

A photograph of a cocoa plantation. The trees are densely packed, with green leaves and dark brown trunks. A white circle is drawn around a tree trunk in the middle-right of the image. The ground is covered with fallen brown leaves.

# Unlocking targeted approaches to improve household resilience of cocoa farmers



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P.O. Box 29703, 2502 LS The Hague, The Netherlands, T +31 (0)70 335 83 30, E [communications.ssg@wur.nl](mailto:communications.ssg@wur.nl), <http://www.wur.eu/economic-research>. Wageningen Economic Research is part of Wageningen University & Research.



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# Scaling efforts yielded progress, but not widespread household resilience for cocoa farmers

## Key messages

- Efforts aiming to achieve resilience in the cocoa sector have been going on for 60 years.
- Progress has been achieved through decades of investment in sustainability programs, but the efforts have not yielded desired results.
- Cargill implements various sustainability activities aiming at improving household resilience.

## Investments aiming to achieve resilience in the cocoa sector have been going on for 60 years.

Since 1962, when the International Cocoa Agreement came into force, efforts have been undertaken to increase sustainability in the cocoa sector. Since the 1990s, interventions have been implemented by a wider range of actors, such as quality standards, NGO and private sector initiatives and multi-stakeholder plans (e.g. to eliminate child labour). The scope of sustainability goals addressed has increased since the 2010s, as well as the scale of implementation and the range of actors (e.g. governments, companies, NGOs, civil society, regulators, etc.). The limited impact of past interventions on poverty reduction shows the need for more targeted approaches and multi-stakeholder action. Nowadays, there is a move towards changes in the architecture of the system through new regulations and formal sector collaboration for creating global impact at scale.

## Progress has been achieved through decades of investment in sustainability programs, but the efforts have not fully achieved desired results.

Discussions and strategy implementation in the cocoa sector have evolved substantially, expanding the range of sustainability goals, engaging more stakeholders, and increasing the workforce involved in sustainability program implementation. There has been a recent increased emphasis on the entitlement of families to a living income in particular, with governments and organisations setting targets to achieve this. Various actors are working on initiatives like the Cocoa and Forest Initiative and landscape programs, aimed at enhancing biodiversity through forest protection, restoration, and afforestation, often including farmer field mapping. Companies collaborate with partners on community development, education, financial services, conditional cash transfers, and support for land titling and birth certificates. Gender equality and women's empowerment are increasingly important goals addressed in these programs. Review studies show that while interventions like extension services, VSLAs, cash transfers, input subsidies, and financial products can impact crop and household income, the effects are often modest, not significantly raising households above the extreme poverty line. About half of the cocoa producing households in Côte d'Ivoire and a third in Ghana and Indonesia still earn below the World Bank extreme poverty line, indicating that their income is not sufficient to fulfil their basic needs. Only a small proportion of households earns a living income.

## Cargill implements various sustainability activities aimed at increasing household resilience<sup>1</sup>.

The start of Cargill's sustainability activities in 2008 resulted in Cargill later becoming one of the first companies (together with Mars) to sell certified cocoa beans at scale. Currently, about half of Cargill's entire cocoa volume sourced is

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<sup>1</sup> Household resilience refers to the capacity of smallholder cocoa farming families to adapt to and recover from various challenges while sustaining their economic and social well-being.

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certified. Resilience is promoted through training, coaching and providing access to inputs in order to build capacity and to promote sustainable production. Not only farmers in Cargill's direct supply chain, but entire communities are targeted by community driven development initiatives such as CLMRS<sup>2</sup>, VSLAs<sup>3</sup> and community action plans. Cargill works on the protection and restoration of forests together with cocoa-growing communities, and supports farmer organisations in their entrepreneurial growth. New types of interventions such as direct cash transfers are also being piloted by Cargill, in partnership with their customers.

**This research brief by Wageningen University & Research (WUR) for Cargill summarizes a study on cocoa farming household resilience.**

This research brief summarizes the key findings of a larger WUR study, which was commissioned by Cargill. The study uses primary data, literature, interviews and focus group discussions to assess what is needed to improve the resilience of cocoa farming households. The focus of this study is on Côte d'Ivoire, but it includes reflections on generalizability for other main cocoa origins, such as Ghana. We looked at different resilience characteristics together, rather than in silos, including characteristics related to farmer livelihoods, community development and agroforestry. We have identified key changes needed to achieve resilience at scale. The aim of this brief is to make the complex research more understandable and actionable for a wider audience. It serves as a bridge between the detailed research report and the broader community, helping to share research findings and insights effectively. This research brief is therefore based on a wide literature base, even though this is not referenced in-text (see [References](#)).

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<sup>2</sup> Child Labour Monitoring and Remediation Systems

<sup>3</sup> Village Savings and Loans Associations

# Achieving resilience goals requires a targeted approach – focusing on the needs of specific types of households

## Key messages

- Cocoa households in Côte d'Ivoire face major challenges, hampering their entrepreneurial growth.
- Segmentation can be used to inform the design of targeted policies and interventions: we identify three main groups of households in Côte d'Ivoire with different characteristics and needs.
- Acting upon the needs of different groups of households requires cocoa sector actors to set evidence-based targets based on different needs of different types of farmers, alone and together.
- Despite huge investments already made, changing the scale of interventions is needed to achieve living income ambitions and household resilience.
- Cocoa sector actors should explore effective ways to get more money in the pockets of the households, for example through cash transfers, premium or price increases.
- Besides the relevant interventions for the specific groups, some interventions and policies need to take place at the sector level (national and global) and are relevant for all groups.
- Households and vulnerable groups should have a voice in policy and intervention design to ensure the interventions have the desired impact on addressing cocoa farming household needs.
- Trust between cocoa sector actors is important to drive change; parties need to focus more on building trust within and between parties to optimize impact.

## Household resilience refers to the capacity of smallholder cocoa farming families to adapt to and recover from various challenges while sustaining their economic and social well-being.

In this brief, household resilience is defined as the capacity of smallholder cocoa farming families to effectively cope with and recover from various shocks or challenges, particularly concerning low incomes, increased costs of living and

inputs, and the elevated agricultural and health risks they face, for example because of climate change. The resilience of cocoa farming households cannot be improved without seeing them in relation to other stakeholders in the cocoa sector, including governments and companies. This brief emphasizes an analysis of socioeconomic resilience at the farmer household level while considering the needs and interactions of other key stakeholders. The brief also highlights the importance of closing the living income gap by using it as a proxy for household resilience, emphasizing the need for adequate income and savings to withstand unforeseen challenges.

## Cocoa households' resilience in Côte d'Ivoire faces major challenges in terms of incomes and environmental pressure.

In this study we have focused on Côte d'Ivoire in particular. The country is one of the largest cocoa producer countries, accounting for 44% of global cocoa bean production in 2020. The economy is heavily dependent on cocoa exports, which account for 40% of the country's export earnings. Looking at the resilience of cocoa farming households in Côte d'Ivoire, two major challenges identified are low incomes and environmental challenges affecting cocoa yields. Using household data collected by Cargill, we found that only 9% of the households achieve a living income and that almost half of the households earn below the USD 2.15 World Bank's extreme poverty line, indicating very low resilience to any shocks a household may encounter. Literacy rates are low, and a low proportion of children of cocoa farmers go to secondary school. In terms of environmental issues, farmers interviewed during this study especially worry about high and rapidly increasing pest and disease pressure (especially swollen shoot). Together with changing climatic conditions, pests and diseases are an issue that will affect yields in all major origin countries, with some parts of the cocoa-growing areas in West Africa becoming completely unsuitable for cocoa production by 2050.

