VCA4D CONFERENCE TRANSVERSAL ANALYSIS SERIES
KNOWLEDGE BRIEF N°3 - FEBRUARY 2025

Agroecology, responsible value chains and agriculture & food system transformations

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The European Commission has developed a standardised methodological framework for analysis of value chains (The Value Chain Analysis for Development (VCA4D) methodology https://europa.eu/capacity4dev/valuechain-analysis-fordevelopment-vca4d/documents/methodologicalbrief-eng), which has been applied to more than 45 value chains since 2016. VCA4D aims to understand to what extent the value chain allows for inclusive economic growth and whether it is both socially and environmentally sustainable.

The high-level conference 'Value Chain Analysis for Development: providing evidence for better policies and operations in agricultural value chains' which took place on 18th and 19th January 2023 took stock of lessons learnt from evidence on how knowledge on value chains can support decision-making. All documents and videos from the Conference are available here: https://capacity4dev.europa.eu/projects/value-chain-analysis-for-developmentvca4d/info/5-conference-documents-value-chainanalysis-development-providing-evidence-betterpolicies-and-operations-agricultural-value-chains_en

The transversal analyses presented at the Conference have analysed a minimum of three different VCA4D studies, providing cross-cutting analyses on thematic issues of interest to policymakers. The analyses and knowledge briefs are produced with the financial support of the European Union (VCA4D CTR 2017/392-416). Their content is the sole responsibility of the authors and do not necessarily reflect the views of the European Union nor of Agrinatura/ the VCA4D project.

Abstract

This knowledge brief explores relationships between agroecology (AE), responsible value chains (VCs) and agricultural and food system transformations, drawing evidence from the VCA4D studies including various sub-chains. Commodity VCs vary in their alignment with the 13 AE principles defined by the High-Level Panel of Experts (HLPE) on Food Security and Nutrition. Sub-chains are more aligned with AE principles related to production than with equity and social responsibility principles. Good alignment with principles related to production facilitates environmental certification, but its relationship to greater equity and social responsibility is mixed. The relationship between markets and AE is contested; market-based mechanisms can improve producers' returns, but not necessarily equity and social responsibility. Wider literature suggests that alternative systems of exchange offer potential for trade in AE products, but expansion is a challenge. Place-based territorial approaches to AE emphasise autonomy of local communities. Other conditions influencing AE transitions include discourse, policies, social organisation, research and innovation processes. AE social movements focus on democracy, reciprocal economic exchange and socio-cultural values. Exploring food democracy provides potential for enabling AE-informed transformation in different farming and food contexts.

Background and issues

Multiple demands on agriculture and food systems and their social and environmental impacts have increased global interest in AE's potential to contribute to sustainability transformations. The EU's Farm to Fork Strategy aims to make food systems fair, healthy and environmentally friendly and focuses EU international cooperation on food research and innovation, including specific reference to climate change responses and AE. Interpretations of AE vary and are contested, with various depictions as a science, practice or social movement. AE approaches have evolved from field, farm and agroecosystem scale to encompass the whole food system. Recent AE analysis focuses on knowledge, culture, ethics and politics and continually re-embedding AE in democratic social relations. The VCA4D transversal analysis explored the relationships between AE and production, markets, value chain (VC) responsibility, and agricultural & food system transformations, drawing on evidence from the VCA4D studies.

Funded by the European Union

Materials and method

Our analysis was guided by the HLPE on Food Security and Nutrition 13 principles of AE, which are broadly aligned with FAO's 10 elements of AE (see Table 1). A rapid screening of 36 VCA4D studies identified seven main illustrative case studies: five internationally traded global commodity VCs (Ecuador Cocoa, Ethiopia cotton, Honduras Coffee, Nicaragua Cocoa, PNG Vanilla); and two national or regional food VCs (Côte d'Ivoire Cassava, Ghana Groundnuts). Within these,18 sub-chains were selected and rated using an evaluative scale, from 1 = no, or very low alignment, to 5 = very high alignment, for each of the AE principles. This supported the comparative analyses, but given evidence gaps in the studies, these scores are tentative and secondary to the text-based analysis. We then conducted cross-case comparisons to answer the four main questions below.

Findings

1. What is the extent and nature of alignment with AE principles in the case VCs?

The scores from the assessment of the VC and sub-chain alignment with the HLPE AE principles, including the production principles (1-7) and equity and social responsibility principles (8-13), are in Table 1.

