Value Chain Analysis of Utilisation of Pineapple Residues

A Case Study from Costa Rica

Inessa Prozorova[1], Dr. Steven Gronau[2]

Leibniz Universität Hannover

INTRODUCTION

- Agricultural waste emits 1.6 billion CO_2e per year
- Disposal of pineapple production waste creates environmental and social risks
- Costa Rica is a major supplier of pineapple
- Pineapple plant waste of 250 tons per hectare accumulates annually in Costa Rica
- Laboratory studies confirm the utilisation of waste into value-added products
- Research on a large scale is lacking
- Focus on barriers to establishing utilisation of pineapple plant residues
- Examination of networks in the Costa Rican pineapple industry to identify measures that address barriers

STUDY SITE

Northern Costa Rica

Major pinapple cultivation area

Location of interviewed pineapple producer

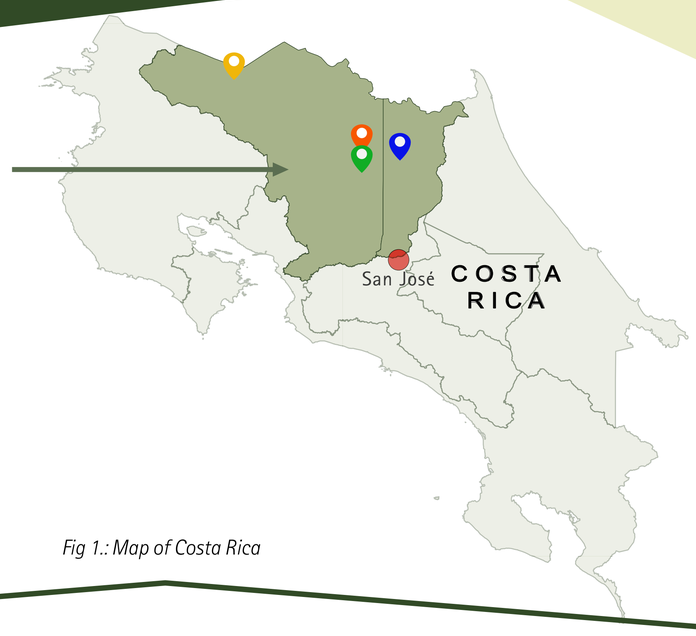

Fig 1.: Map of Costa Rica

- Interviewees: Pineapple industry experts in Costa Rica (n=10)
- Selection of interviewees based on the value chain of utilised pineapple plant residues
  - ▶ Pineapple producers (n=4)
  - ▶ Pineapple plant residues processing projects (n=3)
  - ▶ Supporting institutions (n=4)

OBJECTIVE

Identifying barriers to utilising pineapple waste in Costa Rica

RESEARCH QUESTION

How can the large scale utilisation of pineapple residues be established in Costa Rica?

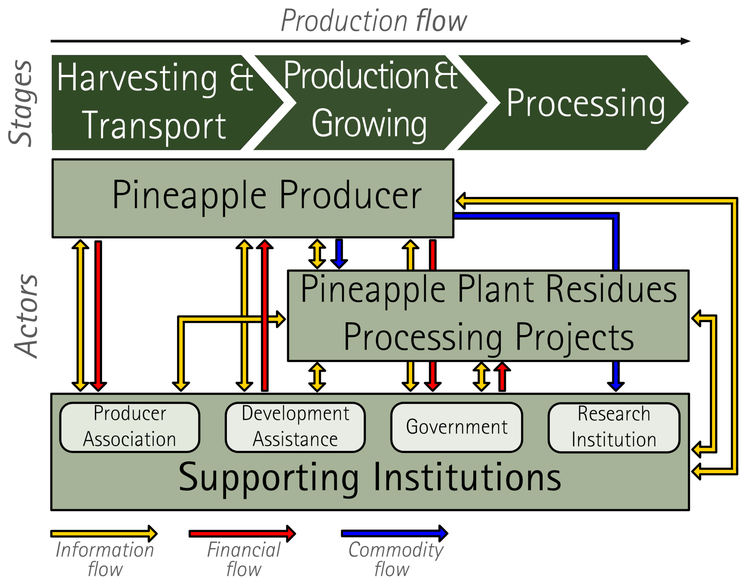

Fig. 2: Value chain of utilised pineapple plant residues

METHOD

- Methodology: Semi-structured interviews
- Interview conduction and analysis follow the value chain of utilised pineapple plant residues
- Interviews cover two thematic blocks: Barriers and relationship networks including information, financial and commodity flows between actors
- Interview evaluation follows a *Qualitative Content Analysis*
- Computerized implementation of the evaluation process by categorising, coding & summarising

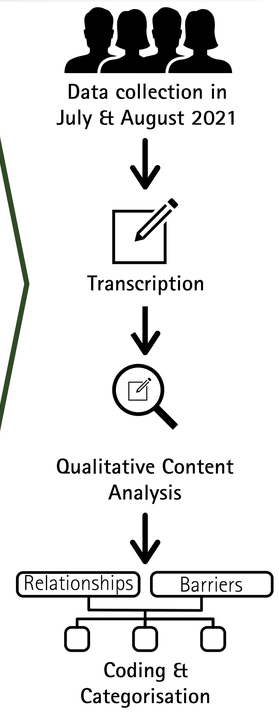

Fig 3.: Study procedure

RESULTS

Key role of supporting institutions

▶ Major networked actors: Producer association, development assistance & government

Financial aspects primarily hinder the utilisation of pineapple plant residues

▶ Logistic costs, lack of funding & cost-effectiveness

Lack of mindset poses a significant barrier

▶ Absence of interest and awareness

Impacting external factor of infrastructure

▶ Transport & social infrastructure

Lack of technological development as an obstacle

▶ Collect & process the residues

Subordinate barriers: Knowledge & language

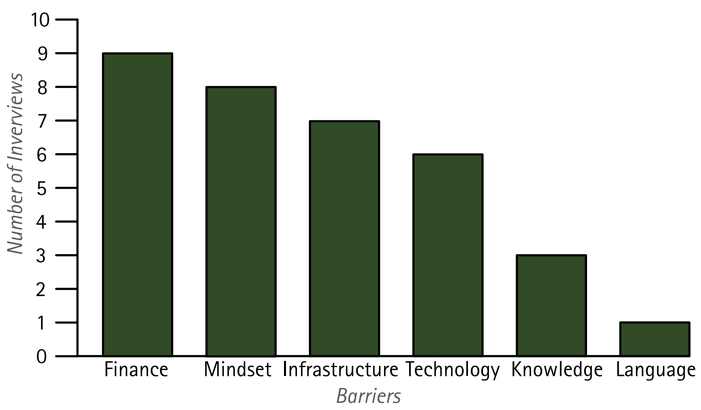

Fig 4.: Barriers of pineapple waste utilisation

Fig. 5: Pineapple plant (a), burned pineapple fields (b) and paper from pineapple plant residues[3]

CONCLUSION

Policy level

▶ Identifying financing needs & allocate across the value chain

▶ Adressing lack of infrastructure, incl. machinery & equipment

▶ Improvement of logistical infrastructure

Major networking actors

▶ Integration and collaboration to overcome mindset barriers

▶ Education & extension services on severe impact of pineapple plant residue disposal

[1]Business Development at eco:fibr GmbH, www.ecofibr.de
[prozorova@ecofibr.de]
[2]Institute for Environmental Economics and World Trade, Leibniz University Hannover
[gronau@iuw.uni-hannover.de]
[3]Picture source: eco:fibr GmbH

Tropentag 2022

Institute for Environmental Economics and World Trade