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Measuring Europe's Resource Use – how it can help improve Europe's resource efficiency

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- Why measure resource use?
- The role and significance of the four indicators
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Why measure resource use?

- It is the foundation of our economy
 - Without natural resources the EU economy cannot function
- Resource extraction, use (and disposal) leads to major environmental and social impacts
 - Climate change being an obvious example
- We only have one earth, but the pressure humanity puts on it is increasing rapidly
 - Competition for resources is increasing
 - But we also want to relieve global poverty



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1) Material resource use

- Material resource use is one of the easiest metrics to measure and reduce – and reduction saves money
 - Hence the popularity of ‘factor 4’ and ‘factor 10’ approaches.
- Resource extraction (and disposal) leads to major environmental and social impacts
- Material resource use is linked to use of other natural resources, e.g.
 - Climate/Energy, sometimes water, to extract or grow
 - Land for mining, and for growing biotic resources
- Some scarce materials are essential for delivering sustainable solutions
 - e.g. Rare earth metals, crucial for solar panels, wind turbines etc, which are mainly mined in China.

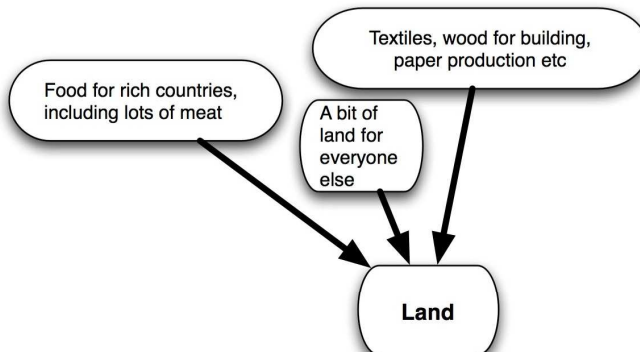


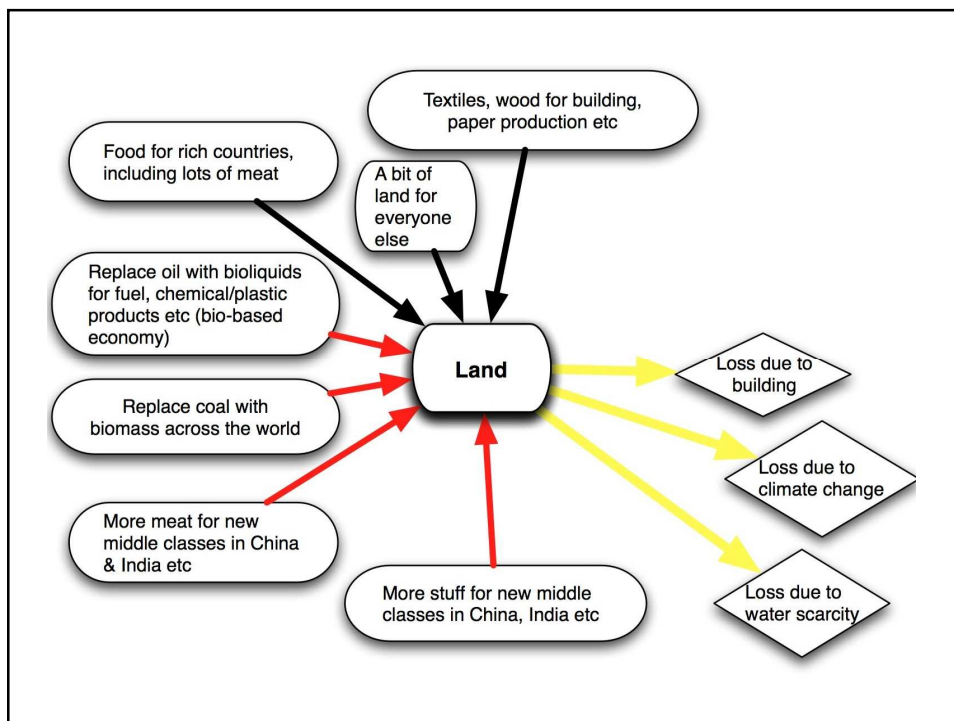
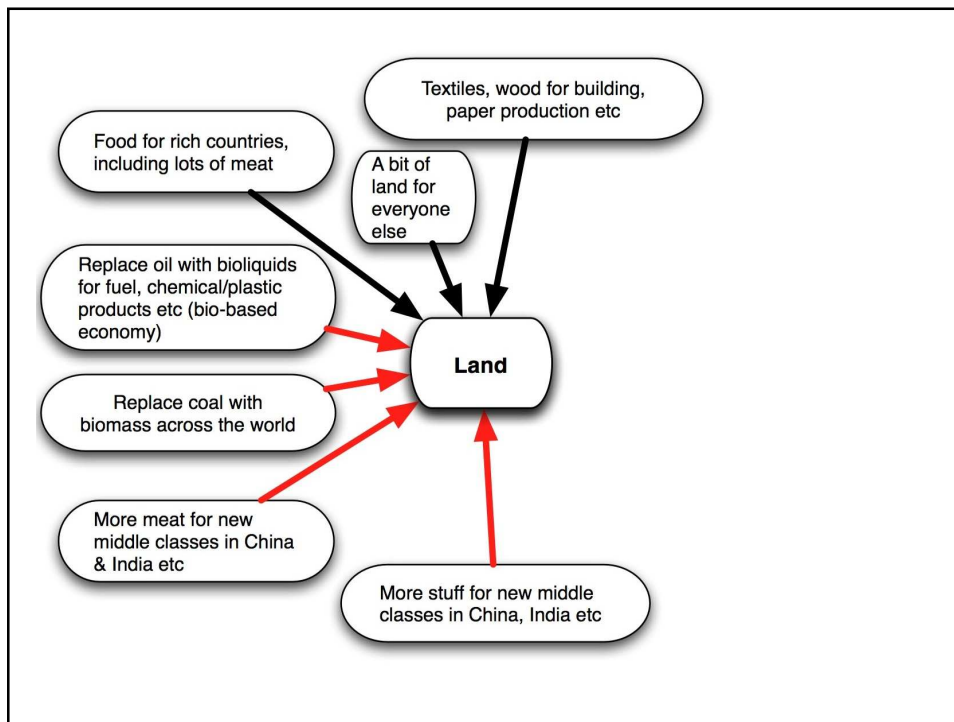
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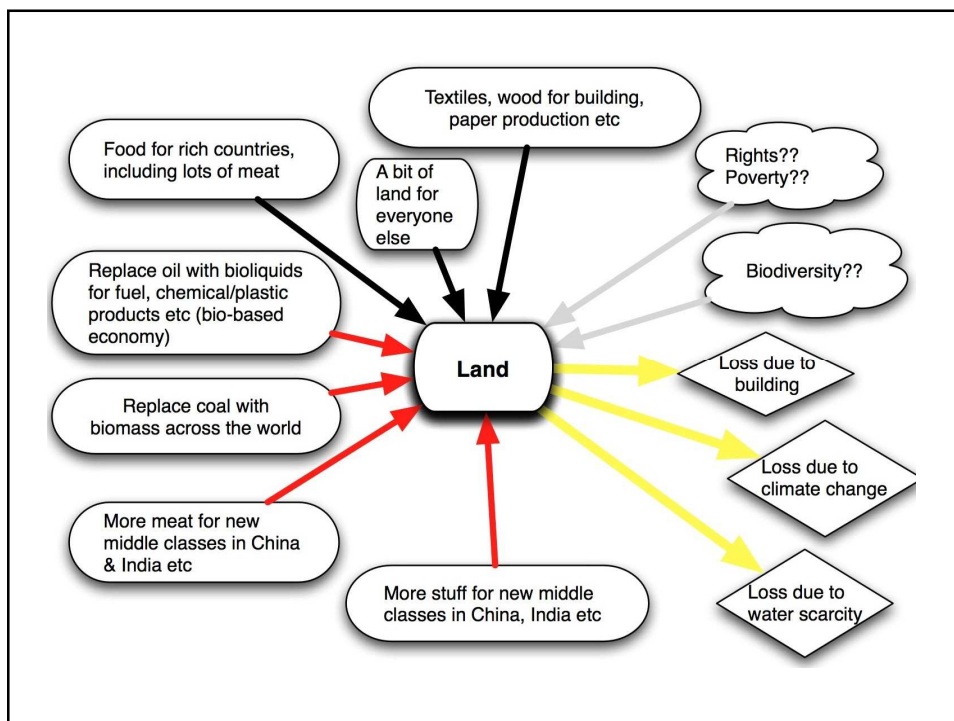
2) The Land crisis