### **The continued vulnerability of a large proportion of households hampers their potential for growing their business.**

Households face important and persistent barriers to grow their income and enhance their resilience substantially in absolute terms. We use the term 'substantially' on purpose because of the poverty urgency; often, policies and strategies assume a certain percentage increase in yield or income, which, if they materialise, would mean a small increase in real terms for many households, because they start with a low yield or income. In other words, a substantial increase in incomes would take quite a long time and also would incur high intervention cost to materialise. Most households have very little voice and choice that would enable them to grow their business. Main barriers, addressed by farmers as well as the literature, are financial and limitations in time (when adult household members do not have sufficient time to manage the farm well, when they cannot hire labour) to invest as well as a lack of opportunities other than cocoa. The farmers we spoke with also indicated preferring their children to find better options to earn an income, but mentioned wanting their children to keep the farm as a safety net after inheriting the land. The households facing the largest barriers are the most important to support from a sustainability, human rights and social justice perspective.

### **Segmentation can be used for the design of targeted policies and interventions.**

As different households face different challenges, even within a country or region, increasing the resilience of households requires interventions or policies that are targeted to their specific needs, rather than a single set of supports for a generic farmer profile. Different types of farming households will develop resilience along different pathways (see Figure 1 for examples of different development pathways). Addressing specific household needs allows for achieving more impact more cost-effectively. Identifying the needs of different types of households allows for designing effective strategies and policies including what role different actors can play. We have conducted a statistical household segmentation using Cargill's coaching survey, which was collected from 89,987 farmers from Côte d'Ivoire in 2021. Segmentation or clustering analysis is a statistical approach used to divide households into groups minimising differences between members of those groups. We combined the data from the coaching survey with the results from the CLMRS survey collected

in 2019/2020 and a survey focusing on agroforestry. Due to data limitations, the statistical clustering was conducted on a subsample of 9,140 households.

#### **Methodology: Segmentation analysis**

The segmentation analysis is based upon two different types of variables: main variables and descriptive variables. The main variables are based upon their importance in intervention design and cover variables relevant to different types of interventions (e.g. CLMRS, agroforestry). These variables consist of: the total net household income, indicators from CLMRS, the number of adults in the household, climatic suitability for the production of cocoa, shade tree coverage, total farm size, and the distance to the main road. The descriptive variables are variables that describe the characteristics of the households in the different groups. These include, among others: the gender, age and literacy rate of the respondent, the household size and input costs. The logic to distinguish these two different types of variables is that the main variables are of great importance in influencing intervention approaches, while the descriptive variables are not. For example, households with high incomes, good climatic suitability and high shade tree coverage, but also with a high risk of child labour, require a different approach compared to households with low incomes, low climatic suitability, low shade tree coverage and low risk of child labour. The tailoring of this approach is then irrespective of the descriptive variable i.e., age of the farmer or other farm or household characteristics. This does not mean that the age of the farmer is not relevant, but in order to keep the recommendations linked to the key household characteristics, we limit the amount of variables we take into account for the differentiation of the intervention approaches.

### **We identify three main groups of households in Côte d'Ivoire.**

The segmentation analysis resulted in six different groups of households, with each group having specific characteristics. In terms of their household incomes as well as relevant interventions to increase household resilience, these six groups can be narrowed down into three main groups, which are described in three farmer personas. The farmers presented in these personas represent a farmer in an average household of each group.



### Bakary (46)

### Persona 1

Bakary belongs to the largest group (62%) with the poorest households: his household would need an additional 1.6 dollars per person per day to achieve a living income. The household consists out of 6 people: 2 adults and 4 children. He has 3 hectares of land in total, of which 2.5 are dedicated to cocoa. Since he has relatively low yields, increased prices will have a lower effect on his total income from cocoa. As Bakary experiences very high barriers to income growth and cannot be expected to invest in his farm, interventions should therefore be directly aimed at improving his living standards.

#### Relevant interventions:

- Cash transfers
- Off-farm employment support
- Community development in close collaboration with communities to address their most urgent needs

***"I'm stuck in cocoa even though I don't earn anything. All of our children go to school. If my child becomes a cocoa farmer, it would be out of desperation, because they wouldn't have found anything else to do."***

Total household income

**2529 USD/year**

Yield/ha

**663**

Cocoa farm size

**2.54 ha**



### Kouame (51)

### Persona 2

Kouame belongs to a smaller group (22%) of relatively rich households, closer to earning a living income, but his household is also still about 1 dollar per person per day away from achieving this. He lives in a large household of 10 people, out of which 5 are adults. He has a large farm with about 6 hectares of land in total, of which 4 hectares are dedicated to cocoa, as well as high cocoa yields and total income. Because of this, he is more likely to be able to invest in his farm, which is relevant for intervention design.

#### Relevant interventions:

- Access to credit and inputs
- Payments for ecosystem services
- Support for diversification as rural service entrepreneurs (e.g. shops, transport)

***"Being a cocoa farmer is convenient because you can get up in the morning at any hour, and you can easily feed 20 people with it."***

Total household income

**5180 USD/year**

Yield/ha

**748**

Cocoa farm size

**4.14 ha**



### Koffi (45)

### Persona 3

Koffi belongs to the smallest group (17%) and is in between the two other groups in terms of household income. His household would need to earn 1.2 dollars per person per day more to achieve a living income. He lives in a household of 6 people, of which 3 are adults. He has 6 hectares of land in total but only dedicates 3 of those to cocoa. Households in this group are quite diverse, consisting of farms with very high shade tree cover on one hand, which might make them more resilient to future climate change, and on the other hand farms on the complete outskirts of the cocoa growing region which is the region with low future climatic suitability for growing cocoa. Koffi therefore needs support tailored to his situation.

#### Relevant interventions:

- On-farm diversification support for selling non-cocoa farm products for farms with high shade tree cover (e.g. access to affordable inputs and facilitation of sales channels)
- Off-farm employment support for households on the outskirts of the cocoa growing regions
- Cash transfers

***"If we don't reinvent the way cocoa is grown, I don't think cocoa will exist anymore. In the years to come, I think we're going to have to irrigate everything. Otherwise there will be no more arable land. And the soil is also getting poorer every year."***

Total household income

**3553 USD/year**

Yield/ha

**703**

Cocoa farm size

**3.27 ha**

### Acting upon the needs of different groups of households requires cocoa sector actors to set evidence-based targets, alone and together.

