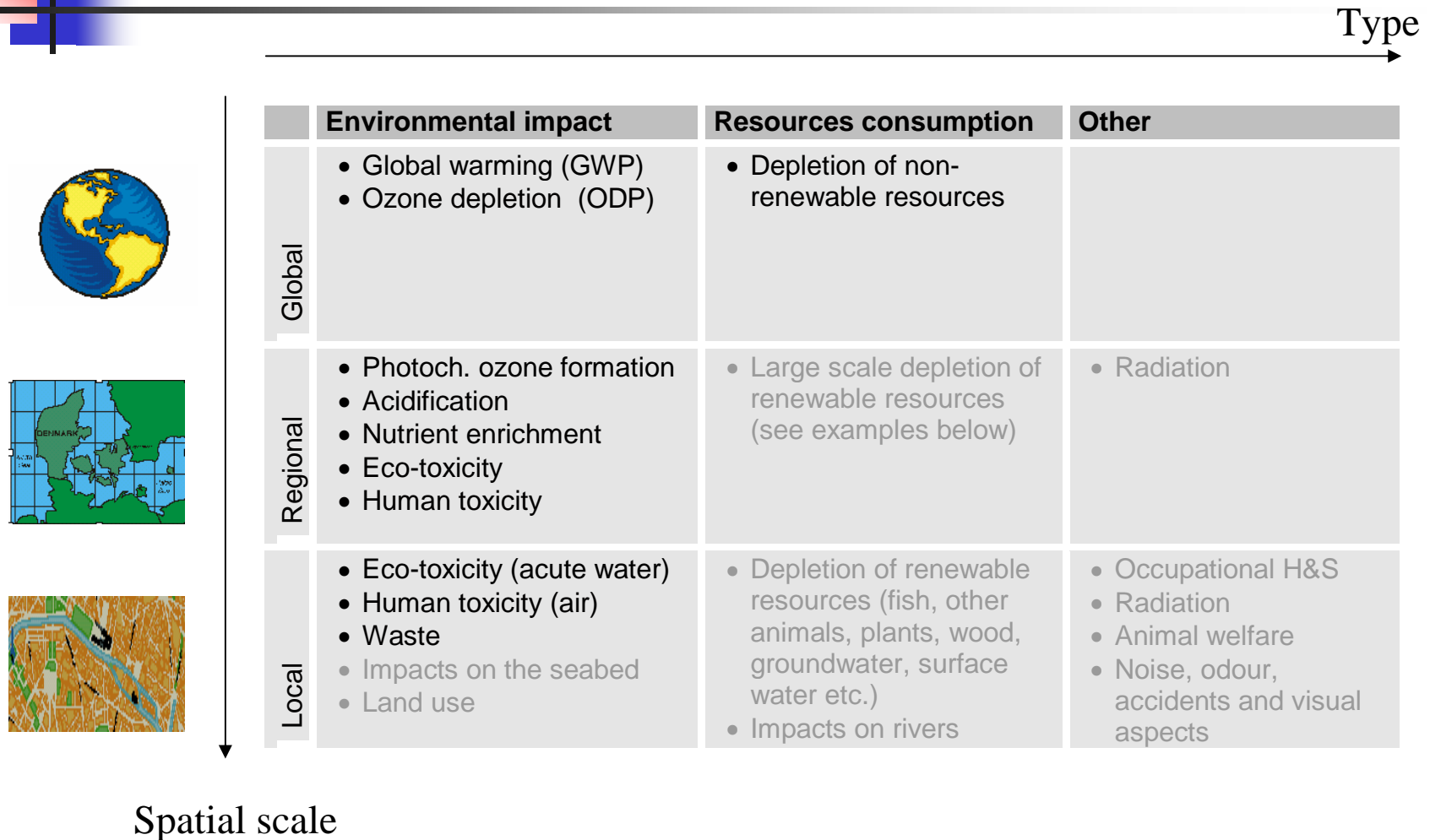
Life cycle perspective

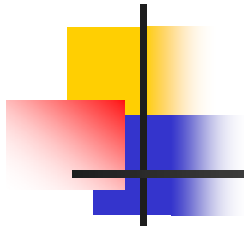