**“Buy land, they’re not making it any more”
Mark Twain**

- We rely on land within the EU, but also import ‘virtual land’ in products we buy from abroad
 - E.g. The land footprint of soya for animal feed
- Global land is already under a lot of pressure – but its going to get a lot worse...







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Questions on EU land use

- Land will be under huge pressure in the future
 - Our ignorance of the land issue is a real threat to the resilience of the European economy
- We need to understand:
 - How much land do we currently use?
 - How much land will new policies need?
 - How can we reduce our global land use?
 - (can we set a global example for others to follow?)
 - How can we ensure our land use does not cause an increase in biodiversity loss elsewhere, or take away people's rights?



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3) The water crisis

- You can't grow things without water
 - Crops, animals
 - Biofuels, biomass
 - People
 - Biodiversity
- As demand from food, biofuels, biomass, middle classes increases, areas of water stress are increasing
 - Leading to dry rivers, population movement and biodiversity loss
 - Leading to loss of harvests



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Key water questions

- Is Europe's use of water increasing?
- What regions is water coming from?
 - Are any of them particularly vulnerable?
- What policies can reduce our water use?
 - Can we set a global example for others?
- Can we help vulnerable regions, e.g. through development aid?
- *Measuring water footprint can help improve our resilience and reduce our impacts on people & the environment*



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3) Climate as a key resource

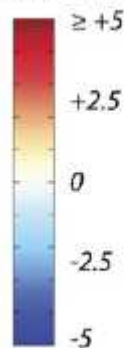
- We know that climate has clear limits, and that we are reaching them.
- Our consumption leads to climate emissions
 - Not just from energy, transport etc use in the EU (Kyoto emissions)
 - But also in the production of goods (including food) outside the EU
 - Which is why we promote carbon footprint, which includes these emissions



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European changes in CO₂ emissions when imports added

t CO₂/person/y



Davis, S. J., & Caldeira, K. (2010). Consumption-based accounting of CO₂ emissions. *Proc Natl Acad Sci USA*, 107(12), 5687-5692.



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Climate questions

- The global emissions of CO₂ resulting from Europe's consumption are at least as important as our Kyoto emissions:
 - Will the EU develop policies to reduce these emissions?
- The predicted impacts from a 2° C warming are higher than previously thought, and international inaction on climate is leading to a rapid exhaustion of our carbon budget
 - Where is the urgency in EU climate policy?



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Conclusions

- We are at the beginnings of a 'resource crunch'
 - Material scarcity, price and impacts of extraction
 - Land footprint leading to massive global competition and habitat destruction
 - Water footprint leading to loss of land and ecosystems
 - Carbon footprint leading to climate change
- We need to be measuring our resource use
- We need to be devising and implementing policies that reduce this resource use