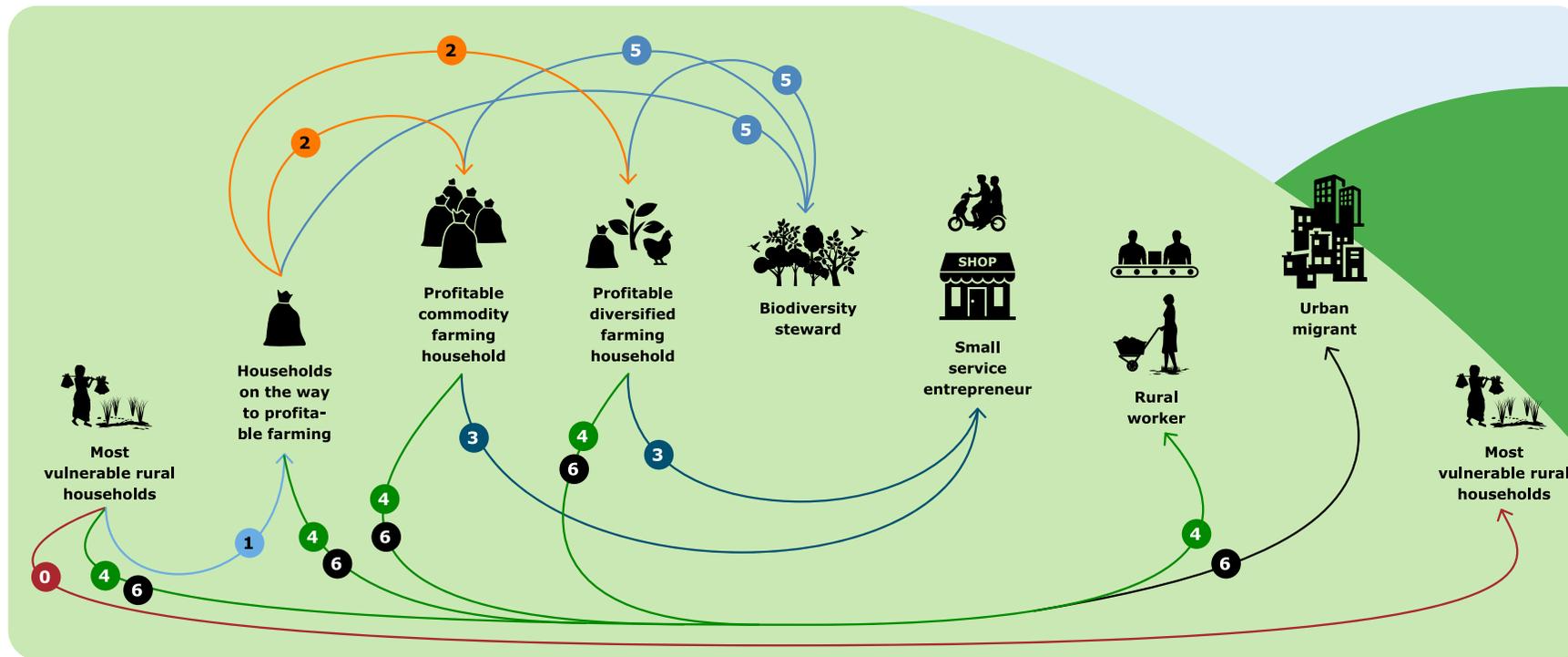
We recommend that stakeholders (buyers, investors, shareholders and others) collaborate to establish evidence-based targets and develop (business) models to facilitate their implementation. Segmentation analyses like the one performed in this study could guide the definition of targets and the design of tailored interventions and policies, supplemented by discussions with households to validate segmentation analysis findings. Defining these intervention strategies should include: a) defining the specific households to be targeted, recognizing that not all households will follow the same path; b) providing information on the trade-offs between funding different social and environmental objectives; and c) considering the potential impacts on different household types, taking into account and mitigating any unintended negative consequences. Such evidence-based intervention strategies can be developed and implemented together with NGOs and governments, and verified by independent parties.

### Despite huge investments already made, a large increase is still needed to achieve living income ambitions and household resilience.

Directly increasing household incomes substantially and at scale requires significant additional funding, by many different parties in the cocoa sector. We did a simplified calculation to estimate the amount required to pay the Fairtrade Living Income Reference Price (FLIRP) to all cocoa farming households in Côte d'Ivoire, to get an idea of the implications of paying it at scale. Paying the FLIRP for 2.4 million metric tonnes of cocoa produced, would lead to a cost increase of around EUR 1.6 billion per year, a 44% increase compared to paying the regulated farmgate price.<sup>4</sup> If all cocoa farming households in Côte d'Ivoire would receive a cash transfer of EUR 400<sup>5</sup> per year, this would cost around EUR 320 million per year. Besides the magnitude of these numbers, another question is whether and how these amounts would reach the pockets of households, as well as how payments would be timed and distributed in a fair manner. The total (additional) investment needed depends on price, total volumes produced and the cost of living, so continuous monitoring of such developments is needed.

<sup>4</sup> This is based on the total volume of cocoa produced in 2022, and the FLIRP and regulated farmgate price levels for 2023, which are EUR 2.2 per kilogram and EUR 1.52 per kilogram respectively. Total production volumes for 2023 are unavailable at the time of writing.

<sup>5</sup> EUR 400 is in the range of cash transfers being provided by other actors in the cocoa sector (e.g. Nestle, 100Weeks). The total number of households used for this calculation is an estimated 800.000.



## Development pathways

### 0 Business as usual without structural change

Business as usual scenario in which structural change does not occur, for instance related to price levels (leading to much higher prices), employment creation (access to good jobs) and social protection.

### 1 Developing a resilience buffer

Household 'continues to farm primarily for subsistence—has little or no surplus—but is able to improve farming practices and build assets to strengthen its resilience to external shocks'.

### 2 Farm intensification and value addition

Household 'takes a business-oriented approach to farming, and is able to generate a surplus and increase production value through improved inputs, better farming practices, and regular sales to buyers and traders'. This can include on-farm diversification and value addition activities.

### 3 Transition to service provision

Household 'shifts away from agricultural production and [...] pursues an entrepreneurship livelihood strategy in rural services, either related to agriculture (e.g., transport) or not (e.g., shop). They likely keep the farm as a safety net (and assign or hire a caretaker).

### 4 Conversion to rural employment

The household 'remains in rural areas but shifts away from self-production or entrepreneurship to become labour for on-farm or off-farm activities'. They likely keep the farm as a safety net (and assign or hire a caretaker).

### 5 Becoming biodiversity stewards

Household shifts away from focusing on agricultural production to earning a substantial amount of income from non-agricultural values of the land, for instance through tourism and obtaining payments for environmental services. While producing niche products achieving high prices.

### 6 Migration to urban areas

The household or household member(s) 'migrates to urban centres, transitioning to non-agricultural activities'. They likely keep the farm as a safety net and assign or hire a caretaker.

**Figure 1** Development pathways for smallholder cocoa farming families (adapted from ISF, 2019)

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**Cocoa sector actors should explore effective ways to get more money in the pockets of the households, for example through cash transfers, premium or price increases.**

Improving household resilience requires tackling barriers to entrepreneurial growth (for farm and off-farm entrepreneurship) and exploring ways households can earn more income from off-farm sources. As shown in the farmer personas, the majority of the households face very high barriers to income growth, and increasing their incomes cannot be done by assuming these households are able to invest sufficiently. These households should first be supported with interventions and policies directly and substantially increasing their incomes, for example through cash transfers/social protection or price increases (which can also be implemented through premiums on top of official farmgate prices). This also includes fair payments to households for services that will not benefit them directly (or in the short term), such as participating in interviews to plant trees and implementing climate smart practices. However, it is very important to carefully consider market volatility in the short and the long run to avoid future situations of oversupply if prices were to increase or cash transfers would lead to large investments increasing cocoa volumes, as that could lead to a downward pressure on prices or households being left with cocoa impossible to sell. Working towards reducing the cost of living (e.g. provide good access to water, paying school fees, subsidising health insurance or providing healthcare access, fund child-safe spaces and transport services) can also increase the amount of money in pockets of the households – which will help close the living income gap. At the time of writing this research brief, the futures market price for cocoa is historically high, but this has not yet been translated in higher farm gate prices. Careful monitoring of the developments around this situation and its impacts on farmer behaviour is necessary towards the future.

**Besides the relevant interventions for the specific groups, some interventions and policies need to take place at the sector level (national and global) and are relevant for all groups.**

These sector level interventions require different types of actors to play a role. For example on the topic of mitigating the impact of shocks on households, national governments could for example explore how to implement a national social protection programme, co-funded by companies, NGOs and governments of consuming countries through a fund. Such a fund would also include social protection for non-cocoa farming households in cocoa growing areas. Other

sector level interventions that require different actors to act and align include farm gate price and/or premium increases (including minimum price guarantees), supply management, land governance, employment creation, infrastructure, education, human rights & biodiversity protection. Another example of different roles of different actors regards the payment of the Living Income Reference Price. Here, the funding for the required increased investments could be found through for instance pooling of resources from various stakeholders within the value chain, possibly by foregoing some (not cost-effective or evidence-based) activities which are currently implemented. Shareholders need to be involved in discussions in order to allow organisations to be able to pay such prices to households. Consuming country governments could finally also contribute to such a fund from the (tax) income they make from cocoa.

