Info Note

Leveraging food system transformation in Latin America through scaling high impact business models

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Key messages

- A framework was developed and applied to identify Climate-Smart Food Systems (CSFS) business models in the Latin America (LATAM) region with the potential to implement and scale climate mitigation and resilient practices across several food production systems.

- Through the analysis, a pipeline of eight high-impact potential companies were identified to facilitate matchmaking with private sector investors.

- Selected CSFS companies include agroforestry (i.e., coffee and cocoa), regenerative livestock production and silvipastoral systems, with positive impacts on social (e.g., gender and youth) and economic aspects.

- Some of the most important challenges identified for implementing and scaling CSFS include: 1) access to capital, especially for long-term projects; 2) access to information and technical assistance; and 3) market validation for some products, especially fruits.

- Regarding technical assistance, focus should be on implementing measurement, reporting and verification (MRV) of emissions, accessing carbon markets and providing guidance for adoption of CSFS practices and project review and discussion for up- and middle-stream companies.

- The CIAT-CCAFS Impact Assessment Tool showed potential for evaluating CSFS performance of companies (i) potential impact assessment and (ii) additionality of investments regarding mitigation, adaptation and productivity.

By 2050, the growing global population will require to approximately 50% more food compared to today's levels (FAO, 2018). Therefore, global food systems will need to become more efficient and sustainable to feed an increasing population, achieve the Sustainable Development Goals (SDGs) and meet the 1.5°C climate target of the Paris Agreement.

As climate change affects food systems, governments, food and agriculture companies, and public and private investors need to better identify and address the numerous climate and nature-related risks they face. Some of the biggest core market failures, especially when mobilizing private capital for food systems transformation, as identified in the paper Financing the Transformation of Food Systems Under a Changing Climate, are: 1) a lack of deep pipeline of bankable projects, 2) high investment risk and lack of primary data and information asymmetries, 3) lack of intermediation to efficiently connect different pools of capital to investments.

This work aims to help address these core market failures by

1) developing a pipeline of CSFS business models in LATAM that can be matched with a private impact investor;

2) informing investors of scalable business models and investment opportunities in LATAM through demonstrating investment viability in sustainable food systems to catalyze more funding to the sector; and

3) managing climate related risks and building resilience of small and medium-sized enterprises (SMEs) and smallholder farmers by encouraging wide-scale adoption of climate resilient practices.

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Therefore, the ultimate goal of the project was to develop sustainable food systems that contribute to climate change mitigation (reduced GHG emissions) and adaptation (enhanced resilience) and increase productivity linked to SDGs. It was also expected to form the basis of a framework intended to act as a blueprint for CSFS and low-emissions development (LED) deal matchmaking in the region.

Results will inform financial institutions, impact investors and private companies about scalable business models and investment opportunities in LATAM and be closely coordinated with the development of a Climate-Smart Food Systems Fund (CSFS Fund). The fund, a blended finance investment vehicle, will provide long-term expansion for debt financing, coupled with a robust technical assistance package for 35 to 40 SMEs operating in the Asian Pacific, Latin America and Africa that positively contribute to nature, climate change mitigation and adaptation in food systems.

Overall scope

Based on the initial investment strategy of the CSFS Fund, the pipeline development focused on identifying growth stage companies (with some allowance for early-stage companies) in the region within the following themes: upstream (sustainable intensification of production), midstream (value addition, efficient processing and logistics), downstream (sustainable and inclusive retail food brands) and enablers (climate technology and solutions provider).

The emphasis was on companies supporting smallholder farmer livelihoods through vertically integrated business models (i.e., sourcing from smallholders) and other climate impacting value-chains (e.g., livestock), and those that were already championing climate-smart agriculture

