Towards sustainable livestock interventions

A comprehensive ex-ante environmental assessment framework for sustainable livestock and aquaculture development

Investments in livestock and aquaculture production in developing countries have great potential to lift millions of smallholders out of poverty and improve their nutrition – and contribute towards Goal 2 of the proposed Sustainable Development Goals: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”.

Background

Investors often only focus on increased production and economics – whereas there is growing competition for natural resources, and concern about the enormous pressure that livestock production can place on water and land (quantity used and effect on quality), biodiversity, and greenhouse gas emissions.

Development practitioners and investors increasingly express a need for a rapid assessment tool that can indicate the likely impacts of planned interventions in livestock and fish production systems. Such a tool would support informed decision-making and have a positive impact on nutrition and food security, whilst sustaining the natural resource base for the future. In response, the CLEANED–LVC project develops a Comprehensive Livestock Environmental Assessment tool for improved Nutrition, a secured Environment and sustainable Development along Livestock and aquaculture Value Chains.

Approach

The assessment framework has three criteria:
- It should require little academic expertise;
- Data should be available from public sources, and/or complemented with rapid assessments through expert consultations; and
- It should provide a first set of indicators on whether developments in livestock production and consumption may result in adverse, positive, or static environmental impacts along a range of pathways.

The framework encompasses the value chain, including fodder and livestock production, processing, retail distribution and consumption as appropriate. In the calculation of impact, more emphasis is placed on the earlier stages, as majority of the environmental impacts of livestock value chains can be observed inside the farm gate. An estimate of total food losses in the later stages will be used to reduce natural resource efficiencies and thereby influence the size of the environmental impacts.

Expected Outcomes

The CLEANED framework could be used in several ways. It can help to identify the likely impacts of implementing specific technologies. It could also be used to rapidly screen sets of interventions in farming systems at the early stages of development as a basis for further discussion. A third application would be to use the framework to quickly evaluate the impacts of a wide range of interventions, then to identify subsets of promising interventions to be evaluated using more detailed quantitative information to estimate aggregated impacts in certain regions, or to link these interventions to global and regional change models.

Pilot case: small-scale dairy development in Tanzania

Tanzania has the third largest livestock population in Africa, mostly in extensive grazing systems, but increasingly in more intensive production. Tanzanians drink just 45 litres of milk per person per year, compared to the World Health Organization (WHO) recommended minimum of 200 litres. Demand for milk already outstrips supply, and consumption is anticipated to rise to 100 litres per capita by 2020. With the growth in dairy production needed to meet this demand, potential associated environmental impacts could be considerable. For example, the study explored scenarios of dairy development through participatory GIS consultations, and found that from the current landscape impacts (top), the anticipated dairy development would potentially put substantial new areas into fodder production (bottom).

References:


Lannerstad, M., Barron, J., and Herrero, M. (2014). Summary report: Lushoto PGIS consultations, and found that from the current landscape impacts (top), the anticipated dairy development would potentially put substantial new areas into fodder production (bottom).