Collaborative elaboration of a sustainability assessment method for small ruminant farming systems in the Mediterranean area.

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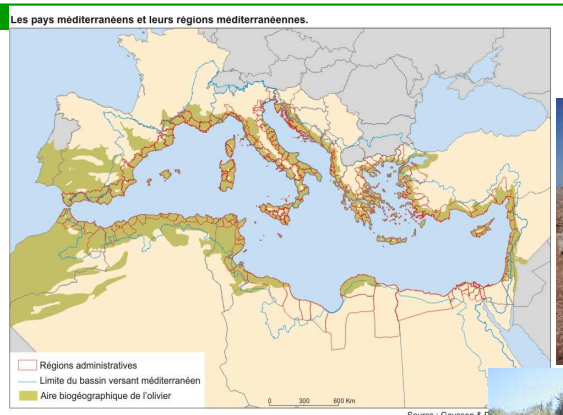
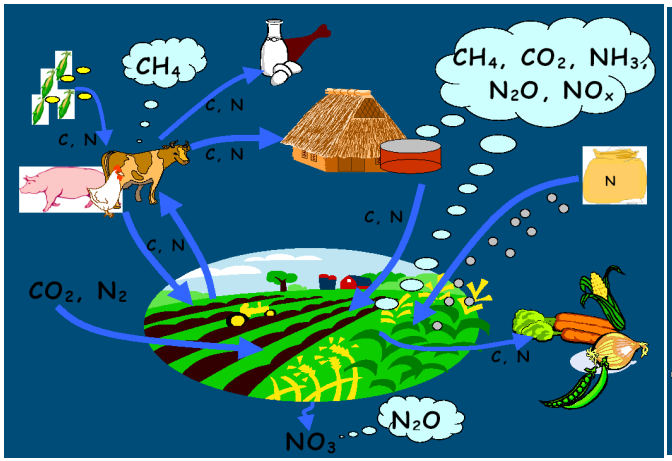
Specific aspects in the Mediterranean context

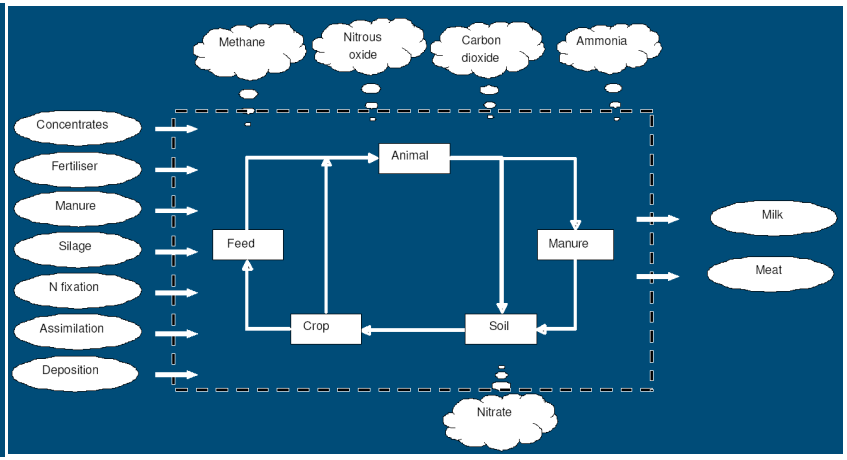
- Geopolitical diversity
- Climatic diversity
  - arid / semi-arid
- Farming systems diversity
  - extensive / intensive
  - pastoral / sylvo-pastoral / agro-pastoral
  - stationary / transhumant / nomadic
- Dependency on vegetal resources
  - scarcity, seasonality, stocking rate
- Dependency on importations
- Diversity of norms, references



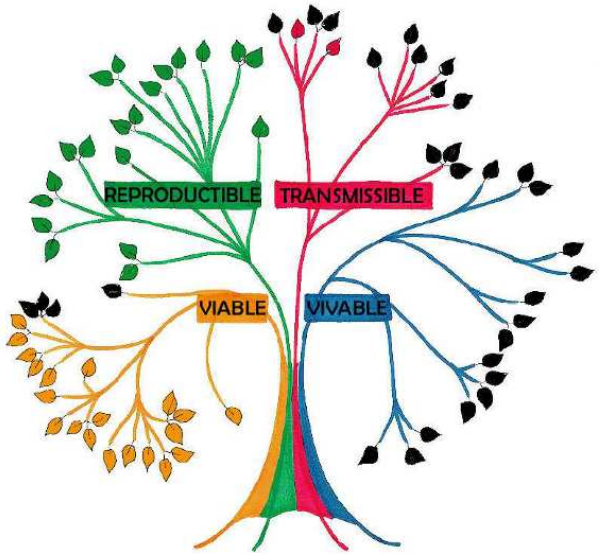
Methods for sustainability assessment at farm level

