



BILL & MELINDA
GATES *foundation*

CASE STUDY

A Multi-centric Data Governance Approach to Secure Land for Cocoa Farmers

This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID). This guide was produced under DAI's Digital Frontiers Project (Cooperative Agreement AID-OAA-A-17-00033) at the request of USAID. The contents are the responsibility of Development Gateway and do not necessarily reflect the views of USAID or the United States Government.

Case study: A Multi-centric Data Governance Approach to Secure Land for Cocoa Farmers

Public-private partnerships for land and data stewardship

As part of several large consortium, including industry partners,¹ Meridia has taken up important data stewardship activities to secure land rights and tackle issues related to agroforestry for cocoa farmers and cooperatives in West Africa and Indonesia. The process applies data collaborative governance and data stewardship activities between key actors in the cocoa supply chain to achieve agency, control, and ownership for smallholder farmers over their land rights and documentation. The case study provides insights into various –public-private data collaborative approaches, “multi-centric” data governance, data ownership, and data stewardship.

Background and main challenges

Securing land governance is a challenging, sensitive subject in agriculture, especially among cocoa farmers, for whom this might be costly and require support. The majority of cocoa is produced in Africa, but only 10% of the land area is registered (in Côte d'Ivoire that is less than 5%). Secure land ownership via land rights registration is an important step for farmers to secure their households' livelihood.² This also gives rise to a host of issues, such as poverty, child labor, and deforestation— emblematic of an unequal system. According to the Cocoa Barometer 2020, many development programs focus on improving practices with technical solutions, while at the root prevail problems of power and political economy. Most cocoa farmers do not have the bargaining power, nor do they have access to safety nets in the event of low prices or yields.

Disputes around land often arise from a lack of clarity or written proof of ownership. Some agreements were made verbally by a previous generation and are subject to change without notice. Farmers risk eviction at any time. As a result, they are hesitant to invest or adopt good practices, like the use of shade trees to protect soil and mitigate deforestation. As land degrades, farmers' productivity and income dwindles, creating even greater problems. Secure land rights for farmers are important to protect long-term opportunities and function as an enabling environment for achieving sustainability goals.

Ghana and Côte d'Ivoire have experienced a rapid increase in cocoa production at the expense of the environment. Instead of investing in replanting aging plantations, farmers often migrated to establish new farms. For many years, farmers opted for full-sun varieties of cocoa, leading to significant yield enhancements in the short-term, erasing shade trees and establishing monoculture farms. This has

1. Such as Mondeléz International, Cargill, The Hershey Company, Unilever, Barry Callebaut Group, Cocoa Horizons Foundation, the German Cooperation (implemented by GIZ GmbH), Ferrero, and national governments.

2. USAID/E3 Land Tenure and Resource Management Office, the World Cocoa Foundation, and Cocobod, (2015) [Assessment of Land Tenure-Related Constraints to Cocoa Productivity in Ghana](#).

depleted soil fertility and decreased productivity without proper management. This, and other factors, resulted in large parts of forests and surrounding ecosystems being destroyed, risking ecological collapse.³ Since a small number of companies control a significant portion of the consumer chocolate market, their involvement could be leveraged to demand a certain standard of practice in cocoa production.

Other challenges related to the case study environment

- Vulnerable groups with legitimate tenure rights may be subject to laws that impose stringent obligations that erode their control over land and territories, as well as their data.
- Scalability is one of the biggest challenges. Farmer data is difficult to collect and consolidate due to the sheer number of farmers, often in remote areas with low network coverage, especially when using the same digital collection tools.
- Land titling has the reputation to be complex, prone to conflicts and sensitive matters. Land and border mapping has a reputation for being tedious and slow, with little to no mobile coverage.
- Farmers are fatigued by continuously partaking in surveys. After data collection, most of the data does not flow back to the farmer. Meanwhile, data collectors require good training and understanding of objectives in order to gather data accurately. Collection tools are often not sufficient.
- Cote d'Ivoire passed and amended laws with a view toward solving rural land problems, specifying who can be a landowner and how. However, difficulties understanding and the cost of the procedure for obtaining the land title slow down the land certificate requests in rural areas.
- The governments of Ghana and Côte d'Ivoire set the market prices for cocoa. Farmers receive just 6% of the retail value of cocoa that is sold and have no influence over the price of cocoa.
- In Ghana, farmers often fear planting or maintaining shade trees due to their lack of formal ownership over them, putting them at risk of exploitation by timber contractors. These corporations are known to cut down shade trees without farmers' consent, destroying cocoa plantations in the process.

