



THE STATE OF FOOD AND AGRICULTURE 2009

Livestock in the balance

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Livestock Biodiversity Workshop
5th May - Rome



Overview

- Background, trends and drivers
- Livestock impact and contribution to public goods, namely:
 - Livelihoods and food security
 - Natural resources and the environment
 - Animal diseases and human well-being
- Balancing differing objectives of the livestock sector
- Conclusions
- Follow-up



Importance of the sector

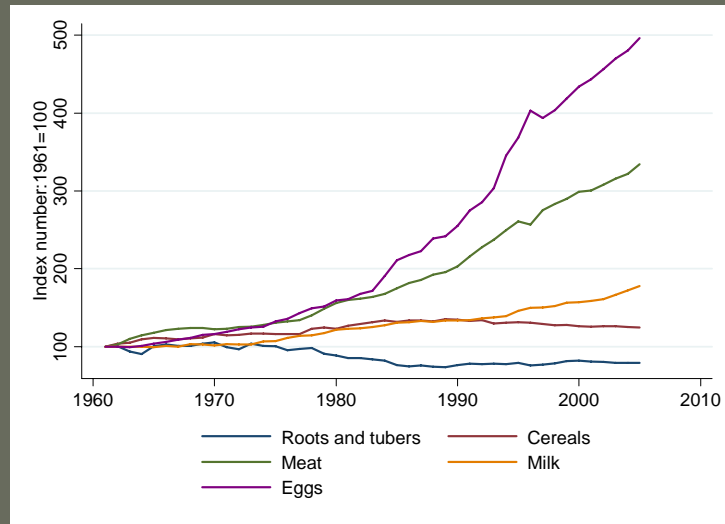
- Large, growing, dynamic sector
- Governance gap puts public goods at risk
 - Livelihoods and food security
 - Natural resources and the environment
 - Animal diseases and human well-being



Growth and structural change

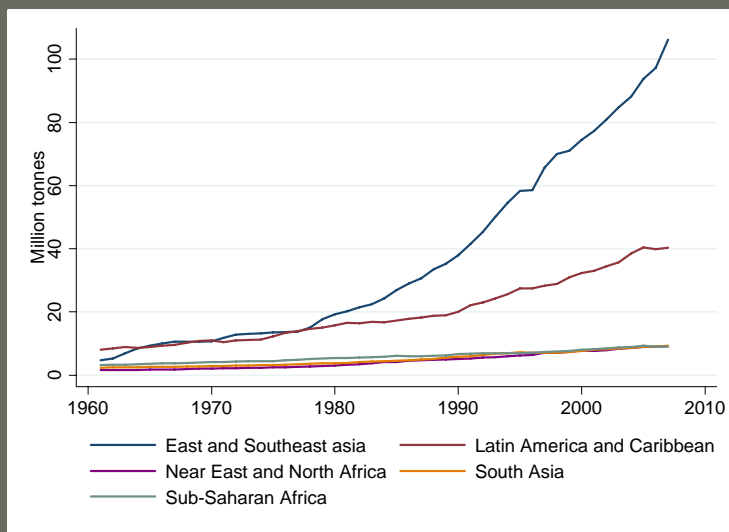
- Consumption, production and trade trends, drivers and outlook
- Diversity and transformation of the sector
- Challenges for continued growth

Consumption of livestock products is growing rapidly...

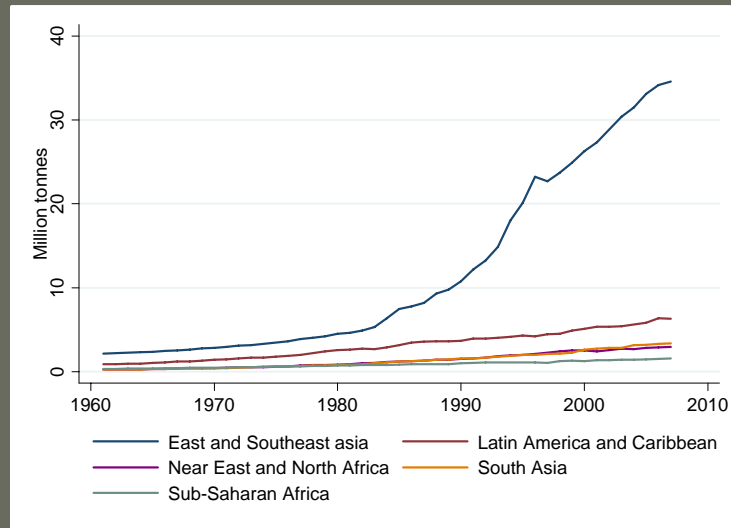


Per caput consumption of major food items in developing countries – kg per caput per year (index numbers 1961=100)

