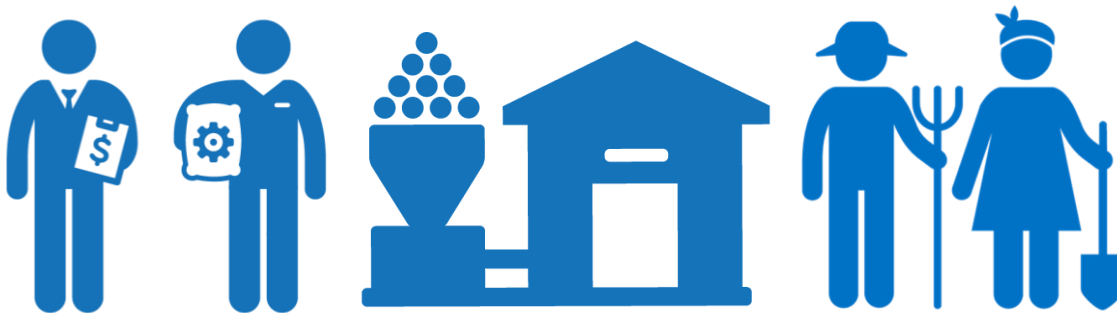


SDM Case Report: Louis Dreyfus Company

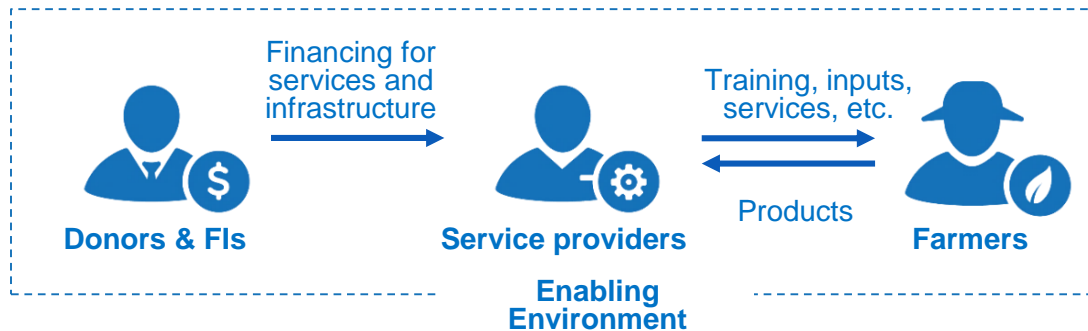
Service Delivery Model assessment: short version
June 2019

Location: Vietnam
Commodity: Coffee
Services: Agrochemical provision & recommendations, diversification, training, monitoring & evaluation, certification, farmer organization, socialization service.



What are SDMs and why are we interested in analyzing them?

Service Delivery Models (SDMs) are supply chain structures, which provide services such as training, access to inputs and finance to farmers, to improve their performance, and ultimately their profitability and livelihoods.



By analyzing SDMs, we aim to support **efficient, cost-effective and economically sustainable SDMs at scale** through:

Key drivers for success of SDMs benchmarking



Innovation opportunities to support



Cross-sector learning, learning community



Convening at sector and national level



Analyzing SDMs brings a range of benefits



Farmers and farmer organizations

- **Better services** improve productivity, product quality, quality of life and social and environmental outcomes
- **Better outcomes:** improved productivity, income and resilience



SDM operator

- **Understand** your model's business case
- Gain insights to **improve** service delivery
- Develop **cost-effective** SDMs based on insights
- Identify opportunities for **innovation** and **access to finance**
- **Learn** from other public and private SDM operators operating across sectors/geographies
- **Communicate** stories of impact and success at farmer level



Investors/FIs

- **Common language** to make better informed investment decisions
- Insights to achieve optimal **impact, efficiency and sustainability** with investments and partnerships in SDMs

The Louis Dreyfus Company SDM and objectives

General SDM information:

Location:	Vietnam
Timing in analysis scope:	2018-2027
Scale (start of analysis):	300 farmers
Scale (end of analysis):	1,000 farmers
Funding:	LDC, co-funded by IDH
SDM Archetype*:	Global



Louis Dreyfus Company (LDC) is a leading merchant and processor of agricultural goods. LDC indirectly reaches a consumer base of 500 million people by originating, processing and transporting approximately 81 million tons of commodities annually. Revenues in 2017 were 43 billion USD, and LDC employs 19,000 people worldwide.

LDC is an active player in Vietnam's agribusiness sector and has been since 1998. The portfolio in the country includes coffee, grains, oilseeds, and rice. LDC is focused on growing its presence in Vietnam and strengthening its position as a responsible and trusted merchandizer of agri-commodities.

The approach in its coffee value chain has evolved to go beyond certification schemes, offering more direct support to smallholder producers, while focusing on responsible sourcing.

