

inter  
cooperation

Natural Resource Management  
Rural Economy  
Local Governance and Civil Society



Materials Science & Technology

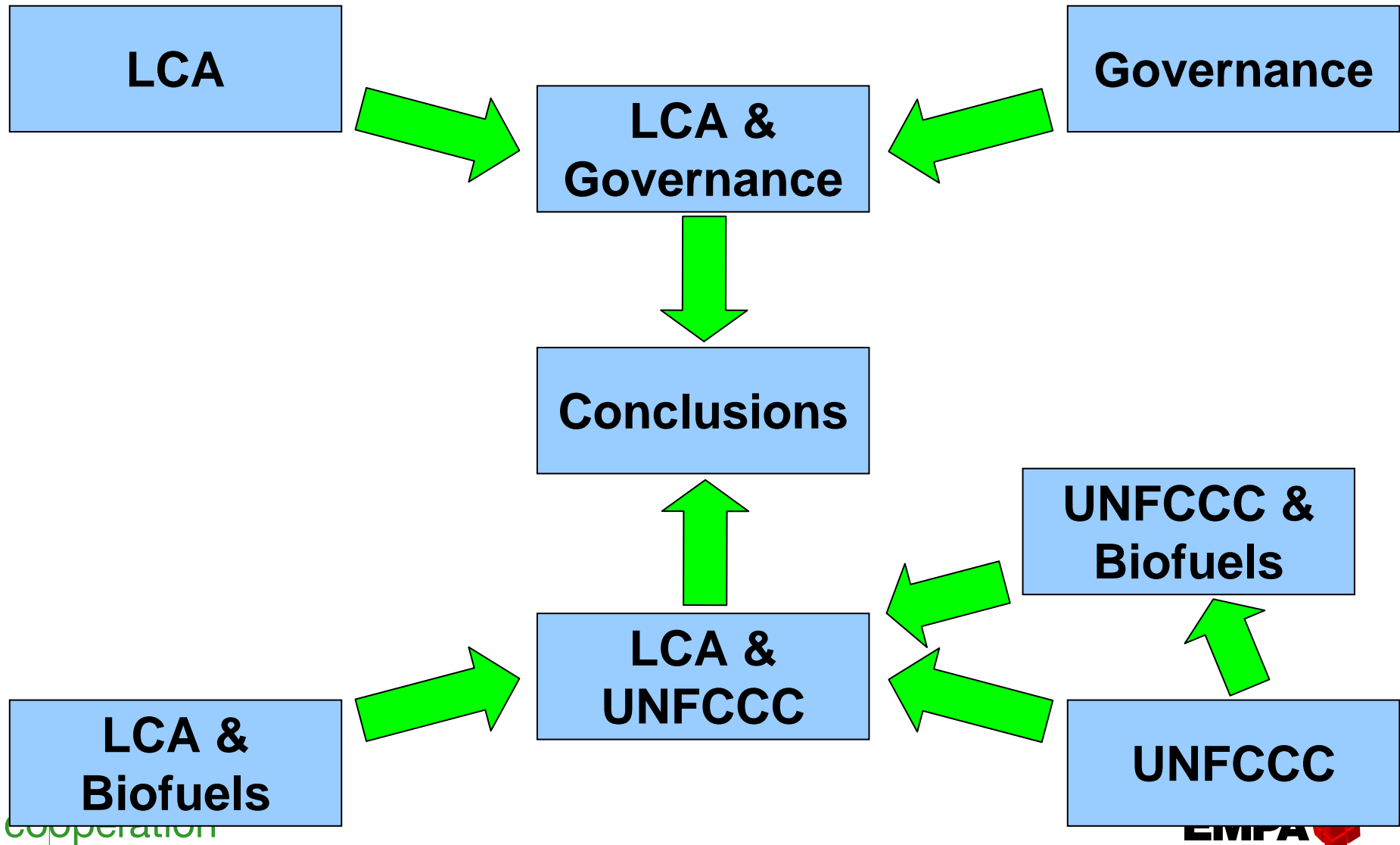
# **LCA as decision support tool in the context of good governance of natural resources: Potential and limitations**