Alignment with production principles

In the internationally traded global VCs, alignment with the AE production principles ranged from very low/low (e.g. large-scale commercial cotton, Ethiopia) to high/very high (e.g. cocoa Gourmet, Nicaragua-organic certification or direct trade). Within the same commodity VC, alignment can vary significantly, e.g. Honduras coffee from low-moderate (conventional) to high (organic). In the domestically/regionally traded VCs, alignment with production principles was scored from low (Ghana formal groundnuts) to moderate (Ghana artisanal groundnuts). This was due to the relatively high use of external inputs by the majority of producers supplying the formal chain. On specific production principles the findings included:

- *Recycling*: perennial crops showed generally higher alignment.
- External input reduction: alignment was generally higher in sub-chains certified according to environmental standards, or where crops could be viably grown without external inputs, e.g. organic and conventional vanilla in PNG.
- *Biodiversity*: this can vary significantly even within a sub-chain, e.g. PNG vanilla can be a monocrop, intercropped with food crops or part of an agroforestry system. Despite similar production systems, cocoa-based agroforestry VCs in Ecuador and Nicaragua perform quite differently, relating to their different land-use history and policy.

Table 1: Case study sub chains' alignment with HLPE agroecological principles

Legend: Very High (5) High (4) Moderate (3) Low (2) Very low/none (1)

NE = No evidence; NA = Not applicable; NI = Not included***

Country	Sub Chains	1	2	3	4	5	6	7	8	9	10	11	12	13	P1-7	P8- 13	P1-13
		Recycling	Input reduction	Soil health	Animal health	Biodiversity	Synergy	Economic diversification	Co-creation of knowledge	Social values & diet	Fairness	Connectivity	Land & NR governance	Participation			
Ethiopia	Cotton conventional & commercial	2	2	1	NA	1	1	2	1	1	2	1	1	1	1.5	1.2	1.3
	Cotton organic (C)	3	5	4	NA	3	3	4	4	4	4	3	3	4	3.6	3.6	3.6
Honduras	Coffee conventional	3	2	2	NA	2	2	4	2	2	2	2	1	1	2.5	1.6	2.1
	coffee certified (C)	4	5	4	NA	3	4	4	3	3	4	3	2	4	4.0	3.2	3.6
Nicaragua	Cocoa -Rojo	4	2	3	NA	3	3	3	2	2	2	4	2	2	3.0	2.3	2.7
	Cocoa – fine (C)	4	2	3	NA	4	3	3	3	3	3	2	3	4	3.2	3.0	3.2
	Cocoa – Gourmet (C)	5	5	5	NA	4	4	3	2	3	3	3	2	3	4.3	2.7	3.5
	Cocoa – conventional*	4	4	3	NA	3	4	2 or NI	1	1	4 or NI	2	NE	4 or NI	3.3/ 3.6	2.4/ 1.3	2.9/ 2.8
Ecuador	Cocoa - Volume	4	3	4	NA	4	4	3	1	3	2	2	3	1	3.7	2.0	2.8
	Cocoa - Quality	4	3	4	NA	5	4	3	3	4	2	3	4	2	3.8	3.0	3.4
	Cocoa - Semi Processed	4	3	4	NA	4	4	3	1	3	2	2	3	1	3.7	2.0	2.8
	Cocoa - premium**	4	3	4	NA	4	4	4	2	1	4 or NI	3	4 or NI	4 or NI	3.8	3.0 / 2.0	3.4/ 3.2
	Cocoa - local markets	4	3	4	NA	4	4	3	1	3	2	3	3	1	3.7	2.2	2.9
PNG	Vanilla Organic (C)	4	4	4	NA	3	3	3	2	3	3	1	3	2	3.5	2.3	2.9
	Vanilla Conventional	4	4	4	NA	3	3	3	3	3	3	1	3	2	3.5	2.5	3.0
Côte d'Ivoire	Cassava	2	3	2	NA	3	4	4	2	4	2	4	1	2	3.0	2.5	2.8
Ghana	Groundnuts Artisanal	4	4	3	NA	3	3	3	3	4	2	4	3	2	3.3	3.0	3.1
	Groundnuts Formal SME	NE	2	NE	NA	NE	NE	3	2	3	3	3	3	2	2.5	2.7	2.6

** Includes large scale producers. Only limited information given on soil health and biodiversity principles of this sub-chain.*

