Improved livestock management systems, including agropastoral production systems and others

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The challenge we are facing

The livestock sector today

• Contributions: 18% of dietary energy and 33% of proteins, 40% of agricultural GDP, livelihood of 1 billion poor.

• Externalities: 14.5% of anthropogenic GHG emissions, 33% of reactive N emissions, 33% of arable land dedicated to feed production.

The challenge ahead

• Increase in population and income driving a growth in demand for animal products, e.g. +215% for in Sub-Saharan Africa by 2050.

• Environmental impacts will increase proportionally if no change in production systems.

• Rangeland and feed productivity negatively affected by climate change in most regions, with severe consequence for 200-500 million pastoralists who are among the most vulnerable.

• Extreme weather events and emerging diseases affect productivity and human health.
Moving towards sustainable livestock

- **Building a more resilient livestock sector**
  - Capacity to absorb the impact of an adverse event (e.g. index insurance, savings and other financial tools);
  - capacity to adapt in response to risk (e.g. improved forecasting, R&D, human capital, investment, networks); and
  - capacity to transform and minimize risk (e.g. facilitate more fundamental changes and development by strengthening stakeholder engagement in long-term planning).

- **Three entry points for GHG emission reduction in the livestock sector**
  - Increased productivity and decreased GHG emission intensity through improved livestock management practices (e.g. feed management, genetics and animal health improvements, animal health, offtake and fattening strategies);
  - increased soil carbon sequestration through improved grazing management practices (e.g. adaptative grazing; restoration of degraded lands); and
  - adoption of energy-efficient equipment (e.g. cooling) and production of renewable energy (e.g. solar and wind) to reduce and displace fossil fuel energy consumption.

- Three out of six elements of the Koronivia decision are directly related to livestock (improved soil carbon in grassland, manure management and livestock management systems) and low carbon livestock could generate multiple SDG synergies.

- The principles are known but putting livestock on a resilient and low carbon path requires knowledge, investments, adequate institutional and policy environment.
Investments in the livestock sector

Investment in the sector continues to be strong... and such is the demand for World Bank Group financial support (World Bank and IFC).

**Challenge:** how to accompany and shape growth to improve sustainability and resilience, and in particular control GHG emissions?
Operational commitments underpinning CSA mainstreaming: setting goals and measuring progress

We require all projects to complete five Climate Change related processes:

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
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<tbody>
<tr>
<td>Climate &amp; Disaster Risk Screening</td>
<td>Identify projects’ exposure to climate and disaster risks</td>
</tr>
<tr>
<td>GHG Accounting</td>
<td>Ex-Ante determination of gross and net GHG emissions using the Ex-Act tool and other tools developed by FAO</td>
</tr>
<tr>
<td>Shadow Price of Carbon</td>
<td>Accounting for carbon externalities in economic and financial analysis</td>
</tr>
<tr>
<td>Climate Finance Tracking (Co-Benefits)</td>
<td>Determine projects’ share of climate finance by identifying adaptation and mitigation Co-Benefits</td>
</tr>
<tr>
<td>Climate Indicators</td>
<td>Monitor and track the progress of climate results; measuring outputs or outcomes of mitigation and/or adaptation interventions</td>
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**World Bank 2025 Climate Change Commitments:** Additional tools and approaches being developed
Livestock portfolio at the World Bank

- IBRD + IDA: ca. 700 million USD of yearly financing directed to livestock sector.
- Some large stand-alone operations but the bulk of investment is integrated in Agriculture and/or Community Driven Development projects.
- The average climate co-benefits generated by the livestock portfolio in the last 2 and a half years is 61%, with 22% for adaptation and 39% for mitigation.
  - Higher than for the Agriculture portfolio (57%)
  - An improvement over the average for the three previous fiscal years (55%)
- Drawing on a variety of instruments: Investment Operations, Programs for Results, Analytical Services.
Where investing in adaptation and mitigation makes economic sense

Five main livestock operations approved during the last 3 fiscal years (including current)

<table>
<thead>
<tr>
<th>Country</th>
<th>Project development objective</th>
<th>Project financing (USD million)</th>
<th>Financial Internal Rate of Return</th>
<th>Economic Internal Rate of Return</th>
<th>Climate Co-Benefits (A-M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>Improve productivity, market access, and resilience of small-holder farmers and agro-entrepreneurs operating in selected livestock value chains in target areas.</td>
<td>500</td>
<td>17-47%</td>
<td>23.50%</td>
<td>60% (25%-35%)</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>Improve livelihood resilience of pastoral and agro-pastoral communities in Ethiopia.</td>
<td>350</td>
<td>10.2-67.7%</td>
<td>14.7-23%</td>
<td>37% (22%-15%)</td>
</tr>
<tr>
<td>Mongolia</td>
<td>Improve livestock health, productivity, and commercialization of targeted value chains in project locations and provide immediate and effective response in the event of an eligible crisis or emergency.</td>
<td>30</td>
<td>19-27%</td>
<td>23-33%</td>
<td>55% (44%-11%)</td>
</tr>
<tr>
<td>China</td>
<td>Promote integrated environmentally sustainable and climate-smart agriculture, and agri-food quality and safety, in targeted value chains and landscapes in Hubei Province.</td>
<td>150</td>
<td>12.6-19.48%</td>
<td>27.4%-51%</td>
<td>53% (12%-41%)</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>Support the development of an environmentally sustainable, inclusive, and competitive beef production in Kazakhstan.</td>
<td>500</td>
<td>25%</td>
<td>42%</td>
<td>64% (21%-43%)</td>
</tr>
</tbody>
</table>
Background

- Cattle ranching is economically important for rural Colombia but is characterized by low-profitability, detrimental environmental impacts and high susceptibility to climatic events.
- Sustainable practices such as Silvopastoral Systems (SPS) can be more efficient, increase income, and reduce climate risks.