**Households and vulnerable groups should have a voice in policy and intervention design to ensure the interventions and policies have the desired impact on addressing cocoa farming household needs.**

To ensure the success of policies and interventions aimed at significantly enhancing household resilience, it is crucial to actively engage with households and specific vulnerable groups within them. As mentioned previously, local validation of data-driven segmentation analysis and intervention design is crucial to ensure validity, effectiveness and credibility. These discussions should encompass the right participants and relevant topics. Farmer organizations could play an important role in this, but there should be a particular focus on targeting and representing women, youth, and marginalized groups. Moreover, it is essential to handle sensitivities associated with delivering different types of interventions to various households or communities, considering potential impacts on social relationships and perceptions. Additionally, exploring mechanisms for households or farmer organizations to become formal shareholders in the organisations, such as stock ownership with a stronger voice in decision-making, can enhance their stake in the success of the interventions. Furthermore, sharing data collection results with households to support their decision-making processes can contribute to more effective and targeted interventions and policies.

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**Trust between parties is important to drive change; parties need to focus more on building trust within and between parties to optimize impact.**

Besides a clear vision and clear targets, trust between parties, and robust relationships within and between organisations, are crucial drivers of change. These elements, along with commitment and motivation of top management, are vital for instigating change. Top management can inspire staff, partners, investors, and shareholders, and they have the capacity to seamlessly integrate impact-driven indicators throughout the organisation and align with other parties in the sector. Transparent reporting and alignment around impact metrics between parties will foster greater trust and confidence in the funded strategies, leading to sustainable and impactful advancements in the industry.

# Harmonized and reliable data is necessary to understand and effectively intervene on the needs of different types of households

## Key messages

- Interventions require consistent evaluation to ensure efficacy and existing data collection efforts have a high potential to be able to measure the impact of interventions.
- A shift towards a longer-term view and investment with regards to data collection is needed to improve intervention impact analysis and effective learnings.
- High-quality and aligned data is crucial to accurately keep track of impact indicators.
- Harmonization of personal identifiers in datasets and tracking of interventions at the individual level is essential.
- The cocoa sector would highly benefit from sharing data and learning.
- Feedback loops are needed to increase the effectiveness of data collection.
- Households should receive a fair compensation for their participation in data collection activities.

## **Interventions require consistent evaluation to ensure efficacy and existing data collection efforts have a high potential to be able to measure the impact of interventions.**

In order to evaluate whether the relevant interventions mentioned in the previous section are actually achieving their goals, or whether funds would be better allocated to other interventions, consistent evaluation of interventions is crucial. Data can help us not only understand which interventions work for which groups and whether the interventions are addressing the needs of specific groups, it is also crucial in ex ante learning about the characteristics and needs of different groups (e.g. through segmentation). There have been numerous

studies aimed at measuring the impact of specific interventions, but most reports mainly focus on presenting project outputs only (e.g. the number of farmers involved). This kind of information focuses on the quantity rather than the quality of interventions. One of the potential reasons for this focus is that in-depth impact analyses can be very costly.

## **Cocoa sector data collection for impact measurement can be optimized by implementing cost-effective strategies and efficient sampling methods.**

Organisations in the cocoa sector, including companies such as Cargill, are collecting large quantities of farmer data. This is very costly due to the challenging environment for data collection. Making relatively small adjustments to data collection make the process less costly and would allow for measuring impact instead of output only. Costs of data collection for the data collectors may be reduced by applying efficient and representative sampling strategies instead of interviewing all farmers, so that the number of farmers interviewed during each round may be reduced. It is recommended to only collect a small amount of key indicators if data collection on all farmers is absolutely required. A much smaller sample can be selected representatively for additional indicators necessary for learning. In this way, not every farmer will have to participate in yearly lengthy surveys.

## **A shift towards a longer-term view and investment with regards to data collection is needed to improve intervention impact and effective learning.**

In order to shift the current data collection system to one that can be used to structurally measure impact, several changes - addressed in the following paragraphs - are needed that require an investment in terms of human capital to embody such changes, as well as a long-term view and willingness to put the

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required system in place. In order to improve the effectiveness of interventions, systematic and accurate measurement of the impact of interventions is required. The required changes cannot only take place within a single organisation, but also demand alignment with other stakeholders in the sector.

### **High-quality and aligned data is crucial to accurately keep track of impact indicators.**

Existing annual data collection rounds already contain some indicators at the impact level, however the quality of this data could often be improved. Particularly questions on the costs of production and non-cocoa income are hard to capture. There are existing sector-wide efforts to improve and align such indicators by the Alliance for Living Income in Cocoa<sup>6</sup> and the adoption of these indicators in existing data collection rounds is an important step towards accurate measurement of impact on incomes. Similar efforts for other impact level indicators (e.g. on the eradication of child labour or forest protection) are strongly encouraged to be connected to the harmonization of data collection for household income assessments, to ensure data comparability and efficacy with regards to assessing intervention effectiveness for evidence-based policy and impact.

### **Harmonization of identifiers and tracking of interventions at the individual level is essential.**

One of the key challenges when working with existing data are unique identifiers. Although efforts on the alignment of unique identifiers have already started in some cases, it remains an important challenge to cover. Organisations usually have unique identifiers for cocoa farmers in their supply chain, but as these are not harmonized across different organisations, data from partner organisations may not be matchable or comparable at the farmer level. This holds for both data collected by partner organisations as well as intervention data. In order to accurately measure the impact of different interventions it is crucial to keep track of which farmers received which intervention exactly (including from partner organisations), and to be able to match this intervention data to existing data collection efforts on impact indicators such as the yields<sup>7</sup> and incomes of the households using the unique identifier. Making sure that

information is collected and identifiable at the farmer level is also an important step towards alignment with the CSRD, EUDR and CSDDD legislations.

### **The cocoa sector would highly benefit from sharing data and learning.**

Sector efforts regarding data collection should ideally go beyond using the same indicators. The improvements to be made in terms of alignment between different organisations can clearly be seen when looking at data collection approaches, with many different actors within the supply chain collecting the same kind of information, sometimes from the same farmers. Sharing data between parties will enable making more efficient use of resources and optimize learning by all stakeholders. Concretely, if indicators are aligned, data sharing between companies and partner organisations can be organised in a more efficient manner in order to prevent farmers answering the same questions twice in the same season. Also the sharing of key learnings on interventions between different organisations within the sector does not only increase trust between different organisations, but is also a crucial factor in terms of ensuring that the effect of funds on impact targets is optimized. Involving a neutral, independent party in data sharing and learning can help to solve practical issues around data sensitivities by ensuring that data sharing is done through them, and that data used for learning discussions are anonymized and presented at the sector level instead of the individual company level.

### **Feedback loops are needed to increase the effectiveness of data collection.**

To increase the effectiveness of the collected data, learning sessions with households and partners should be organised to feed the discussions on the design of new programmes or strategies or the adjustment of existing programmes or strategies. How these learning sessions are managed depends on the purpose of the learning sessions: with households, the sessions should focus on what matters most for them to progress towards the targeted objective. Such objectives can include providing information on the relationship between cost of production and yield in which the households are compared with similar households nearby or in their region or information on opportunities for on- and off-farm diversification, including possible business models.

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<sup>6</sup> See WUR, 2023. Towards more impact through a sector wide cocoa household income study - Engagement phase results, page 77-84 ([PowerPoint Presentation \(living-income.com\)](#)).