3. A [report](#) by the World Cocoa Foundation and Mighty Earth found that 25% of Côte d'Ivoire's acres of forests and 10% of Ghana's tree coverage were cleared for cocoa between 2001–2014. In Indonesia, 9% of the total deforestation for crops was cleared for cocoa between 1988–2007.s

Additionally, in Ghana, farmers have insecure timber tree rights. “Timber contractors come to our farms saying they have been given the authority to fell a timber tree in our farms. The felling process destroys our crops, but we get next to nothing in compensation.” James Koduah Amoah, cocoa farmer from Ashanti Akim South, Ghana.

How are data governance problems solved?

Since 2015, Meridia has secured land rights for cocoa farmers affordably and at scale.⁴ The digitized front-to-end solution—developed via a participatory and community-accepted approach—supports farmers and marginalized groups, and meets requirements for land administration. Meridia works with private sector partners (e.g., Unilever, Mondelez, Hershey) and public sector partners in Ghana, Indonesia, and Côte d'Ivoire. Working in direct partnerships and consortia, Meridia takes an important data stewardship role, involving data collaborative governance activities between key actors in commodity supply chains to achieve agency, control, and ownership for smallholder farmers over their land data and land rights.⁵

Together with local partners, farmers and cooperatives, the programs clarify local rights, ownership and use agreements, map land borders, and secure formal documentation. Campaigns include educating smallholders on the value of documentation. Once on board, their data is collected, ownership evidence established, accurate land surveys provided, and legal land documents produced. The final documents are signed by relevant governing institutions, such as local chiefs or government bodies, and provide legal security to the document owner. In addition to land mapping and titling, Meridia assesses existing data collection practices and datasets, builds compliance and improvement roadmaps, and develops the capacity for data collection and management throughout supply chain partners (e.g., cooperatives).

In recent years, the importance of supply chain traceability has expanded from a “nice-to-have” to a core requirement. Large brands and traders seek increasingly granular data at the farmer and household level to inform improvement and development interventions, e.g., on living income, agroforestry, child labor, and reduction of risks in their supply chains. Secondly, as deforestation has become a focal area of concern in many supply chains, regulators in the EU, Switzerland, and the US are imposing stricter requirements on sourcing data to verify origins and prohibit the import of commodities from forested areas.

Meridia’s activities go beyond the farms. For example, partnership building is critical to deliver valid and recognized land documents and receive permits to deliver this service. Partnerships are built with land governing institutions, private sector parties, non-governmental organizations (NGOs), and others.

4. Meridia initially positioned itself in the space of land mapping and titling using tailor-made software to provide high-quality parcel mapping and datasets. Programs and projects include: CLAP, a partnership of The Hershey Company; Unilever; Barry Callebaut Group; Cocoa Horizons Foundation; the German Cooperation (implemented by GIZ GmbH); and the German Cocoa and Chocolate Foundation, with other industry members ETG-Beyond Beans Foundation, Ferrero, and Cargill. It is endorsed by AFOR (Agence Foncière Rurale) and managed by Meridia, with Audace Institut Afrique, Géomètre Expert CITRAT, and CETIF. In Ghana, Meridia works on, among others: (1) Mondelez International Cocoa Life, (2) Accessible Soils and Sustainable Environments (ASASE), and (3) Beyond Chocolate, with 1,500 smallholder farmers. In Indonesia, Meridia works for the government, NGOs, and food companies.

5. In Ghana, to address problems caused by cutting down shade trees, shade trees on cocoa farms are registered, in collaboration with the Ghana Forestry Commission, so that legal rights to the planted trees can be guaranteed. Collected shade tree data enables accurate calculation of the biomass and carbon stock and in turn, allows for carbon payment schemes.

Another example is conflict resolution and prevention, which are key to successful land documentation. Meridia mediates and prevents ongoing conflicts at different jurisdictional levels, for instance, at the highest customary level, between actors such as tenant farmer representatives and native landowners or chiefs, or members of a royal land-governing family. Conflicts can be prevented by appropriately engaging in alternative dispute resolution, involving all relevant actors when preparing an area for documentation, but may take time to resolve.

A data collaborative governance approach. Meridia's data stewardship work is founded on a collaborative approach of private and public partners, where large industry food producers, development agencies, civil society organizations (CSOs) and nonprofits have joined forces. The projects are built on synergies on the ground and work closely with the public authorities. A multi-stakeholder approach to data governance takes into account a multinational perspective. This can include and sometimes oppose a farmer-centric response to address the entire supply chain. While a farmer-centric approach does focus on agency for farmers, it may become a blindspot to regulatory, policy, or business requirements for larger organizations to participate. This approach considers farmer-centric needs with current regulatory and environmental requirements to avoid conflicts in later stages, and competing narratives among siloed actors.