Hans-Jörg Althaus, Empa

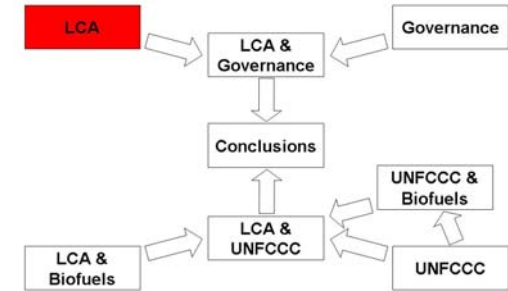
Carmenza Robledo, Inter Cooperation

Rainer Zah, Empa

# Structure of the presentation

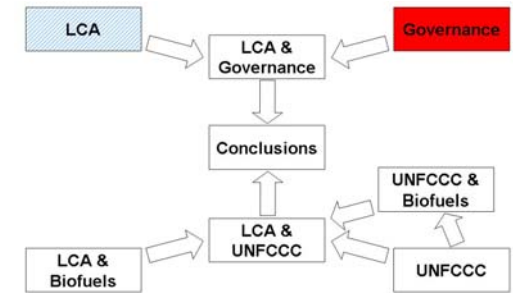


# LCA for decision support



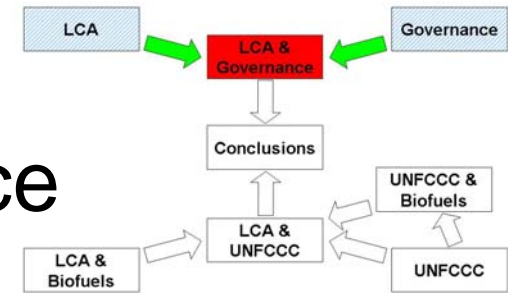
- addresses **quantifiable aspects** throughout products **life cycle**
- structured around **functional unit**
- needs **closed system including all aspects influencing and influenced by decision**
- needs **quantifiable model of causal mechanisms** working in this system
- needs to know the **goal of the decision**

# (good) Governance



- exercise of political, economic and administrative authority in the management of a country's affairs at all levels
- comprises mechanisms, processes and institutions through which citizens and groups articulate their interests, mediate their differences and exercise their legal rights
- participatory
- transparent
- accountable

# LCA & Governance

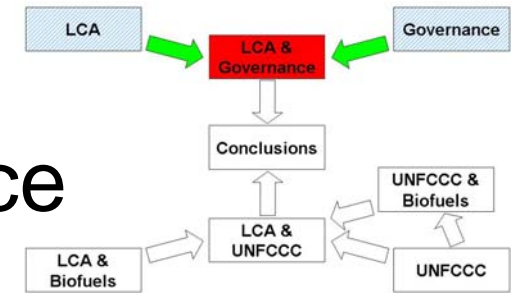


- closed system
- single understanding of the system
- single understanding of causal mechanisms
- single goal of a decision

- open System
- various understandings of the system
- various understandings of causal mechanisms
- various goals of a decision

→ can one single LCA provide decision support for good governance?

# single LCA & Governance

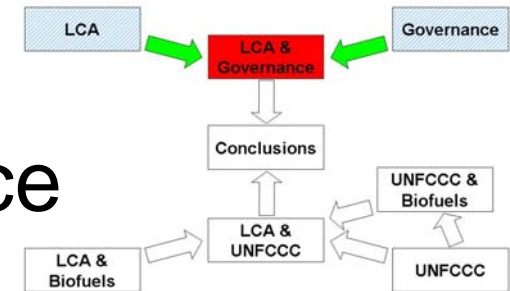


- needs a participatory process to define:
  - goal of decision (and thus of LCA)
  - system (technological, economic, social and ecological aspects)
  - causal mechanisms

→ **feasible?**

→ several LCA's?

# several LCA's & Governance



- all relevant stakeholders need access to LCA (methodology / data)
  - explicit goals
  - transparent (i.e. explicit) models and data
- LCA can foster dialog on goals and system understanding among stakeholders
- resource and knowledge intensive!

# LCA of Biofuels

## Big variety of “LCA-like” studies

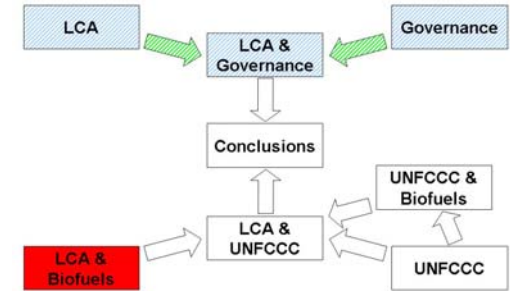
→ big variety of results

## Only few “real” LCA

- not decision oriented
- different background data
- different allocation methods
- similar shortcomings

→ similar results

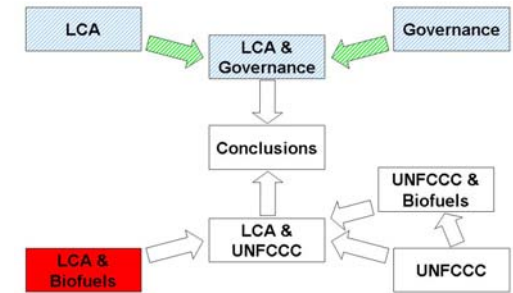
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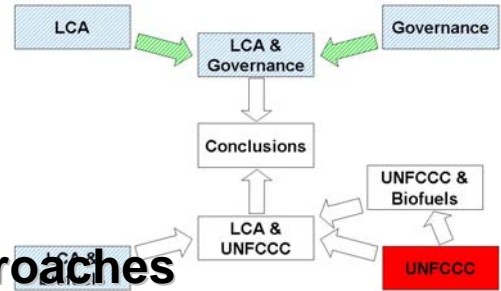