In Vietnam LDC originates, processes, stores and merchandizes coffee for both the local and export markets. LDC manages a comprehensive coffee sustainability program that is aimed at working with local farmers to improve the yield and quality of Vietnamese coffee production, while minimizing any environmental impact.¹⁾

For more info on SDM archetypes, see the [IDH Smallholder Engagement Report](#)
Sources: 1) www.ldc.com (12/12/2018)

SDM vision:

Sustainably improve farmer income through climate resilient solutions

SDM objectives:

- 1 Encourage sustainable water & agrochemical management practices
- 2 Encourage crop diversification and establishment of mini-landscapes
- 3 Ensure the adoption of high-quality agrochemical inputs

SDM rationale:



Promote safe and sustainable agrochemical use

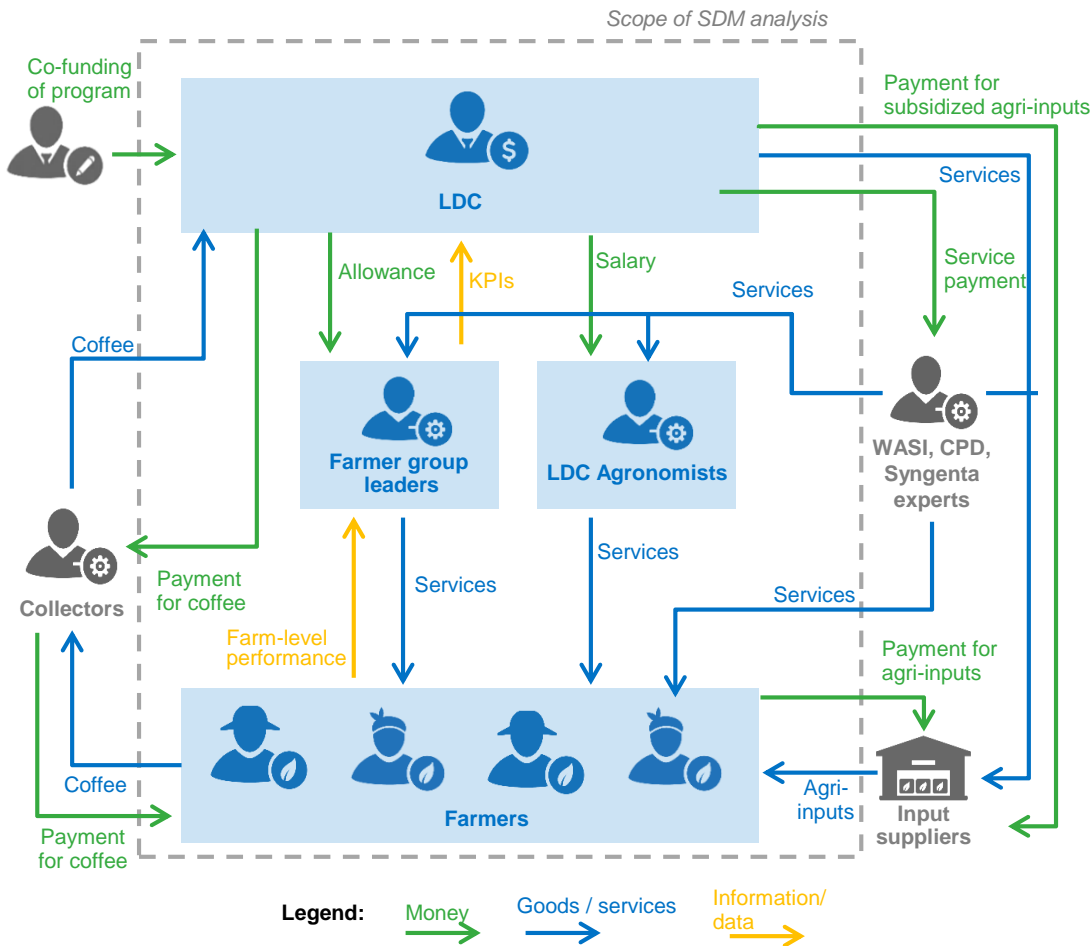


Promote crop diversification



Sustainable and climate resilient farms

SDM and structure and enabling environment



- LDC provides services through its own staff, hired experts and farmer group leaders. All the activities are organized and managed by LDC.
- In most of the services, LDC plays the role of a facilitator. For instance, LDC facilitates the link between farmers and responsible local agri-input agents (fertilizer, pesticide and seedling providers). LDC supports the selected local agents by building capacity on traceability and quality.
- LDC does not have a direct relation with coffee farmers when it comes to sourcing. This is due to current Vietnamese laws that impede agri-commodity traders to have direct business relationships with the farmers.

Enabling environment

Farmers are impacted by several factors within their enabling environment. Most important are:

1. Land ownership

Most farmers don't have formal papers on their land ownership right which limits access to loans. This, in turn, decreases ability to invest in climate-smart production and precision agriculture.