Actionable Principle: A multi-centric approach balances and considers local, farmer-specific needs and agency; up to larger, global infrastructures; and needs for interoperability and data standardization, while trying to avoid the tension between those in the entire value chain.

A multi-centric approach. Data collaborations require clarity about what tools, objectives, and goals external partners have and the collective definition of "farmer-centric." Does this only mean delivering more control and data ownership to the farmer, or should it include more avenues for or pathways toward financial viability and sustainability? What additional metrics and rewards could data collectors and companies provide for continued use? Multi-centric approaches make the farmer a more active participant in data collection and the value chain, as well as help define the utility for all actors within the supply chain.



Actionable Principle: Farmer-centric data governance can help farmers turn data into an asset that they can use and manage to create value. It allows farmers and co-ops to maintain control of access and distribution of data. This could positively shift away from issues like survey fatigue, inefficiency, cost saving, and conflicted narratives. In this paradigm, cooperatives can create a business model around access, control, and distribution of data.

Data ownership and stewardship. As the program data steward, Meridia is responsible for creating demand, planning, and oversight of the purpose and use of data, as stated in the terms set out by all the partners. The importance of the data steward is not just as the owner or controller of data, but setting and enforcing boundaries. The partners mutually agree that ideally, the farmer and cooperative have ownership and responsibility over said data. The minimal requirement for this is for farmers or co-ops to at least have access to the data. Beyond that, ownership and control includes being able to understand the data and the processes. According to the partners, ownership is not just about who stores the data or decides how it is shared, but takes on the full role of governance, especially oversight of rules and boundaries. Data ownership for farmers will also benefit the other actors in the supply chain. The question is if new modalities of ownership are required within companies, such as third-party auditors, or changes to certification, and other compliance models currently handled internally.

User-centric, participatory data governance. Meridia engages local communities and key stakeholders to raise awareness of mapping activities. It is crucial to build successful rapport. This involves activities such as sitting down with local leaders, organizing farmer focus groups, and public announcements. In-house technology is adapted to fit local context, and they set up a local field team to work from parcel to parcel. In more sensitive areas or complex regions (i.e., protected forests), closer collaboration with relevant NGOs and government bodies is required. As demonstrated, land mapping is very much a participatory approach, whereas the governance of land mapping sits somewhere in between informing and consultation when it comes to its participation level.⁶

Representation of women. In certain regions, Meridia is able to work with CSOs to investigate the role of women in farming, their access to land, their customary land and inheritance rights, and societal perceptions. After an initial scoping, Meridia works on enhancing awareness of representation in land rights, engaging community leaders as advocates, hosting mixed-gender and women-only sessions to ensure engagement, and explaining the various forms of land rights, such as sole ownership, joint documentation (with spouses, daughters, sisters, etc.), and secondary rights (e.g., use rights).

Facts and figures

In 2016, the top three cocoa-producing countries were Cote d'Ivoire with 33.0%, Ghana with 19.2%, and Indonesia with 14.7% of production.

- The sector comprises about 95% of smallholder farmers with farm sizes of 2.5–5 hectares, employing about 5–6 million farmers from Asia, Africa, Oceania, and Latin America.
- Approximately 2 million smallholder households in Central and West Africa depend on cocoa for sustenance.
- Approximately 71% of households own their cocoa farms.

Formal land ownership in sampled communities in Ghana was found to increase cocoa income by 21.9%/hectares on average.⁷

- In Ghana, 72% of farmers do not have formal documents covering land transactions of the undisputed land. Farmers reported lack of legal documentation (32.1%), disputes between landowners and sharecroppers (21.1%), and high cost of levies as the most important challenges.
- Shade trees improve productivity. Crops like cocoa need 30–40% canopy shade to give good yields.
- In Côte d'Ivoire, forest cover declined by more than half from 1990–2015. In Ghana, this is about 2% per year.

6. Cargill is piloting the app [Farmforce](#), which should incentivize better and independent data collection. It will be used so that farmers can see their farm mapped, bags of cocoa sold, and access the data to make them an active participant. As part of their Cargill Cocoa Promise Program, Cargill deployed Farmforce across Cote d'Ivoire in 2017, to enable barcode-based, bag-level traceability back to individual farmers in the supply chain in order to proactively address sustainability challenges while ensuring cocoa is grown to UTZ and Rainforest Alliance standards.

