

# **Perceptions and Mental Models of Local People about Livestock**



## **The MOUVE Project & LIFLOD network**

Several Funding Agencies  
ANR, CAAS, CONICET,  
CAPES, NSF, ... + institutions



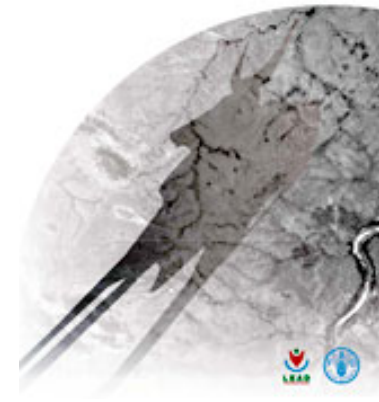
# Content

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  - Main critics regarding environmental impact of livestock and responses
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  - Research design, Data collection in MOUVE project & LIFLOD network
- First results
  - Differences and similarities between sites, and the groups of local people
- Discussion & Conclusion
  
- *The concept of Mental Models*

Ford & Sterman, 2009; Jones *et al.*, 2011; Biggs *et al.* 2011; Du Toit *et al.*, 2011; Stone-Jovicich *et al.* 2011; Lynam *et al.*, 2012; Cheong *et al.*, 2012; Diniz *et al.*, 2013;

# Context : strong critics about environmental impacts of animal production (1)

- “*Livestock’s Long Shadow*” LLS (FAO/Steinfeld *et al.*, 2006)
  - Global impact: involve all AP systems and in all regions
  - Big shock in all the sector, from local to global scale
- Before LLS, livestock was an environmental issue
  - 80s: Factor of the desertification (Africa, Eastern Asia, ...)
  - 90s: Motor of the deforestation in the Amazon
- Livestock was also a social issue
  - 60-70s: “The rich rancher and the poor peasant”
  - Conflicts regarding the landownership: Latifundia and small holders
- Livestock in Food Safety/Public health ... during the last decades
  - Intoxications (dioxin, melanin, ...)
  - Diseases: BSE, Avian flu, ...
  - Other scandals such as more recently the horse meat, ...



**LLS is a new step about the global impact of livestock!**

# Context: “Response” of animal production sector (2)

- **FAO:** LLS is too “strong” => *Livestock in a Changing Landscapes*  
(FAO/Steinfeld *et al.*, 2010 & Gerber *et al.*, 2010)  
=> **GAA** (*Global Agenda of Action for Sustainable Livestock Sector Development*)
- **Agribusiness companies**
  - Sensitivity and commitment depend on the countries
  - Main risk is an impact on the consumer demand in animal products
  - Different strategies to reduce this impact: traceability, food quality, ...
- **Engagement of scientific community:** develop researches in order to
  - Better understand the processes of environmental impacts
  - Identify alternatives
  - Demonstrate the positive aspects of animal production
- **At local scale:**
  - At first
    - Surprised due to the positive link “Livestock –Nature” in the society
    - Other human activities (rural, industrial) are stronger environmental impacts
    - For many farmers, leaders of associations, technicians and local stakeholders:  
LLS is a strategy of environmental lobbies (and urban people) against livestock
  - In a second time: significant environmental impacts and need alternatives

**MOUVE & LIFLOD: better understand these perceptions at local scale**



# Research Questions and Hypothesis

- **Research questions:** what are the mental models of local people about livestock? What are their hopes and fears? What are their representations of the past, the current situation and the future of livestock? What do they think about the interactions between livestock, society and environment?
- **Hypothesis:** the mental models of local people depend on the local contexts. However, there are similarities between mental models in contrasted contexts, similarities related to (i) the specific functions of livestock at farm and local level and (ii) some global drivers

# Materials & Methods

- LIFLOD Network – *Livestock Farming Systems & Local Development*

Brings together groups from different countries to contribute to **the debate on the future of livestock**, focusing particularly on the interactions between **livestock farming and local development**. Its role in the nutrition of the human population projected to increase till 2050.

Believes that livestock farming enhances the integration and interaction of the economic, social and environmental dimensions of **sustainable development at the local level**.

