



GLOBAL AGENDA FOR
SUSTAINABLE LIVESTOCK



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Investing in Sustainable Livestock

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Food and Agriculture
Organization of the
United Nations

SUSTAINABLE
DEVELOPMENT
GOALS



- Polling:

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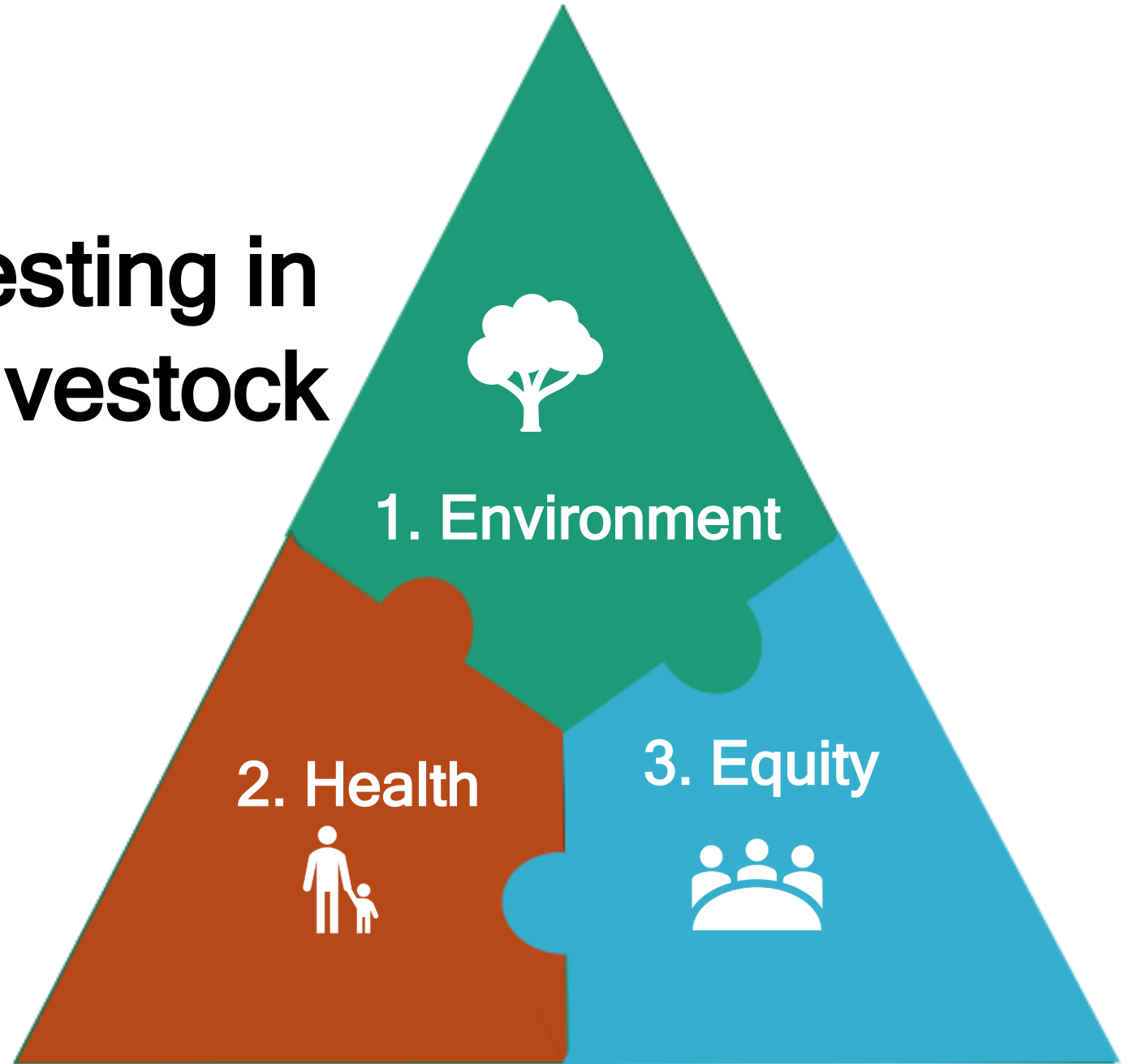


Guide to Investing in Sustainable Livestock

Part 1:
Environment



Guides to Investing in Sustainable Livestock



Livestock Development

- Complex, many objectives
- Positive or negative for sustainability
- Important entry point is environment