2. Environmental risk

Farmers are over-using agri-inputs and water resources. Over-fertilization leads to soil acidification and groundwater contamination. Intensive mono-cropping and lack of shade-grown environment threaten long-term sustainable yields.

3. Infrastructure

Infrastructure in place is generally good. Farmers have easy access to free water sources through local water boreholes.

Services delivered and farmer segmentation (1/2)



Agrochemical provision

- LDC selects one fertilizer and one pesticide agent that commit to sell good quality agri-inputs to farmers. LDC provides trainings to these local agents on banned and counterfeit agri-inputs and supports them in purchasing of required equipment.
- To ensure farmers buy high-quality agri-inputs, LDC organizes a series of workshops to facilitate the connection between the selected agri-input agents and farmers.
- For mini-landscape farmers, LDC covers 50% of agri-input costs.



Diversification

- LDC selects one local seedling company that is committed to sell good quality and traceable intercropping seedlings to farmers
- To ensure the quality of the seedlings, LDC supports the local seedling company on quality and traceability and on purchase of required equipment.
- LDC covers 80% and 60% of the total costs of seedling to mini-landscape farmers and other SDM farmers respectively.



Agrochemical recommendations

Fertilizer recommendations:

- LDC conducts soil tests to assess current nutrient levels in coffee farms. LDC covers 80% of the costs of the soil test, while farmers are required to pay the remaining 20%.
- Based on the soil tests results, LDC organizes workshops with nutrient experts to recommend sustainable fertilizer application rates.
- A total of 140 soil tests are conducted in the first three years of the project. After the three years period, 10 soil tests will be conducted at alternate years to assess improvements in soil fertility over time as a result of the SDM.

Pesticide recommendations:

- LDC collaborates with the Crop and Protection Department (CPD), WASI and Syngenta to provide recommendations on effective and safe pesticide usage and on selection of eco-friendly and good quality pesticides.
- LDC conducts a survey on current pesticides used by coffee farmers. The resulting list of pesticides from the survey will be compared to the lists of banned products (UTZ, 4C & RFA). Farmers will receive recommendations on which pesticide they should buy.

Farmers are segmented in this SDM:

There are two types of farmers in the SDM:

Segment 1

Mini-landscape farmers: Farmers who share their land with other farmers in the community to jointly apply an agroforestry and landscape approach. They have to sign an agreement with LDC in the beginning of the SDM.

Segment 2

Diversified farmers: Individual farmers who apply agroforestry on their land.

The two farmer segments gain access to the same services, however, Mini-landscape farmers receive more benefits, such as larger subsidies.

Services delivered and farmer segmentation (2/2)



Training

1. Climate resilient agriculture practices:

- Good Agricultural Practices (GAP) with a focus on climate resilient solutions.
- LDC provides specialized trainings to mini-landscape farmers on designing agroforestry systems.

2. Pest control & safety:

- Syngenta trains farmers on pest control & safe pesticide handling. All farmers receive personal protective equipment free of charge.
- Training materials are developed with input from LDC agronomists and advisors from WASI, Syngenta, and CPDs.

3. Capacity building:

- Training of trainers (ToT). LDC hires WASI and other experts to train LDC agronomists and farmer group leaders.
- Farmer group leaders are recruited and trained on group management, training skills and technical knowledge.



Monitoring & Evaluation

- LDC is currently conducting a baseline survey for reporting on progress and impact. Mid- and end surveys will also be conducted by LDC to estimate the impact at farm-level and changes in agronomic performance.
- Farmer group leaders collect data by farm field books that are filled by farmers.
- LDC agronomist conducts monthly observations and random quality check of 10% of the total farmer field books.



Certification

- LDC supports farmers in Dak Lak to become 4C and UTZ certified farmers.
- Audits are conducted on a sample of farmers.



Farmer organization

- Farmers are gathered in informal groups of 50 farmers managed by a group leader.
- Farmer group leaders support LDC to organize trainings and events, and to collect farm field books.
- Groups will be used to facilitate delivery of services within the SDM.



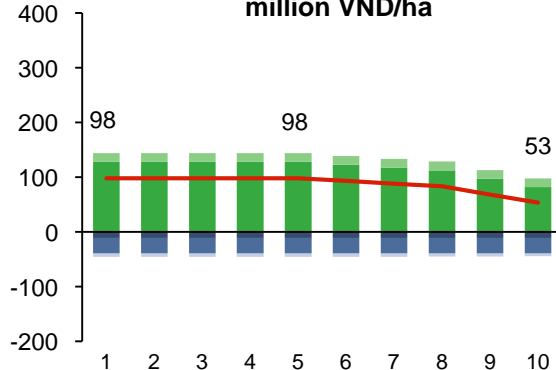
Socialization service

(Not analyzed as a separate service)