Aims to generate knowledge, analytical and evaluation frameworks, models and useful indicators to better understand and manage the interactions between livestock farming

Created in 2008 (IRC, Hohhot, China) ... until 2011 (IRC, Rosario, Argentina)

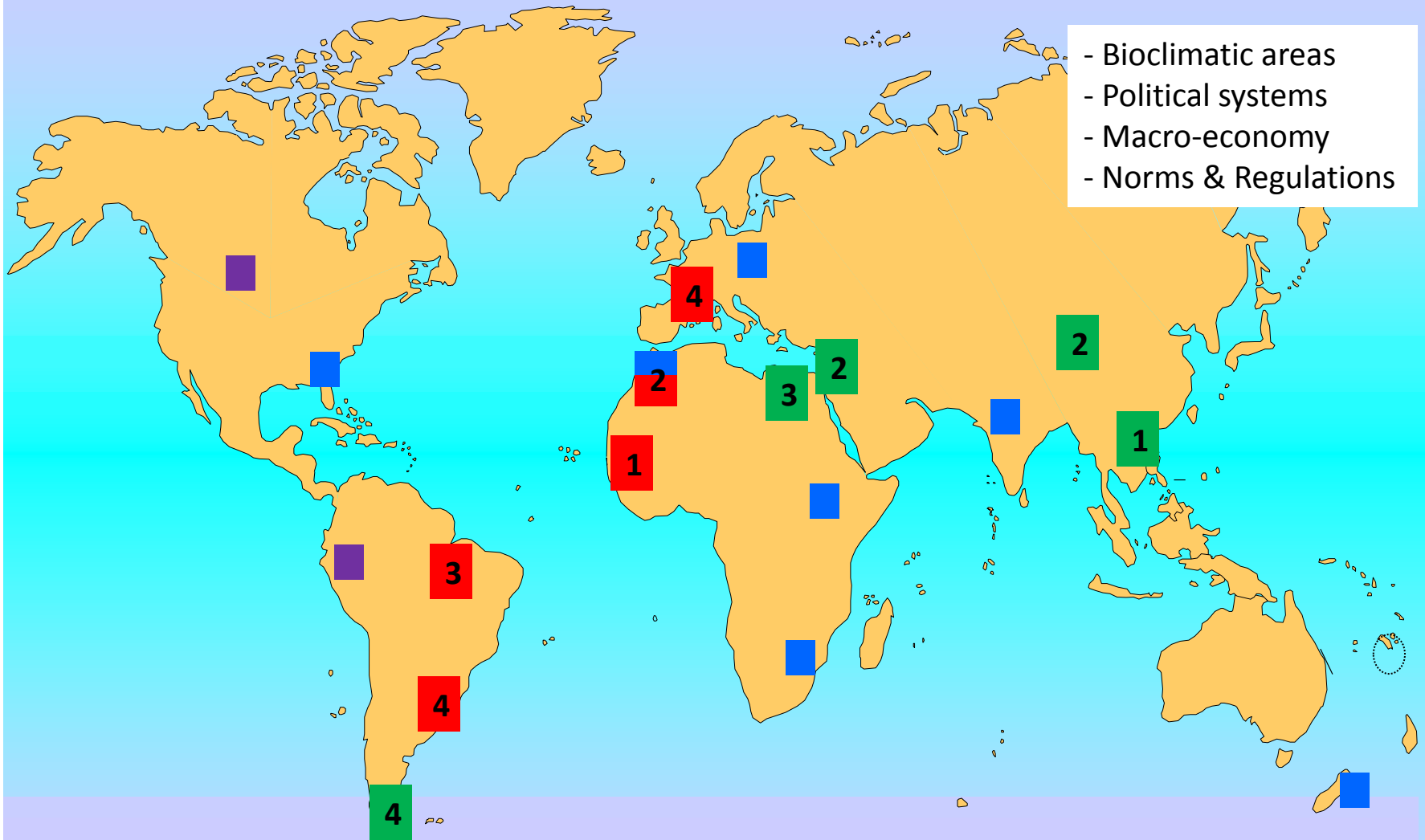
Based on # 15-20 research sites (1, 2, 3 or 4 case studies per research site)