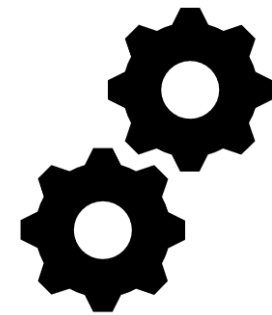
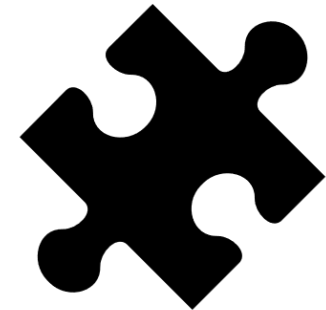
Growing International Attention for Livestock and Environment



- 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

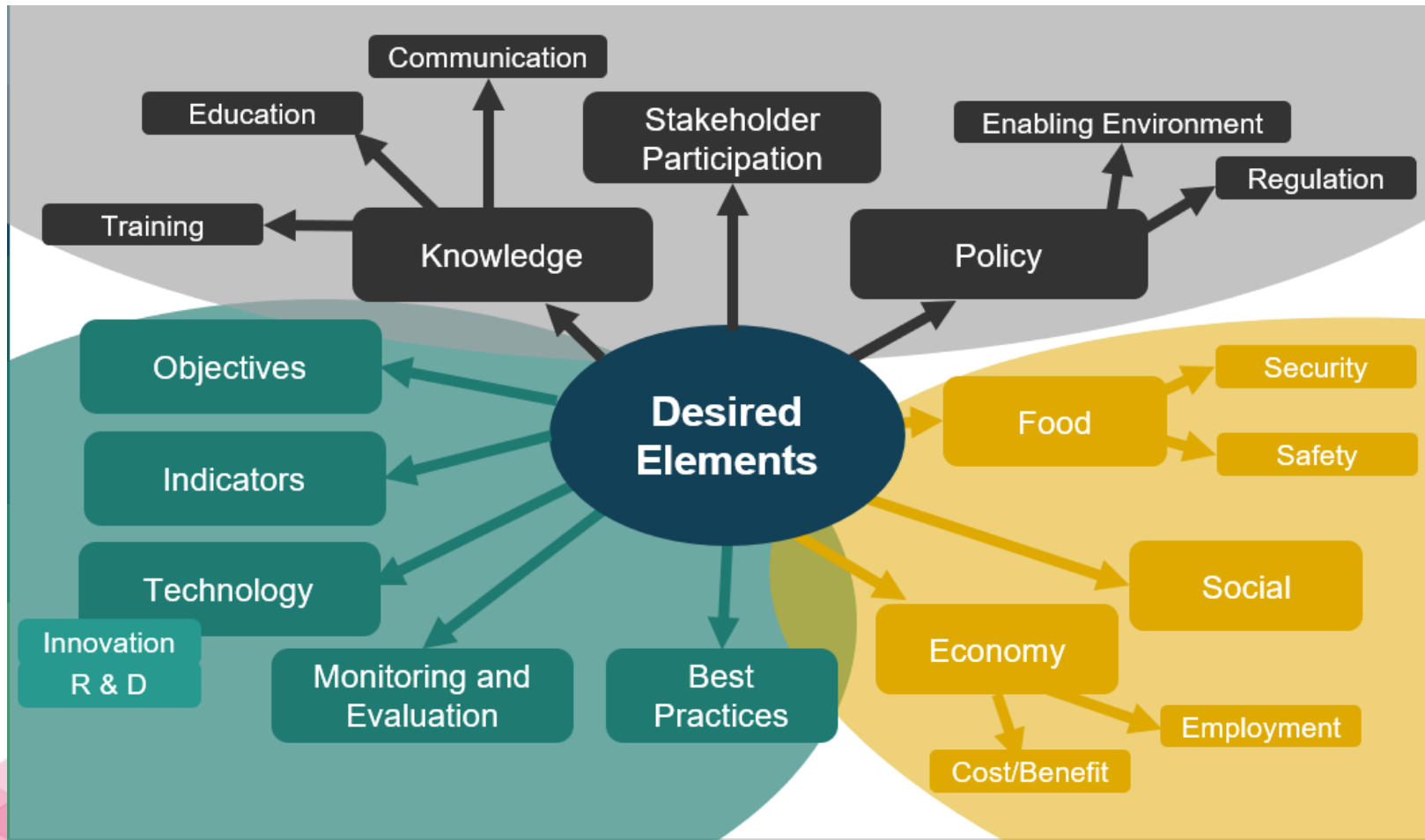


Here is a Bottleneck

- 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



Learning & Sharing



Guide to Investing in Sustainable Livestock

Part 1: Environment





1. Environment

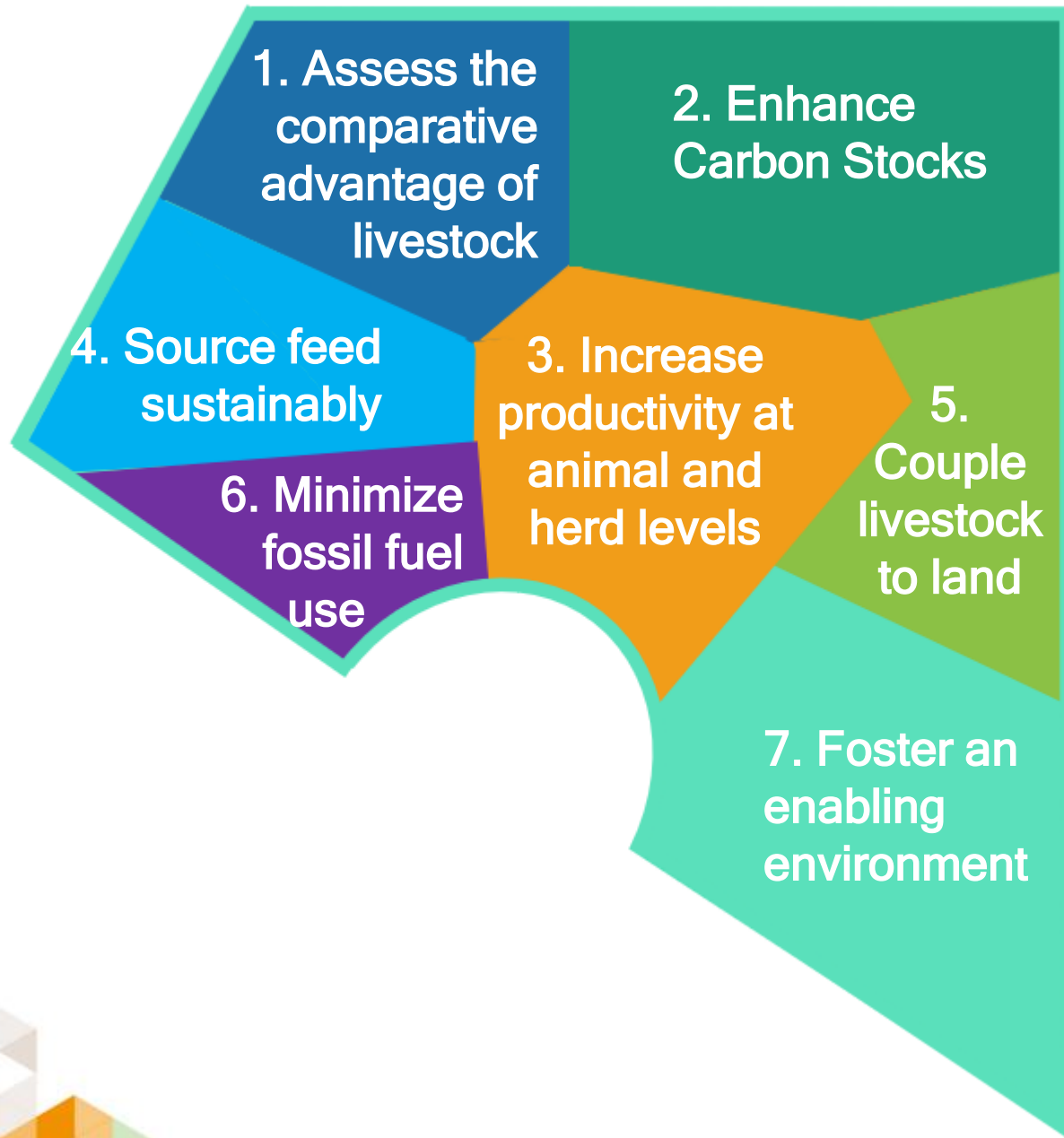
Field Guide

Policy Note



Field Guide





2. ENHANCE CARBON STOCKS

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



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

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

- Conceptualization phase
 - Stakeholders
 - Consider alternatives outside and within the livestock sector



- Ha of land maintained, protected, restored (compared to a baseline scenario)

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


- Annual rate of carbon sequestration (t C/ha/yr and t C/project)



2. Enhance Carbon Stocks

- kg produce/animal/yr
- CO₂-e/kg produce/yr

- Rate of herd growth
- Size of reproductive herd



**3. Increase
productivity at
animal and
herd levels**

- Proportion of feed meeting sustainability criteria for water use, fertilizer use, pesticide use
- Proportion of feed that is not directly human-edible



4. Source feed sustainably

- 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?