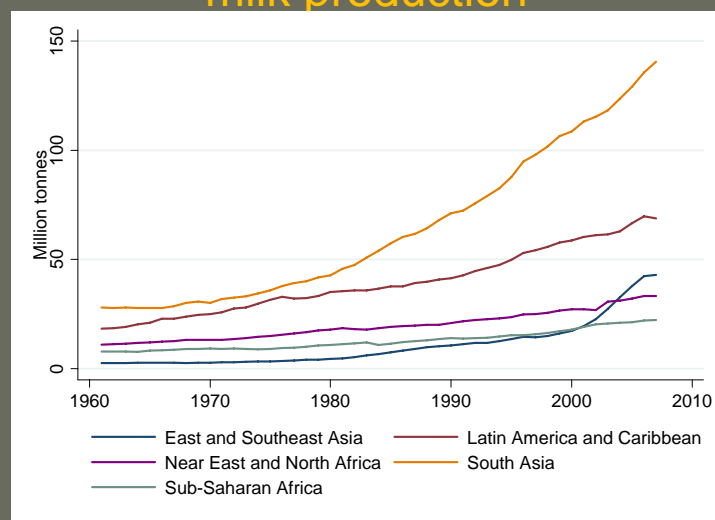
As is meat production, but with striking regional differences ...



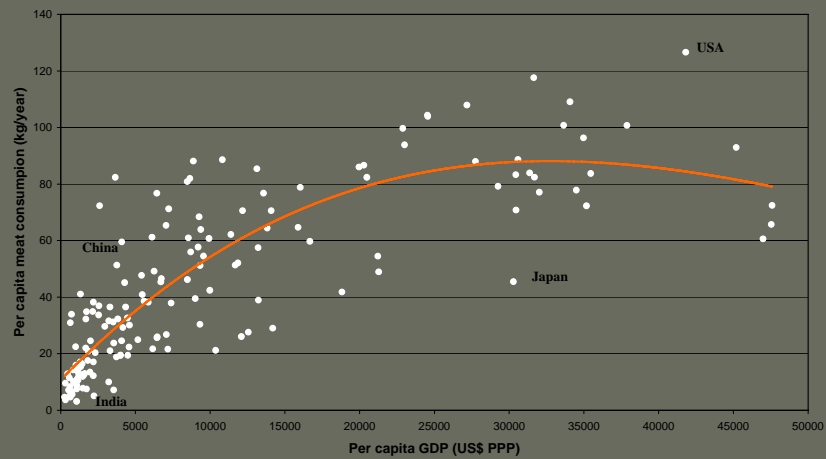
... East and Southeast Asia dominate growth in egg production



... but South Asia dominates growth in milk production



Driven by income growth, urbanization and commercialization



Per caput income and meat consumption – country observations for 2005

Structural changes in livestock production systems

- Features of structural change
 - Increasing scales
 - Geographical shifts and geographical concentration of production (consumption centres, feed sources)
 - Vertical integration and longer food chains (transaction costs, large retailers, food safety)

Challenges of growth and change

- Social implications for smallholders with limited opportunities to supply new markets
- Increasing pressures on natural resources and decoupling of production from the natural resource base
- Implications for animal and human health, as numbers and concentration of animals increase

Key messages -

- The livestock sector is growing rapidly in a number of developing countries
- Demand growth is fuelled by rising incomes and urbanization
- Potential for further growth in demand is significant
- Growing demand for livestock products and technological change have led to major changes in livestock production systems



Livelihoods and food security

- Livelihoods
 - 1 billion people keep livestock
 - 60 percent of rural households
- Food supply
 - 15 percent of dietary energy
 - 25 percent of protein supply



Livelihoods and food security

- Role of livestock in in food security and in the livelihoods of poor people
- Importance of *non-tradables*
- The potential for livestock to serve as an engine of growth, poverty reduction and long-term food security
- The conditions under which smallholders may be able to use livestock as a pathway out of poverty



