Robustness (and antifragility) in food systems redesign from value chains to value networks

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food system

the chain of activities connecting food production, processing, distribution, consumption, and waste management
Circular economy: less waste, more value (Kenya)

- On-farm cycling
- Community cycling
- Local market waste
- Manufacturing by-products
- Urban domestic waste
- Urban market waste

Tradeoffs and synergies

Efficiency/Robustness/Practicality

Substitution

Complementarity
Strengthening territorial capacities to support innovations in agroecology and circular bioeconomy for adaptation and mitigation to climate change in forest frontier landscapes of Colombia.
Business model:
Producing agroecological food (healthy, pesticide free, low C footprint, fair trade) for the poorest provinces.

Selling points:
- Farming families: 31,393 family farms (0–5 ha) in 2018
- 20% rental land
- 80% owned land
- 60% selling for the retailer
- 20% selling for the farmer
- 20% transport

Farmer training on Agroecology
Agroecology networks and COVID19 in Latin America

Resilience of food systems

What happens to the food system outcomes, i.e. food security & employment, under shocks and stressors?

- High resilience capacity

Elements that sustain food systems resilience & antifragility

Agency + Buffering + Connectivity + Diversity

Antifragility

Vulnerability
Questions to the FSD community

• How can systems analysis tools & methods help at:
  – identifying appropriate levels of complexity in cycling networks that
    minimize tradeoffs and maximize synergies?
  – designing robust and adaptable (bioeconomic) value networks?
  – understanding and quantifying the relationship between value
    network structures, functions and performances?
  – inform (co-)innovation systems and contribute to monitoring,
    evaluation and (local) learning?

• What type of systems analysis tools, if any, can we offer to:
  – explore alternative food systems and assess their contribution to rural
    development, ecosystem services and food/nutritional security?

• Or, are some of the above levels of complexity/scales/actors
  beyond our scope as an FSD community?
1 postdoc; 4 PhD theses; 14 MSc theses; 17 articles; #conferences; 1 million us$; 6 years


Kebede Y., Bianchi F., Baudron F., Abraham K., de Valença A., Tittonell P., 2018. Implications of changes in land cover and landscape structure for the biocontrol potential of stemborers in Ethiopia. Biological Control 122, 1-10