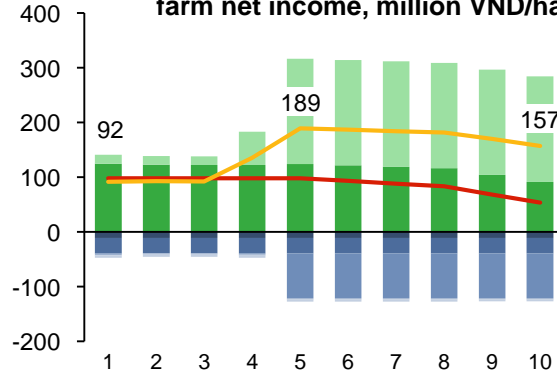
- In the first two years of the SDM, a socialization workshop with farmers, local partners and local governmental authorities is organized to sensitize them to the SDM model, its purposes, and the services to be provided. After this workshop farmers are invited to register as beneficiaries.

Overall SDM impact: Farmer P&L

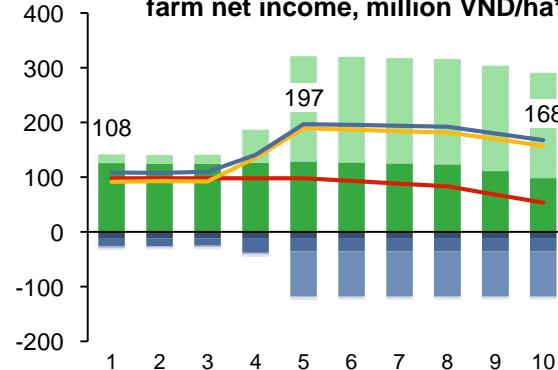
Baseline farm net income, million VND/ha



SDM Segment 1, Diversified farmers, farm net income, million VND/ha



SDM Segment 2, mini-landscape farmers, farm net income, million VND/ha*



■ Revenues from diversification
 ■ Labor expenses
 ■ Additional costs from diversification
 ■ Other expenses
 — Segment 1 net income
■ Coffee revenues
 ■ Fertilizer expenses
 ■ Watering expenses
 — Baseline net income
 — Segment 2 net income

Economic sustainability at farm level

The average annual net income of a baseline farmer in Dak Lak is estimated at 87.7 million VND/ha over a ten-year period. In comparison, SDM segment 1 and 2 farmers earn, on average, 148 million VND/ha and 159 million VND/ha respectively. The average monthly income per capita is well above the national poverty line of 570,000 VND per capita per month for rural areas¹.

The main economic benefit accruing to SDM farmers is adoption of an agroforestry system and the resulting additional income from diversification. Over the ten-year period, SDM segment 1 and 2 farmers will increase their income, on average, by 68% and 81%, respectively, almost entirely due to diversification. Segment 1 farmers earn a lower net income in the first three years compared to a baseline farmer due to investments in seedlings for diversification, agrochemicals and rehabilitation of coffee trees. Mini-landscape farmers (segment 2) maintain a higher income since year 1, due to LDC subsidies on agrochemicals and seedlings.

The current rate of rejuvenation and renovation of coffee trees is not high enough to replace aging trees, so overall farm productivity will start declining in five years and lead to significant income losses. By 2027 coffee production is expected to drop down by 22% for all SDM farmers compared to 2018, leading to a decrease in net income from coffee of ~45 million VND/ha (baseline) and 27 million VND/ha (segment 1 & 2). It is vital that farmers undertake structured rehabilitation to ensure the long-term viability of coffee farms.

Main revenue drivers

Coffee: Coffee, on average, accounts for 48% of total revenues over a ten-year period. The importance of coffee decreases over time accounting for 88% of total revenues in 2018 decreasing to 34% in 2027.

Diversification: For both diversified and mini-landscape farmers, intercropping will become the main source of income, accounting for 66% of total revenues in 2027.

Main cost drivers

Labor: Coffee farming is labor intensive: a third of total labor needs (80 of 245 man-days/ha) is hired each year, mainly for harvesting.

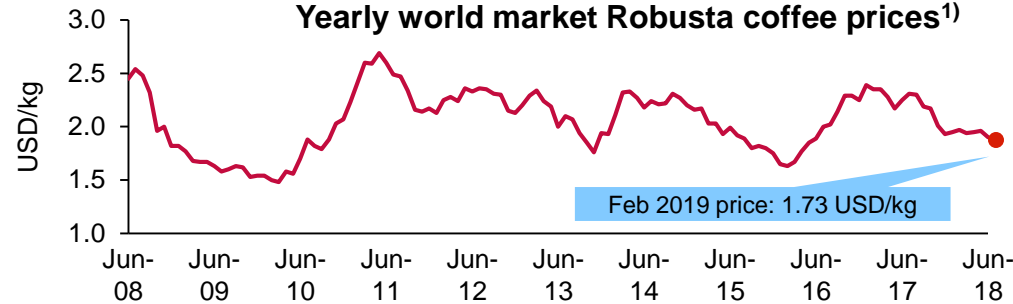
Agrochemicals: On average, segment 2 farmers, will reduce fertilizer and pesticide costs by 13% as compared to baseline, due to subsidies in the first three years and adoption of mini-landscape approach.