Classification



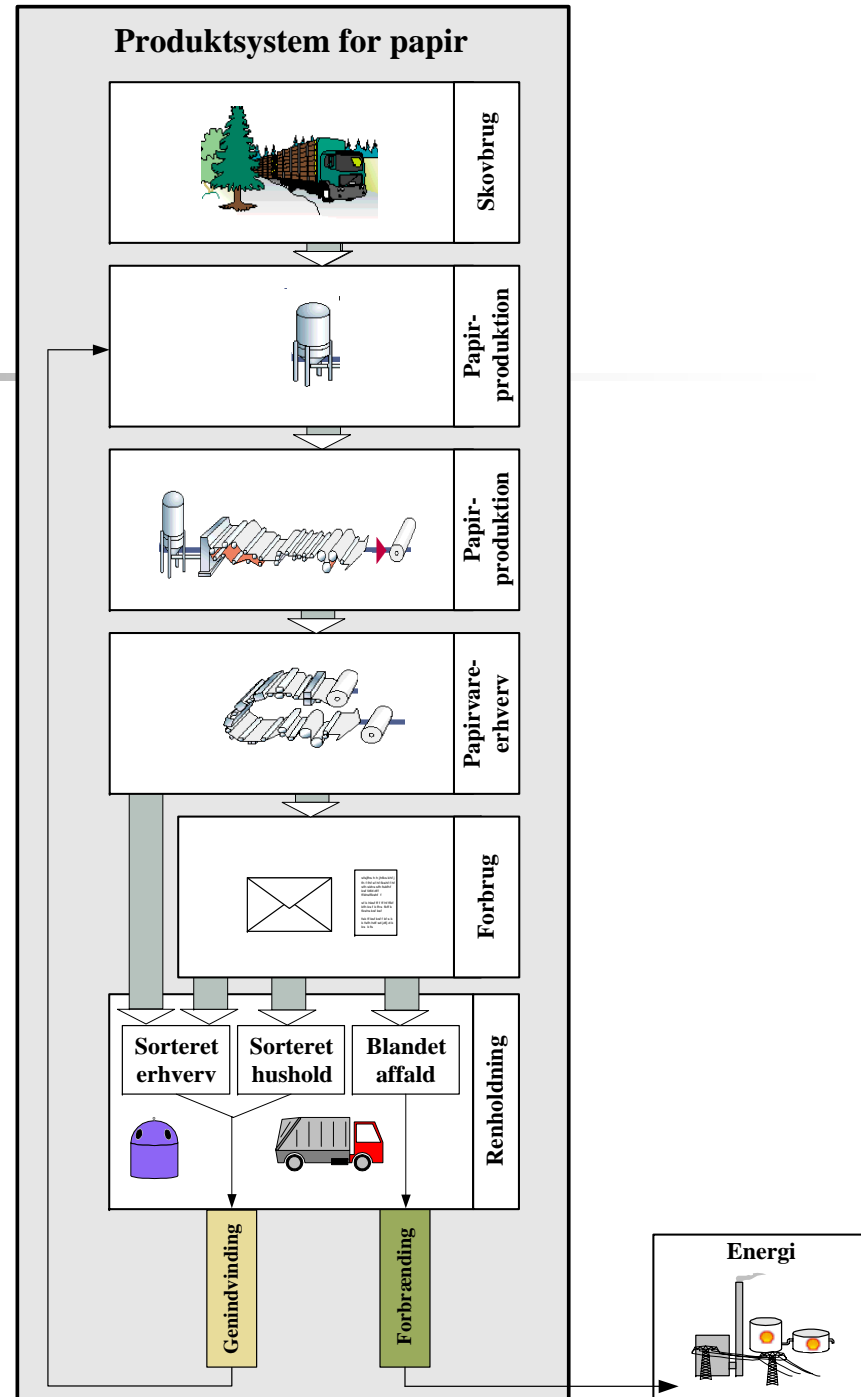
Inventory and characterisation





Life Cycle of paper :

