

Evidences

Study #3560

Contributing Projects:

- P568 - Activity 4.1.2: Develop, disseminate and apply a conceptual framework to evaluate environmental sustainability.

Part I: Public communications

Type: OICR: Outcome Impact Case Report

Status: Completed

Year: 2021

Title: Adoption of ex-ante tool to assess environmental impacts of livestock value chains has led to positive changes in knowledge and attitudes about the environmental footprint of livestock production in data-scarce regions

Short outcome/impact statement:

The CLEANED (Comprehensive Livestock Environmental Assessment for improved Nutrition, a secured Environment and sustainable Development along livestock value chains) ex-ante tool was developed to assess the environmental impacts of livestock systems. Numerous trainings and workshops have been conducted to teach end users (e.g. researchers, livestock industry stakeholders, educators, and policymakers) how to use it effectively, leading to positive changes in knowledge and attitudes about the environmental impact of livestock production in data scarce environments throughout Africa, Asia, and Latin America.

Outcome story for communications use:

The expected increase in demand for livestock products due to population growth and shifting dietary patterns has posed a threat to the sustainability of livestock production. Through initial funding from the Bill & Melinda Gates Foundation, CLEANED (Comprehensive Livestock Environmental Assessment for improved Nutrition, a secured Environment and sustainable Development along livestock value chains) was developed by the Alliance of Bioversity International and CIAT, ILRI and partners as part of a pilot project assessing environmental impacts of livestock production systems. This multidimensional tool calculates the environmental impact in terms of land requirements, productivity, economics, soil impacts (e.g. erosion, Nitrogen balance), greenhouse gas emissions (GHGe) and water impacts. The rapid results from the tool provide qualitative evidence for decision-making and planning purposes. CLEANED empowers end users to better design sustainable livestock systems by helping to identify the environmental impacts and trade-offs of proposed practices or development interventions. Consistent assessments of current and future environmental impacts of livestock value chains (VC) are necessary for effective livestock development.

Over the past decade, the Alliance has provided the public with numerous opportunities to become familiar with CLEANED. Through trainings, workshops, and online resources, the Alliance has strived to introduce the tool to as many end users as possible. The goal was to guide livestock stakeholders in establishing production systems with reduced environmental footprint and increased ecosystem service contributions. The main expected outcomes of the tool are for environmental concerns to be considered when designing livestock development/investment programs and policies, and for government agencies and development partners at local and national levels to promote sustainable livestock development practices. A survey was administered to end users to evaluate the changes in attitude towards and knowledge of the environmental impact of livestock systems and VC. The survey also assessed the participants' skills and usage of the tool since being introduced. Results from the survey have proven that there has been a positive increase in the education and awareness of environmental impact, and the tool has encouraged policy making decisions for minimal environmental impact. Not only have the majority of participants enjoyed using CLEANED, but the tool has also been credited as being the catalyst for their increased interest in environmental impact issues. Adoption of the tool has also influenced policy enactments and investments towards improved technologies for more sustainable livestock production systems and VC throughout data-scarce environments in Africa, Asia, and Latin America.

Links to any communications materials relating to this outcome:

- <https://tinyurl.com/y4nmuafz>

Part II: CGIAR system level reporting

Link to Common Results Reporting Indicator of Policies : No

Stage of maturity of change reported: Stage 2

Links to the Strategic Results Framework:

Sub-IDs:

- Land, water and forest degradation (Including deforestation) minimized and reversed
- Reduced net greenhouse gas emissions from agriculture, forests and other forms of land-use (More sustainably managed agro-ecosystems)

Is this OICR linked to some SRF 2022/2030 target?: Too early to say

Description of activity / study: <Not Defined>

Geographic scope:

- Multi-national

Country(ies):

- Tanzania, United Republic
- The Socialist Republic of Viet Nam
- Uganda
- Burkina Faso
- Rwanda
- Tunisia
- Ethiopia
- Nepal
- Nicaragua

Comments: <Not Defined>

Key Contributors:

Contributing CRPs/Platforms:

- Livestock - Livestock

Contributing Flagships:

- F4: Livestock and the Environment

Contributing Regional programs: <Not Defined>

Contributing external partners: <Not Defined>

CGIAR innovation(s) or findings that have resulted in this outcome or impact:

The CLEANED (Comprehensive Livestock Environmental Assessment for Improved Nutrition, a Secured Environment and Sustainable Development along Livestock Value Chains) tool was developed to assess the environmental impact of livestock systems and value chains. This multidimensional, ex-ante tool evaluates land requirements, productivity, water use, soil health, economics and greenhouse gas emissions.

