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**THE ROLE OF LIVESTOCK IN SUSTAINABLE  
AGRICULTURAL DEVELOPMENT FOR FOOD SECURITY  
AND NUTRITION: AN INTERDISCIPLINARY STUDY**

Wilfrid Legg

Contributed Paper prepared for presentation at the 90th Annual Conference of the  
Agricultural Economics Society, April 4-6 2016, Warwick University, Coventry, UK

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**AES Annual Conference 2016**

# Committee on World Food Security

- An **intergovernmental body** that reviews food security and nutrition (FSN) policies, reporting to the UN General Assembly and FAO
- CFS develops and endorses **policy recommendations** using a multi-stakeholder approach on FSN topics, starting from evidence-based reports produced by the High Level Panel of Experts supported by the FAO, IFAD and WFP and representatives of the CFS Advisory Group
- Multidisciplinary **Project Teams** appointed by the HLPE undertake the research work to prepare the reports – 9 published so far (AES members have been involved in many of the reports)

# Process

- A highly structured **consultative** process: to develop the terms of reference, guidance from the HLPE Steering Committee, regular reporting and drafts, e-consultations, peer review.....
- Draws on a **wide range of expert** research: economics, sociology, environmental and agricultural sciences, political studies, systems analysis....
- **Target audience** is policy makers, CFS, IGOs, research community and a wide range of NGOs and private sector stakeholders

# ***Sustainable Agricultural Development for Food Security and Nutrition, including the role of livestock***

- Project started in May 2015, publication in July 2016
- Summary and Recommendations “signed off” by HLPE, discussed by CFS in October 2016
- Is the most comprehensive and challenging of all the HLPE reports so far produced
- Entire report should be around 100 pages

# Approach and Methodology

- **Evidence-based**, but does not undertake original research (which evidence used?)
- Starts from projections, scenarios, and assumptions about **future demand** (needs?) for livestock sources of food (LSF)
- Explores the **supply responses** required in different livestock farm systems, contexts and countries, the challenges (and opportunities)
- **Baseline** is “business as usual”

# Main questions

- What needs to be done (and by whom) to **improve sustainability** of livestock systems to boost FSN (availability, access, utilization, stability)?
- What is the role, and **what directions** for livestock development are needed to fully contribute to sustainably supply nutritious food?
- What can be done to **improve** the way our food and agriculture systems perform economically, socially and environmentally (criteria: resource productivity, resilience, social equity and responsibility)?
- Can agricultural development **restore the already stressed natural systems** that underpin food production now and into the future?
- What role can livestock play to **underpin decent livelihoods** and sustainable development pathways?

