Multicriteria assessment methods and social LCA, which complementarity?
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The case of French multicriteria assessment methods of agricultural systems

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CONTEXT

✓ Agricultural systems under pressure:

- **Evolutions**: increased production levels, extension of distribution systems → impacts on ecosystems
- New **constraints**: land & resources competition, social requirements, news standards & rules
- **Challenge**: food for 9 billion of human-beings by 2050

✓ Development of multicriteria assessment methods for agricultural systems

- Focus on **environmental** issue: INDIGO®, DIALECTE, DIAGE, Systerre
- **Complementarity** with environmental LCA:
  - For some impacts: biodiversity, pesticides
  - To compare close systems

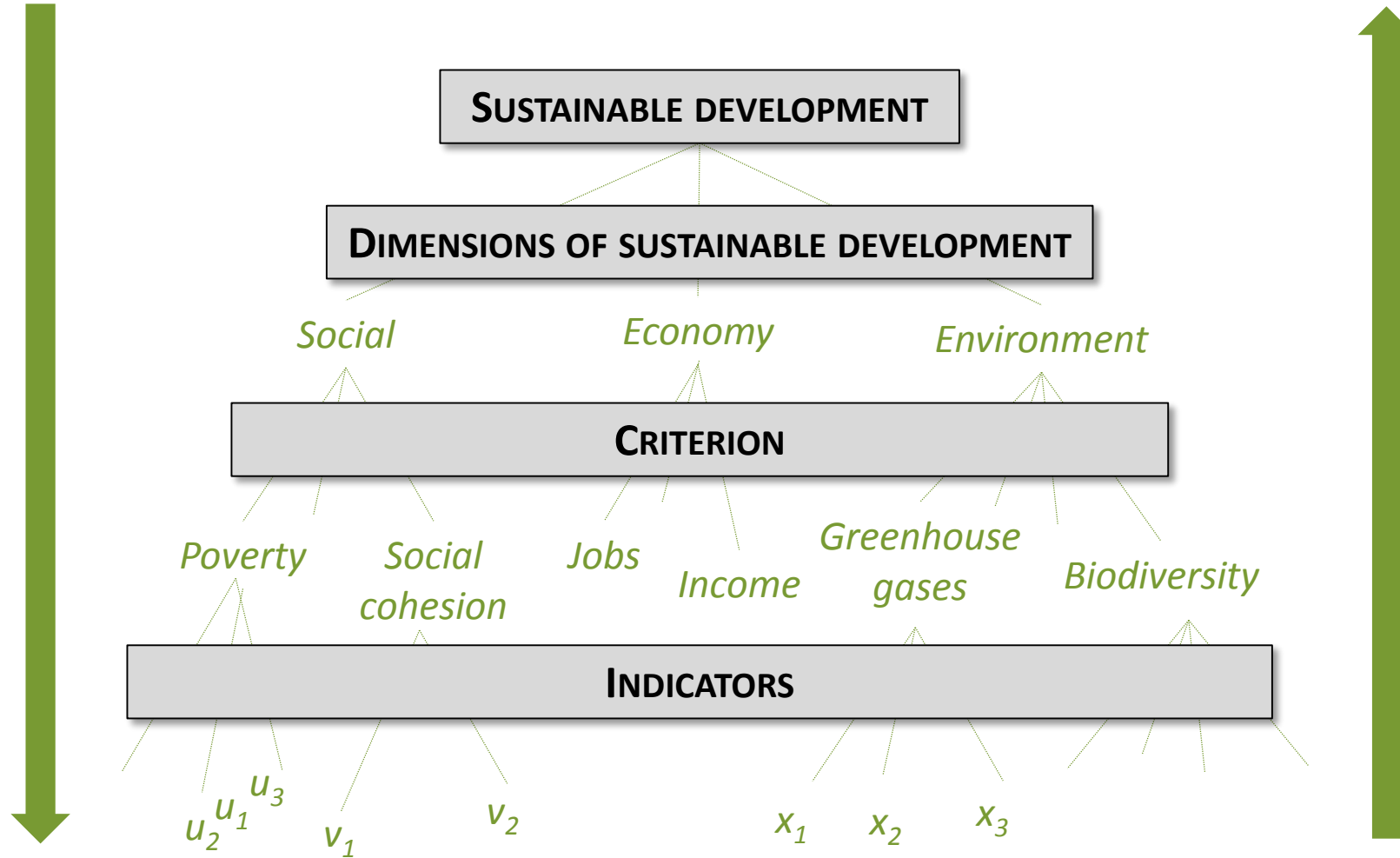**How multicriteria assessment methods can contribute to social LCA?**