Contribution of livestock to livelihoods and food security

- 70 % of the world's 1.4 billion 'extreme poor'
- Importance of *non-tradables*
- Conduit for poverty alleviation or an expression of poverty?
- Role in food security and nutrition vs. 'nutrition transition' in rapidly growing economies

Number and location of poor livestock keepers (millions)

AEZ	Production system		
	Extensive grazing	Poor rainfed mixed farming	Landless*
Arid or semi-arid	87	336	ns
Temperate	107	158	107
Humid, sub-humid and subtropical	ns	192	ns

*People in landless households, not industrial landless systems

ns=not significant

Source: Livestock in Development, 1999



Livestock and the economy

- Central role of livestock in the increase of agricultural productivity
- Agriculture drives pro-poor growth in rural areas
- Non-farm component of the rural economy is most dynamic when farming is thriving
- but..
- *LR* mainly driven by driven primarily by economic growth
- Agriculture's contribution to GDP and employment decreases in rapidly-developing economies



Livestock and poverty alleviation

- Transition from subsistence to small-scale commercial does not only open potential access to more lucrative markets, it also exposes to rising competition and change in the global marketplace
- New markets are generally supplied through new production or imports: No competition with informal systems or subsistence production
- The continuing importance of livestock to hundreds of millions of the world's poorest inhabitants —safety net that prevents a slide into abject poverty



Policies for sector transition

- In 'non-LR' zones: reduce vulnerability and help to maintain livestock production as a pillar of livelihoods and a safety net for poor households - minimize risks from zoonotic and food-borne diseases, and environmental hazards to the livestock keepers and the wider community.
- Where economies are taking off: supportive policies and institutional arrangements are needed to manage the livestock sector in its early stages of transition: building locally-specific capacity that can respond to change is particularly important



Policies for sector transition

- In rapidly developing economies: ensure public health and environmental standards are upheld, and the needs of diverse consumers, including the less well-off, are met.
- At all levels, however, tradeoffs are likely to be necessary between the interests of the diminishing number of poor livestock producers, processors and market agents, and of the increasing number of poor, largely urban, consumers
- The objective of pro-poor livestock sector development policies, should not be to maintain smallholder production systems at any cost, but to mediate sector transition, in which the role of the poor needs to be considered broadly, including as consumers, market agents and employees, as well as small-scale producers.



Policy makers need to ...

- Support smallholder productivity
- Ease sector transition
- Protect the safety-net role



Natural resources and the environment

- Largest user of land resources
- Large user of global freshwater resources
- Large contributor to GHG emissions



Livestock production systems and ecosystems

- Land
 - 26% of emerged land used as pasture/rangeland
 - 33% of crop land dedicated to feed production
- Water
 - 8% of water use mostly for feed
 - alters the status of the resource (quality and quantity)
- Biodiversity
 - wildlife: follow on effects of habitat degradation and destruction
 - narrowing agricultural biodiversity
- Climate
 - 18% of anthropogenic emissions when taking a food chain approach
 - main causes: deforestation, manure management and enteric fermentation



Livestock, natural resources and the environment

- Ecosystems and livestock production systems
- Livestock and climate change
 - Contribution
 - Adaptation
 - Mitigation

GHG emissions from livestock: a food chain approach

STEP IN FOOD CHAIN	ESTIMATED EMISSIONS		ESTIMATED CONTRIBUTION BY SPECIES			
	(giga-tonnes)	(percent of sector)	Cattle	Pigs	Poultry	Small rum'ts
LULUC	2.50	36	***	*	*	ns
Feed production	0.40	7	*	**	**	ns
Animal production	1.90	25	****	*	*	**
Manure mgmt	2.20	31	**	***	ns	ns
Processing and transport	0.03	1	*	*	***	ns

Impact of CC on livestock

	GRAZING SYSTEMS	NON-GRAZING SYSTEMS
DIRECT IMPACTS	<ul style="list-style-type: none"> • Extreme weather events • Drought and floods • Productivity losses • Change in water availability 	<ul style="list-style-type: none"> • Change in water availability • Extreme weather events
INDIRECT IMPACTS	<ul style="list-style-type: none"> • Agro-ecological changes <ul style="list-style-type: none"> – Fodder quality and quantity – Host-pathogen interactions – Disease epidemics 	<ul style="list-style-type: none"> • Increased resource prices, e.g. feed, water and energy • Disease epidemics • Increased cost of animal housing