<sup>7</sup> From both sourcing volumes as well as survey data.

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### **Households should receive a fair compensation for their participation in data collection activities.**

As mentioned already, data collection efforts are very expensive, both for the data collectors as well as for the farmer. Unless being part of a data collection activities is linked to a *direct benefit* for households, such an activity prevents households from earning an income in the time needed to participate.

Households should therefore be compensated not only for any costs that they may incur related to their participation (such as travel costs), but also for their time. This compensation should be fair. Besides a fair financial compensation, fair compensation also includes the sharing of relevant information collected during interviews with farmers, for example on accurate farm sizes when mapping has been done. Fair compensation also supports high data quality and future participation.

### **Building farmer household resilience in cocoa requires a more targeted approach.**

To sum up, cocoa farming households need more targeted solutions, rather than a uniform approach. This approach enhances the potential for impactful programming and strategy-setting by the diverse actors involved in the cocoa sector. Setting evidence-based targets per group and using segmentation analysis to understand the needs of different types of cocoa farming households facilitates the design of interventions that directly address the needs of each household segment. It is important for all cocoa sector stakeholders to act upon these specific needs while aligning their objectives and approaches. The effective execution of these targeted interventions requires the monitoring of impact-focused metrics, ensuring data quality, alignment, sharing, and making sustained, longer-term commitments and investments.

# References

- Afriyie-Kraft, L., Zabel, A., & Damnyag, L. (2020). Index-based weather insurance for perennial crops: A case study on insurance supply and demand for cocoa farmers in Ghana. *World Development Perspectives*, 20, 100237. <https://doi.org/10.1016/J.WDP.2020.100237>
- Agbenyo, W., Jiang, Y., Wang, J., Ntim-Amo, G., Dunya, R., & Frempong, L. N. (2023). Does weather index-based insurance adoption influence Cocoa Output? An endogenous labour regression approach. *Climate and Development*. <https://doi.org/10.1080/17565529.2023.2179868>
- ARSO. (2020). *AFRICAN STANDARD DARS 1000-2 Sustainable cocoa-Part 2: Requirements for Cocoa Quality and Traceability*. [www.arso-oran.org](http://www.arso-oran.org)
- B&FT. (2023). *Cocoa Farmers Pension Scheme*.
- Bellini Motovska, N., Janssen, V.C.J., Waarts, Y., Heriyanto, D. (forthcoming). Barriers and opportunities to closing living income gaps of cocoa producing households in Indonesia.
- Berkhout, E., Waarts, Y., Onduru, D., Motosvka, N., Wattel, C., van Asseldonk, M., Ingram, V., Prathihast, A., Likoko, E., van Rijn, F., & Bergevoet, R. (2022). *Sustainable Landscape and Livelihoods Programme, Mount Kenya : Situation analysis and baseline of the Impact evaluation*. <https://doi.org/10.18174/564811>
- Bloomberg. (2021). *Crop Giant Cargill Reports Biggest Profit in 156-Year History – Bloomberg*. <https://www.bloomberg.com/news/articles/2021-08-06/crop-giant-cargill-reports-biggest-profit-in-156-year-history#xj4y7vzkg>
- Borman, G.D., de Boef, W.S., Dirks, F., Gonzalez, Y.S., Subedi, A., Thijssen, M. H., Jacobs, J., Schrader, T., Boyd, S., ten Hove, H. J., van der Maden, E. (2022). Putting food systems thinking into practice: Integrating agricultural sectors into a multi-level analytical framework. *Global Food Security*, 32. <https://doi.org/10.1016/j.gfs.2021.100591>
- Care. (2022). VSLA By the numbers: A comprehensive analysis of the impact and ROI of VSLAs.
- Cargill Cocoa Promise Handbook. (2019).
- Cargill Cocoa Promise KPI Tree. (2018). [www.cargill.com](http://www.cargill.com)
- Cargill. (2020). Making agroforestry work at scale. Economic modelling of cocoa-agroforestry solutions in Côte d'Ivoire. Insights from economic research conducted by Cargill, PUR Projet and the 1 for 20 Partnership. Ember. (2023). Carbon Price Tracker. The latest data on EU and UK ETS carbon prices. Carbon Price Tracker | Ember ([ember-climate.org](http://ember-climate.org)).
- Cargill. (2021a). *Cocoa & Forests Initiative Progress Report. Progress Report*.
- Cargill. (2021b). *Cocoa Sustainability Progress Report | Sustainable Cocoa | Cocoa & Chocolate | Cargill*. <https://www.cargill.com/sustainability/cocoa/cocoa-sustainability-progress-report>
- Cargill. (2022). *What matters most | Cargill 2022 Annual Report*.
- Christman Cole, C. (2019). *Companies Spoke. Did their Suppliers Listen? Tracking Behind the Brands sustainability commitments through the supply chain with the 'agribusiness scorecard.'* <https://doi.org/10.21201/2019.4177>
- CNN. (2022). *Chocolate is having a moment | CNN Business*. <https://edition.cnn.com/2022/11/09/business/chocolate-sales-ctrp/index.html>
- Cordes, K., Sagan, M., & Kennedy, S. (2021). Responsible Coffee Sourcing: Towards a Living Income for Producers. *Columbia Center on Sustainable Investment Staff Publications*. [https://scholarship.law.columbia.edu/sustainable\\_investment\\_staffpubs/199](https://scholarship.law.columbia.edu/sustainable_investment_staffpubs/199)
- COSA and KIT 2020. Guidance on calculating household income Version 1. Prepared for the Living Income Community of Practice. [0c5ab3\\_5bfb3b8e694c45c290483b3e93043fd1.pdf](https://www.living-income.com/0c5ab3_5bfb3b8e694c45c290483b3e93043fd1.pdf) ([living-income.com](http://living-income.com)).
- Daily Coffee News. (2017). *Farm gate Price: An Important, But Partial, Piece of the Sustainability Puzzle – Daily Coffee News by Roast Magazine* *Daily Coffee News by Roast Magazine*. <https://dailycoffeenews.com/2017/09/19/farm-gate-price-an-important-but-partial-piece-of-the-sustainability-puzzle/>
- Dan Lefkowitz. (2022). *Sustainable Dividends for Sustainable Investors | Morningstar Indexes*. <https://indexes.morningstar.com/insights/analysis/bltb287e807e8f4e2bb/su>