- Modelling





- Discursive approach (“Arbre”)



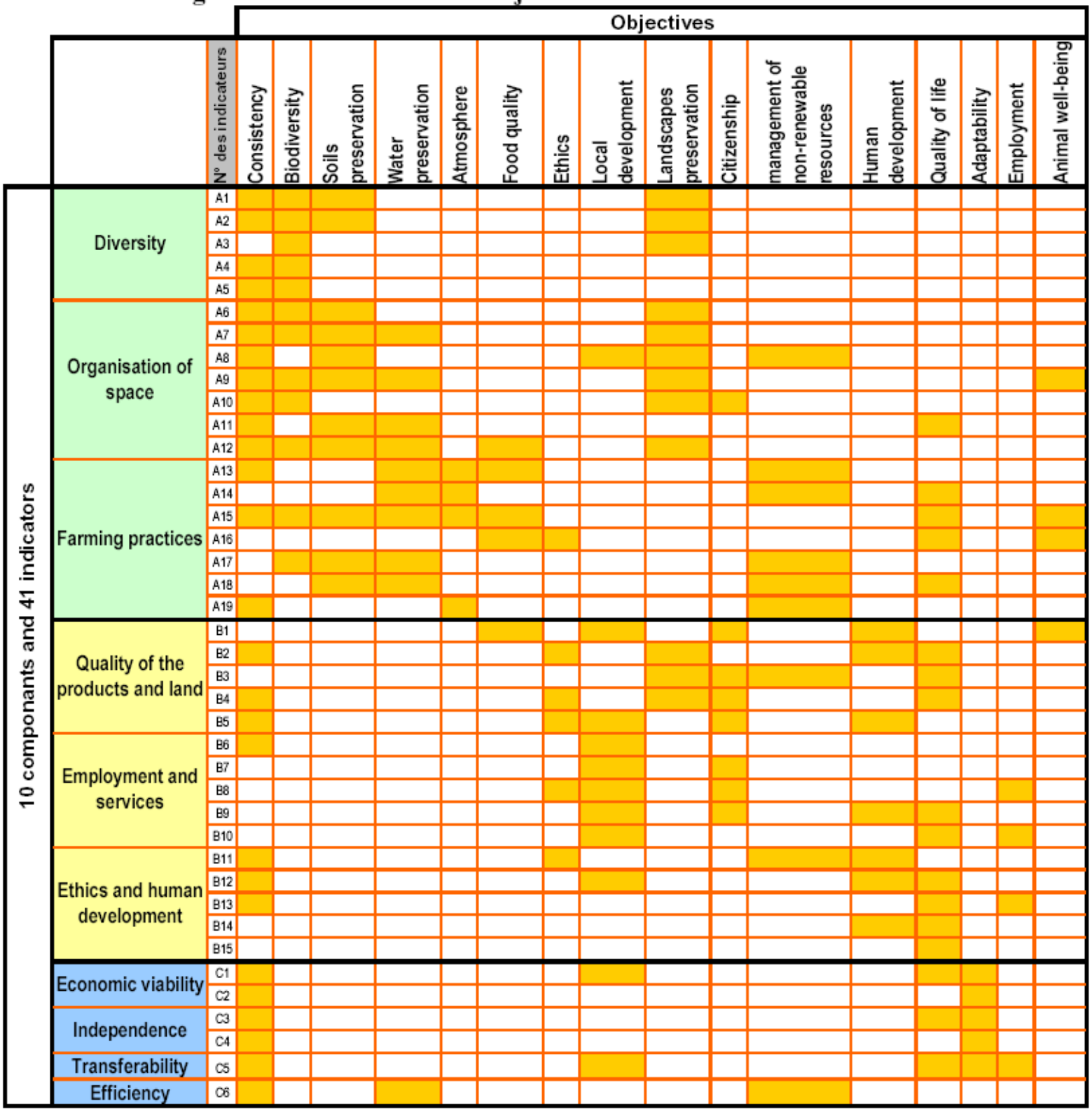
- Indicators (quantify and simplify phenomena and helps understanding complex realities)

