



Food and Climate Change

The significance of air freight

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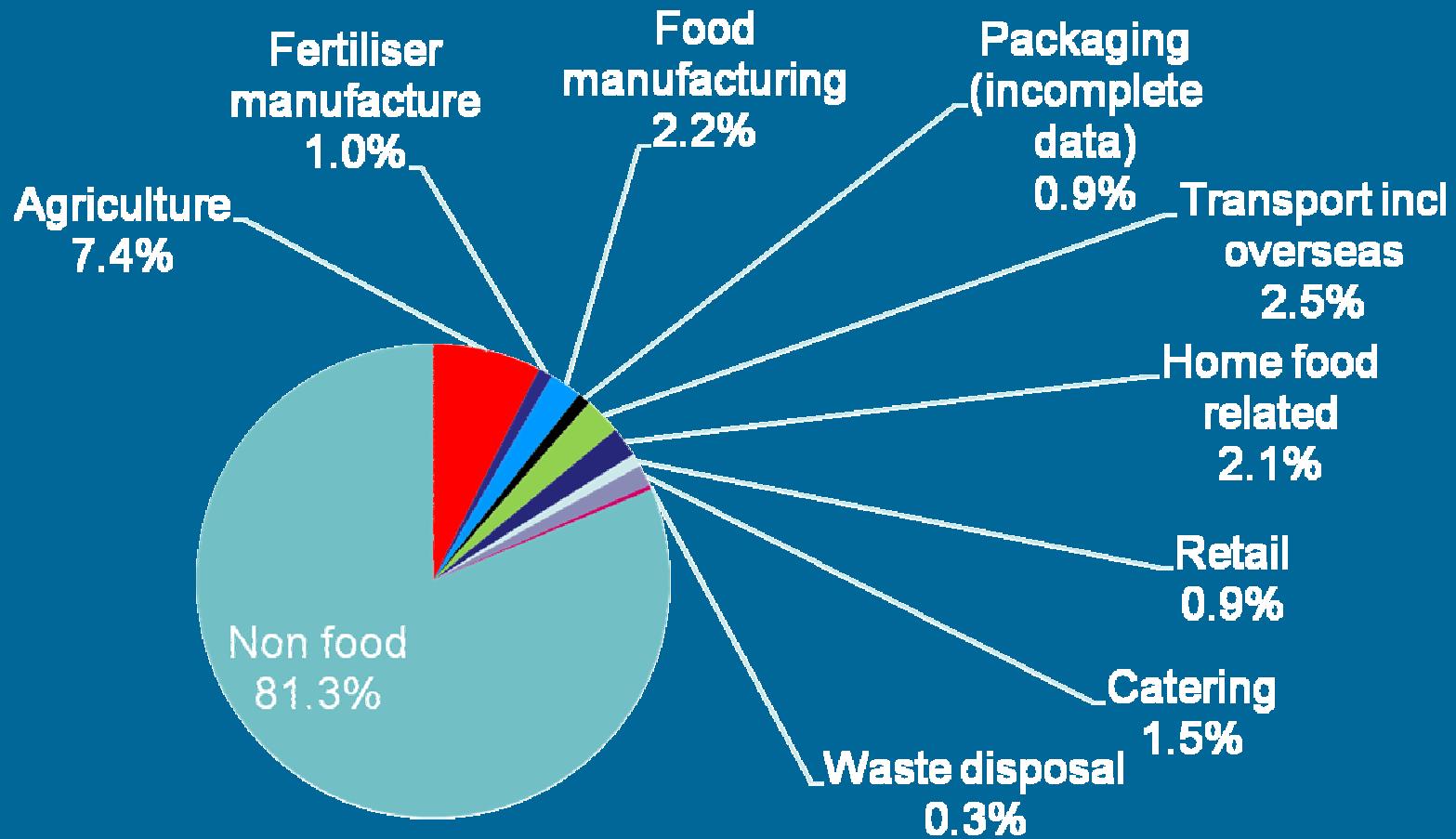
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This presentation

- Food and GHG emissions: an overview
- Environmental impacts of aviation
 - Food by air – how important?
 - Basic impacts and second order impacts
- Some issues for further investigation & conclusions

1. Food and GHG emissions

UK GHG emissions – how does food contribute?



