

Emerging LCA Issues: A European Perspective

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**presented at the CRC Workshop on Life-Cycle Analysis
of Biofuels, Oct. 17-19, 2011, Argonne, IL**

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LCA...in EU: briefly (1)

- EU has > 30 years of LCA research on energy – many Member States (e.g. AT, DK, ES, FI, FR, NL, SE, UK) + CH active
- biofuels work since early 1990s
- also other renewables and energy efficiency options (e.g. insulation, CFL/LED lighting)+ other products (ICT, food...).
- overall biomass-related issues such as ILUC
- **sustainability in EU: more than GHG**

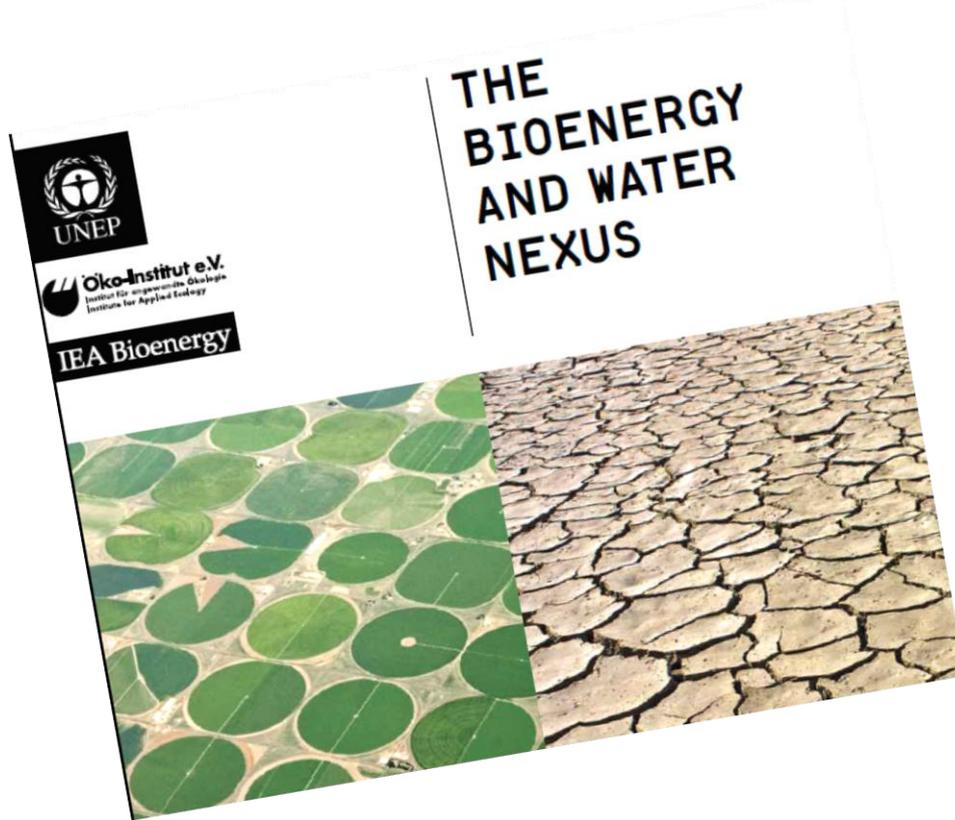
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LCA...in EU: briefly (2)

- **beyond** “attributional vs. consequential”: cross-sector scenarios to avoid allocation → MFA
- **metrics**: broadening view to biodiversity, land and water use, and social to **support sustainability assessments**; also on UN level (FAO, UNEP...)
- **data**: **imported** bioenergy and biofuel feedstocks; more spatially explicit processes with GIS/hybrid approaches

LCA: More than GHG...