- [sustainable-dividends-for-sustainable-investorsEY. \(2021\). Make sustainability accessible to the consumer | EY – Global. \[https://www.ey.com/en\\\_gl/consumer-products-retail/make-sustainability-accessible-to-the-consumer\]\(https://www.ey.com/en\_gl/consumer-products-retail/make-sustainability-accessible-to-the-consumer\)](https://www.ey.com/en_gl/consumer-products-retail/make-sustainability-accessible-to-the-consumer)
- de Volkskrant. (2023). *Bij Tony's Chocolonely is de missie belangrijker dan de nettowinst*. <https://www.volkskrant.nl/economie/bij-tony-s-chocolonely-is-de-missie-belangrijker-dan-de-nettowinst~baa7b1d0/>
- Dijkstra, G. (2023). Cooperating for development. Valedictory lecture Geske Dijkstra. Erasmus University [Global Development Issues Lecture 3, Politics, institutions and culture \(eur.nl\)](https://www.erasmus.nl/global-development-issues-lecture-3-politics-institutions-and-culture) (Accessed 25 May 2023).
- Dubois, P. (2013). *The international coffee organization 1963 to 2013: 50 years serving the world coffee community*. [https://www.academia.edu/6988722/THE\\_INTERNATIONAL\\_COFFEE\\_ORGANIZATION\\_1963\\_2013\\_50\\_YEARS\\_SERVING\\_THE\\_WORLD\\_COFFEE\\_COMMUNITY](https://www.academia.edu/6988722/THE_INTERNATIONAL_COFFEE_ORGANIZATION_1963_2013_50_YEARS_SERVING_THE_WORLD_COFFEE_COMMUNITY)
- Ecdpm. (2022). *Ghana's brown gold: The political economy of the cocoa sector – ECDPM*. <https://ecdpm.org/work/ghanas-brown-gold-political-economy-cocoa-sector>
- Ecorys. (2022). *Cocoa Processing Study Final report Commissioned by the Netherlands Enterprise Agency*.
- Elverfeldt, C., S. Schwarze and Manfred Zeller. (2008). Payments for Environmental Services – Incentives through Carbon Sequestration Compensation for Cocoa-based Agroforestry Systems in Central Sulawesi, Indonesia. Department of Agricultural Economics and Social Sciences in the Tropics and Subtropics (Ed.), *Forschung zur Entwicklungsökonomie und – politik Research in Development Economics and Policy*, Discussion Paper No. 02/2008.
- EU. (2022). *EU, Côte d'Ivoire, Ghana and the cocoa sector endorse an Alliance on Sustainable Cocoa*. [https://policy.trade.ec.europa.eu/news/eu-cote-divoire-ghana-and-cocoa-sector-endorse-alliance-sustainable-cocoa-2022-06-28\\_en](https://policy.trade.ec.europa.eu/news/eu-cote-divoire-ghana-and-cocoa-sector-endorse-alliance-sustainable-cocoa-2022-06-28_en)
- EU. (2023). *EU Sustainable Cocoa Initiative | Knowledge for policy*. [https://knowledge4policy.ec.europa.eu/global-food-nutrition-security/topic/sustainable-food-systems/eu-sustainable-cocoa-initiative\\_en](https://knowledge4policy.ec.europa.eu/global-food-nutrition-security/topic/sustainable-food-systems/eu-sustainable-cocoa-initiative_en)
- Fairtrade International. (2022). *A just transition for cocoa and coffee smallholders to access a deforestation-free and forest degradation-free European market*. Fairtrade International.
- [Fairtrade position and recommendations deforestation regulation.pdf](https://www.fairtradenederland.nl/jaarverslagen/) (accessed 26 May 2023).
- Fairtrade Nederland. (2020). *Jaarverslagen – Fairtrade Nederland*. <https://www.fairtradenederland.nl/jaarverslagen/>
- Fairtrade. (2019). *Fairtrade Living Income Reference Prices for Cocoa: An explanatory note (revised version 2019)*. Ferrin, G. (2019). *Ecosystem services in fine flavour cocoa agroforestry systems from Ecuador MSc Thesis Plant Production Systems*.
- Fairtrade. (2022). *Fairtrade Living Income Reference Prices for Cocoa*.
- Fairtrade. (2023). *Fairtrade Living Income Reference Prices for Cocoa update October 2023*. Fairtrade. [Fairtrade-Living-Income-Reference-Price-for-Cocoa-update-1-Oct-2023.pdf](https://www.fairtradeinternational.com/press-releases/fairtrade-living-income-reference-price-for-cocoa-update-1-oct-2023.pdf)
- FAO. (2023). *FAO Capacity Development Good Practices on Resilience | Food and Agriculture Organisation of the United Nations. Resilience | FAO Capacity Development | Food and Agriculture Organization of the United Nations*
- Farmer Income Lab. (2021). *Disrupting Commodities Building Thriving Rural Communities and More Sustainable, Resilient Agricultural Supply Chains Mobilizing Business Action on SDG 1*.
- Farmer Income Lab. (2022). *Enabling Smallholder-Based Agricultural Transformation Lessons for companies from countries that have successfully reduced smallholder poverty at scale Mobilizing Business Action on SDG 1*.
- Fidelity International. (2020). *Outrunning a crisis: Sustainability and market performance*. <https://www.fidelityinternational.com/editorial/article/outrunning-a-crisis-sustainability-and-market-outperformance-2ce135-en5/>
- Fidelity International. (2021). *Fidelity research finds link between ESG and dividend growth*. <https://www.fidelityinternational.com/editorial/article/fidelity-research-finds-link-between-esg-and-dividend-growth-02b055-en5/>
- Fletcher, R. (2023). *Failing Forward: The Rise and Fall of Neoliberal Conservation*. University of California Press. <https://research.wur.nl/en/publications/failing-forward-the-rise-and-fall-of-neoliberal-conservation>
- Fontein, H., Van Voorn, G., Hengeveld, G., de Steenhuijsen Piters, . (2022). *Assessing the impact of interventions on food systems resilience*.

- Food Navigator. (2022). *Behind Nestlé's CHF1.3bn drive to bridge the living income gap in cocoa*. <https://www.foodnavigator.com/Article/2022/02/11/Behind-Nestle-s-CHF1.3bn-drive-to-bridge-the-living-income-gap-in-cocoa>
- Fountain, A. (2022). *Cocoa Living Income Compendium*. The Cocoa Barometer Consortium, administered by the VOICE Network. [220920-Cocoa-Barometer-Living-Income-Compendium.pdf \(voicenetwork.cc\)](https://www.voicenetwork.com/220920-Cocoa-Barometer-Living-Income-Compendium.pdf)
- Fountain, A., & F. Huetz-Adams. (2022). *Cocoa Barometer 2022*. The Cocoa Barometer Consortium, administered by the VOICE Network. [Cocoa-Barometer-2022.pdf \(voicenetwork.cc\)](https://www.voicenetwork.com/Cocoa-Barometer-2022.pdf)
- Giller, K.E., Andersson, J., Delaune, T., Silva, J.V., Descheemaeker, K., van de Ven, G., Schut, A.G.T., van Wijk, M., Hammond, J., Hochman, Z., Taulya, G., Chikowo, R., Narayanan, S., Kishore, A., Bresciani, F., Mancini Teixeira, H., and van Ittersum, M. (2022) The future of farming: who will produce our food? IFAD Research Series 83. Rome: IFAD. Retrieved from: <https://www.ifad.org/en/web/knowledge/-/research-series-83-the-future-of-farming-who-will-produce-our-food->
- Giller, K.E., Delaune, T., Silva, J.V., van Wijk, M., Hammond, J., Descheemaeker, K., ... and Andersson, J.A. (2021). Small farms and development in sub-Saharan Africa: Farming for food, for income or for lack of better options?. *Food Security*, 13(6), 1431-1454. <https://doi.org/10.1007/s12571-021-01209-0>
- GlobeNewswire. (2022). *Global Cocoa Market Size Estimation 2022 | Analysis By*. <https://www.globenewswire.com/news-release/2022/03/01/2394562/0/en/Global-Cocoa-Market-Size-Estimation-2022-Analysis-By-Industry-Share-End-User-Demand-Growth-Factors-CAGR-of-2-3-Industry-Statistics-Overview-Leading-Players-Callebaut-Cargill-Nestle.html>
- Gneiting, U., & Arhin, A. (2023). *Towards a Living Income for Cocoa Farmers in Ghana: Assessing companies' efforts to date*. <https://doi.org/10.21201/2023.621485>  
<https://thebftonline.com/2023/03/27/govt-rolls-out-pension-scheme-for-cocoa-farmers/>
- ICI, 2020a. The effects of income changes on child labour. A review of evidence from smallholder agriculture. International Cocoa Initiative. [ICI Lit Review Income ChildLabour.pdf \(cocoainitiative.org\)](https://www.cocoainitiative.org/Lit_Review_Income_ChildLabour.pdf) (accessed 22 May 2023).
- ICI, 2020b. The effect of cash transfers on child labour A review of evidence from rural contexts. International Cocoa Initiative. [ICI Impact-of-cash-transfers-on-child-labour\\_31032020.pdf \(cocoainitiative.org\)](https://www.cocoainitiative.org/ICI_Impact-of-cash-transfers-on-child-labour_31032020.pdf) (accessed 22 May 2023)
- IDH. (2021a). *Joint Declaration by the Minister for Foreign Trade and Development Cooperation of the Netherlands and the Federal Minister for Economic Cooperation and Development of the Federal Republic of Germany regarding Living Wage and Living Income*.
- IDH. (2021b). *Cocoa & Forests Annual Reports 2021 – Côte d'Ivoire*. <https://www.idhsustainabletrade.com/publication/cocoa-forests-annual-report-2021/>
- IDH. (2022). *Cocoa & Forests Annual Reports 2021 – Ghana*. <https://www.idhsustainabletrade.com/publication/cocoa-forests-annual-report-2021/>
- ILO & UNICEF. (2020). *Child labour: Global estimates 2020, trends and the road forward*. New York, 2021. License: CC BY 4.0.
- ILO, 2022. ILO Brief. The elimination of child labour and its root causes – the guidance offered by the ILO MNE Declaration. ILO, Geneva, Switzerland. [wcms\\_844331.pdf \(ilo.org\)](https://www.ilo.org/wcmsp5/groups/public/-/dgreports/0/2022/WCMS_844331.pdf) (accessed 22 May 2023)
- Ingram, V., van Rijn, F., Waarts, Y., Dekkers, M., de Vos, B., Koster, T., Tanoh R., & Galo A. (2017). *Towards sustainable cocoa in Côte d'Ivoire. The impacts and contribution of UTZ certification combined with services provided by companies*. <https://doi.org/10.18174/450223>
- L'Initiative financière de l'ONU-Environnement (UNEP FI) et la Facilité REDD de l'Union Européenne. (2023). *Production durable de cacao en Côte d'Ivoire: besoins et solutions de financement pour les petits producteurs*. REDD+ Côte d'Ivoire, Programme ONU-REDD, ONU environnement, EUREDD Facility, EFI. [FULL-REPORT-CACAO-EN-COTE-DIVOIRE-FRENCH.pdf \(efi.int\)](https://www.efi.int/FULL-REPORT-CACAO-EN-COTE-DIVOIRE-FRENCH.pdf)
- Innovation Forum. (2023). *Why ten years of progress on deforestation is at risk*. <https://www.innovationforum.co.uk/articles/why-ten-years-of-progress-on-deforestation-is-at-risk>
- International Cocoa Initiative. (2001). Protocol for the growing and processing of cocoa beans and their derivative products in a manner that complies with ILO Convention 182 concerning the prohibition and immediate action for the elimination of the worst forms of child labor. International Cocoa Initiative.
- International Cocoa Initiative. (2020). *The effects of income changes on child labour A review of evidence from smallholder agriculture*.