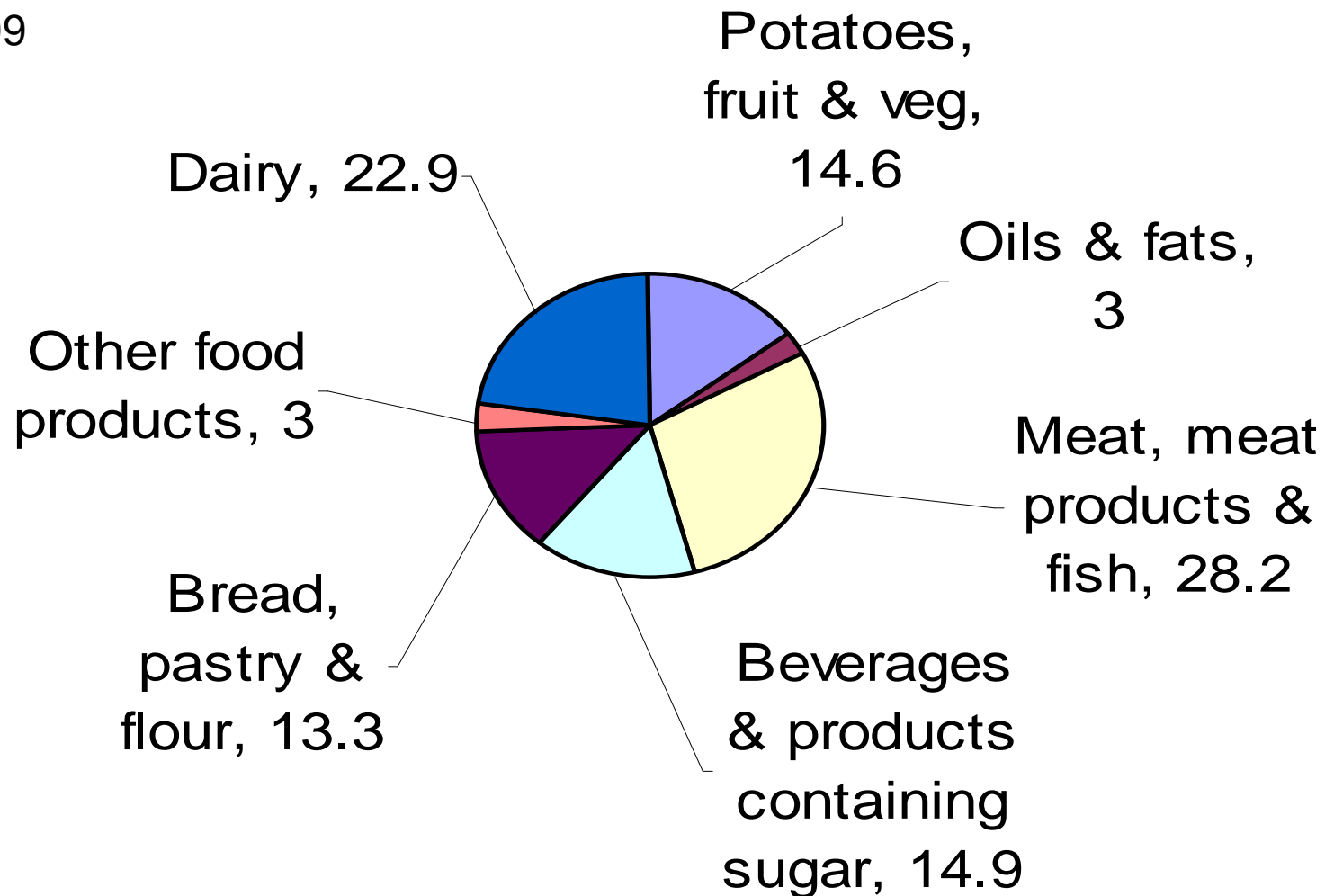
FCRN work in progress 2007

Impacts by food type: FCRN work so far

- **Meat and dairy – about 8%**
- Fruit and veg - about 2.5%
- Alcoholic drinks – about 1.5%
- This is of the **UK's TOTAL GHG emissions**
- **Similar to this Dutch study...**

