

Insights from life cycle modelling

Presentation at the UNEP/SETAC Life Cycle Initiative workshop on
Knowledge mining on Product Sustainability from LCA Studies for
Effective LCM Practice, Berlin, 2011.09.01

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- Examples of counter-intuitive LCA-based knowledge that have become common knowledge
- However, knowledge is no longer the problem
- Policy messages from insights in life cycle modelling

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Examples of common knowledge that changed due to LCA-based knowledge

- Bio-based inputs are better than fossil
 - No, bio-based inputs often have large impact via area demand
- Paper bags are better than plastic bags
 - No, paper often heavier and demands more fuel
- Recycling is not always good, incineration just as good
 - No, recycling of separate fractions is nearly always preferable
- Buy local - reduce transport distance
 - No, transport distance is not the problem - transport mode is

...and many more prejudices will fall in the future
- as currently available knowledge spreads



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Knowledge is not the problem

We know what impacts on nature:

- Nature occupation (26% of global area)
- Global warming (14)
- Invasive alien species (9)
- Nutrification (4)
- Acidification (2)
- Photochemical ozone (1)
- Ecotoxicity (1)
- Overexploitation of biotic resources (?)



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Knowledge is not the problem



We know the impacts on human health:

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- Poverty-related diseases (50 QALY/1000 pers.)
- Accidents (14)
- Occupational health (7)
- Respiratory inorganics (6)
- Noise (2)
- Human toxicity (0.3)
- Food-borne diseases (0.3)
- Global warming (0.2)
- Ionising radiation (0.1)
- Ozone-layer depletion (0.2)

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Knowledge is not the problem
We know **where** the problems are,
e.g. deaths from air pollution:



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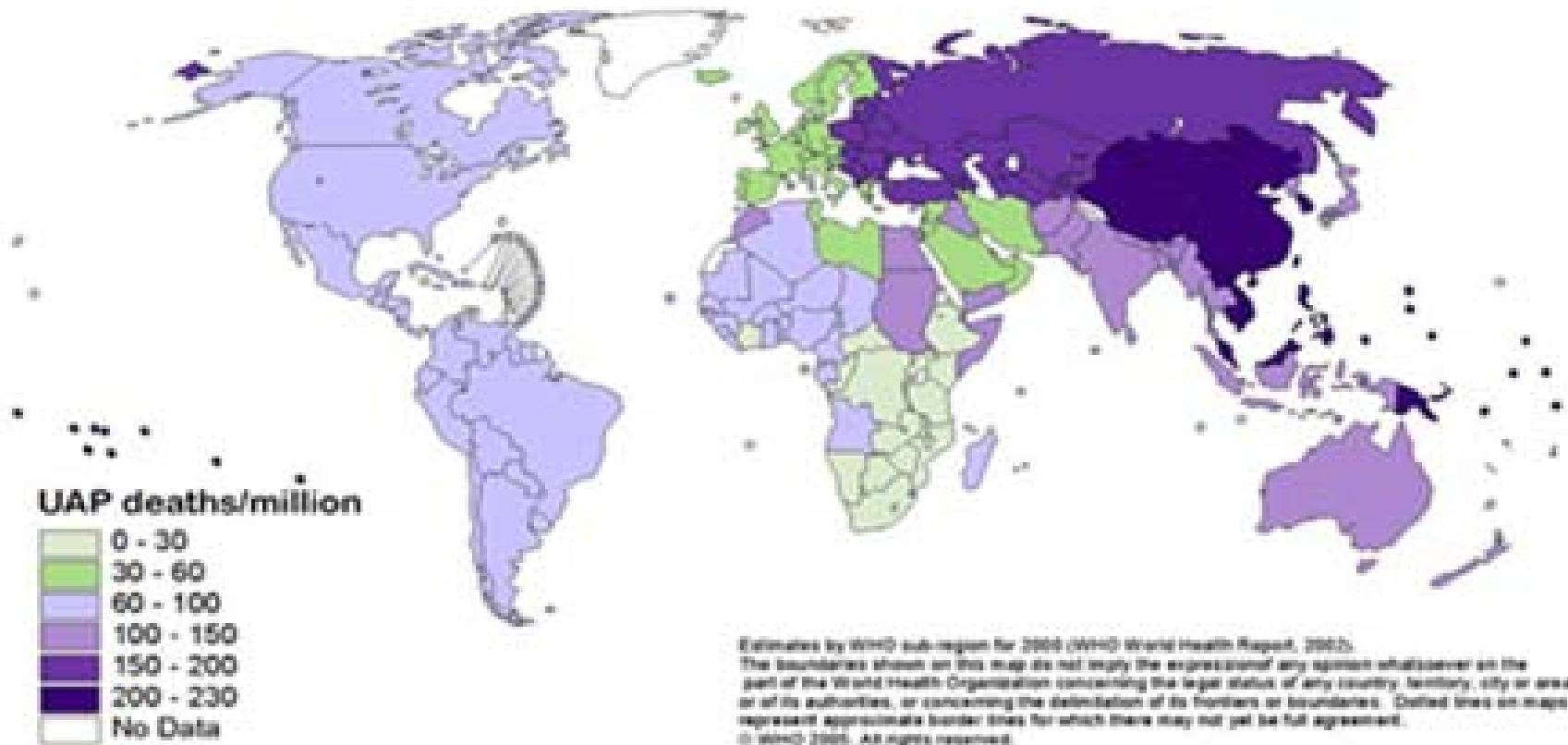
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Knowledge is not the problem

We know what activities are responsible:

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Knowledge is not the problem

We know most of the alternatives:

- Solar-based energy-forms
- More (environmentally) efficient and biotechnologically based agriculture, e.g. production of primary protein from cellulose
- More gentle fishing methods
- Recycling of metals, biological extraction methods, containment of harmful substances from mining
- Planning laws reducing impacts from dwellings and infrastructure
- Substitution of solvents, heavy metals and hazardous chemicals
- ...
- etc.



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Policy messages from insights in life cycle modelling



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- Focus on the hotspots
- Focus on improvements, not past performance
- Focus the policy tools (issue-specific or product-oriented)
- Focus on needs rather than on means (learn from the functional unit)
- Focus on systems: Understand the value of by-products (recycling)
- Integrated view on economic, environmental and social externalities

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