# Key +/- roles of livestock

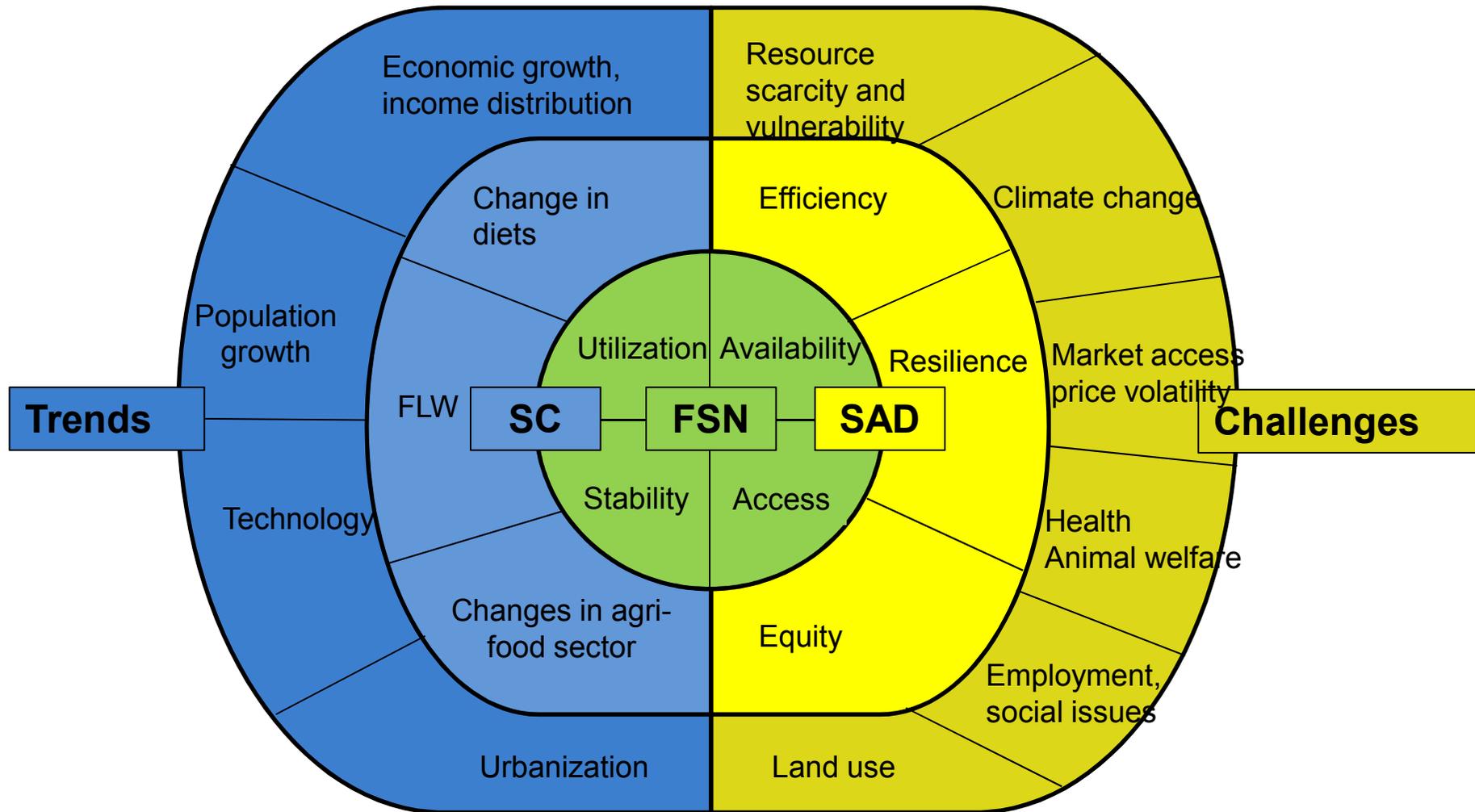
- Accounts for **40 per cent of total agricultural output** and contributing to livelihoods of 20 per cent of the world's population, 1 billion of the poorest - and large numbers of women – through food, income from sales, draft power, manure, and store of wealth
- Provides **critical nutrients** for healthy diets including from self consumption and sales through informal markets
- **Transforms feedstuffs** that are otherwise inedible to humans and occupying land that is unsuitable for crops, on much of the world's land area, and biomass production
- Generates a **heavy burden on the environment** – water and air pollution, including GHGs, and encroachment into natural landscapes – while needing to adapt to climate change
- Creates pressure for **monoculture** cropping for animal feed and deforestation, with consequences for competition for staple foods and losses of biodiversity
- Leads to risks to **animal health** and well being (and zoonoses) , exacerbated in some situations by poorly managed confined intensive systems
- Drives demand for **feed grain** for intensive systems with environmental consequences
- Excessive **consumption** by some people creating a sharp rise in non-communicable human health problems mainly in rich countries but increasingly in emerging and poorer economies

# Livestock Systems

Cover c **90 % of global livestock** production

- Pastoralist
- Smallholder mixed crop-livestock
- Intensive
- Commercial grazing

# Pathways for sustainable agriculture development for food security and nutrition



**FLW:** Food losses and waste  
**FSN:** Food Security and nutrition  
**SAD:** Sustainable Agriculture Development  
**SC:** Sustainable consumption

# Stresses

**Food and agriculture systems globally are under serious stress with concerns about:**

- **how to produce** food to meet projected demand as population increases and incomes grow is leading to calls for more but different food
- **health of natural ecosystems** that underpin food production now and for the future as well as supporting farm systems for biodiversity
- **diet transition** triggering human health problems, as well as exacerbating ecosystem pressures and GHG emissions
- **bargaining power** between the upstream and downstream sectors in relation to farming and to consumers
- **competition for resource use** between food, feed and fuel
- **social, ethical and development issues** - marginalization of smallholders and livelihood opportunities, in particular for women; animal welfare and animal diseases; animal species; the role of biotechnology; concentrated, high external input systems, less diverse farming landscapes.

# Challenges

- Enhancing **productivity** to narrow yield gaps within specific farm systems
- Ensuring decent **livelihoods** for livestock keepers
- Adapting to **climate change** and extreme weather events, and reducing GHGs
- Adjusting to pressure on **ecosystems**, natural and genetic resources, tackling environmental externalities
- Reducing, containing animal and foodborne **diseases**
- Improving and rebalancing **diets** among and within populations

# Areas for Recommendations

- Develop national **sustainable agricultural development strategies** to improve resource efficiency, strengthen resilience, ensure social equity and responsibility.
- Develop **trade** within the framework of agreed WTO rules, together with domestic measures to address environmental, social and adaptation concerns.
- Promote **coherence** in national governments between sustainable agricultural development and health and nutrition policies.
- Prioritise **R&D** to focus on improvements in productivity, tackling environmental and social challenges, and the role of digital technologies
- Identify areas where more **data and indicators** both at the aggregate and disaggregate levels) are needed to better inform policy and actions in the future.
- Establish a **registry of research** and organizations engaged in analyzing and recommending policies and actions on improving the sustainability of livestock.
- Build **capacity**, engage with stakeholders, and disseminate research findings, highlighting successful policies and practices.
- **Specific recommendations for different livestock systems** – pastoralist, smallholder mixed crop-livestock, intensive, and commercial grazing

We thank you for your attention