7. Foster an enabling environment



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 nitrogen and phosphorous
 - 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
 - Adjusting the grazing intensity to maximize grass productivity.
 - Over-sowing pasture with nitrogen-fixing legumes.
 - Adopting silvo-pastoral systems
- ✓ Include a baseline and indicators in project M&E to track and capture the benefits of enhancing carbon stocks through 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

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 offtake rates.
- ✓ Unless large animal herds are used for risk mitigation or asset saving, 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.

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 overhead

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

If so, design project incentives to:

- ✓ Identify and contract feed producers with environmental standard 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 embedded land and water use.
- ✓ Include a baseline and indicators in project M&E to track and capture the benefits of sourcing feed sustainably in the project

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

Context number	Livestock species	Farm size	Climate zone	Livestock system	Example
1	Ruminants	Small	Dry	Mixed crop-livestock	Ethiopia
2	Ruminants	Small to Medium	Dry	Grazing pastoralism	Senegal
3	Ruminants	Small to Medium	Humid	Grazing	Colombia
4	Ruminants	Medium to Large	Temperate/cold	Grazing	Kirgistan/Uruguay
5	Monogastrics	Large	Various	Industrial	China
6	Monogastrics	Small	Humid tropics	Mixed crop-livestock	Vietnam

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



1. Assess the comparative advantage of livestock

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!



3. Increase productivity at animal and herd levels

Principle 7. Foster an enabling environment.

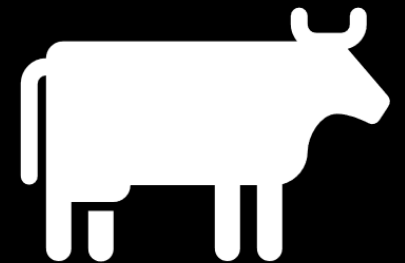
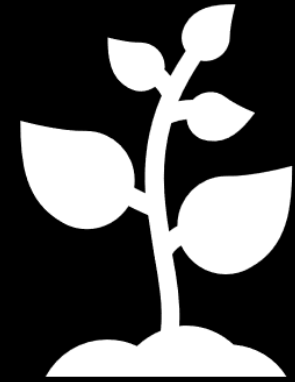
- Projects better health, breeding in ruminants and poultry development require
- High quality feeds
- Hence, enabling environment needs development of a feed value chain
- Government, private sector inside or outside the project



7. Foster an enabling environment

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 abt environment, awareness raising, certification schemes, M&E, land tenure policies, environmental management responsibilities



Does the project aim to improve productivity through improving the feed base?

If so, include in project design:

- ✓ Technical assistance and matching grants to improve feed quality and rationing ([FAO 2012](#), [FAO 2014](#)).
- ✓ (If feed is grown on-farm) Technical assistance and matching grants for improving forage production, conservation, and budgeting.
- ✓ (If feed is purchased) Institutional capacity building to establish an environmental certification and labeling scheme for purchased feed.
- ✓ (If herd growth is foreseen) Technical assistance and matching grants to improve reproductive management ([FAO 2010](#)).
- ✓ (If the farm includes natural areas) Technical assistance and matching grants for restoring degraded natural areas and transitioning to silvo-pastoral systems ([FAO 2015c](#)).
- ✓ Policy investment to establish a Payments for Environmental Services scheme to maintain and restore degraded natural areas ([IIED 2013](#)).

Does the project aim to improve productivity through confining animals?

If so, include in project design:

- ✓ Awareness raising among producers and technical assistance for integrated manure management ([Manure Kiosk](#)).
- ✓ 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 2015b](#))
 - Anaerobic digesters ([SNV](#), [SNV](#))
 - Manure drying (pellets, cakes, granules)
- ✓ 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 siting 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 ([JEE 2007](#)).
 - Optimize existing machinery
 - Adopt energy saving devices
 - Build on-farm bio-digesters
 - Build on-farm solar installations
 - 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.

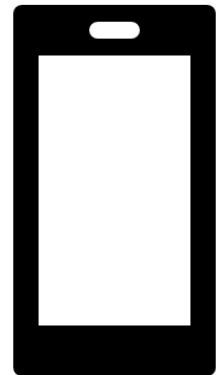
Cross-cutting activities to include in project design:

- ✓ Knowledge and institutional capacity building for the use of life-cycle assessment (LCA) approaches to quantify nutrient, chemical, and GHG flows from livestock production ([GLEAM](#), [Ex-Act](#), [CCAFS 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 M&E capacity building to track and capture the benefits of the project.
 - Impacts of livestock on biodiversity ([FAO 2016a](#), [FAO 2016d](#))
 - Impacts of large ruminants on the environment along the supply chain ([FAO 2016b](#))
 - Impacts of livestock feed on the environment ([FAO 2016c](#))
- ✓ 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>





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Thanks for your
attention!

www.livestockdialogue.org

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#LivestockAgenda



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