All impacts from a product chain from cradle to grave

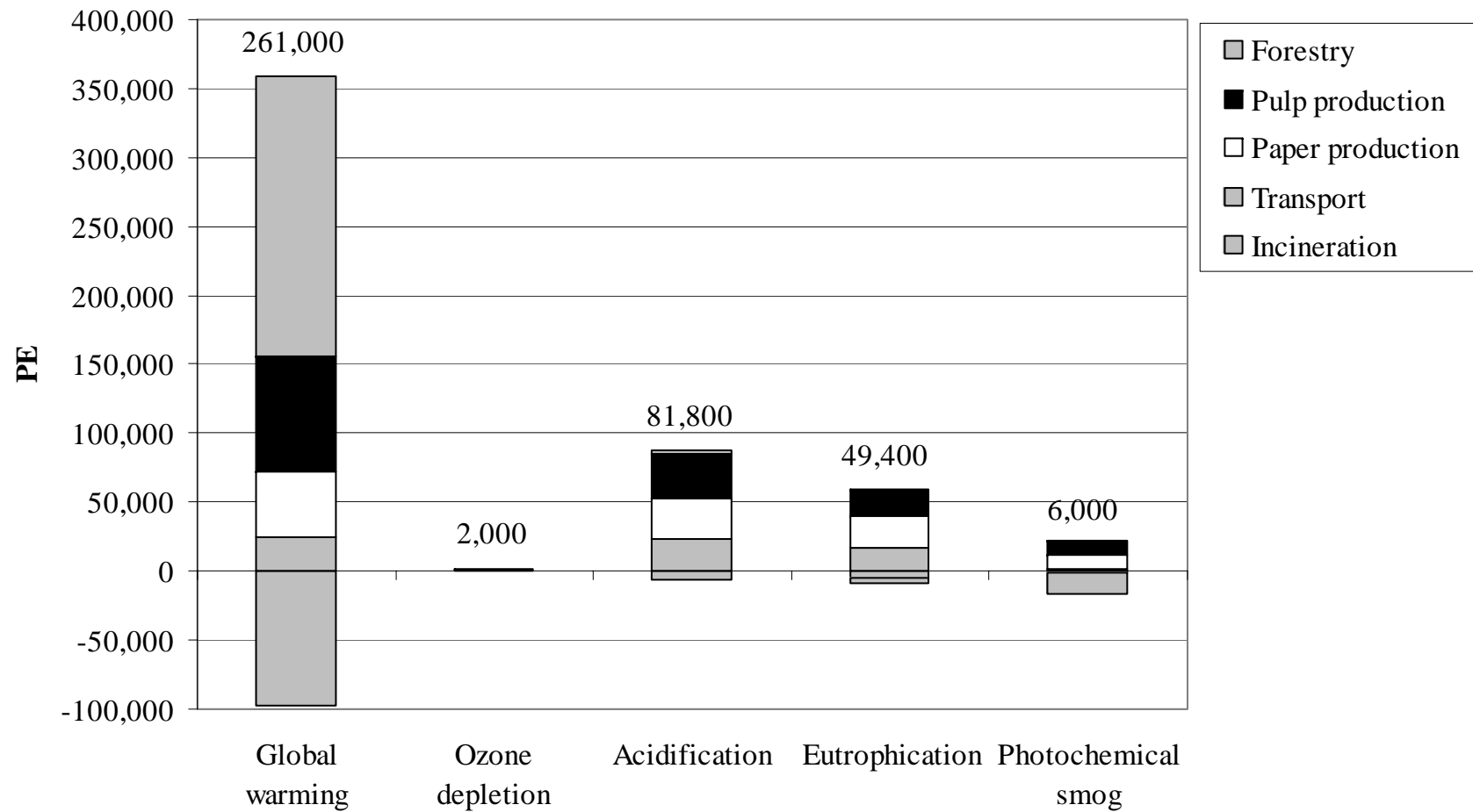




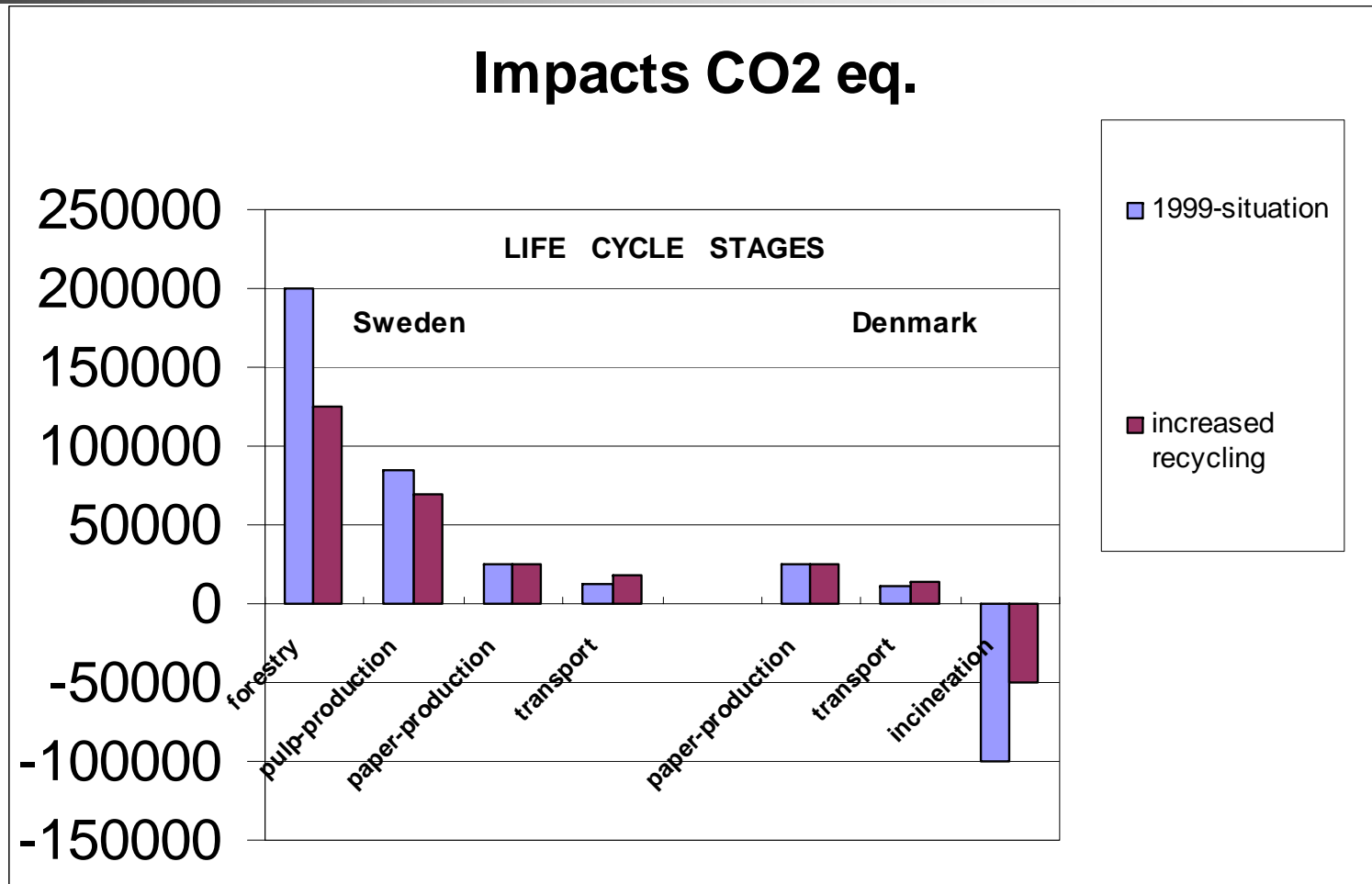
Modelling changes of 2 different systems

Disposal	1999 situation		Recycling scenario	
	Amount (tons)	Collection efficiency	Amount (tons)	Collection efficiency
Collected paper for recycling from enterprises etc.	523.060	60%	653.825	75%
Collected paper for recycling from households	131.345	30%	262.690	60%
Paper-waste in mixed waste for incineration	620.675	-	358.565	-
Total	1.275.080	51%	1.275.080	72%