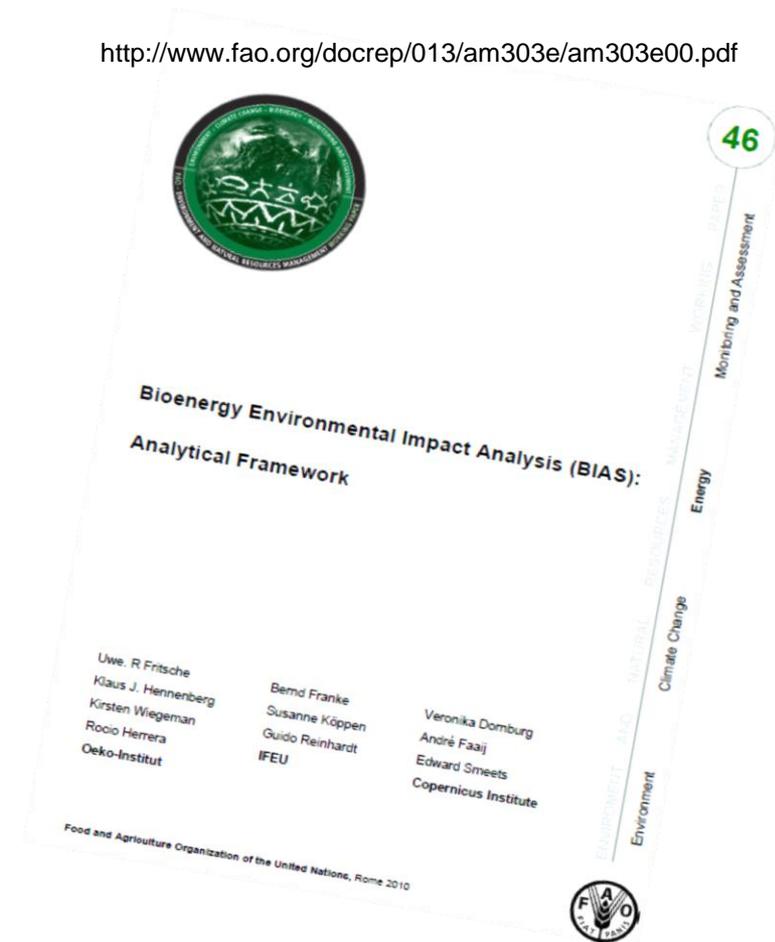
Examples of international/ UN research supported by EU/Member States:



http://www.unep.fr/energy/bioenergy/documents/pdf/waternexus_summary.pdf

[http://www.unep.fr/energy/bioenergy/documents/pdf/Assessing%20Bio fuels-full%20report-Web.pdf](http://www.unep.fr/energy/bioenergy/documents/pdf/Assessing%20Bio%20fuels-full%20report-Web.pdf)

<http://www.fao.org/docrep/013/am303e/am303e00.pdf>



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LCA: towards sustainability?

Examples of international/UN research on supported by EU/Member States:




Co-ordination Action for innovation
in Life-Cycle Analysis for Sustainability

<http://www.calcasproject.net/>

<http://www.estis.net/includes/file.asp?site=lcinit&file=DD37BF36-A625-48EA-BE92-9700F77D6844>

http://www.unep.fr/shared/publications/pdf/D/Tlx1164xPA-guidelines_sLCA.pdf

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- **unconventional fossil** fuels receive more attention:
- HCICO: syncrudes from oil shales/tar sands; several studies on syncrude from CA; default value for EU FQD → LCA data **available**, issue of **marginality/scenario** assumed
- **frac gas**: relatively new in EU, studies in Germany and on EU level started. Currently, info based on US activities → German data in early 2012.