Diversification: SDM farmers have additional costs (around 81.9 million VND/ha) due to higher level of diversification compared to the baseline.

* Based on a combination of real data, assumptions and projections. Figures will be checked periodically against actual data

Farm resilience: The volatile coffee price and influence on farmer income

Yearly world market Robusta coffee prices¹⁾



Volatility of coffee prices

The left graph shows the monthly coffee market prices for Robusta. Prices vary with up to ~40% annually, and current prices are low and declining. Given the close relationship between Vietnamese Robusta farm-gate prices (96% of FOB price) and the world market price, this heavily influences farmers' income.

These low and volatile prices pose an obvious risk to both farmers and the SDM, since farmer income is highly dependent on the farm-gate price.

Sensitivity of farmer income

The tables show sensitivity analyses of a baseline and segment 2 (mini-landscape) farmer's net income in year 10 (2027) at varying coffee price and yield levels. The red boxes present the estimated net income from this study, also visible on the previous page.

Changes in price have a relatively small influence on a mini-landscape farmer; who in all scenarios shown will earn at least Vietnamese national median household income of 110 million VND/year even with low yields and prices. This is not the case for the baseline farmer, who will not be able to reach that income at current prices, even if yield increased by 67%. Even in an extreme negative scenario, with a yield of 2 MT/kg and a coffee price of 20,000 VND/kg, SDM segment 2 farmers will never go below the poverty line of 32 million VND/household per year**.

The difference is due to the additional income from diversification, in this case from durian and avocado, which makes SDM segment 2 farmers more resilient to changes in coffee prices and yields. Without diversification, a SDM farmer is facing the same vulnerability as a baseline. Hence, it is instrumental that LDC endures that coffee farmers adopt agroforestry systems and, at the same time, guarantees off-take of the diversified produce to avoid farmers to incur additional costs without realizing the returns.

* This farm-gate price is a projection assuming that the rest of the value chain will keep the same margins under fluctuating coffee market prices. coffee is the only income source of the entire household; ** Based on the Vietnamese national poverty line of 6.8 million VND/household member² and 4.7 household members.³ This assumes coffee is the only income source of the entire household; 1) ICO indicator price, average Bremen/Hamburg markets price, indexmundi.com 2) Vietnam General Statistics Office (2015) 3) LDC (2018). Improvement of Climate Change Resilience and Agrochemical Management for Coffee Production in Highland region

Net income (million VND/ha) for varying coffee prices and yields, Baseline farmer, year 10 of SDM