# LCA of Biofuels: shortcomings

- Impact of land use change
- Quantification of N<sub>2</sub>O emissions
- Indirect / consequential effects
- Baseline scenarios
- Future / scale effects
- Data availability
- Socio economic impacts

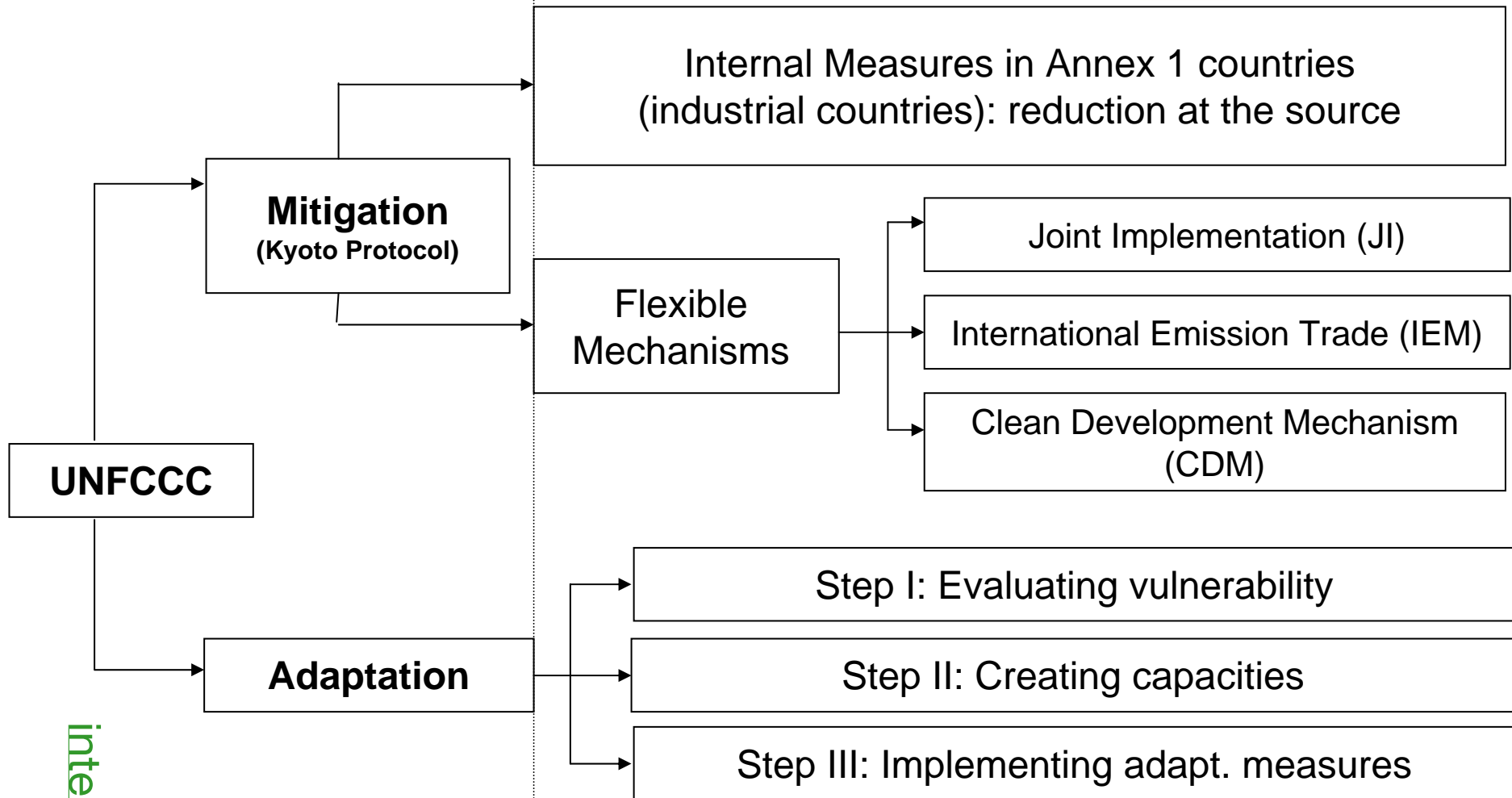


# UNFCCC and Kyoto Protocol



## Strategies

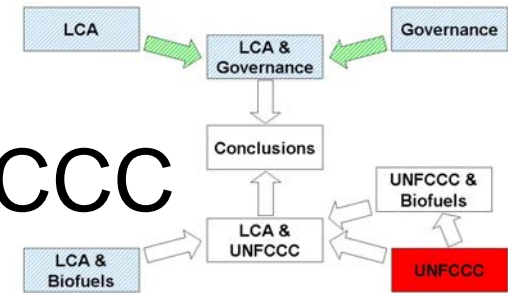
## Instruments and approaches



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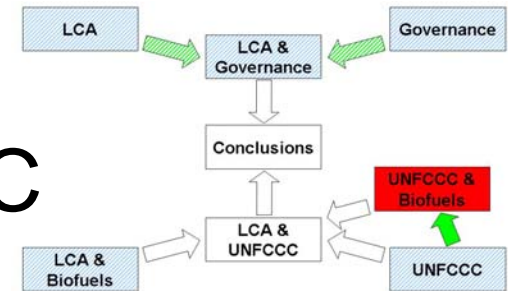


# GHG emission accounting in UNFCCC



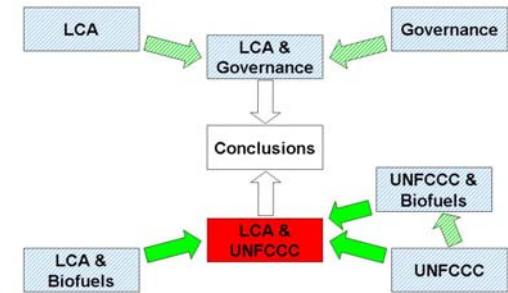
- System boundaries
  - Internal measures: national boundary
  - Flexible mechanisms: projects with geographical boundaries and (separate) accounting of leakages
- Additionality
  - Accounting relative to baseline in Joint Implementation and CDM

# Biofuels in the Context of UNFCCC



- small experience
- considered in energy and transport sector
- Biofuel use as internal measure by Annex I countries  
→ GHG emissions in producing countries (non Annex I) might be disregarded!
- Biofuel from CDM projects only exploratory.  
Problems: double counting, production based on sustainable biomass

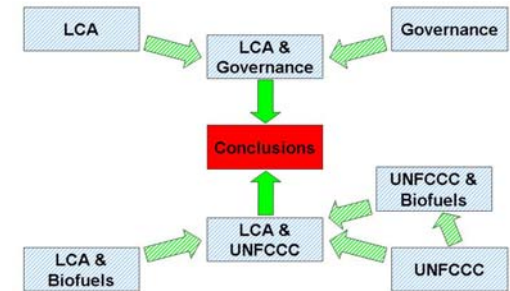