- International Cocoa Organization. (2023). *International Cocoa Organization / Cocoa market report*.
- International Coffee Organization. (2023). *What's New*. <http://www.ico.org/>
- International Labour Organization. (2022). *Decent work deficits among rural workers Key findings and recommendations for trade unions*.
- ISEAL. (2022). *Understanding lead company engagements on living wages: a quick review | ISEAL Alliance*. <https://www.isealliance.org/get-involved/resources/understanding-lead-company-engagements-living-wages-quick-review>
- ISF. (2019). *PATHWAYS to PROSPERITY Rural and Agricultural Finance State of the Sector Report*. [www.pathways.raflerning.org](http://www.pathways.raflerning.org)
- Karlan, D., Savonitto, B., Thuysbaert, B., & Udry, C. (2017). Impact of savings groups on the lives of the poor. *Proceedings of the National Academy of Sciences of the United States of America*, 114(12), 3079–3084. [https://doi.org/10.1073/PNAS.1611520114/SUPPL\\_FILE/PNAS.1611520114.SD07.XLSX](https://doi.org/10.1073/PNAS.1611520114/SUPPL_FILE/PNAS.1611520114.SD07.XLSX)
- Kaufmann, J. A., Carlsburg, M., Bender, A., Emilie Perrousset, B., Baum, D., Doldt, J., Ederer, W., Gerdes, G., Houedokoho, F., Katsir, S., Löffler, C., Heritiana Randrianiaina, A., Smytzeck, P., Sörensen, L., & Majer, S. (2023). *Analyses of socio-economic and environmental effects of agroecological practices A methodological guidance*. <https://www.adaptationcommunity.net/wp-content/uploads/2023/05/New-Publication-2023-GIZ-Measuring-socio-economic-effects-of-Agroecology.pdf>
- Kuit, M., Tjindik, N., & Van Der Meer, D. (2021). New insights on reaching living income: Impact analysis farmer field book analysis cocoa challenge fund partners-Côte d'Ivoire.
- Läderach, P., Martinez-Valle, A., Schroth, G., & Castro, N. (2013). Predicting the future climatic suitability for cocoa farming of the world's leading producer countries, Ghana and Côte d'Ivoire. *Climatic Change*, 119(3–4), 841–854. <https://doi.org/10.1007/S10584-013-0774-8>
- Maney, C., Sassen, M., & Hill, S. L. L. (2022). Modelling biodiversity responses to land use in areas of cocoa cultivation. *Agriculture, Ecosystems & Environment*, 324, 107712. <https://doi.org/10.1016/J.AGEE.2021.107712>
- McKinsey and NielsenIQ. (2023). *Consumers care about sustainability—and back it up with their wallets A joint study from McKinsey and NielsenIQ examines sales growth for products that claim to be environmentally and socially responsible. Consumers care about sustainability—and back it up with their wallets - NIQ (nielseniq.com)*
- Medium. (2020). *Chocolate, at Any Cost: The Price Elasticity of the Candy Industry | by Kyla Scanlon | Medium*. <https://kylascanlon.medium.com/chocolate-at-any-cost-the-price-elasticity-of-the-candy-industry-99f6b773ccb2>
- Meehan, J., & Bryde, D. (2011). Sustainable procurement practice. *Business Strategy and the Environment*, 20(2), 94–106. <https://doi.org/10.1002/BSE.678>
- Miranda, A. (2018). *Public food procurement from smallholder farmers: literature review and best practices*. [www.ipcig.org](http://www.ipcig.org)
- Le Monde Afrique. (2021). En Côte d'Ivoire, la difficile lutte contre le travail des enfants dans le cacao. [https://www.lemonde.fr/afrique/article/2021/05/12/en-cote-d-ivoire-la-difficile-lutte-contre-le-travail-des-enfants-dans-le-cacao\\_6079965\\_3212.html](https://www.lemonde.fr/afrique/article/2021/05/12/en-cote-d-ivoire-la-difficile-lutte-contre-le-travail-des-enfants-dans-le-cacao_6079965_3212.html)
- Naranjo, M.A., A. Rahn, E., Arets, J. van den Berg, E. Berkhout. (2023). Deforestation and forest degradation in coffee supply chains A policy brief on the potential implications of the European Union regulation on deforestation-free products for the coffee sector and particularly for smallholder farmers. Wageningen University & Research. [Deforestation and forest degradation in coffee supply chains \(wur.nl\)](https://www.wur.nl/en/deforestation-and-forest-degradation-in-coffee-supply-chains) (accessed 25 May 2023).
- Obeng, E. A., Obiri, B. D., Oduro, K. A., Pentsil, S., Anglaaere, L. C., Foli, E. G., & Ofori, D. A. (2020). Economic value of non-market ecosystem services derived from trees on cocoa farms. *Current Research in Environmental Sustainability*, 2. <https://doi.org/10.1016/J.CRSUST.2020.100019>
- Oxfam, 2023. Towards a Living Income for Cocoa Farmers in Ghana. Assessing companies' efforts to date. Oxfam International.
- Oxfam. (2023). *Blog post: Paying a fairer price to farmers – 5 questions about our pilot project – Oxfam Sverige*. <https://oxfam.se/en/nyheter/blog-post-paying-a-fairer-price-to-farmers-5-questions-about-our-pilot-project/>
- Peter Drucker. (2006). *The Effective Executive: The Definitive Guide to Getting the Right Things Done by Peter Drucker – The Rabbit Hole*. <https://blas.com/the-effective-executive/>
- Portail officiel du gouvernement de Côte d'Ivoire. (2023). Filière café-cacao: a fin 31 décembre 2022, la production de cacao s'établit a 2.4 millions de tonnes