Some indicators-based methods

	Méthode	Parcelle	Exploitation	Modélisation	Semi quantitative	Qualitative
environment	ACVA		+	+		
	EMA	+		+		
	EOGE		+	+		
	Diage		+	+		
	Ecobilan		+	+		
	PAEXA		+	+		
	Indigo	+		+		
	KUL		+	+		
	IDA		+		+	
	Dialecte		+		+	
	Dialogue	+	+		+	
	Ecopoints	+	+		+	
environment economy	ASA		+	+		
	Reitmayr			+		
	REPRO		+	+		
	DCE		+		+	
environment social economy	VDO		+	+		
	IDEA		+		+	
	RISE		+		+	
	ARBRE		+			+

Sustainability assessment by the IDEA method

- 16 Objectives,41 indicators
  - Consistency
  - Adaptability
  - Biodiversity
  - Non-renewable resources
  - Soils preservation
  - Water management
  - Atmosphere preservation
  - Landscape preservation
  - Product quality
  - Quality of life
  - Ethics
  - Local development
  - Citizenship
  - Human development
  - Employment
  - Animal welfare


Objectives
N° des indicateurs
Consistency
Biodiversity
Soils preservation
Water preservation
Atmosphere
Food quality
Ethics
Local development
Landscapes preservation
Citizenship
management of non-renewable resources
Human development
Quality of life
Adaptability
Employment
Animal well-being
10 componants and 41 indicators
Diversity
A1
A2
A3
A4
A5
Organisation of space
A6
A7
A8
A9
A10
A11
A12
Farming practices
A13
A14
A15
A16
A17
A18
A19
Quality of the products and land
B1
B2
B3
B4
B5
Employment and services
B6
B7
B8
B9
B10
Ethics and human development
B11
B12
B13
B14
B15
Economic viability
C1
C2
Independence
C3
C4
Transferability
C5
Efficiency
C6

Adaptations of the original method for Lebanese small ruminants (Srour 2006, Srour et al., 2008)

- Indicators computing modalities modified
- Scales adapted
  - actual distribution
  - goals
- Weighting adapted to local specificities
- Particular need for references:
  - Stocking density
  - Fertilisation / Nitrogen balance
  - Economical transmissibility

Assessment of small ruminant systems in Spain (Nahed et al., 2006)

- 5 general attributes, 44 indicators
  - Productivity (8 indicators)
  - Stability (17 indicators)
  - Adaptability (6 indicators)
  - Equity (4 indicators)
  - Self-management (9 indicators)

Need for a specific approach

- Focus research on sustainability indicators pertinent in semi-arid/arid conditions
- Weighting of indicators as a function of the importance of a factor in the specific situation
- Set up a common assessment tool (for inter-systems or inter-national comparisons)

Working method : Delphi method

- Delphi method : iterative participatory process to develop consensus between experts
  - successive questionnaires
  - anonymity and statistical treatment of responses
  - feedback, refinement, review of assumptions
  - identify items, weight them
- Used:
  - indicators of aquaculture sustainability (LSU 1998)
  - indicators of sustainability of continental aquaculture food chain (Madec 2003)
  - indicators of sustainability of dairy dutch farms (van Calker 2005)
  - ethical questions, …

Partnership

- 8 Mediterranean countries (open)
  - France, Spain, Portugal, Morocco, Algeria, Tunisia, Egypt, Lebanon
- 1 coordinator
- 1 contact person by country (management group)
- 5-7 experts by country
  - research, development, administration
  - animal and plant production, pastoralism, soil, water management, economy, sociology

Successive questionnaires

- Objectives associated to sustainability
  - initial proposition, other propositions, first rating
  - feed-back, rating
- Indicators linked to the three dimensions of sustainability and objectives
  - call for proposals
  - rating, selection
- References for the indicators

Candidate objectives

Consistency	
Autonomy	Independence
Adaptability	Adaptability
	Stability, resilience
Biodiversity	
Non-renewable resources	
Soils preservation	
Water management	
Atmosphere preservation	
Landscape preservation	
Product quality	
Quality of life	
Ethics	Equitability
Local development	
Citizenship	
Human development	
Employment	
Animal welfare	
	Productivity
Vilain 2003-2008	Nahed 2006

Steps

- Set of indicators adapted to small ruminant farming systems and Mediterranean references
- Presentation to the FAO-CIHEAM S.R. Network
- Test on the field and confrontation with farmers experience (co-conception)
- Work in progress