Contribution of food groups to Dutch GHG emissions KG/CO₂e

Source: Kramer et al
1999



2. Aviation & air freight

How important?

General aviation: projected impacts

- If 60% CO₂ cuts on 1990 levels by 2050 (550 ppm)
 - Aviation = 25-51% total
- If 90% cuts (450ppm)
 - Aviation = 51-112% total
- Big uncertainties - depends on assumptions re technological improvements
- Best cases assume ACARE 50% improvements in efficiency & economic instruments
- *Source: Bows & Anderson 2007*

Food air freight impacts

- The most GHG intensive form of transport
- Less than 1% all food carried by air but = 11% total food transport CO₂ (including car trips)
- Most greenhouse gas intensive form of transport – if tends to dominate all other life cycle impacts for air freighted food
- Fruit and veg largest air freighted commodity – food and non food

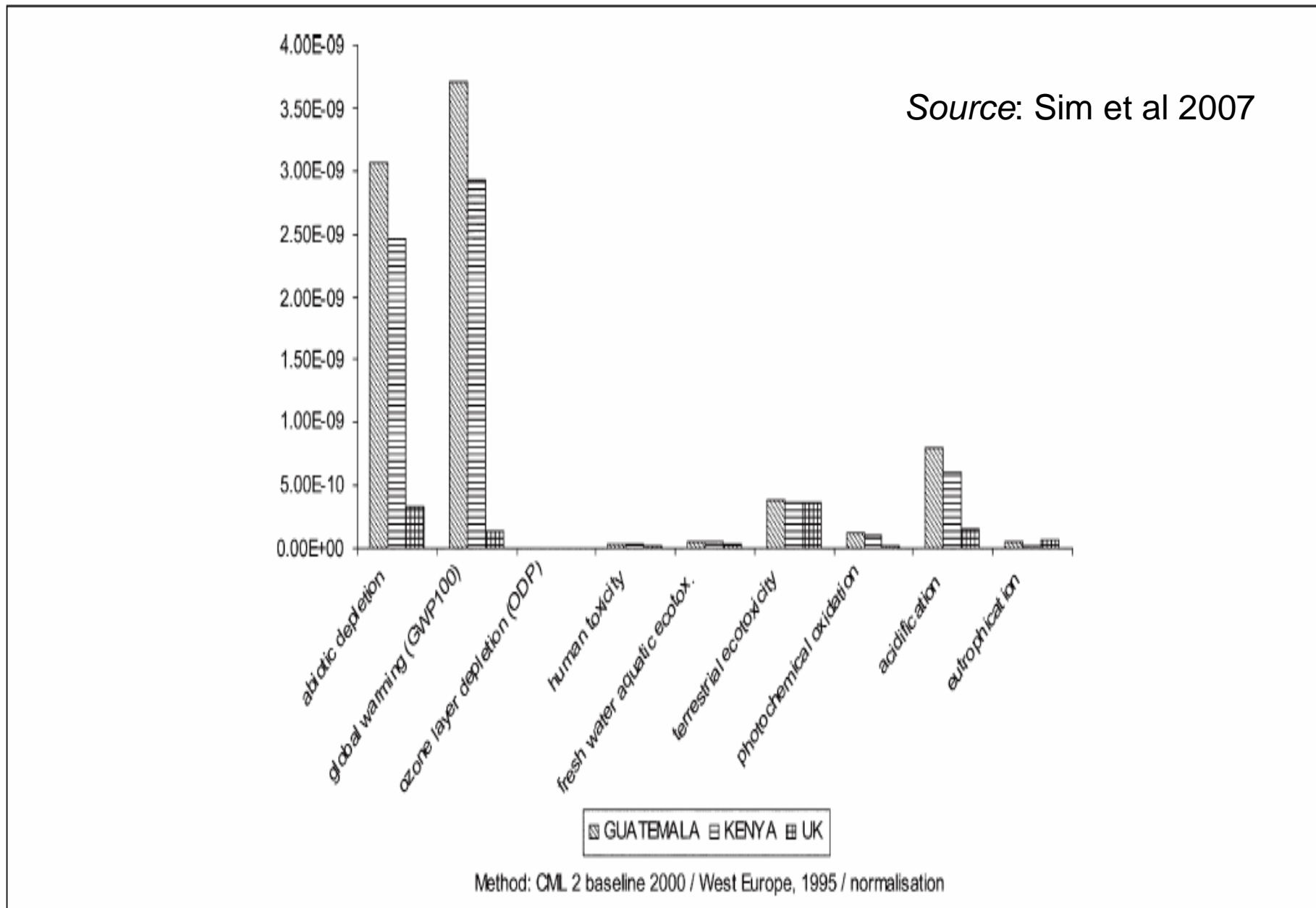


Fig.2: Normalised impact assessment for runner beans sources from Kenya, Guatemala and the UK – accounting for radiative forcing of aircraft emissions for the Kenyan and Guatemalan supply chains

But how significant in *absolute* terms?

- Food transport in total: 2.5 – 3.5% of UK GHG emissions (incl imports)
- Food air freight: approx 0.3% UK GHG emissions
- Air freighted fruit and veg transport approx 0.2% GHG emissions
- If I was a policy maker what ought my focus to be?
 - Low relative, high absolute impacts?
 - Or high relative, low absolute impacts?

Irrational thinking?

- Why not same focus on luxury products such as alcohol?
 - Not needed
 - Higher overall impact than air freighted foods
 - Production doesn't really help poor people
- Why not **much greater** focus on livestock related impacts?
 - Single largest source of food GHG impacts
 - Global consumption set to double by 2050

Second order significance of aviation

- Growing trends – 20 year forecast:
 - 6.1% more freight
 - 4.9% more passengers