- quand celle du café se chiffre a 95,000 tonnes.  
<https://www.gouv.ci/actualite-article.php?recordID=15024>
- Proforest. (2021). *Developing a deforestation-free climate-resilient sustainable cocoa landscape: process and approach. A case study narrative on Ghana's Asunafo-Asutifi Landscape programme.*
- Rainforest Alliance. (2021). *UTZ Certification (Now Part of the Rainforest Alliance) | Rainforest Alliance.* <https://www.rainforest-alliance.org/utz/>
- Republic de Côte d'Ivoire. (2016). *Etude nationale prospective nationale Côte d'Ivoire 2040 Rapport Final.*
- Reuters. (2019). *Rising prices curb consumers' taste for chocolate | Reuters.* <https://www.reuters.com/business/retail-consumer/rising-prices-curb-consumers-taste-chocolate-2022-07-13/>
- Reuters. (2022). *UPDATE 1-Ivory Coast raises cocoa farm gate price by 9% for 2022/2023 harvest | Reuters.* <https://www.reuters.com/article/cocoa-ivorycoast-prices-idAFL1N31110S>
- Ruerd Ruben, & Inge D. Brower. (2021). *Five Leverage Mechanisms to Support Food System Transformation.* <https://a4nh.cgiar.org/2021/07/26/five-leverage-mechanisms-to-support-food-system-transformation/>
- SAN. (2023). *Our Mission and Strategy | SAN.* <https://www.sustainableagriculture.eco/our-mission>
- Schroth, G., Läderach, P., Martinez-Valle, A. I., Bunn, C., & Jassogne, L. (2016). Vulnerability to climate change of cocoa in West Africa: Patterns, opportunities and limits to adaptation. *Science of the Total Environment*, 556, 231–241. <https://doi.org/10.1016/J.SCITOTENV.2016.03.024>
- Solidaridad. (2022). *Price in global commodity value chains. Key to achieving living income and living wage.*
- Steve Jennings, D., Sahan, E., & Maitland, A. (2018). *Fair Value: Case studies of business structures for a more equitable distribution of value in food supply chains.*
- SUCAFINA. (2023). *Sucafina Specialty: Why Farmers Don't Benefit Long Term From Future Market Rallies.* <https://sucafina.com/na/news/why-farmers-don-t-benefit-long-term-from-future-market-rallies>
- Sustain. (2022). *Unpicking food prices: Where does your food pound go, and why do farmers get so little? | Sustain.* <https://www.sustainweb.org/reports/dec22-unpicking-food-prices/>
- Tony Chocolonely. (2023). *Discover Tony's 5 Sourcing Principles – Tony's Chocolonely.* Retrieved May 21, 2023, from <https://tonyschocolonely.com/nl/en/our-mission/serious-statements/tonys-5-sourcing-principles>
- Tony's Chocolonely. (2021). *Tony's jaarFAIRslag 2020-2021.* <https://tonyschocolonely.com/nl/nl/jaarfairslagen/jaarfairslag-2020-2021>
- Traoré, N., & Torvikey, G.D. (2022). Migrants in the Plantation Economy in Côte d'Ivoire: A Historical Perspective. *IMISCOE Research Series*, 189–208. [https://doi.org/10.1007/978-3-030-97322-3\\_10](https://doi.org/10.1007/978-3-030-97322-3_10)
- UN. (1972). *International Cocoa Agreement.*
- UNEP-WCMC. (2022). *Cocoa agroforestry could help Côte d'Ivoire achieve 20% forest cover target.* <https://www.unep-wcmc.org/en/news/cocoa-agroforestry-could-help-cote-divoire-achieve-20-forest-cover-target>
- UNISDR & WMO. (2012). *Disaster Risk and Resilience.*
- United Nations. (2012). *Disaster Risk and Resilience - Thematic Think Piece UNISDR, WMO. UN System Task Team on the Post-2015 UN Development Agenda. Microsoft Word - Disaster Risk and Resilience.doc (un.org)*
- Vaudry R, Ettien R, Rullier N, Garnier B, Nourtier M, & Rabany C. (2022). *A new Payment for Ecosystem Services in organic cocoa agroforestry systems in Ivory Coast.*
- Vork. (2023). *Alvaro Umaña: Minder koeien, meer natuur | Prikken in de voedselketen. Vork voedt het maatschappelijk debat en geeft prikkelende inzichten.* <https://www.vork.org/artikel/712587-alvaro-umana-minder-koeien-meer-natuur/>
- Waarts, Y., & Manuel Kiewisch. (2021). *Balancing the living income challenge: Towards a multi-actor approach to achieving a living income for cocoa farmers.* Wageningen University & Research.
- Waarts, Y.R., & E. Termeer. (Forthcoming). *Prosperity pathways and an inclusive economic transformation for smallholders.* Wageningen University & Research.
- Waarts, Y.R., Waarts, Y.R., Janssen, V., Aryeetey, R., Onduru, D., Heriyanto, D., Aprillya, S., A. N'Guessan, Courbois, L, Bakker, D., and Ingram, V.J. (2021b). Multiple pathways towards achieving a living income for different types of smallholder tree-crop commodity farmers. *Food Security*, 13(6), 1467-1496. [Multiple pathways towards achieving a living income for different types of smallholder tree-crop commodity farmers | SpringerLink](https://doi.org/10.1007/s12572-021-10000-0)
- Wikipedia contributors. (2023). Rainforest Alliance. *Wikipedia.* [https://en.wikipedia.org/wiki/Rainforest\\_Alliance](https://en.wikipedia.org/wiki/Rainforest_Alliance)

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World Cocoa Foundation. (2022). *Cocoa & Forests Initiative reports progress on traceability, agroforestry and forest protection in Ghana and Côte d'Ivoire* | World Cocoa Foundation. <https://www.worldcocoafoundation.org/press-release/cocoa-forests-initiative-reports-progress-on-traceability-agroforestry-and-forest-protection-in-ghana-and-cote-divoire/>

World Cocoa Foundation. (2023). *Introducing Cocoa & Forests Initiative 2.0* | World Cocoa Foundation. <https://www.worldcocoafoundation.org/blog/introducing-cocoa-forests-initiative-2-0/>

World Economic Forum. (2022). *Businesses with a clear purpose do better while also protecting people and planet. Here's how.* <https://www.weforum.org/agenda/2022/11/4-ways-purpose-into-profitability/>

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Wageningen Economic Research  
P.O. Box 29703  
2502 LS The Hague  
The Netherlands  
T +31 (0)70 335 83 30  
E [communications.ssg@wur.nl](mailto:communications.ssg@wur.nl)  
[wur.eu/economic-research](http://wur.eu/economic-research)

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The mission of Wageningen University & Research is "To explore the potential of nature to improve the quality of life". Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 7,600 employees (6,700 fte) and 13,100 students and over 150,000 participants to WUR's Life Long Learning, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.