LCA: “new” bio processes

- **biomaterials, biorefineries, and cascading use** of biomass are researched
- EU sponsors 3 major biorefinery pilot projects, including LCA data

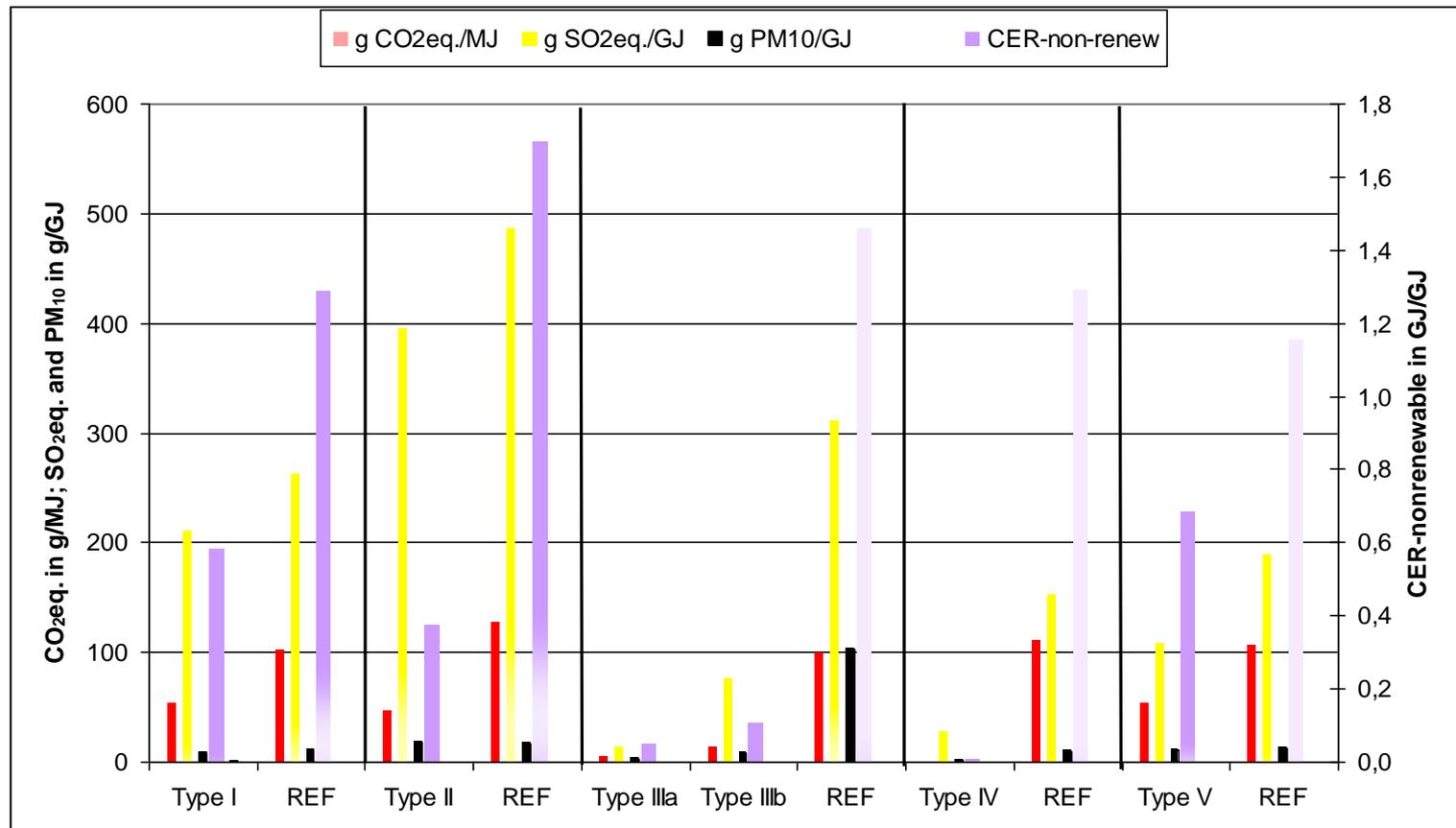


**BIOCORE, SUPRABIO
and EUROBIOREF**

- Member States have own activities (e.g. Dutch and Finnish studies; BioCouple project and roadmap process in Germany)

