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Investing in Sustainable Livestock
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#LivestockAgenda
Guide to Investing in Sustainable Livestock
Part 1: Environment
Guides to Investing in Sustainable Livestock

1. Environment
2. Health
3. Equity
Livestock Development

• Complex, many objectives
• Positive or negative for sustainability
• Important entry point is environment
Growing International Attention for Livestock and Environment

- International Climate agreements and INDCs
- International financial organizations are requiring and wanting to see more environmental objectives in projects
- Consumer demands
Investments and Projects

• Demand for ASF grows

• Response on farm and in value chains

• Investments go with projects and vice versa

• At the project level: activities livestock and environment
Here is a Bottleneck

- World Bank portfolio 1997-2017 (Asia): < 10% of livestock project budget for environment

- Research publications 1995-2017 (Asia, Africa Latin America): a few publications annually, mostly about impact, not about mitigation

- Stakeholder learning & sharing meetings in Myanmar and Costa Rica
  - Need for knowledge, practices, impacts and approaches
Guide to Investing in Sustainable Livestock
Part 1: Environment
1. Environment

- Field Guide
- Policy Note
1. Assess the comparative advantage of livestock
2. Enhance Carbon Stocks
3. Increase productivity at animal and herd levels
4. Source feed sustainably
5. Couple livestock to land
6. Minimize fossil fuel use
7. Foster an enabling environment

Field Guide
1. Assess the comparative advantage of livestock
2. Enhance Carbon Stocks
3. Increase productivity at animal and herd levels
4. Source feed sustainably
5. Couple livestock to land
6. Minimize fossil fuel use
7. Foster an enabling environment
2. ENHANCE CARBON STOCKS

Livestock sector investment presents an opportunity to protect and enhance existing carbon stocks.

Introduction

Forests, grasslands, and other terrestrial ecosystems both release into the atmosphere and sequester in their soils and biomass considerable amounts of carbon. The quantity of carbon sequestered (carbon "stocks") depends on the natural carbon cycle as well as on the impacts of human activities, which

Are there forests, natural grasslands, and other natural areas in and around the intervention area?

If so, in project design, incorporate incentives to enhance carbon stocks:

- Incorporate into the project incentives to conserve and restore natural areas e.g. through:
  - Payment for Environmental Service schemes (PES)
  - Carbon offset programs
  - Conservation certification programs

- In grazing areas, increase the amount of biomass per unit of grassland and pasture area e.g. through:
  - Adjusting the grazing intensity to maximize grass productivity.
  - Over-sowing pasture with nitrogen-fixing legumes.
  - Adopting silvo-pastoral systems
Conceptualization phase

- Stakeholders
- Consider alternatives outside and within the livestock sector
o Ha of land maintained, protected, restored (compared to a baseline scenario)

  e.g. grassland improvement, silvo-pastoral systems, reforestation and grassland restoration.

o Annual rate of carbon sequestration (t C/ha/yr and t C/project)
- kg produce/animal/yr
- CO2-e/kg produce/yr
- Rate of herd growth
- Size of reproductive herd
- Proportion of feed meeting sustainability criteria for water use, fertilizer use, pesticide use

- Proportion of feed that is not directly human-edible
- N- and P-surpluses per ha at the project level
- N- and P-concentrations in water
- Emissions and quantity reduced compared to a baseline situation

- Capacity of renewable energy installed
- Repetitive element conceptualization, design and implementation
- Consider what is needed to make the project successful

Regarding awareness, knowledge, policy, institutions
- What is there?
- What should be there?
Principle 1: Assess the comparative advantage of livestock. Does the project concept include livestock investment?

If so, at project concept phase:
- Engage with stakeholders to identify the full range of locally suitable investment options that would achieve the project’s objectives.
- Undertake preparatory research to estimate the tradeoffs and synergies of investing in livestock compared to other locally suitable investment options, including their impacts on:
  - flows of nitrogen and phosphorus
  - use of chemical pesticides
  - emissions of greenhouse gases

Principle 2: Enhance carbon stocks. Are there forests, natural grasslands, or other natural areas in and around the project site?

If so, design project incentives to:
- Conserve and restore natural areas
- Increase the amount of biomass per unit of grassland and pasture area
  - Adjust grazing intensity to maximize grass productivity
  - Over-sowing pastures with nitrogen-fixing legumes
  - Adopting favorable systems
- Include a baseline and indicators in project M&E to track and capture the benefits of enhancing carbon stocks through the project.

Principle 3: Improve productivity at animal and herd levels. Does the project involve low-yielding livestock?

If so, design project incentives to:
- Improve feed quality and rationing
- Improve animal health and welfare
- Cross-breed with regionally appropriate, high-yielding species
- Improve reproductive management
- Optimize feed use
- Unless large animal herds are used for risk mitigation or asset savings, incentivize alternatives to keeping non-food-producing livestock.
- Include a baseline and indicators in project M&E to track and capture the benefits of productivity improvements.

Principle 4: Source food sustainably. Does the project import feed from off-site?

If so, design project incentives to:
- Identify and contract food producers with environmental standards certification
- Improve feed labeling
- Avoid contributing to competition for land and water with crop production
  - Integrate enriched crop residues, industry byproducts, and restaurant wastes into livestock feed
- Source feed ingredients with low embodied land and water use
- Include a baseline and indicators in project M&E to track and capture the benefits of sourcing food sustainably in the project.