but required further assistance, through technical assistance, to integrate climate interventions while expanding operations.
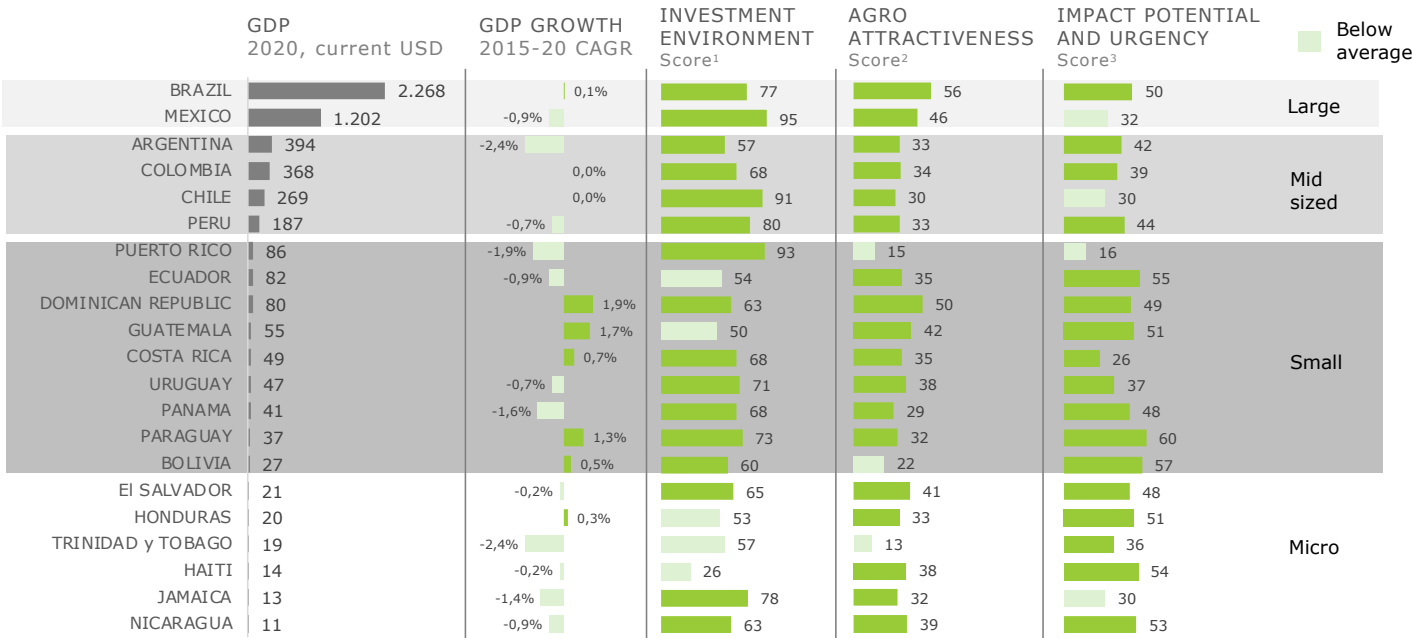
Priority countries

The pipeline prioritization process began by identifying priority countries within the region to source pipelines that are attractive for private sector investors while offering strong development impact opportunities. The macro-economic, environmental and social landscape was analyzed for 21 LATAM countries using a scoring system according to the following criteria: (1) current growth domestic product (GDP) and compound annual growth rate (CAGR) between 2015-2020; (2) investment environment score based on Doing Business rate, enforcing contracts and resolving insolvency; (3) agriculture sector size and growth, productivity and percentage of midstream companies; and (4) deforestation rate, GHG emission levels, irrigation efficiency, access and cost of capital, employment rate, work informality rate, rural population rate, and wage level. To enhance the selection process, the countries were further divided into groups according to size i.e., large, medium, small and micro.

Findings

Country Prioritization

The following countries were selected from the group of 21 because of their overall favorable investment environment, agro-attractiveness and impact potential and urgency relative to the others: large size countries – Brazil and Mexico; mid-size countries – Colombia and Peru, small countries – Dominican Republic and Paraguay (Figure 1).