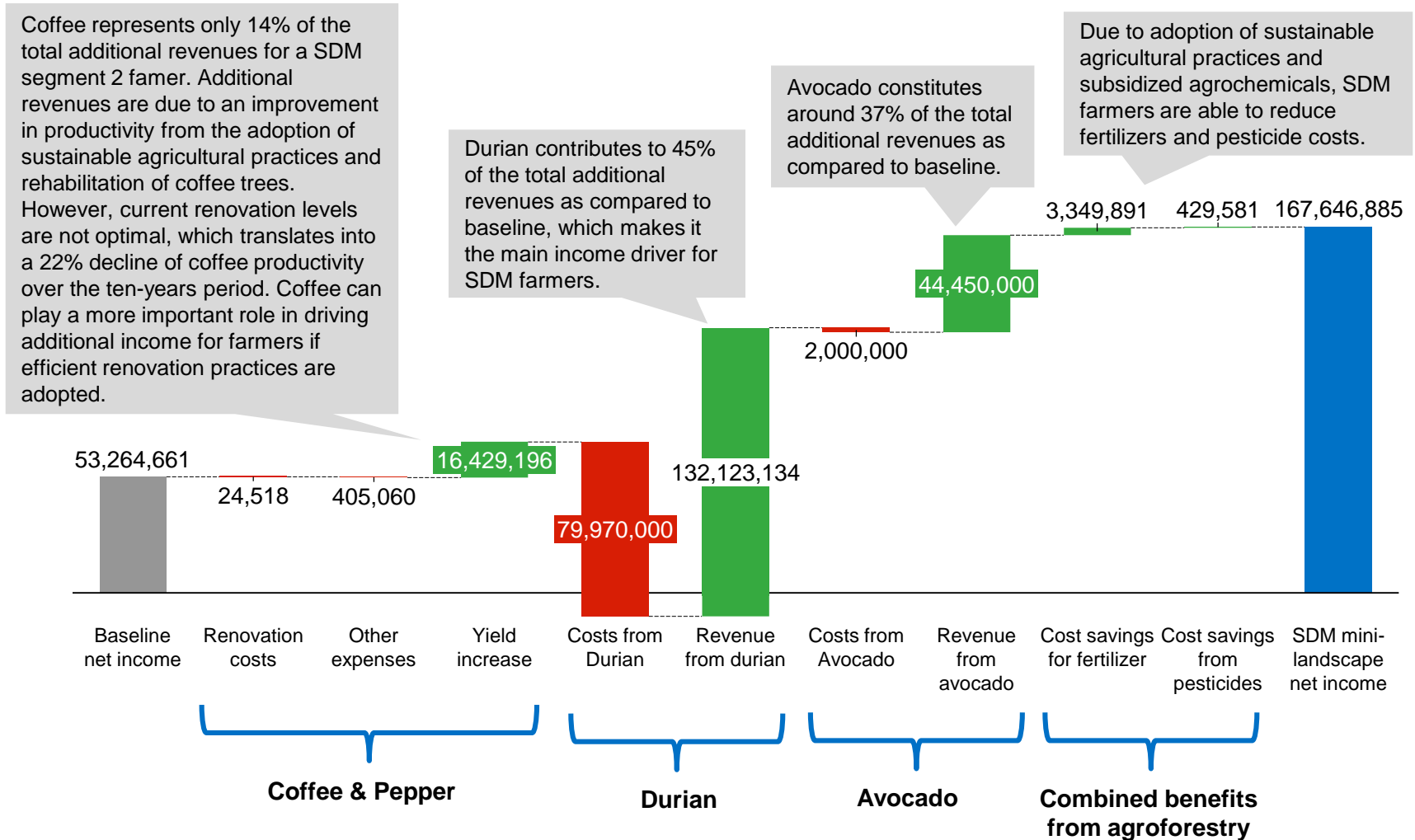
Coffee world market price (USD/kg)	Farm-gate price* (VND/kg)	Yield (MT/ha) →					
		2	2.4	2.8	3.2	3.6	4
0.9	20,000	11	18	26	33	40	48
1.1	25,000	20	30	39	48	58	67
1.3	30,000	30	42	53	64	75	86
1.5	35,000	40	53	66	79	93	106
1.7	40,000	49	65	80	95	110	125
1.9	45,000	59	77	93	110	127	144
2.1	50,000	69	88	107	126	145	164

Net income (million VND/ha) for varying coffee prices and yields, Mini-landscape farmer, year 10 of SDM

Coffee world market price (USD/kg)	Farm-gate price* (VND/kg)	Yield (MT/ha) →					
		2	2.4	2.8	3.2	3.6	4
0.9	20,000	110	118	126	134	141	149
1.1	25,000	120	130	140	150	159	169
1.3	30,000	130	142	154	166	177	189
1.5	35,000	140	154	168	182	195	209
1.7	40,000	150	166	182	198	213	229
1.9	45,000	160	178	196	214	231	249
2.1	50,000	170	190	210	230	249	269

Income drivers: Farmers using all services have +215% higher net income, driven by crop diversification

Net income for SDM (segment 2) mini-landscape farmer*, year 10, (VND/ha)



Coffee represents only 14% of the total additional revenues for a SDM segment 2 farmer. Additional revenues are due to an improvement in productivity from the adoption of sustainable agricultural practices and rehabilitation of coffee trees. However, current renovation levels are not optimal, which translates into a 22% decline of coffee productivity over the ten-years period. Coffee can play a more important role in driving additional income for farmers if efficient renovation practices are adopted.

Durian contributes to 45% of the total additional revenues as compared to baseline, which makes it the main income driver for SDM farmers.

Avocado constitutes around 37% of the total additional revenues as compared to baseline.

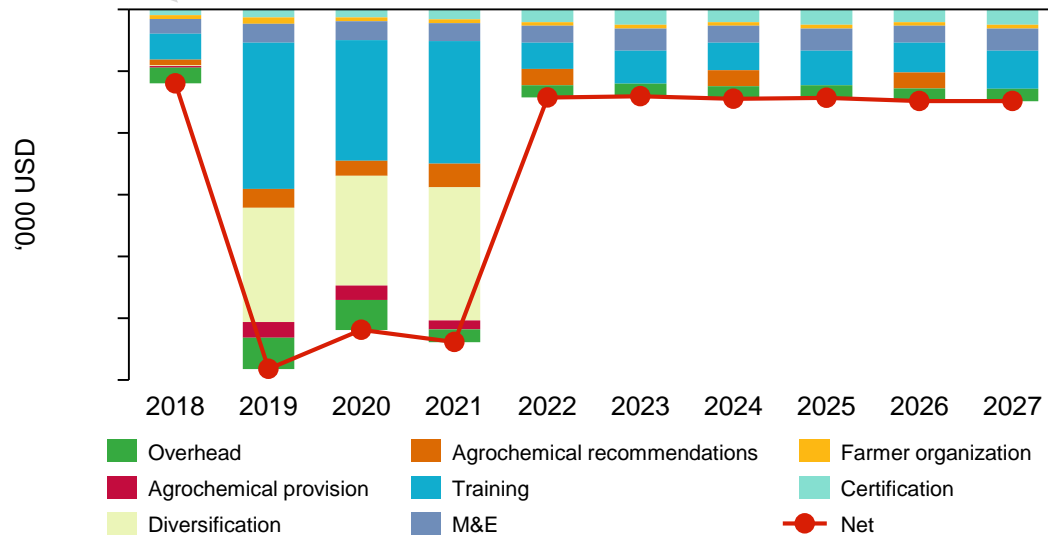
Due to adoption of sustainable agricultural practices and subsidized agrochemicals, SDM farmers are able to reduce fertilizers and pesticide costs.