Strategy

- Strengthening technical and operational capacity for sustainable land-use.
- Piloting and validating (financial) incentives supporting land-use transformations.
- Enhancing understanding of the impacts of sustainable practices and disseminating experiences and knowledge.

Results after 10 years

- Compared to production areas without SPS, milk productivity increased by about 25 percent, cost of milk production decreased by 9 percent/liter, animal stocking rate increased by 26 percent.
- Production costs were US$127/ha lower on average and farmer’s annual income increased up to $523/ha/year.
- Project investments and technical assistance resulted in 100,522 ha being managed under environment-friendly cattle ranching production systems/land uses.
- GHG emissions were reduced by 1,565,026 tons of CO₂ equivalent.

Example 1: Mainstreaming sustainable cattle ranching project (CMSCR) - Colombia

<table>
<thead>
<tr>
<th>Forage species</th>
<th>Tree species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pastures</td>
<td>Shrubs</td>
</tr>
<tr>
<td>Legumes</td>
<td>Trees</td>
</tr>
</tbody>
</table>

SPS are agroforestry arrangements that combine:

- Increase productivity per area
- Increase resource use efficiency
- Provide environmental services
- Provide resilience to climatic events

2010 – 2020, Financing: US$ 27.7 M (BEIS UK and GEF)
A focus on sustainability:
• Diversification of exports away from minerals and fossil fuel.
• International market demand – pressure on meat production sustainability.
• Farmer-centric model – jobs and income opportunities in rural areas.

Adaptation strategy
• On-farm: range management, feed production and storage, animal housing and watering.
• Advisory services and access to information.
• Development of market linkages.

Net GHG emission reduction strategy
• Increased productivity and decreased GHG emission intensity.
• Soil carbon sequestration through improved grazing management.
• Energy-efficient equipment and production of renewable energy.

Inducing change through a combination of approaches:
• Extension and advisory services.
• Improvement of information systems.
• Conditionality of public support.
• National commitments, including NDC road map.

➢ Estimated net mitigation potential from the livestock sector = 5.6 million tons CO₂eq over the five years.

Example 2: Program for sustainable livestock development - Kazakhstan

2020-25, Financing: US$ 500 M
Climate smart livestock investment requires extra knowledge and assistance

**Analytics and technical assistance in support of Climate Smart Livestock systems in Africa - Program for Climate Smart Livestock**

National level engagement:
- **Support to project teams** for mainstreaming climate-smart agriculture into livestock projects and activities at design and implementation stages: data, awareness, assessment of options.
- **Support to select Government counterparts** to develop climate-smart livestock development strategies, based on project-level work.

Regional level engagement:
- Development of a **Strategy for resilient and sustainable livestock for the IGAD region** (Eastern Africa, “Intergovernmental Authority on Development”).
- Consolidation and dissemination of relevant lessons for the broader livestock development agenda on the continent.
Livestock sector access to climate finance

Conditional line of credit for the dairy sector in Kenya

Mitigation practices for the dairy sector in Kenya have the potential to increase the quality and the quantity of milk produced by animal.

→ **Strong business case for concessional loans** to finance their implementation.

Dairy farmers in Kenya have little access to credit, or face interest rates eating up the profitability of the implementation of mitigation strategies.

→ **Mobilizing Climate Finance lowers the cost of credit.**
Help convert high-level commitments to sustainability and climate change mitigation and adaptation (e.g. as captured in NDCs) into practical action. **Build confidence, analyze and propose options, provide technical assistance.**

Develop **convergence between the various triggers of change in livestock value chains**: incentives, extension, conditionality of public support, access to land.

**Build evidence**: support the development of metrics and data for extension and advisory services, adjustment of public expenditure, impact finance, etc.

**Take advantage of the diversity of livestock systems**: Support investment decisions based the comparative advantages of production systems and complementarities with other sectors (e.g. crop, food processing, forestry, conservation)
Priority actions for the Koronivia Joint Work on Agriculture

Put livestock on the data map

Partnerships and incentives for innovation

Set ambitious sustainability targets

A solid baseline leads to a clear picture of the pathway forward. The KJWA can support Countries to address technical, capacity, and priority-setting bottlenecks for the assessment and monitoring of livestock value chains resilience, and their GHG emissions.

Innovation is required to generate adaptation and mitigation solutions that are adapted to the diversity of systems and concepts. The KJWA can highlight opportunities for developing agricultural innovation systems and reward innovation in both public and private sectors, including through multi-stakeholder partnerships.

Leverage data and success cases to raise ambition for livestock contributions to climate change outcomes. The KJWA can assisting Parties to set ambitious mitigation and adaptation targets for the livestock sector.
THANK YOU

Moving towards sustainability: The Livestock Sector and the World Bank

INVESTING IN SUSTAINABLE LIVESTOCK (ISL) GUIDE

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WORLD BANK GROUP
Agriculture & Food
Promising developments

Growing and improving data platforms

Piloting of livestock innovations with climate benefits

New methods to assess climate results

Livestock at the 2020 Big Data in Agriculture Virtual Convention

‘Closed loop’ system earns sustainability award

Swarms of locusts to become chicken feed

Enormous swarms of locusts – about 60 million insects – have caused major devastation to crops and livelihoods in countries in East Africa, Asia and the Middle East. Scientists in Pakistan have come up with a way to turn these critters into chicken feed.

50X2030: Data-Smart Agriculture

Global Partnership for Sustainable Development Data

Smart Cow Tracking Prototype

Environmental performance of feed additives in livestock supply chains. Guidelines for assessment

Biodiversity and the livestock sector - Guidelines for quantitative assessment