	GDP 2020, current USD	GDP GROWTH 2015-20 CAGR	INVESTMENT ENVIRONMENT Score[1]	AGRO ATTRACTIVENESS Score[2]	IMPACT POTENTIAL AND URGENCY Score[3]	
BRAZIL	2.268	0,1%	77	56	50	Large
MEXICO	1.202	-0,9%	95	46	32	
ARGENTINA	394	-2,4%	57	33	42	Mid sized
COLOMBIA	368	0,0%	68	34	39	
CHILE	269	0,0%	91	30	30	
PERU	187	-0,7%	80	33	44	
PUERTO RICO	86	-1,9%	93	15	16	Small
ECUADOR	82	-0,9%	54	35	55	
DOMINICAN REPUBLIC	80	1,9%	63	50	49	
GUATEMALA	55	1,7%	50	42	51	
COSTA RICA	49	0,7%	68	35	26	
URUGUAY	47	-0,7%	71	38	37	
PANAMA	41	-1,6%	68	29	48	
PARAGUAY	37	1,3%	73	32	60	
BOLIVIA	27	0,5%	60	22	57	
El SALVADOR	21	-0,2%	65	41	48	Micro
HONDURAS	20	0,3%	53	33	51	
TRINIDAD y TOBAGO	19	-2,4%	57	13	36	
HAITI	14	-0,2%	26	38	54	
JAMAICA	13	-1,4%	78	32	30	
NICARAGUA	11	-0,9%	63	39	53	

Below average

1 Based on Doing Business overall, enforcing contracts and resolving insolvency; 2 Agro size & growth; productivity, midstream %; 3 Social (employment, wages, informality, rural population), environmental (deforestation, CO2 emissions), irrigation efficiency, access and cost of capital

Figure 1. Selection of LATAM countries for CSFS pipeline development

It is worth noting that while Argentina and Chile both showed high opportunity in agriculture productivity, the former was excluded due to high macro-economic investment risk, and the latter excluded for having the lowest relative score for impact potential and urgency. None of the micro-sized countries were selected because of their low or negative GDP growth and CAGR. Once the focus countries were defined, the next step was to select priority value chains. It was done by considering the value-chains potential GHG emission reduction as well as other positive impact on social and economic aspects.