*Figures are based on a mix of measured data and assumptions

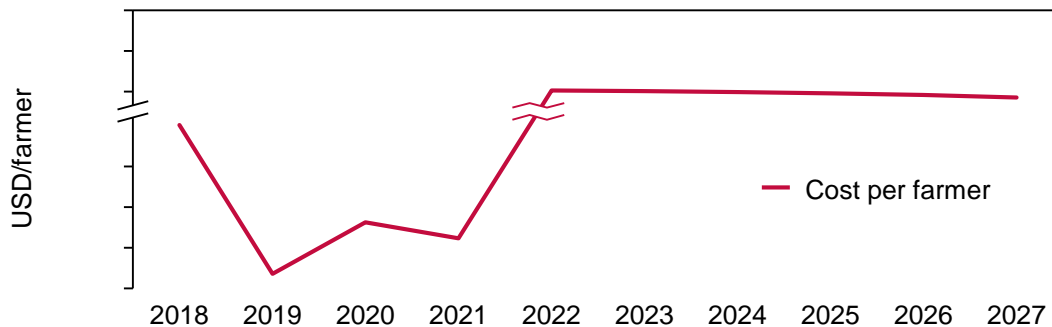
SDM P&L

The lower cost in 2018 is due to a delay in the delivery of the services (e.g. seedling and agrochemical provision)

Overall SDM P&L by service ('000 USD)



Net SDM cost per farmer (USD)



Economic sustainability of the SDM

The SDM yields no revenues as farmers do not pay for any of the services. For services farmers are paying (soil test, seedlings, inputs), the payment goes to third parties. Therefore, from the perspective of LDC, there are only costs related with the SDM. These costs are significantly higher during the implementation phase of the SDM.

The main cost driver of this SDM is the provision of training, which mainly consists of fees for external experts and the subsidized agrochemicals (fertilizers and pesticides) for mini-landscape farmers. The second largest cost driver is the diversification service. The incurred costs relate to the provision of seedlings for shade trees (mainly durian & avocado) to all farmers. From year 5 (2022) onwards, LDC will scale down operations (e.g. lower number of trainings per year) and some of the services will stop to be provided (e.g. provision of subsidized seedlings and agrochemicals).

The costs in 2018 are 23,958 USD (555 million VND), significantly lower than the following three years (2019-2021). This is mainly due to agrochemical and seedlings not being provided yet and a lower number of farmers reached in 2018 (300 against 1000 in 2019). During the core implementation phase of the SDM, costs vary from 116,441 USD (2,700 million VND) in 2019 to 107,740 USD (2,498 million VND) in 2021. The higher cost in 2021 is a reflection of an increase in number of mini-landscape farmers receiving subsidized seedlings and agrochemicals.

SDM outcomes and main learning questions

These are not an official assessment of SDM success or failure by IDH or NewForesight, but an indication based only on the analysis done in this forward-looking study, and on assumptions provided by the case owner(s). Actual assessment of success of the SDM should be conducted during and after the SDM is conducted using measured results

SDM objectives	Projected outcomes
<p>1 Encourage sustainable water & agrochemical management practices</p>	<ul style="list-style-type: none"> • Reduce health hazards from pesticide handling and achieve healthy farms on the long term. • Increase long term security of supply of sustainable coffee. • Improve product marketing opportunities. • Increase soil fertility and reduce degradation of soil and depletion of water resources.
<p>2 Encourage crop diversification and establishment of mini-landscapes</p>	<ul style="list-style-type: none"> • Increase adaptive capacity to adverse climate events among farmers. • Improve food and income security among farmers. • Increase sustainability of Vietnamese coffee sector. • Raise carbon sequestration capacity and agricultural biodiversity.
<p>3 Ensure the adoption of high-quality agrochemical inputs</p>	<ul style="list-style-type: none"> • Reduce risk of crop failure and raise yields. • Raise product quality and volume of sustainable coffee sourced • Improve soil quality.