Environmental consequences of structural changes in the livestock sector

Structural Change	Environmental implications
Improved productivity, feed conversion efficiency through the adoption of new technologies	+ (efficiency of natural resource use) - (agricultural biodiversity, health risks)
Larger production units	- (natural resource and waste management)
Geographical concentration	-- (waste management)
Rangeland abandonment	-/+ biodiversity
Marginalization of pastoral communities	- Rangeland degradation
Dependence on transport - delocalization	+ (resource use efficiency) - Nutrient management (P), GHG emissions, leakage



Policy makers need to ...

- Correct market distortions
- Correct policy failures
- Clarify property rights
- Promote resource efficiency
- Pay for environmental services



Animal diseases and human well-being

- Economic and health threats
- Disease control and risk management



ANIMAL DISEASES

Economic risks

- productivity
- markets
- livelihoods

Human health

- pandemic disease
- endemic disease
- food borne illness

Human well-being



Policy makers need to ...

- Improve management of livestock
- Support a global framework and multi-disciplinary approaches (eg. One Health)
- Engage all producers
- Make large, strategic and sustained investments
- Build capacity for standard-setting
- Encourage the relocation of livestock production



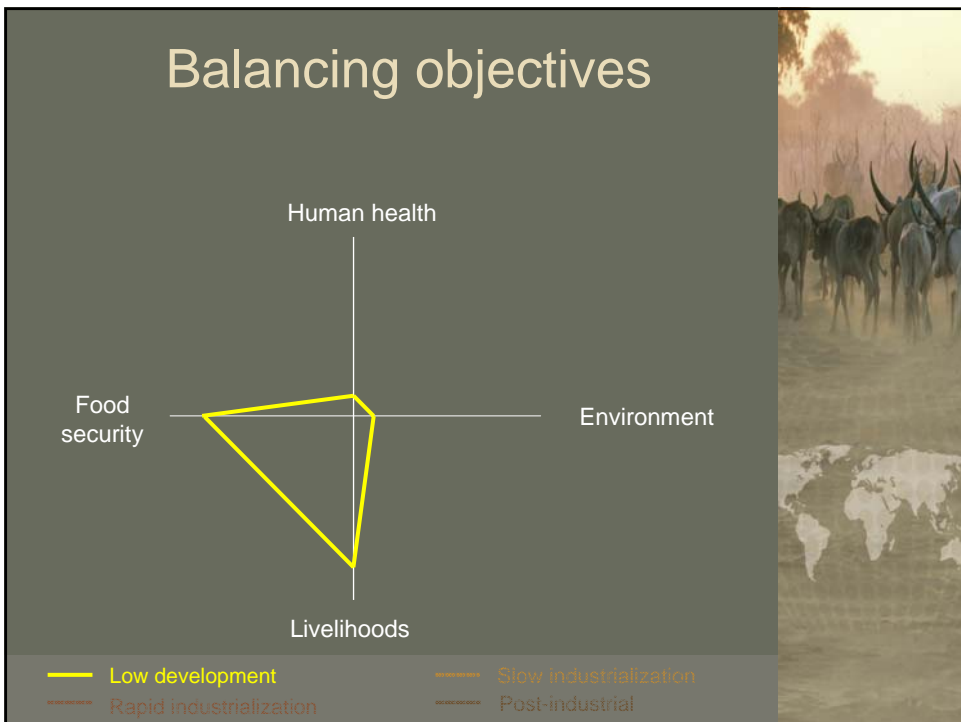
New approaches to disease risk management

- Vertical to horizontal
- Opening up:
 - Social resilience
 - Agricultural resilience