7. Supply Chain Sustainability Research Fund, (2020) [Supporting Smallholder Farmers for a Sustainable Cocoa Sector: Exploring the Motivations and Role of Farmers in the Effective Implementation of Supply Chain Sustainability in Ghana and Côte d'Ivoire](#).

Important considerations and enablers in the case study environment

- Market environments are shifting towards farmer-centric data governance and capacity building due to upcoming regulation and higher data quality requirements, such as the evolving European Human Rights and Environmental Due Diligence and deforestation regulations. This requires working more closely with farmer organizations to manage more complex data and risk analysis, as well as deliberately investigating new forms of data governance.
- In response to desertification and drought, EU regulation and national regulation has placed high demands on cocoa supply chains. The government of Cote d'Ivoire launched the Abidjan initiative aimed at sustainable soil management and the preservation and extension of the ecosystem. The government developed various policies and legal instruments addressing degradation of forests.⁸
- The Cocoa and Forests Initiative (CFI) is a partnership among the governments of Ghana and Côte d'Ivoire and dozens of cocoa, chocolate, and retail companies with the shared goals of eliminating deforestation in cocoa supply chains, protecting and restoring forests in West Africa.
- The Africa Regional Standard is projected to be implemented in the near future. It aims to promote and maintain a framework for the production of sustainable cocoa based on the principle of continuous improvement. It pushes actors to more deliberately participate with local farmer groups across the data lifecycle as the regulation requests that they become essential for managing sustainability-related data.⁹

Financial viability and sustainability

Meridia has tested different operational, sales, and financial models to develop a scalable documentation and registration model. It has been able to turn land tenure documentation into a scalable and effective service that public and private partners are ready to invest in. However, viability is challenging for Meridia's services as they may touch upon sensitive issues and require multi-stakeholder involvement, with long lead times and high risk. The viability of a business model for land registration requires large-scale public funding matched with private sector funds to cover the full scope of costs and risks. Within the sector, many investments are made in collecting better data and providing services for farmers by many different partners, but there are still questions about how this translates to viability and sustainability, e.g., through sustainability premiums and incentivizing better data sharing. The above considerations on financial viability and business model relate primarily to land titling. Other services offered by Meridia such as parcel mapping and data solutions, are more straightforward and have little to no reliance on donor funding.

8. Such as the [REDD+](#) strategy and the National Policy of Forest Preservation, Rehabilitation and Expansion, and the Forest Code. Tree registration is part of the agroforestry requirements to meet Cocoa & Forests Initiative and REDD+ objectives
9. IDH, GISCO, C-lever.org, (2021) [Technical Brief on Cocoa Traceability](#).



Actionable Principle: Defining what is the most appropriate governance structure must not stop at simply greater farmer agency, but utility for them and other actors in the supply chain. Any farmer-centric model will need to meet and align with business needs if it is to collaborate with and gain from the private sector. There should be a sector-wide public-private movement towards more public-driven data models. The system today is not sufficient nor appropriate. A multi-centric approach is not a “nice-to-have”—it is a change needing to be made industry-wide and in collaboration with governments.

What was the impact of land tenure documentation and mapping?

- Land documents have been secured for >10,000 farmers in Côte d'Ivoire, Ghana, and Indonesia.
- A total of 220,000 hectares have been mapped in Côte d'Ivoire, Ghana, and Indonesia.
- More than 50,000 (shade) trees have been mapped.



What lessons can be learned?

- Efforts to tackle land rights do not happen in a vacuum; dimensions and impacts of power imbalance, poverty, and ecology are all interrelated. This includes discussions on problems such as climate change, biodiversity loss, and global inequalities.
- Land tenure documentation requires a long-term perspective for all stakeholders (funders, partners, beneficiaries, implementers). It builds on trust, which requires time to build.
- Technology and private-sector partnerships enable working at scale and cost-efficiently.
- Land tenure documentation is and needs to be highly participatory to produce impact. Only a participatory approach is locally recognized and thereby creates local commitment and tenure security.
- Land mapping is currently less participatory and has the opportunity to become more so. The common practice is that farm data is separately collected by multiple parties and farmers are merely informed about the data use and receive no direct data control or benefit. In order to meet rising demand for quality data in the context of traceability regulations and downstream parties, models must evolve into a multi-stakeholder centric data governance model, catering to the needs of all actors.
- Data collection is currently sporadic, with the target group defined by the paying client of the data collection. This means that data coverage in regions is spotty. A more comprehensive, systematic approach can ensure inclusion of all persons and avoid negative differentiation at the smallholder level (i.e., farmers without data having to resort to unregulated supply chains).