Selected value chains

After defining the target countries, we selected priority value chains by considering their potential impacts to mitigate GHG emissions (Figure 2). Following these criteria, this initial assessment focused on four value chains: coffee, cacao, beef and açai berry[1]. These value chains were selected based on their high land use and GHG emissions intensities as well as their capacity to reduce GHG emissions with the introduction of best agronomic practices and avoided deforestation - especially through the adoption of improved animal
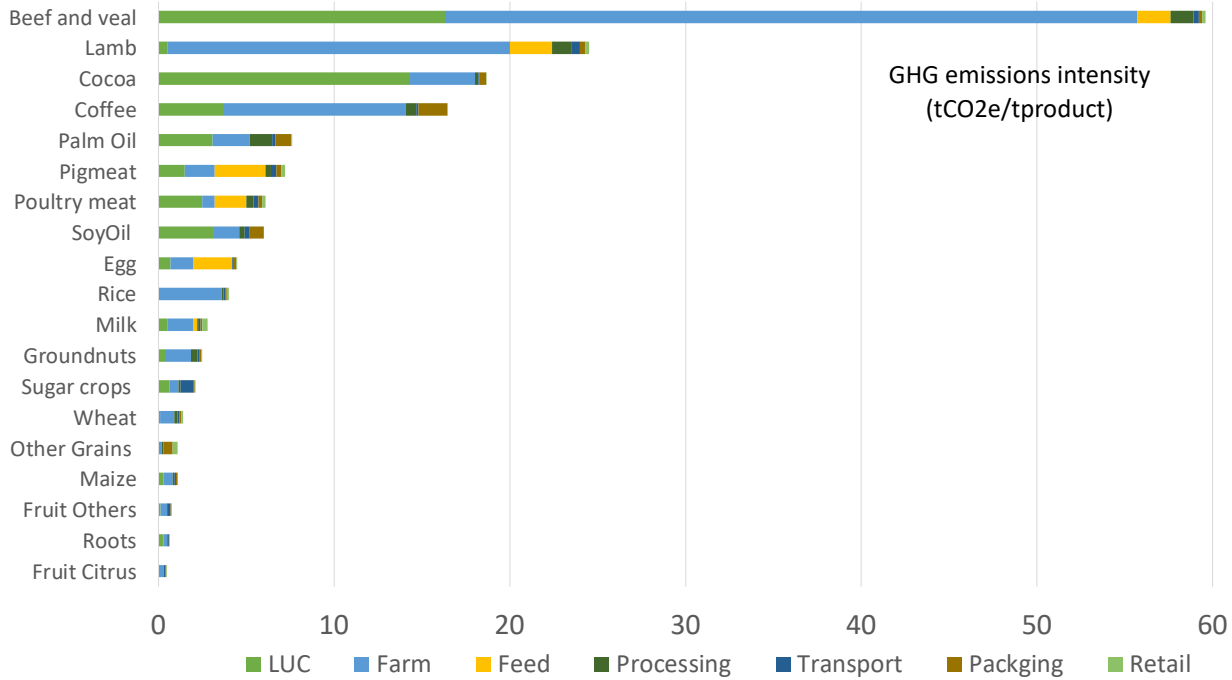