 - Dedicated freight planes are old (less efficient) passenger craft
- Rapid regional air trade (eg. Asia)
- Investment in infrastructure – improves cost effectiveness – cheaper to fly

Freight-bellyhold relationship?

- Freight movements account for only 3% air movements at UK airports
- BUT 64% freight is in passenger bellyhold AND
- Passenger airlines get 15% revenue from bellyhold freight– so passenger travel (and emissions) subsidised by freight
- Freight – tourism relationship?
- So trends and second order impacts need a closer look

Won't technology solve the problem?

- ACARE efficiencies already built into best case scenarios.
- Have to take long life time of fleet into account
- Some potential for modal shift to sea – being investigated
- Tesco commitment to no more than 1% by air suggests things can be done

Climate change impacts on food supply: relevance to air freight

- Agriculture will be affected by climate change
- Southern countries will be worst affected
- Poor countries will be hurt most
- But picture mixed :
 - **SS Africa may see higher rainfall levels**
 - **Southern Africa – much drier**
- Implications for air freight?
- Greater unpredictability of supply – therefore increasing reliance on emergency top ups (by air)?

3. Some issues and conclusions

Issues

- Need to look more at the relationship between tourism and freight aviation
- Need to explore aviation's projected second order, infrastructural impacts
- Intra-regional air freight needs more investigation
- Alternative ways of transporting highly perishable goods (and environmental implications)?

Conclusions

- The poor will suffer most from climate change. It is essential to find ways of promoting economic development that is actually helping them in the long term.
- But we need to keep the bigger food picture in mind – livestock the key priority

Thank you

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