2013: Research in # 10 research sites, # 25 case studies => 500 interviews

# MOUVE & LIFLOD Research Sites (and case studies)

## Contrasted contexts

- Bioclimatic areas
- Political systems
- Macro-economy
- Norms & Regulations



■ MOUVE 2011

■ LIFLOD 2012/13

■ LIFLOD to be developed in 2013/14



Nile Delta, Egypt



North Uruguay



Grassland or cultivated pastures

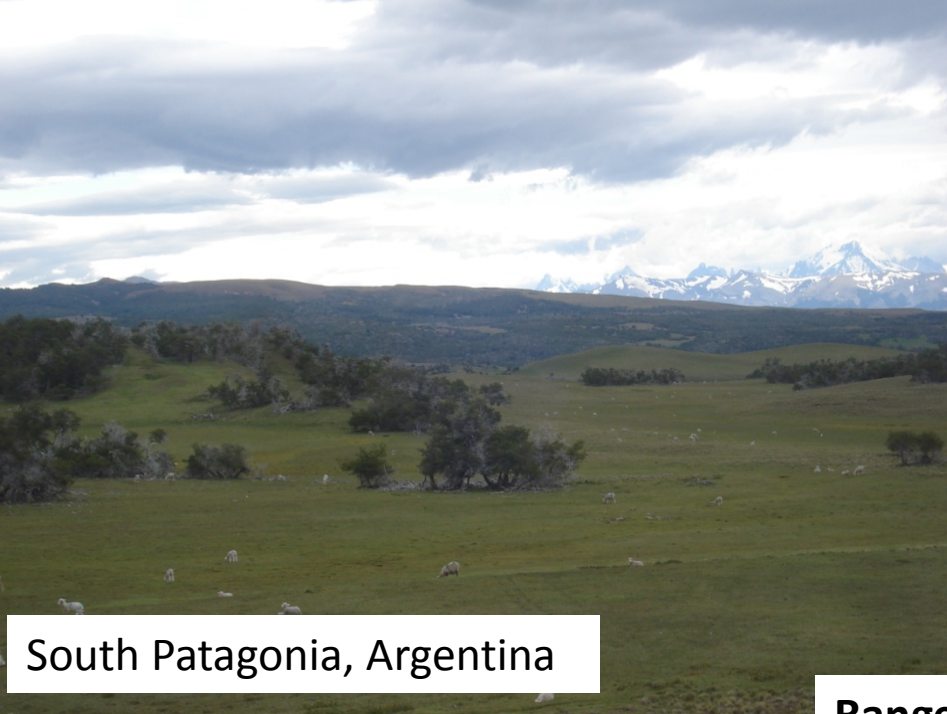


Massif Central, France



Eastern Amazon, Brazil





South Patagonia, Argentina



NWCZ / Bedouin Area, Egypt

**Rangeland**



Ferlo, North Senegal



Qilian Mountain, China





North Vietnam)



Silk Road, China

**Crop-livestock Farming Systems**



Gharb plain, Morocco (irrigation)



Urban dairy farm  
El Cairo, Egypt



Wool production, Uruguay



2 10:36 AM

North Island, New Zealand



**Intensive Farming Systems**

Turkey production, Egypt



Cerrado, Brazil



6 11:55 AM

# Materials & Methods

- Research sites of LIFLOD Network
  - 1, 2, 3 or 4 case studies per research site
- Focus groups (in each case study)
  - Breeders (different types), leaders and representatives, traders, development agencies, consultants, agribusiness, policymakers, stakeholders, banks and financial agencies, environmental associations, managers of parks and reserves, ...
- Interactive interviews (15-30 per case study)

Interdisciplinary team, 1:30 – 2:00, guideline with specific questions including scenarios in order to define the perceptions/representations about:

  - Diverse functions of livestock at farm and local scale
  - Past, current situation and future of livestock in the zone
  - => Main factors of change
  - Hopes and fears
  - Topics of conflicts and debates
  - What about interaction Livestock – Environment and ecological intensification





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- Reports = data base (#500 reports)
- Data analysis:
  - by local team at site/local scale (methods and publications)
  - Comparative analysis: (in progress ...) Two grids: 1. History, 2. Main topics
  - Scales of analysis: case study/local, research site, national, regional, global



# Results (1): Livestock = a great diversity of functions

- Livelihood of farmer family
  - **Food security** (Sn, Eg, Cn, Vt, ...) / **Income** (all the research sites)
  - **Savings** (all the research sites) / Guarantees
- Land use / Farming system:
  - Valorize farm resources (grassland, rangeland and byproducts of crops)
  - Crop-livestock integration, manure/fertilizers, transport and tillage



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  - Crop-livestock integration, manure/fertilizers, transport and tillage
- Local development: land use, activities and employment
  - Animal production and trading activities (inputs and products)
  - Agro food industries, slaughterhouse, dairy factory, tanneries, ...
  - Public & private development/extension agencies, advisors, consultants, ...
- Socio-environment
  - Society, Culture and Tradition
  - Add-value to natural resources, landscape & tourism, human wellbeing,
- National policy
  - Settlement and national security (Br, Ar, Eg, Cn, ...)
  - Exportation: inflow of foreign currencies in national or regional budget
- ...