*** Includes medium scale producers and social enterprises*

**** Grey squares indicate principles where direct involvement of smallholders is uncertain or only partial. Some AE interpretations would invalidate the core, therefore alternative mean row scores are shown with and without these principles.*

(C) Certified sub-chains

Alignment with equity and social responsibility principles

In the internationally traded global commodity VCs, average scores for equity and social responsibility principles ranged widely between and within commodity VCs, from very low/low (e.g. conventional commercial cotton Ethiopia) to moderate to high (organic cotton, Ethiopia). A wide range of alignment can be found even within a sub-chain of a commodity. Adoption of sustainability standards tended to raise scores, although with some exceptions. Certified sub-chains fell short in co-creation of knowledge, social values and diet, fairness, smallholders' participation, connectivity and land and natural resources governance. Sustainability standards can help to reward smallholders, sustaining them in international VCs, but are rarely proactive in changing land rights. Women face risks of exclusion from producer organisations where land titles are mainly held by men. On specific principles, the findings included:

- Social values and diet: alignment was scored medium to high for domestically traded food sub-chains. International commodity sub-chains scored higher where the commodity was integrated into the farming or food system (e.g. cocoa in diversified food production systems, Nicaragua, and vanilla intercropped with food crops, PNG).
- Fairness: alignment was scored from low to moderate, based on whether producers considered trading arrangements to be fair, the fairness of workers' conditions, fair treatment of Intellectual Property Rights and the extent to which income from the sub-chain contributed to dignified and robust livelihoods.
- Connectivity: alignment was generally high for domestically traded food crops, as the principle emphasises proximity and confidence between producers and consumers, fair and short distribution networks and re-embedding food systems in local economies. In internationally traded chains, alignment was higher where confidence between consumers and producers was strengthened, e.g. by certification.

2. To what extent has production aligned to AE principles contributed to responsible VC development?

Assessing causality is challenging. In some internationally traded VCs, the existing production systems were relatively well aligned with AE production principles, facilitating introduction of organic standards and external certifications. However, outcomes appeared to vary from one VC to another, e.g. smallholder organically certified cotton in Ethiopia is supported by an NGO and the government, which appears to have encouraged a more responsible sub-chain, e.g. strengthening of producer organisations. In PNG vanilla, however, there was no clear evidence that organic certification had made a significant difference.

The cocoa and coffee cases illustrate the influence of country contexts including governance, maturity of the industry and commodity characteristics. In Ecuador, the shift to low-input, agroforestry production on environmentally degraded ex-plantation lands means that all the sub-chains, to some extent, lend themselves to sustainability certification, especially when combined with quality premiums. In contrast, in Nicaragua, much of the cocoa production takes place in semi-traditional slash-and-burn systems, with impacts on biodiversity, soil health and recycling. In Honduras, the establishment of certified perennial production systems was reportedly favourable in terms of AE transition, but traditional and local production systems are ignored by actors on all levels.

As a domestic / regionally traded commodity VC, the Ghana groundnuts artisanal sub-chain is part of a food system rooted in the culture and tradition of northern Ghana and aligns quite well with AE production principles and some aspects of equity and social responsibility (particularly social value and diet and connectivity).

3. How is market demand expressed and to what extent has it contributed to application of AE principles?

Relationships between markets and AE are subject to much debate. We explored this question through a simple categorisation of sub-chains according to whether they: a) produced at least partially 'agroecologically' but not differentiated on the market, b) produced at least partially 'agroecologically' and differentiated on the market, without international certification, and c) produced at least partially 'agroecologically' and differentiated on the market, with international certification, e.g. Organic, Rainforest Alliance.

Within internationally traded global commodity VCs, there is potential for transnational sustainability standards to encourage more AE production and improvements on some equity and social responsibility dimensions. Cases with international certification show moderate to high alignment with AE production principles, e.g. Organic cotton sub-chain Ethiopia; Certified coffee (Organic and/or Fair trade) sub-chain Honduras; Quality cocoa in Ecuador including some semi-wild collection and production by indigenous producers and certification; Gourmet (organic) cocoa Nicaragua; Organic sub-chain vanilla PNG. This may be because producers were already aligned with AE production principles but compliance can improve various criteria, e.g. reduced use of agro-chemicals, although with less influence on equity and social responsibility factors.