# LCA in the Context of UNFCCC



Potential use:

- information on background processes (in CDM and JI)
- Impacts other than climate change
- ➔ respect systems / mechanisms defined in UNFCCC
- ➔ appropriate data, also for developing countries
- ➔ inclusion of social impacts

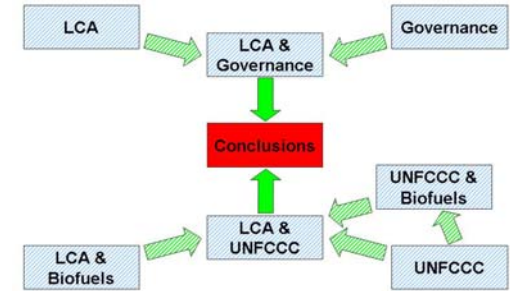
# Conclusions: general issues



LCA has potential as decision support tool if all stakeholders:

- are involved in system definition
- have basic understanding of LCA
- have access to LCA

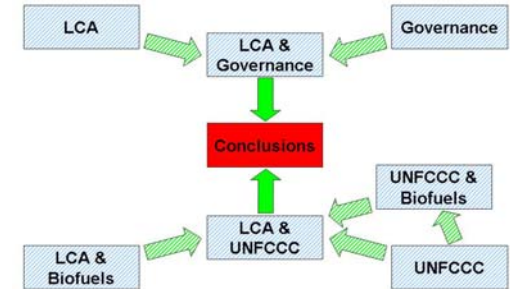
# Conclusions: modelling issues



LCA has potential as decision support tool in the UNFCCC if models:

- are transparent and explicit
- account for consequences of decisions
- are region specific
- consider social / economic aspects in system, causal mechanisms and results
- differentiate effects within and outside projects / countries

# Conclusions: data issues



LCA has potential as decision support tool in the UNFCCC if data:

- are transparent, comprehensive and harmonised
- account for scale effects
- are region specific (reflect products / processes in appropriate region)



# Thank you

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