Innovations:

- 2347 - CLEANED-X (Comprehensive Livestock Environmental Assessment for improved Nutrition, a secured Environment, and sustainable Development along livestock value chains) tool version 3
- 241 - CLEANED-R (Comprehensive Livestock Environmental Assessment for Improved Nutrition, a Secured Environment and Sustainable Development along Livestock and Fish Value Chains) tool
- 73 - CLEANED X Tools

Elaboration of Outcome/Impact Statement:

CLEANED was designed as a decision-support tool for reducing the environmental impacts of livestock systems and value chains (LS&VC) in data scarce regions around the world. The rapid results generated by the ex-ante tool have inspired end users to consider environmental impacts when designing livestock development programs and policies, and encouraged government agencies and development partners at local and national levels to promote sustainable livestock development practices. A decade after its launch, CLEANED has been used in many projects and research assessments globally. End users in over 34 countries, representing approximately 81 different organizations, have used the multi-dimensional tool to understand the environmental impacts and trade-offs of proposed practices or development interventions. For example, in 2018, the NGO Send-A-Cow collaborated with CIAT to assess the land requirement for a dairy cow in western Kenya under different feeding regimes. Along with the desired calculations, CLEANED helped to visualize the importance of optimally managing land, finding solutions to limited labor availability, and making trade-offs with food production and limitations in milk marketing [1]. Assessments with the tool have also contributed to various projects whose goals aimed for a reduction of poverty and vulnerability among livestock dependent livelihoods in selected rural areas [2, 3, 5].

Although the adoption rates of intervention scenarios are low in some cases, the outputs from the CLEANED assessments have been shown to act as a catalyst for the development of sustainable LS&VC and introduction of better technology [4]. The tool has also been proven to raise awareness of the environmental impacts of LS&VC. A survey was administered to end users to evaluate the changes in attitude towards and knowledge of environmental impact, and to gauge the skills and usage of the tool by participants since being introduced to it. Out of all participants that have used the tool, 84% received some sort of training, and almost 60% discovered CLEANED through the trainings and workshops provided by the Alliance. Furthermore, an overwhelming majority of users have had great experiences with the tool. Over 95% of participants agree that they have gained knowledge from using the tool and 86% agree that the tool has helped them make more environmentally conscious decisions. Not only has CLEANED aided users in recognizing the importance of environmental impact, but the tool has also been used to help guide policy decisions and initiate public and private sector investments [5].

References cited:

- [1] Paul, B.K.; Koge, J.; Maass, B.L.; Notenbaert, A.; Peters, M.; Groot, J.C.J.; Tiftonell, P. (2020) Tropical forage technologies can deliver multiple benefits in Sub-Saharan Africa. A meta-analysis. *Agronomy for Sustainable Development* 40:22. ISSN: 1774-0746 (<https://hdl.handle.net/10568/108642>)
- [2] Mwema, E., Boukpepsi, G., Van der Hoek, R., and Notenbaert, A. 2021. Assessing the environmental impacts of livestock production using the CLEANED approach. How-it-works Brief, CGIAR Research Program on Livestock. (<https://hdl.handle.net/10568/116681>)
- [3] Osele V; Paul B; Mukiri J; Halder S; Sagala T; Juma A; Notenbaert A. 2018. Feeding a productive dairy cow in western Kenya: environmental and socio-economic impacts. Working Paper. CIAT Publication No. 472. International Center for Tropical Agriculture (CIAT). Nairobi, Kenya. 48 p. (<https://hdl.handle.net/10568/97557>)
- [4] Morris, J., Fraval, S., Githoro, E., Ran, Y. and Mugatha, S. 2015. Comprehensive Livestock Environmental Assessment for Improved Nutrition, a Secured Environment and Sustainable Development along Livestock and Aquaculture Value Chains Project: PGIS Workshops Summary Reports, Morogoro, Tanzania. SEI Working Paper 2015-04. Stockholm, Sweden: Stockholm Environment Institute. (<https://hdl.handle.net/10568/65237>)
- [5] Hoek, R. van der., Birnholz, C. and Notenbaert A.M.O. 2016. Using the CLEANED approach to assess environmental impacts in the dual-purpose cattle value chain in Nicaragua. *Livestock and Fish Brief* 20. Nairobi: ILRI. (<https://hdl.handle.net/10568/78473>)
- [6] Van der Hoek, R., Paul, B., Marouani, W., Werghi, I., Gloy, N. (2020). Modelisation des impacts environnementaux de la chaine de valeur du lait en Tunisie : Rapport de la phase de d?marrage. Nairobi et Tunis: Alliance of Bioversity International and CIAT et GIZ. (<https://hdl.handle.net/10568/110732>)

Quantification: <Not Defined>

Gender, Youth, Capacity Development and Climate Change:

Gender relevance: 0 - Not Targeted

Youth relevance: 0 - Not Targeted

CapDev relevance: 1 - Significant

Main achievements with specific **CapDev** relevance: Numerous trainings and workshops have been conducted to teach end users how to use the tool effectively.

Climate Change relevance: 2 - Principal

Describe main achievements with specific **Climate Change** relevance: The aim of the tool is to encourage technology developers and development actors to develop, identify, promote and implement interventions that minimize GHG emissions (and natural resource use) associated with livestock production.

Other cross-cutting dimensions: NA

Other cross-cutting dimensions description: <Not Defined>

Outcome Impact Case Report link: [Study #3560](#)

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