Few sub-chains without international certification were differentiated on the market or employed different ways of encouraging AE, such as Participatory Guarantee Systems (PGS) or direct trade arrangements. The conventional Nicaragua cocoa sub-chain was moderate-highly aligned with AE production principles, but it scored very low on AE social and responsibility principles. Differentiation on markets can also be due to quality attributes of products which are rewarded by speciality buyers in direct trade

relationships, e.g. the Premium cocoa sub-chain, Ecuador.

For domestic/regionally traded commodity VCs, none of the cases involved differentiation on markets as a way to reward AE. The artisanal groundnut Ghana sub-chain was moderately-highly aligned with AE production principles and AE equity and social responsibility principles, but it appears to lack clear market differentiation of products.

4. What conditions influence AE transitions of farming & food systems and value chains?

Based on the selected cases, we identified dimensions which enable or constrain AE transitions, but we recognise that these may vary given the diversity of views on what constitutes an agroecological transition or transformation and hence the enabling conditions. Market-based mechanisms such as Organic certification, can improve returns to producers, but may not meet responsibility criteria. Alternative systems of exchange offer potential for 'AE products', but these may struggle for market acceptance and reward for sustainable production beyond local markets.

Conclusions and implications for policymakers

Differences exist in AE understandings. The 13 HLPE AE principles attempt to build consensus, but ambiguity provides scope for diverse interpretations and obscures real differences in values and visions relating to AE, especially interpretations which might challenge market logics and corporate capitalist relations. How decision makers and other actors understand and frame agriculture and food systems issues will inform their view of AE and its potential role. Decision makers should support multistakeholder dialogue and learning around the potential of AE in specific contexts, making adequate space for plural values.

Characterising the different types of VC systems. The VCA4D studies reveal the complexity and diversity of global, regional, national and local VCs. The telecoupling of distant actors and socio-ecologies induce unforeseen impacts through spillover and leakage effects throughout the different source localities. Thus, it is important for policymakers and citizens to understand the substantive differences in potential AE pathways associated with different types of agrifood systems.

Alignment with AE principles. There is wide variance between and within commodity VCs in their alignment with the HLPE AE principles. Sub-chains are generally more aligned with production principles than with equity and social responsibility principles. The latter represent a greater challenge for decision makers involving changes to economic systems and power relations.

Can AE production encourage more responsible VCs? Where agricultural systems are well aligned with AE production principles it is easier to achieve environmental certification, but the causal link between certification and greater equity and social responsibility in VCs is not straightforward. For global VCs, decision makers could explore how to achieve incremental benefits by building on environmental standards to strengthen alignment with responsibility principles, although arguably such an approach potentially risks blocking more fundamental transformations of food systems. For local and national VCs, concepts, actions and potential arrangements around AE and responsibility need further exploration beyond the niche, e.g. expansion of pathways for territorialised food systems.

Markets and AE. The relationship between markets and AE is highly contested. Market-based mechanisms such as Organic certification, can improve returns to producers, but may not meet responsibility criteria and, arguably, may reinforce the status quo of the corporate food regime. Alternative systems of exchange (e.g. PGS) offer potential for 'AE products', but there is little evidence of low-income consumers in both rural and urban areas accessing and benefiting, given that challenges of market acceptance, demand and reward for sustainable production beyond local markets exist.

Value Chain Analysis for Development (VCA4D) is a tool funded by the European Commission / INTPA and is implemented in partnership with Agrinatura. Agrinatura (http://agrinatura-eu.eu) is the European Alliance of Universities and Research Centers involved in agricultural research and capacity building for development.

The information and knowledge produced through the value chain studies are intended to support the Delegations of the European Union and their partners in improving policy dialogue, investing in value chains and better understanding the changes linked to their actions. VCA4D uses a systematic methodological framework for analysing value chains in agriculture, livestock, fishery, aquaculture and agroforestry. More information including reports and communication material can be found at: https://europa.eu/capacity4dev/value-chain-analysis-for-development-vca4d-

This document is based on the VCA4D Conference transversal analysis "Agroecology, responsible value chains and agriculture & food system transformations" prepared by Richard Lamboll, Valerie Nelson, Gian Nicolay, Marc Cotter and Adrienne Martin. Value Chain Analysis for Development Project (VCA4D CTR 2017/392-416). The document is available at: https://capacity4dev.europa.eu/library/agroecology-responsible-value-chains-and-agriculture-food-system-transformations_en