

Sustainability of sesame farm households supported by Orge NGO in the Savanes region of Togo

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Introduction

- The impact of agriculture on the environment is well documented and manifests itself via multiple interacting pathways, e.g., land-cover change, greenhouse gas emissions.
- To limit this impact, sustainable agricultural practices are promoted by various stakeholders.
- Actors promoting sustainable agriculture in Togo include NGO Orge, which focuses on sesame farmers, but little is known about its effectiveness

Research Question

Are sesame farm households supported by NGO Orge in the Savanes region of Togo sustainable?



Figure 1: Blooming sesame field in the Savanes region of Togo.

1 Brief materials and methods

To assess the sustainability and perspectives of sesame production, the following methods were employed:

- Focus groups discussions
- Households survey of 101 sesame producers
- Evaluation of sesame farmers' sustainability based on Deep Participatory Indicator-Based (DPIB) approach



Figure 2: Photo 1: Researcher with focus group.; Photo 2: Researcher with farmer on the field.

The values of the sustainability components (VC) and dimensions (VD) are estimated using the formula:

$$V_C = N^{-1} \cdot \sum_i V_{Ci} \text{ \& } V_D = 20 \cdot J^{-1} \cdot \sum_j V_{Dj}$$

Sesame producers are sustainable regarding a dimension if its value is greater than 50 on a scale ranging from 20 to 100.

2 Results

- Sesame producers accompanied by the NGO Orge still face critical challenges in their move towards sustainable production (Table 1).

Challenging components	Average score
Food security	1.0541
Soil degradation	3.5630
Sesame productivity	1.2792

Table 1: Challenging components of the sustainability

- Sesame production systems accompanied by NGO Orge are sustainable from an environmental point of view but not sustainable from an economic and social point of view (Figure 3).

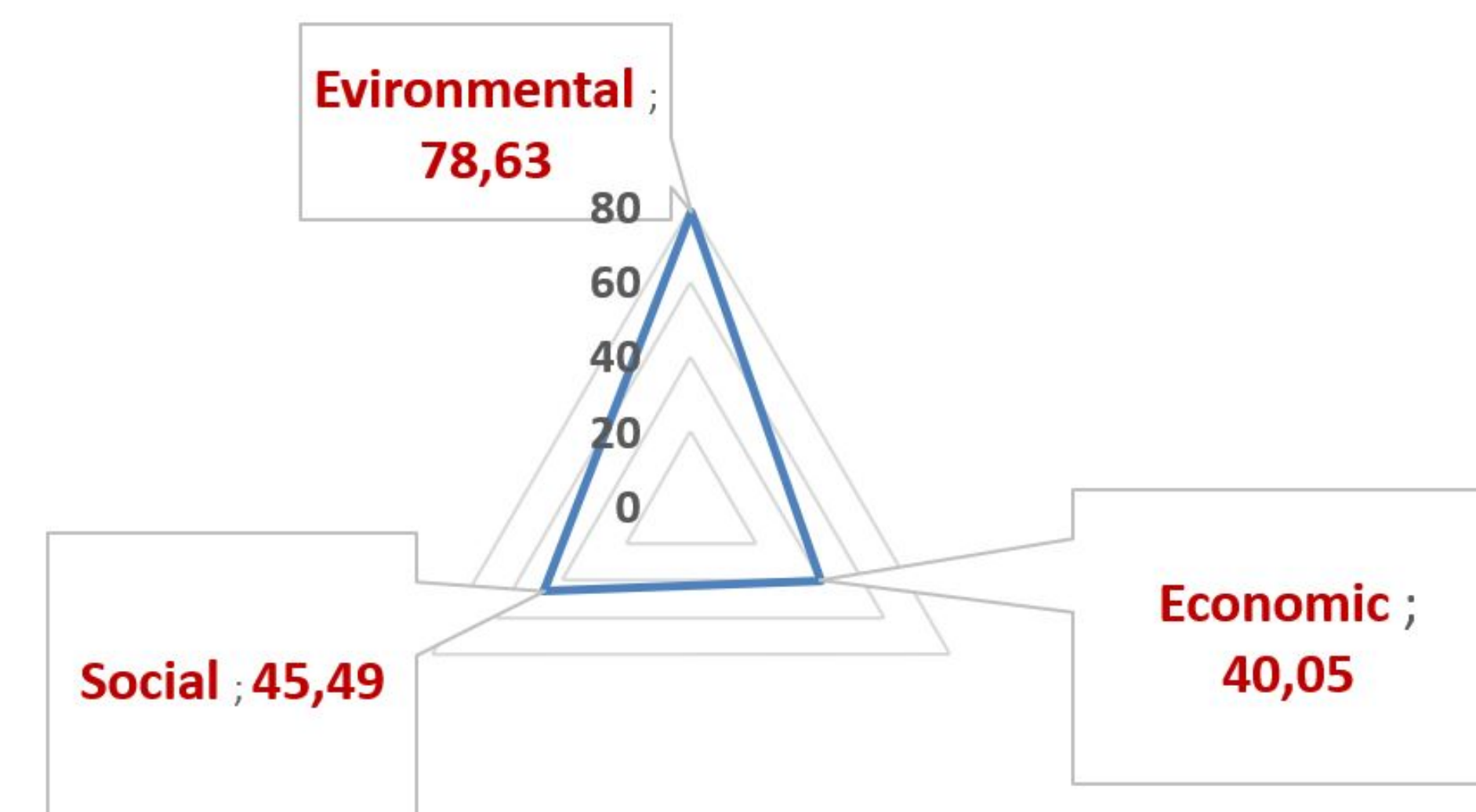


Figure 3: Sustainability dimensions

3 Conclusions and outlook

NGO Orge sesame sustainable production approach need to be reviewed with a special focus on food security, soil degradation and sesame yield components. Thus, future work could explore possible ways of improving the identified challenging sustainability components such as land degradation.

References

- [1] Koudima Bokoumbo, Simon Berge, Kuawo Assan Johnson, Afouda Jacob Yabi, and Rosaine Nerice Yegbemey. Cooperatives and sustainability: The case of maize producers in the plateaux region of togo. *Heliyon*, 9(6), 2023.
- [2] Emma Soulé, Philippe Michonneau, Nadia Michel, and Christian Bockstaller. Environmental sustainability assessment in agricultural systems: A conceptual and methodological review. *Journal of Cleaner Production*, 325:129291, 2021.
- [3] Rosaine Nérice Yegbemey, Jacob Afouda Yabi, Codjo Sylvestre Gerbert Dossa, and Siegfried Bauer. Novel participatory indicators of sustainability reveal weaknesses of maize cropping in benin. *Agronomy for Sustainable Development*, 34:909–920, 2014.

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