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MATERIALS - PRESENTATION

Method name	Designer		Agricultural sector	Scale
Diagnostic Agri-Environnemental, Social et Economique (DAESE)	Institut de l'élevage, agro-transfert Picardie, Chambre d'agriculture Picardie	Technical institutions	Crops, dairy farming, livestock, viticulture	Farm
DEXiPM	INRA	Research	Crops	Cropping system
EVAD	Univ Montp 1, INRA, CIRAD, IRD, IFREMER	Research	Fish farming	Farm, sector, territory
IDEA	Bergerie nationale, INRA, ENSAIA, Cemagref	Research	Crops	Farm
MASC 2.0	INRA	Research	Crops	Field, cropping system
Diagnostic durabilité du Réseau Agriculture Durable	Réseau Agriculture Durable, CIVAM	Farmer organizations	Dairy farming	Farm

Review of 6 methods developed in France

MATERIALS - PRINCIPLES OF ASSESSMENT

Hierarchical articulation

SUSTAINABLE DEVELOPMENT

DIMENSIONS OF SUSTAINABLE DEVELOPMENT

Social   *Economy*   *Environment*

CRITERION

Poverty   *Social cohesion*   *Jobs*   *Income*   *Greenhouse gases*   *Biodiversity*

INDICATORS

u_3 u_1 u_2 v_1 v_2 x_1 x_2 x_3

Aggregation:
- Decision trees
- Score or rating

- **3 pillars approach of SD**
- **International frameworks or participatory approach**
- **Recognition of actors**

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RESULTS

Human	Social	Economic
- **Job creation** (nb and type): **ALL METHODS**	- **Product quality** (mycotoxin, pesticide, hygiene)	- **Efficiency / profitability / economic viability**
- **Working conditions** (painfulness, security, working hours, conflicts, stress): **ALL METHODS**	- **Landscape maintenance** (buildings, landscape structures, path)	- **Aid** dependency
		- **Autonomy** / dependence (natural & biological hazards, suppliers)
- **Education & training** (vocational education, access to information via technical reviews/journals, exchange research/farmers): **IMPORTANT**	- **Networks** (professional association, CUMA exchange of equipment, unions)	- **Commercial vulnerability**
	- Interactions with **society** (open doors, educational farm, insertion)	- **Specialization** (diversity of income)
		- **Transmission** (debt, aging equipment)
- **Parity, unions, work accidents** : **NOT TAKING INTO ACCOUNT**	→ **ALL METHODS**	- Contribution to the **local economy**
		- **Job compensation**: **NOT PREDOMINANT**

ALL METHODS (bracket grouping: Efficiency / profitability / economic viability, Aid dependency, Autonomy / dependence)

IMPORTANT (bracket grouping: Commercial vulnerability, Specialization, Transmission, Contribution to the local economy)

DISCUSSION – CONTRIBUTION TO SOCIAL LCA?

Limits	Interest

✓ Social impact assessment, nature of indicators
NO CAUSAL RELATIONSHIP, NO FORECAST

✓ Transfer of social impacts
NO FUNCTIONAL UNIT, NO COMPARISON OF SCENARIO

✓ Identification of indirect effects
NO CLEAR PERIMETER DEFINITION, NO EXTENDED PERIMETER BEYOND DIRECT SPHERE OF INFLUENCE

✓ Diversity of assessed indicators
SOURCE OF INFORMATION?

✓ Effect assessment
INVENTORY DATA?

✓ Affected actors/stakeholders
FUTURE CAUSAL RELATIONSHIPS TO EXPLORE?

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CONCLUSION

✓ No compatibility as such

✓ Identification of what is important in French agricultural systems from a human, social and economic point of view

✓ For the moment, a potential alternative given the social LCA development

THANK YOU FOR YOUR ATTENTION

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