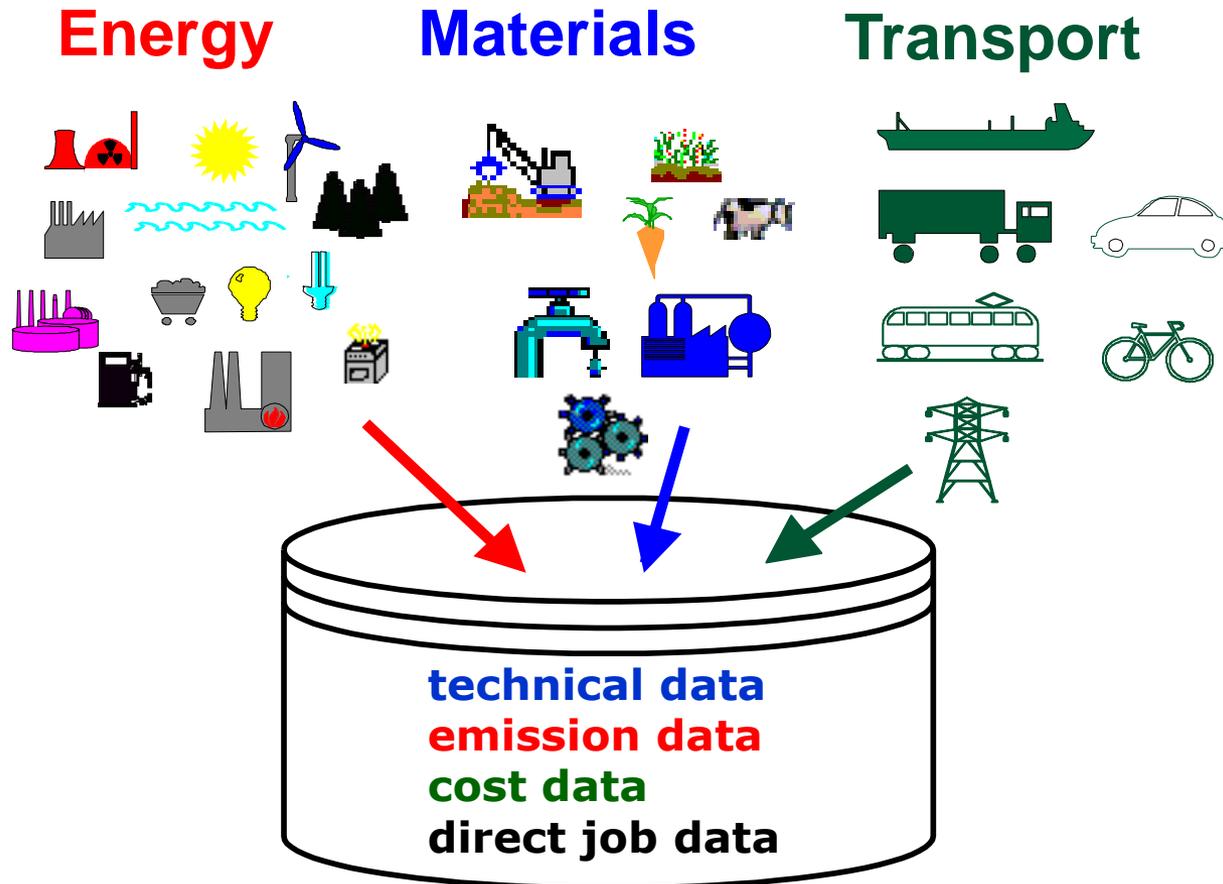
LCA: “new” bio-processes

- Results from German analysis of comparing generic future biorefineries with non-coupled reference systems: 2030**



- reference systems show **temporal** dynamics (moving target)
- **future** electricity, transport, fertilizer, plastics, steel etc.
- full multi-sector integrated energy and material flows + transports needed
- due to global trade, imports (energy, materials) and global logistics are relevant
- only little “dynamic” LCA data available

Access to LCA Data



GEMIS: processes for life-cycles and material flows

Access to LCA Data

Using and distributing GEMIS is free

Software & database available from website:

<http://www.gemis.de>

Bioenergy & biofuel data:

<http://www.oeko.de/service/bio>

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