

Transportation inefficiencies in the cocoa value chain in Ivory Coast: Is sustainability possible?

Introduction

Ivory Coast (also known as Côte d'Ivoire) is the world's top exporter of cocoa beans by volume and sales. However, a living income remains out of reach for its cocoa farmers. Furthermore, current transport solutions (Photo 1) are incompatible with the future architecture of global value chains (Figure 1).



Photo 1: Current challenges

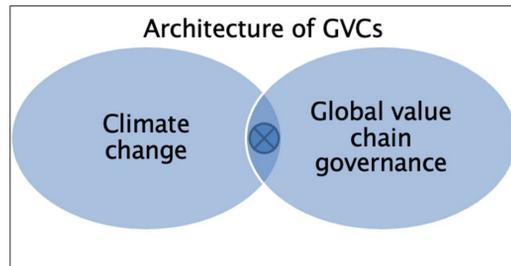


Figure 1: Research context

The future of sustainable cocoa is under threat. One possible solution is to invest in improved transport of cocoa beans from farm gate to export harbour.

Methodology

- Literature review: scientific databases, newspaper articles, scientific journals, and lectures at the Bern University of Applied Sciences (Figure 2).
- Data collection: questionnaires with farmers in three villages (n=138) and semi-structured interviews with five types of special function actors (n=15) (Photo 2).

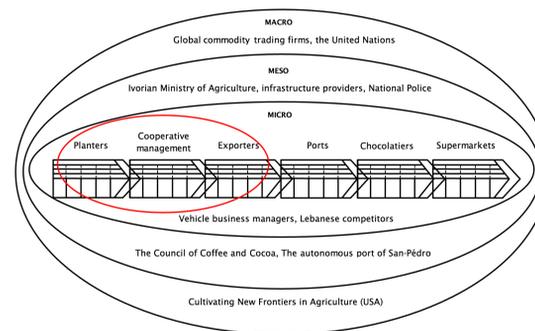


Figure 2: Cocoa value chain



Photo 2: Study area

Results

Transport types:

- On foot (30-60kg bags filled with cocoa beans)
- Bicycle (60-120kg)
- Motorcycle (130kg)
- Tricycle (200-300kg)
- Boat (100-500kg)
- Pick-up truck (300-500kg)
- Tractor (3-8 tonnes)
- Truck (3-40 tonnes)

According to the data, modern cocoa transport is:

- Unsafe
- Unaffordable
- Inaccessible
- Inefficient
- Not resilient
- Not minimizing carbon and other emissions

Table 1: The potential impact of improving transport efficiency with respect to society, costs, and greenhouse gas emissions:

		Society	UN SDG #	Costs	UN SDG #	Greenhouse gas emissions	UN SDG #
Farmers	Village of Konédougou	Improved living conditions	3	Reduced food costs	2	Improved public health	11
		Better employment rate	8	Reduced school access costs	4		
		Increased production levels	8	Reduced health-related costs	8		
		Reduced transport times	11	Reduced fuel consumption costs	12		
		Reduced transport costs	11	Reduced reparations costs	12		
	Village of Djihimbo	Better health services access	3	Less frequent vehicle renewal	8	Less emissions	13
Faster product evacuation		11	Reduced fuel costs	12			
Longer vehicle life		11	Reduced maintenance costs	12			
Village of Iratéké	NA	NA	NA	NA	Less emissions	13	
Special function actors	Ministry of Agriculture	No fictitious cooperatives	1	Reduced reparations costs	12	Less emissions	13
	Union of cooperatives management	Higher salaries	1	NA	NA	NA	NA
	Cooperative management	Improved water access	2	NA	NA	Improved public health	11
	40-tonne truck driver	Everybody wins	17	NA	NA	Less emissions	13
	National Police	Improved food access	2				
		Guaranteed education	4	Increased market confidence	8	Better quality fuel	13
		Improved social connectivity	11				

Recommendation

In order to increase Ivorian cocoa farmer income:

- Build more village collection points at strategic locations.
- Invest in higher quality roads.
- Invest in improved vehicles.
- Professionalize the "pisteur" workforce.
- Open regional bank branches close to town collection points.
- Develop a cocoa-friendly, sustainable national railway system.

Limitations:

- Avoid the loss of independence during data collection.
- Address gender and cultural deficits.

Future research:

- Include semi-processed products.
- Include the International Maritime Organization.
- Coordinate with CCC and CCDO leadership well in advance.

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Transportation inefficiencies in the cocoa value chains in Ivory Coast: Is sustainability possible?

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The purpose of this investigation is to examine transportation inefficiencies and the sustainability of cocoa value chains in Ivory Coast. Problems addressed include unidentified major actors, types of transportation and how it is measured, and lastly, improving efficiency in transportation with respect to society, costs and greenhouse gas emissions. A mixed method methodology is followed in which qualitative and quantitative data are gathered and analysed. Results show that the major actors are planters, cooperative management, exporters, ports, chocolatiers and supermarkets. The main forms of transportation are trucks and motorcycles and are measured using the United Nations criteria for sustainable transportation. The conclusion is that cocoa transportation in Ivory Coast is unsustainable. However, with the correct implementation of policy, financing and technological innovation, there is potential to improve the sustainability of cocoa transportation from farm gate to export harbour.

Key words: Cocoa value chain, Ivory Coast, sustainability, transport.

Screenshot 1: Publication

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