Figure 2. Emissions intensity across 19 agricultural value-chains (Poore & Nemecek, 2018)
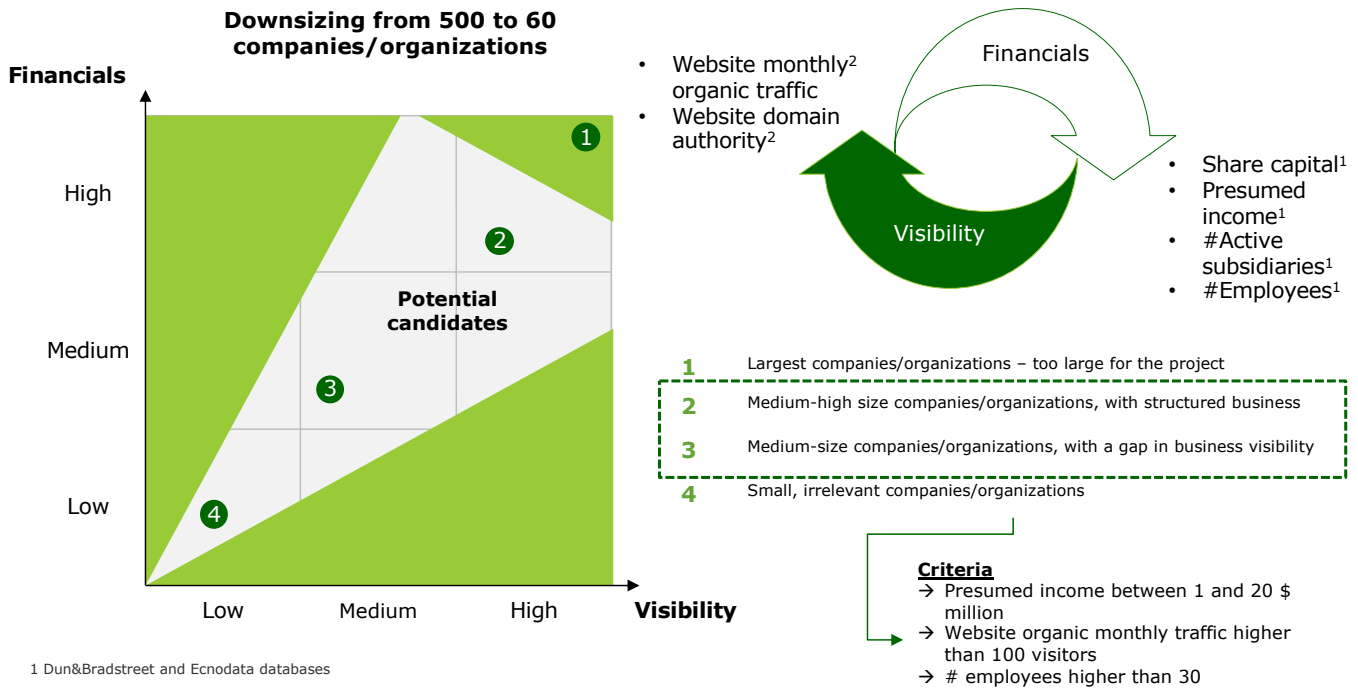

1 Dun&Bradstreet and Ecnodata databases
2 Ubersuggest

Figure 3. Criteria and framework analysis for downsizing from 500 to 60 companies and organizations

[1] Fruit harvested from açai palm trees, round, black-purple, similar in appearance to a grape, which are native to South American rainforests.

feeding and nutrient management, agroforestry systems and other perennial crops, and nutrient management (Herrero et al., 2016; Poore & Nemecek, 2018; Roe et al., 2021) (Figure 2).