Potential indicators:
- ha of protected area maintained
- ha of additional natural area protected
- ha of natural area restored
- annual rate of carbon sequestered

Potential indicators:
- kg production per animal per year
- kg emissions per animal per year
- emission intensity per animal-sourced food product per year
- annual rate of herd growth
- size of breeding herd

Potential indicators:
- Proportion of feed consumed by livestock in the project that meets select environmental standards
- Proportion of feed consumed by livestock in the project that is not directly human-edible
## Case Example: Ethiopia

<table>
<thead>
<tr>
<th>Context number</th>
<th>Livestock species</th>
<th>Farm size</th>
<th>Climate zone</th>
<th>Livestock system</th>
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<td>Dry</td>
<td>Mixed crop-livestock</td>
<td>Ethiopia</td>
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<tr>
<td>2</td>
<td>Ruminants</td>
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<td>Dry</td>
<td>Grazing pastoralism</td>
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<td>Ruminants</td>
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<td>Mixed crop-livestock</td>
<td>Vietnam</td>
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</tbody>
</table>
Principle 1. Assess the comparative advantage of livestock

• Ethiopia has many ruminants (60 M cattle, 45 M sheep and goats)
• Ruminants have many functions for subsistence farmers
• Ruminants use crop residues and grazing lands
• So there is good reason to have ruminant projects
• Poultry development: + for environment
Principle 3. animal and herd productivity

• Very low productivity (milk: 200-300 kg/animal/yr)
• 2/3 of herd does not contribute to meat and milk production directly

• Higher productivity (feed, health and breeding) decreases emission intensity
• Better reproduction requires a smaller reproductive herd
• Try to stop the growth of the herd!
Principle 7. Foster an enabling environment.

• Projects better health, breeding in ruminants and poultry development require

• High quality feeds

• Hence, enabling environment needs development of a feed value chain

• Government, private sector inside or outside the project
Interventions for mixed cop-livestock systems

- Productivity through better feed?
  - Feed quality, forage production, conservation, certification, better reproduction, grassland improvement

- Confining animals?
  - Manure management, manure processing, manure marketing, policy synthetic fertilizers, zoning

- Milk collection and marketing?
  - Renewable energy projects

- Cross-cutting?
  - Knowledge and capacity building about environment, awareness raising, certification schemes, M&E, land tenure policies, environmental management responsibilities
<table>
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<tr>
<th>Smallholder mixed crop-livestock systems: Ruminants</th>
<th>Checklist and resources for the Principles for Investing in Sustainable Livestock</th>
</tr>
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</table>

**Does the project aim to improve productively through improving the feed base?**

*If so, include in project design:*

- Technical assistance and matching grants to improve feed quality and quantity (FAO 2013; FAO 2014).

**Does the project aim to improve productively through confining animals?**

*If so, include in project design:*

- Awareness raising among producers and technical assistance for improved manure management (MANURE Eco).
- Technical assistance for estimating the impact of the project on on-farm nutrient flows.
- If manure can be recycled as fertilizer on farm: technical assistance and matching grants for selecting and constructing manure management systems.
  - Fresh manure application
  - Manure composting (FAO 2013)
  - Anaerobic digesters (SNV, SNV)
  - Manure drying (poultry, cattle, granular)
- Institutional capacity building to establish a certification and labeling scheme for organic manure products.
- Awareness raising and market development for the use of manure in the region as organic fertilizer.
- Policy investment to redirect subsidies away from synthetic fertilizers and toward the use of manure as organic fertilizer.
- Policy investment to regulate stocking of livestock production and density of confined animals.

**Does the project aim to improve milk collection, transport, processing, and marketing?**

*If so, include in project design:*

- Technical assistance and matching grants to increase energy efficiency and the generation of renewable energies (ERP 2007).
  - Optimize existing machinery
  - Adopt energy-saving devices
  - Build on-farm bio-digesters
  - Build on-farm wind energy installations
  - (If unclaimed and/or communal lands are available) Technical assistance and policy investment for using a net metering device to sell renewable energy back to the public power utility and/or to provide livestock sector carbon offsets.
- Policy investment to subsidize renewable energy generation in rural areas.

**Cross-cutting activities to include in project design:**

- Knowledge and institutional capacity building for the use of life-cycle assessment (LCA) approaches to quantify nutrient, chemical, and GHG flows from livestock production (GLEM Fact, CCAPS 2017).
- Awareness raising among consumers of environmentally sustainable livestock products.
- Institutional capacity building to establish an environmental certification and labeling scheme for sustainable livestock products.
- Institutional capacity building to track and capture the benefits of the project.
  - Impacts of livestock on biodiversity (FAO 2016a; FAO 2016b)
  - Impacts of large ruminants on the environment along the supply chain (FAO 2016a)
  - Impacts of livestock feed on the environment (FAO 2016b)
- Policy investment for a carbon offset program for the livestock sector.
- Policy investment to clarify land access and rights, and environmental management responsibilities.
Web-Tool Capabilities

practical guidance

• Checklists and actionable items
• Indicators
• Worksheets or tutorials
• Easily sharable and accessible
• Sources and additional material
Wrap-Up/ Discussion

- Questions 2-5
- https://www.mentimeter.com/s/3b40dbe4a8d3ed58c2cfcd3ddb53b4e0/c9c377a76090
Thanks for your attention!

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