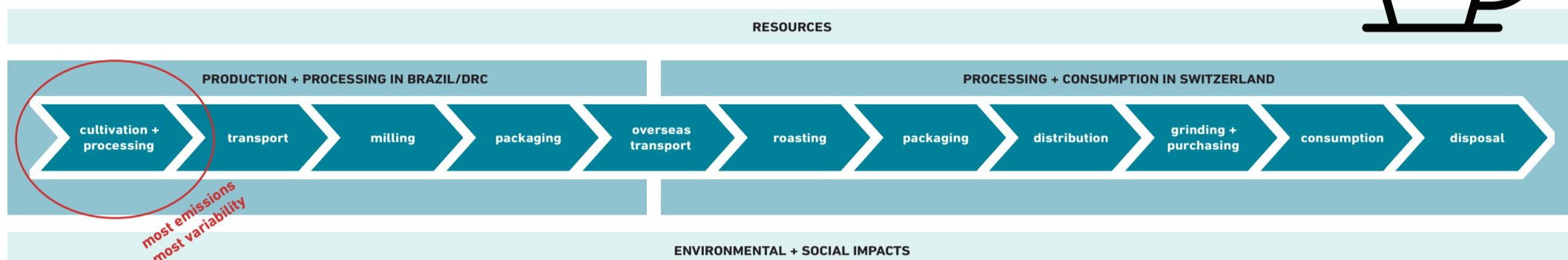


Environmental and social footprints of coffee from Brazil and the Democratic Republic of Congo

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1 Introduction

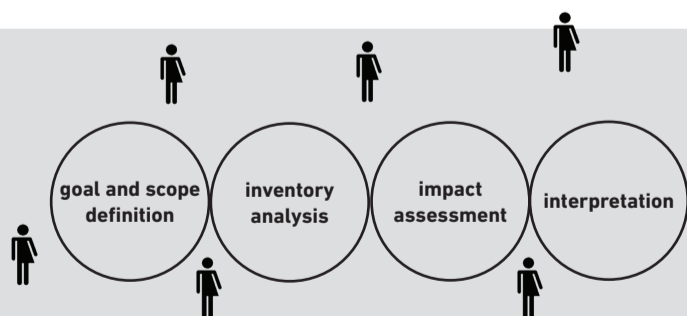
Coffee is among the world's 20 most traded agricultural commodities. While coffee provides income for millions of producing families, it also has a high environmental footprint and maintains inequalities along the value chain that lead to negative social repercussions. There is a growing need to combine coffee quality with environmental and social aspects.

2 Hypothesis & Research Questions

Governance matters: More deliberation and self-organization within coffee value chains lead to smaller environmental and social footprints.

- How can diversity and participation in coffee value chains lead to smaller environmental and social footprints and implementation of more agroecological principles?
- What does environmental and social sustainability mean for different actors in the value chain?
- How does the value chain actors' perception of environmental and social sustainability differ from definitions in literature?

3 Participatory Environmental & Social Life Cycle Assessment (LCA)



The environmental footprint will be calculated using the python-based open-source framework Brightway2 with primary data and data from the Ecoinvent database; and the social LCA will be assessed using the guidelines of the Life Cycle Initiative. The system boundaries and indicators will be selected based on literature combined with a participatory approach involving all actors of the value chain.

4 Case Studies

	Brazil		Democratic Republic of Congo
	diversity of organizational forms		labels
	organic		fairtrade
	direct trade		(youth-) inclusive
	feminist		cooperatives
	companies		participatory guarantee systems
			landless movement

5 Contribution to Sustainable Food Systems

Global food value chains are the cause of many social-ecological challenges that exacerbate inequalities worldwide. This project aims to better understand what impacts occur where and whether more self-organization in the value chain could help improve the social-ecological conditions.

References

1. Coffee | FAO | Food and Agriculture Organization of the United Nations. <https://www.fao.org/markets-and-trade/commodities/coffee/en/> (2021).
2. Austin, K. Coffee exports as ecological, social, and physical unequal exchange: A cross-national investigation of the java trade. *International Journal of Comparative Sociology* 53, 155–180 (2012).
3. Andrade, H. J. et al. The carbon footprint of coffee production chains in Tolima, Colombia. in *Sustainable agroecosystems in climate change mitigation* 53–66 (Wageningen Academic Publishers, 2014).
4. Life Cycle Initiative. *Guidelines for Social Life Cycle Assessment of Products and Organizations 2020*. (2020).
5. Jolliet, O., Saadé-Sbeih, M., Shaked, S., Jolliet, A. & Crettaz, P. *Environmental life cycle assessment*. (Taylor & Francis, 2016).
6. Jouini, M. et al. A framework for coupling a participatory approach and life cycle assessment for public decision-making in rural territory management. *Science of The Total Environment* 655, 1017–1027 (2019).