Pipeline development

To identify the most impactful CSFS business models, a database of approximately 2,500 companies was developed using an extensive list with information from different sources: (1) recommendations from networks (2) USDA LATAM Organic Certified Exporting Companies Database, (3) Conexsus' database – Brazilian Sustainable Community Business Map, and (4) internet research. Five hundred companies were initially selected from focus countries based on the investment mandate of the CSFS Fund, investment themes, stage of business, value chain prioritized and links to smallholder farmers.

This list of 500 companies was then further narrowed down to 60 by evaluating the following aspects: year established, the most recent estimated income (USD), shareholders equity, number of active subsidiaries, number of employees, website monthly traffic and domain authority[2] (Figure 3). Since the project focused on growth stage companies, the following additional criteria was applied: (1) estimated annual income is between USD$ 1 million and USD$ 20 million, (2) website organic monthly traffic is higher than 100 visitors per month, and (3) number of employees is greater than 30 (Figure 3).

Half of the 60 selected companies were represented by upstream companies, an investment theme with high impact potential across the region. The other 50% were represented by companies operating at the midstream, downstream and those providing value chain support services (Figure 4). Almost 50% of the companies were in

Brazil (Figure 5) and the coffee production value chain, followed by cacao and livestock production (Figure 4).

The pipeline was further narrowed down to 24 companies based on three dimensions: their social, environmental and business factors. Social aspects considered: (1) smallholder farmers engagement (e.g., as producers or suppliers), (2) development of social programs for stakeholders (e.g., childcare, feeding programs), and (3) promotion of gender and youth inclusion in the board, management team and employees (Figure 5).

These aspects were used as an indicator of the company's commitment to social impact as part of its business strategy. During this stage, environmental impact was evaluated by the type of production system, existence of input optimization programs, provision of ecological services, use of renewable energy sources and presence of emissions reduction programs. Regarding business factors, company turnover, market size, stage of business, investment theme and fundraising requirements such as type of financing and use of funds, were considered (Figure 5).

The selected 24 companies had higher impact with smallholder farmer engagement, more structured social programs and participation of youth and women across the organization, sustainable land use practices and an annual revenue of at least USD 1 million.

High-impact potential companies

The last evaluation of the 24 companies to select the final eight companies with the highest-impact potential, included the use of the Impact Assessment Tool provided by CIAT and CCAFS (Figure 6). The framework is comprised of two components: (i) potential impact assessment and (ii) additionality of the investment. The
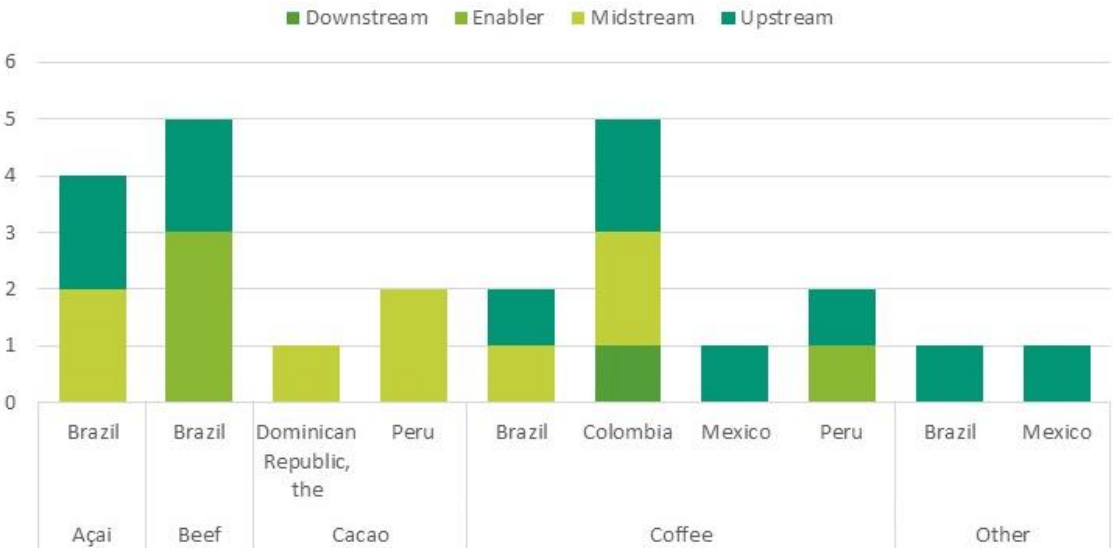

Figure 4. Number of companies by product value chain, country, and investment theme in the live database of 24 companies.