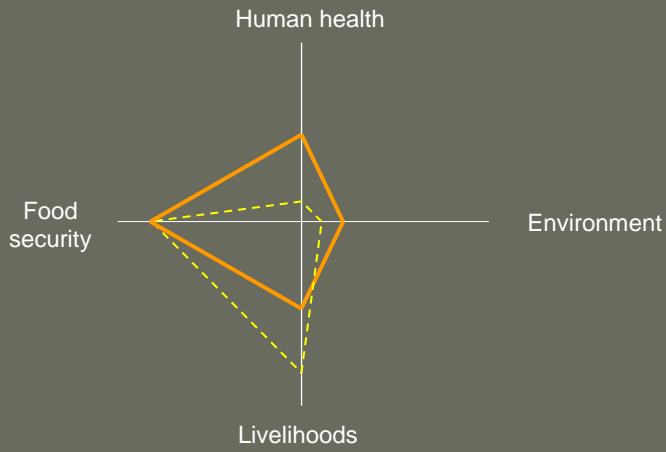


Balancing different objectives for the sector

- Livelihoods
- Food security
- Environment and natural resources
- Human health



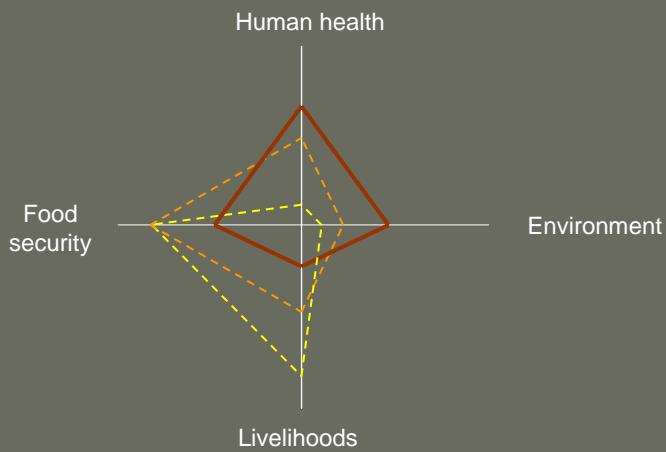
Balancing objectives



..... Low development — Slow industrialization
..... Rapid industrialization Post-industrial



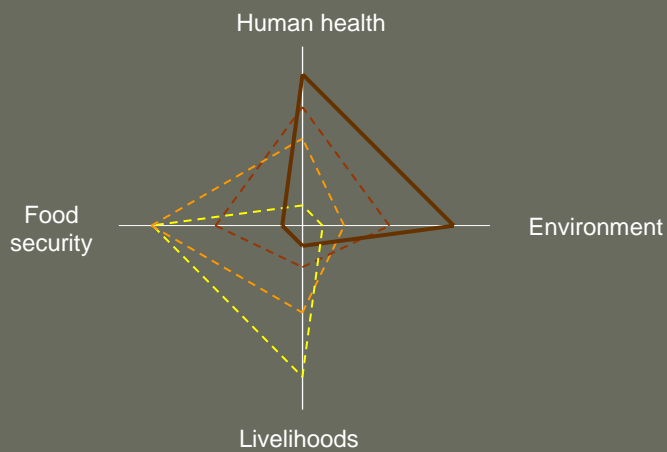
Balancing objectives



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Balancing objectives



Low development

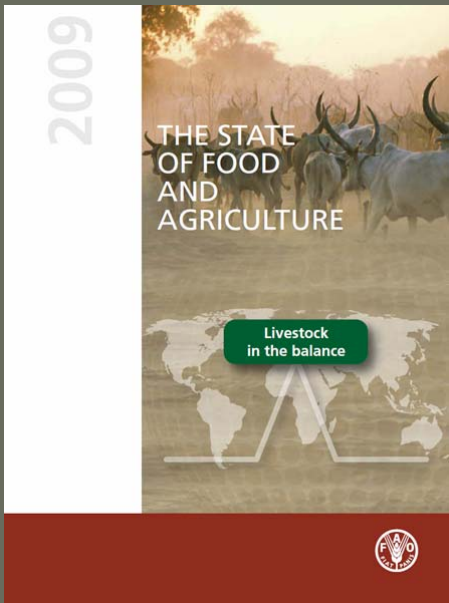
Rapid industrialization

Slow industrialization

Post-industrial

SOFA – the follow-up

- The start of a process to put livestock back on the international agenda.
- The SOFA “road show” and high level, International Conference in late 2010 in China
- COAG June 2010
 - Paper seeking guidance on the governance of the livestock sector
- www.fao.org/ag/governance-livestock.html



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