Calculating the total environmental costs



Changing result - from total emissions to geographical distribution

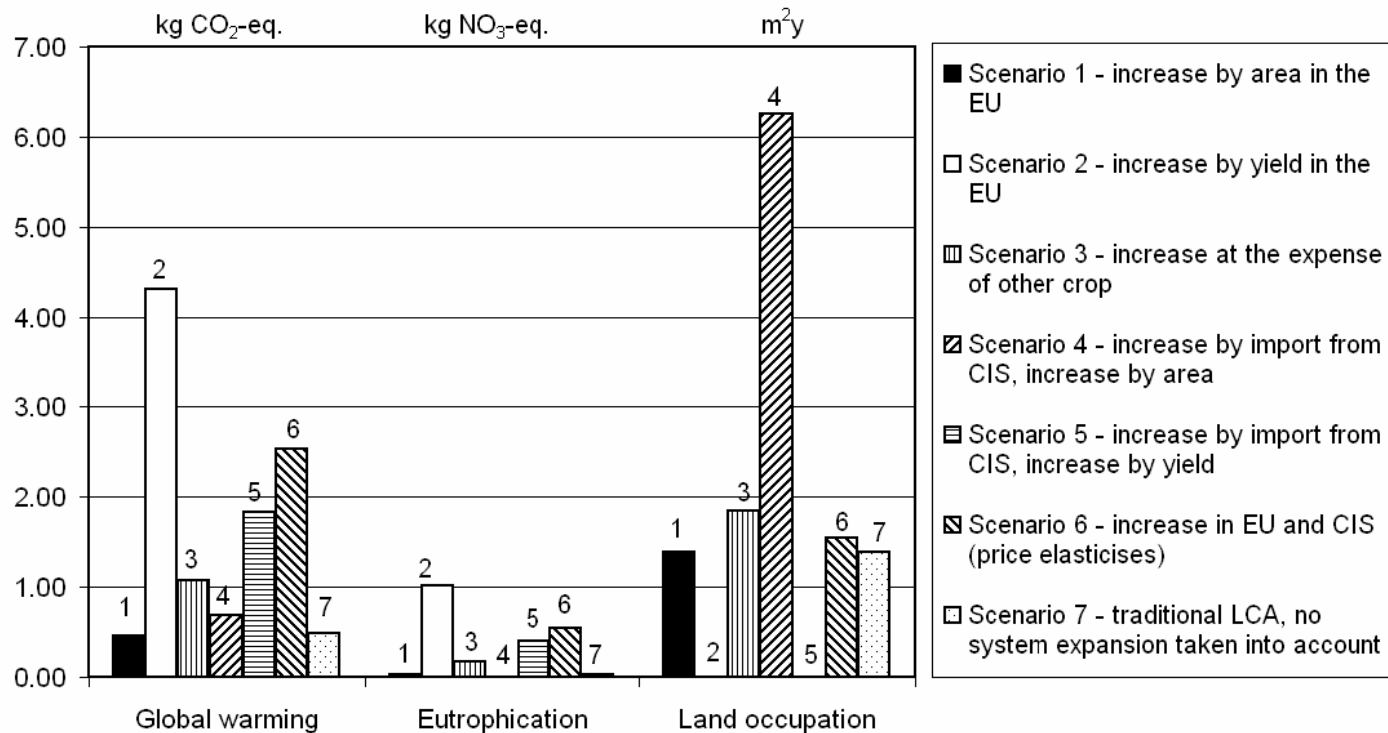




Land use change in Sweden

- 1275000 tons equals 6649 km²
- Recycling of app. 700000 tons paper equals 1850 km²
- Increase in biodiversity or more renewable energy?

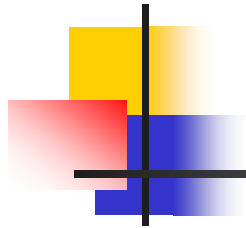
Land use changes from growing an extra kg wheat





Potentials for using LCA in geographical and land use studies

- Redistribution of environmental impacts
- Land use changes in DK, EU and worldwide from changing land use in DK (biofuel, pigs, nature)
- Globalisation – what redistributive patterns of impacts does that produce?



Modelling a new product system