[2] Website data, such as monthly traffic and domain authority, were considered as indicative of the business traction and effective business development and higher business

combination of these two components generates an overall score that determines the overall impact score of a company (Figure 6).

The potential impact assessment characterizes the potential impact on adaptation, mitigation and productivity key performance indicators (KPIs) considering current and future intervention actions of investees in case the company is funded. The novel impact assessment tool is a simple Excel tool with key questions in relation to

energy, inputs and management for mitigation; water use, water management and soil management for adaptation; and quantity and management for food loss and waste for productivity (Figure 6).

The second component of the tool is the additionality assessment, by which the investor assesses the added value of their investment. Questions asked in this component provide the investor indicative information on potential climate change adaptation, mitigation and

[1] Binary YES/NO questions
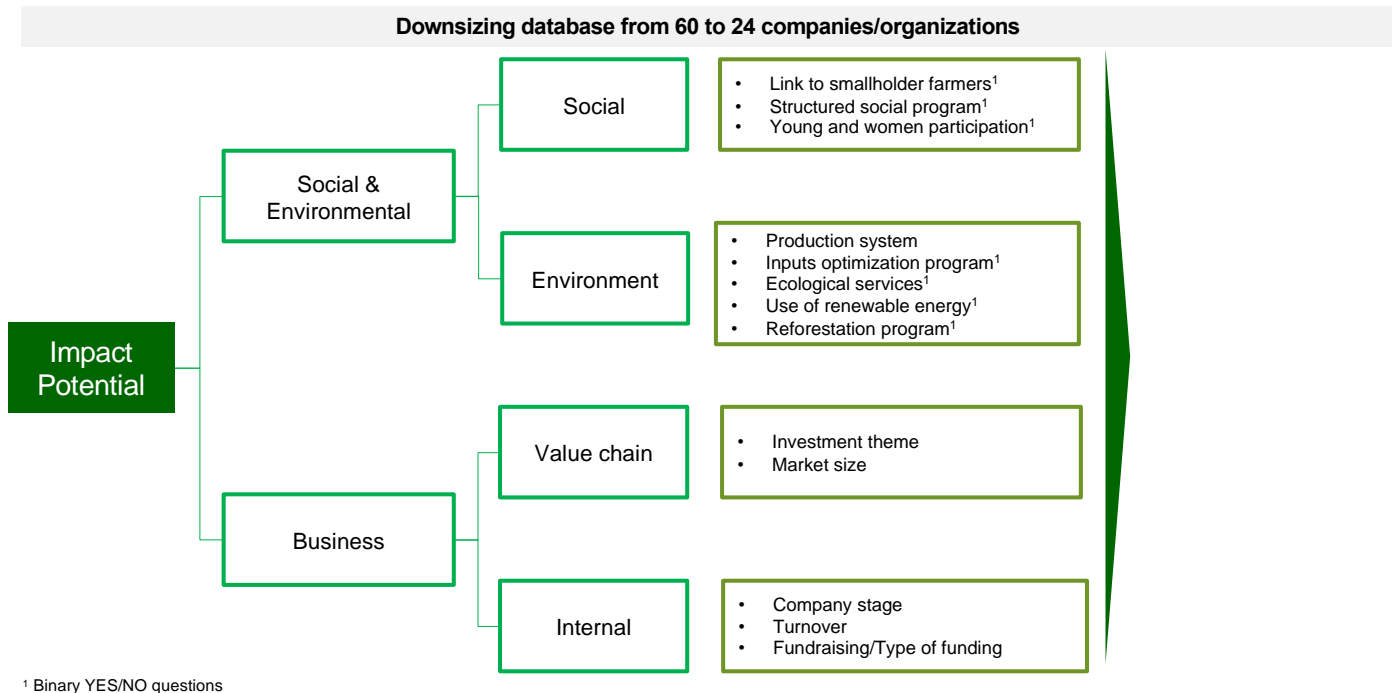
Figure 5. Criteria framework for social and environment and business analysis to downsize database from 60 to 24 companies
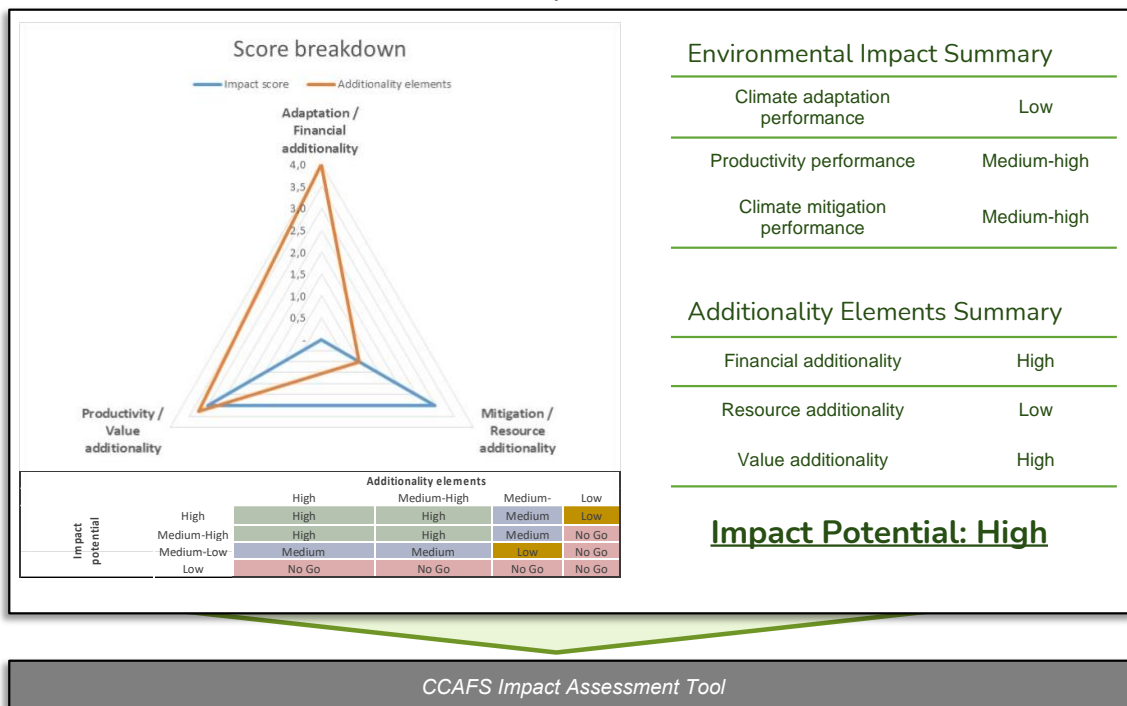