Learning question	SDM insights
<p>Which services are needed to support smallholder livelihoods and increase resilience to climate change?</p>	<ul style="list-style-type: none"> • All services offered within the SDM are complementary and serve a specific purpose. The service with the highest impact is access to seedlings and advice on diversification (in this case avocado and durian). Diversification also offers improved farm resilience, particularly important in light of climate change. • The farm level analyses show that coffee rehabilitation practices are insufficient as trees age and, as a result, over time farmers will experience a declining yield and net income from coffee. It is vital that farmers undertake structured rehabilitation to ensure the long-term viability of coffee farms, which LDC should aim to support.
<p>What is the recommended mechanism to deliver the services?</p>	<ul style="list-style-type: none"> • The main need for changing the delivery mechanisms is for LDC to create a model generating service payments that, in turn, would aid the development of an economically sustainable SDM. • The service delivery mechanisms are expected to function well, but given LDC's position mainly as a facilitator of service delivery, LDC has little influence on the actual implementation. LDC is dependent on one local agent for each of the main services (seedling and agro-chemical provision) and will need to ensure these delivering the level of product quality that they agreed during the SDM project.

Key insights



Key drivers of success

- LDC has to ensure the **buy-in of all stakeholders** to the mini-landscape approach. Signing an agreement with all stakeholders could increase the chances of successful adoption.
- A **long-term commitment** from LDC is needed. It is vital that LDC stays committed to supporting the implementation and execution of the model.
- LDC ensuring farmers are conducive to pay the **full price for subsidized products once the donor funding runs out**.
- **Balancing the focus** between diversification and support for coffee.



Key factors in replication

- The **(mini-)landscape approach is an innovative solution** to ensure a collective response at producer level to environmental issues. LDC supports farmers organizationally and financially to collaborate around a joint approach to sharing of natural resources.
- **Pre-project socialization workshops** help to effectively engage and align all stakeholders in the project. The workshops helped to sensitize farmers, local partners, and local governmental authorities to the SDM model, its purposes, and the services to be provided.
- **Baseline survey** to enable an impact analysis of the SDM.
- **Support and capacity building of input agents**. This strategy seeks to create a ripple effect with other service entities in the area.



Key risks

- The SDM is **not economically sustainable** and heavily reliant on donor funding. There's a considerable risk that the SDM will end once donor funding ends.
- The current design is **not scalable**. LDC could collaborate with other traders to lower costs while establishing a regional approach to the mini-landscapes.
- Farmers facing **cashflow issues**, particularly towards adoption of diversification. LDC should investigate further the seasonal need for access to finance and seek to support introduce this in the SDM.
- **No guaranteed off-take** of diversified produce. The potential inability to market produce will significantly impact the overall farm business case given coffee revenues are decreasing.



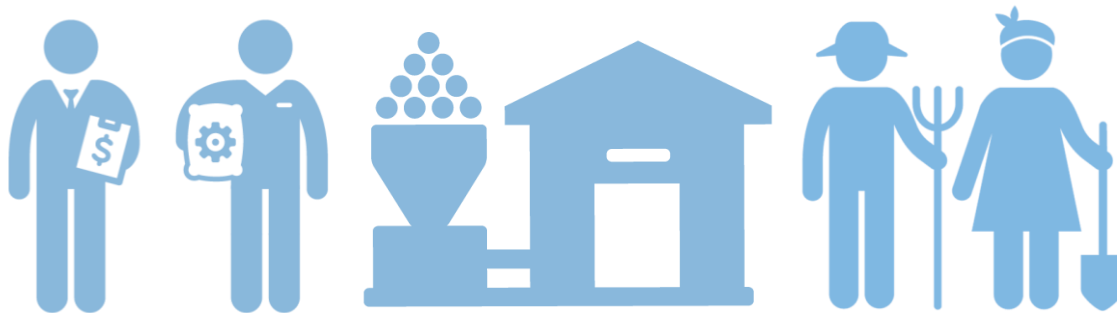
Opportunities for improvement

- Incorporate a **business approach to service delivery**. LDC is not generating any service revenues which is needed to create a sustainable SDM.
- Introduce **coffee renovation as a service**. LDC needs to ensure that farmers rejuvenate or renovate to a greater extent.
- Facilitate establishment of **farmer cooperatives forming into companies**. Due to the Vietnamese coffee trading regulations, LDC cannot source directly from farmers and are therefore unable to ensure that farmers receiving LDC support will sell their coffee to LDC. If the cooperatives establish themselves as companies, LDC could source directly from these, integrating the commercial operations in the SDM and increasing traceability.
- Shift to a **software-based M&E system**. Given the scale of the SDM and low amount of LDC staff dedicated to the SDM, LDC should consider moving to a digital M&E process, which is more scalable and requires less oversight.

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For more information and insights on SDM's, see the [IDH Smallholder Engagement Report](#)