# **Result (2): MM depend on the evolution of livestock roles at farm and local scale**

- Livestock is the only rural activity in the country side
  - Qilian mountains in China, South Patagonia in Argentina and Chile
- Main activity, but new competition for rural land, labor and K
  - Brazilian Amazon: competition with commodities + environmental impacts
  - Bedouin area in Egypt, competition with tourism and irrigated agriculture
- Major activity but strong competition for land, labor and K
  - Pampa in Uruguay: competition for land and labor (soy bean and bio-fuels)
  - South France: competition for land and labor (urbanization)
  - Nile delta in Egypt: competition for land (urbanization)
- Major activity in the past, but not nowadays due to other activities (urbanization, tourism, cash crops, fruits, ...)
  - Mountain areas in France
  - South Morocco
- New activity with potential for the future
  - North Vietnam: especially dairy production supported by incentive policies



# Results (3): Four main patterns (stereotypes) of mental models of local people about livestock

- *“Mental model” = a shared representation of livestock at local scale*
  - Collective construction based on the medium or long term period
  - Complex and dynamic set of several points of view about livestock

## Four main patterns / stereotypes of MM

- Basis of the **Livelihood** of farmer families
  - Main functions: food security, income, savings ....
- **Major activity** at farm and local scale
  - Main functions: income, food products, employment, add-value, ...
- **Environmental Impacts** have to be reduced and controlled
  - Main functions: environmental impacts (GGE, water & soil pollution, biodiversity)
- Key-element of **Local Development**
  - Main functions: key-factor of the socio-ecosystem; to be better integrated through adapted policies
- ... may be other patterns: landscape, place of livestock in the society

# Results (4): Cross cutting or transversal topics

- Increasing weight of environmental issues
  - 25-30 years ago: food security, national policies, volatility of the prices, ...
  - Nowadays, environment issue = a major topic of debates and discourses
- Omnipresence of public policies in animal production sector
  - Developed countries and now emerging and pre-emerging countries
  - Complex set of policies involving diverse and complementary mechanisms
- Globalization of the economy
  - Prices, products, technologies, consulting, companies, but also land, K ...
  - Local /national effects related to local/national policies
- Global Market / Commodities - Niche Market / Local Products
  - Mountain in France, Qilian Mountains in China, South Patagonia in Argentina, ...
- Demand of young people
  - Urban living conditions, NTICs, ...
  - Interest for new forms of agriculture and livestock farming systems

# Discussion ... just the beginning of the changes

- Efficiency of LFS: environmental, economical and social, ...
  - Delgado *et al.*, 2002, Veiga *et al.*, 2004, Duteurtre & Faye, 2009, Gerber *et al.*, 2010
  - Complex sets of functions: livelihood, society, environment, local development, ....
  - Some significant changes over time and between scales: Amazon in the 70s
  - => Need to take account these sets in policymaking from local to global level
- Vulnerability of LFS due to the low interest of young people
  - Low attractiveness of animal production due to the working and living conditions, and compared to other activities in all the research sites
  - => Kids of farmers want other jobs, ... and many times their parents too
  - ⇒ Thinking new LFS according to this demand (ex. Qilian Mountains, Pampa, ...)
- Vulnerability due to the high price of the land
  - Very high investment, especially for young people whose the parents are not farmers
  - Low return (linked to the increasing price of the land): ex. Division of heritage between the heirs weakens the farm (ex. Uruguay)
- Change in the conditions of the livestock workers
  - Labor management = the main challenge nowadays and in the future
  - Very large-scale farms to finance workers or new collective livestock farming systems

# Some concluding remarks

- Livestock is not only to produce kg of meat, liters of milk, eggs, ...
  - ⇒ Need to take account that in: policymaking from local to global level
  - ⇒ Better define the efficiency concept, including social issues
- Significant changes in the mental models
  - Especially with young people at local scale
  - May be more significant changes in the future and emerging countries
  - ⇒ Develop scenarios built through participative methods and young people
- Vulnerability of LFS
  - Land, labor, Investment return
  - ... Imagine new sustainable LFS

**Thank you, Merci, Obrigado, Gracias  
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