Figure 6. CCAFS Impact Assessment Tool results overview[3]

[3] Impact Potential Score considers whether the investee is likely to achieve high, medium, or low impact in ate least one of the KPIs with no negative effects in the other two KPIs

productivity impacts, which are key for early-stage prioritization purposes. These indicators help show if the investee has the intention to use the proceeds to expand production and impacts, coupled with the ability to mobilize external resources (Figure 6).

The overall assessment is under the assumption that for an intervention to be climate-smart, the deal must achieve positive impact on (at least one and non-negative effects in the other two): adaptation, mitigation and productivity.

In addition, each company's business dimensions were evaluated using SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis and Porter's 5 Forces framework, to analyze the company's position relatively to the market and competitors (Figure 7).

Figure 7. Criteria framework to downsize database from 24 to final eight companies

In selecting the final eight companies with the highest-impact potential, primary data was obtained, whenever possible, through interviews with representatives of the companies. In addition, the following secondary data sources were used to complement and validate the information gathered in interviews: information audited by third parties such as certifications, sustainability and impact reports and business reports.

The final selected eight companies were those that presented the highest positive environmental and social impact alongside high commercial opportunity. The selection of these companies was intended to facilitate matchmaking with the private sector investors. The companies were selected using a scoring system that combined both business and positive impact dimensions (Figure 8).
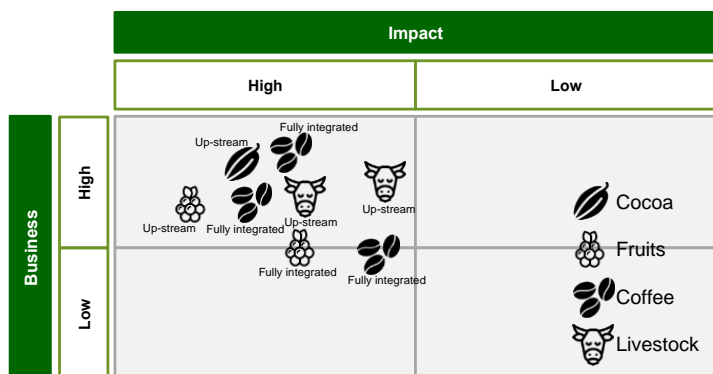

Figure 8. Business type and impact relative framework for the final eight companies database

Note that the selection of these companies considers relative comparison data between companies in the pool of 24 companies, and that all 24 companies identified present high social and environmental impact as well as attractive commercial opportunities.

Results reveal a relatively high commercial opportunity for coffee and cocoa, mostly because of the premium and high-quality products that allow these companies to differentiate themselves from commoditization (Figure 9). On the other hand, beef and other fruit production are more commoditized markets, with special and premium markets that are less developed. Regarding social and environmental impact, cocoa, coffee, and other fruits are mostly produced by smallholder farmers in agroforestry systems, thus presenting high potential for social and environmental impact.

Potential investments in these companies include scaling sustainable production systems, notably agroforestry and silvopastoral systems, crop production diversification, and access to premium and carbon markets.

Final remarks

Rising public awareness, especially in the context of the climate emergency has been driving changes in agricultural production systems. The LATAM region considered in this project shows a great potential for a more sustainable and climate-smart food production system, positively contributing to the upcoming challenge of feeding a growing population in a resource-limited and climate-changing environment. Its rich biodiversity, allied to a growing economy and financing lines for sustainable agriculture projects - although these facilities are often limited to short-term projects - creates a favorable environment to develop CSFS projects through reorienting and leveraging long-term patient capital.

However, companies with annual revenue above US$ 1 million are scarce. This situation opens up an opportunity to incubate or accelerate early-stage companies to support them with technical assistance, as well as to use innovative financing solutions, such as blended finance funds for leveraging CSFS (Apampa et al., 2021).

The most relevant CSFS practices within companies include agroforestry, regenerative livestock production and silvopastral systems, along with reforestation programs and degraded land restoration, especially in the Amazon region, where primary forest conservation is a critical point for a sustainable development.

Some of the most important challenges identified through interviews held with companies and from review of the literature include:

- access to capital, especially for long-term projects
- access to information and technical assistance,
- market validation for some products, particularly Andean and Amazon fruits.

Public and private investors can address some of these challenges by providing farmers access to long-term finance suited for impact projects. This should include access to technical assistance. Funding could be channeled through long-dated investment vehicles, such as blended finance debt funds, or through building the capacity of local and regional financial institutions to offer longer-term credit lines. Regarding the technical assistance component, focus should be on:

- the implementation of MRV systems for emissions and mitigation, especially for accessing carbon markets;

- development of guidance on best environmental and social practices to projects focused on certain value chains and geographies

- designing roadmaps for the implementation of CSFS practices, especially for up- and mid- stream companies.

Many opportunities rely on market trends and favorable production conditions for growing premium coffee and cocoa products. Premiums generate added value to those value chains and are based on the adoption and compliance with social and environmental practices and standards. Other relevant opportunities are local fruits offered by the rich regional biodiversity that have a potential to provide functional foods in natural and agroecological production systems, such as agroforestry.

Sustainable livestock production systems also have a potentially high environmental impact, especially when compared with business-as-usual production systems, although small scale projects have shown more difficulty to be economically viable, leading to the conclusion that a certain scale is mandatory for the project viability (IIS, 2019).

This work provides the first efforts of CCAFS to prioritize and promote a pipeline of high-impact CSFS business models to encourage private sector investment in the LATAM region. The work also provides a framework for selection and evaluation of CSFS companies to support deal matchmaking and facilitation.

Further reading

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This info note presents methods for developing a pipeline of Climate-Smart Food Systems investments.

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