SUSTAINABLE FOOD LAB | TechnoServe Business Solutions to Poverty™

FOSTERING RESILIENCE

REGENERATIVE AGRICULTURE AND LIVING INCOME

Evidence from coffee, approaches for all sectors

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TechnoServe authored the Regenerative Coffee Investment Case and conducted the living income modeling in this companion paper. Sustainable Food Lab partnered with TechnoServe to add a living income lens to the original analysis, developing the narrative and strategic framing presented here.

Sustainable Food Lab is a nonprofit that partners with companies, governments, and civil society to accelerate the shift toward more equitable and sustainable food systems. Sustainable Food Lab co-facilitates the Living Income Community of Practice, in partnership with the German Development Agency (GIZ) and ISEAL.

Sustainablefoodlab.org

TechnoServe is a nonprofit that harnesses the power of the private sector to help farmers and entrepreneurs lift themselves out of poverty for good. It works with people in around 20 countries to build a better future through regenerative farms, businesses, and markets that increase incomes.

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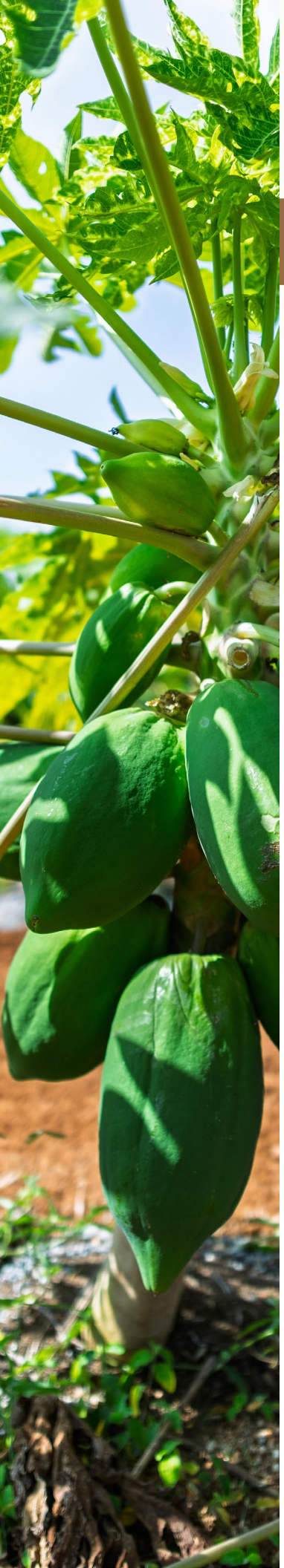

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Executive Summary

Regenerative agriculture offers a powerful pathway to improve farm income, environmental outcomes, and resilience across diverse crops and regions. But what role can it play in helping smallholder farmers earn a living income, and how does a living income in turn enable the regenerative transition?

Published in 2025, **TechnoServe's Regenerative Coffee Investment Case** shows that helping smallholders adopt regenerative agricultural practices[1] can meaningfully improve farm-level income and reduce greenhouse gas (GHG) emissions[2] for archetypal farmers across 10 leading origin countries in coffee.[3] This companion paper adds a living income lens to the findings from seven countries featured in the *Regenerative Coffee Investment Case*.

This additional analysis shows that income improvements from regenerative agriculture help coffee-growing households to meaningfully narrow or eliminate the gap between their earnings and a living income—the earnings required to afford a decent standard of living in a given locale.[4]

At baseline, before adopting new regenerative practices, the typical farming household across all seven countries falls short of a living income.[5]

Peru and Indonesia have the largest living income gaps, with typical farmers only earning 26% of the benchmarks at baseline. Vietnam has the smallest gap, with the typical farmer earning 81% of the benchmark (see Figure 1).

Annual smallholder coffee farm household net income at baseline
% of Living Income Benchmark for Typical (Median) Farmer

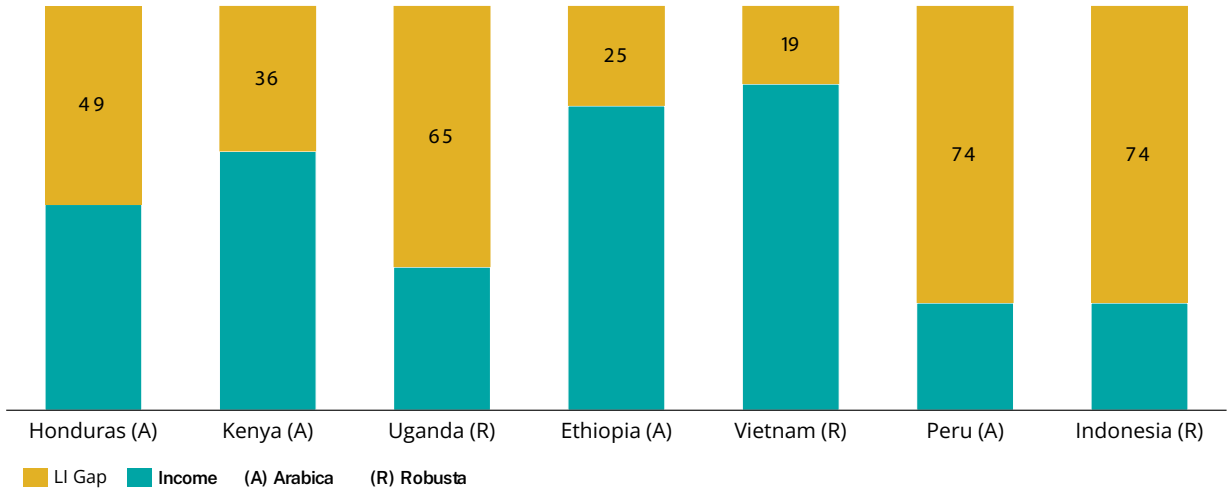


Figure 1

1. See the Regenerative Coffee Investment Case for details of the TechnoServe Ten Pillars Regenerative Coffee Farming Framework. The modeling in this paper assumes the same country-specific subset of practices as the original paper.
2. Or maintain low emissions while boosting production
3. https://www.technoserve.org/regenerative-coffee-investment-case
4. Additional analysis includes living income modeling for seven of the ten countries/archetypes in the TechnoServe *Regenerative Coffee Investment Case* by comparing the potential net household income gains from the adoption of regenerative coffee practices to a living income benchmark (i.e., the income needed for a decent standard of living for a household in a particular place). Colombia, Brazil Arabica, and Brazil Robusta are not included in this paper.
5. 2023 was the baseline year, although some data variations exist due to data availability. "Typical" farmer defined by archetypes in *Regenerative Coffee Investment Case.*

The analysis points to regenerative agriculture as a powerful tool in addressing these gaps. Modeling suggests[6] that the typical farmer in Ethiopia and Vietnam could achieve a living income simply by adopting the recommended regenerative practices. The modeled living income gap in Honduras and Kenya, meanwhile, would be reduced significantly with the adoption of regenerative practices.

In some countries, however, the adoption of regenerative practices would still leave a significant gap between household incomes and living income benchmarks. Even after regenerative practice adoption, the typical farmer in Uganda, Peru, or Indonesia would earn only half the living income benchmark (see Figure 2).
This is primarily driven by small farm size and low productivity (in the case of Uganda and Indonesia) or high production costs (in Peru).

Annual smallholder coffee farm household net income with adoption of regenerative practices
% of Living Income Benchmark for Typical (Median) Farmer

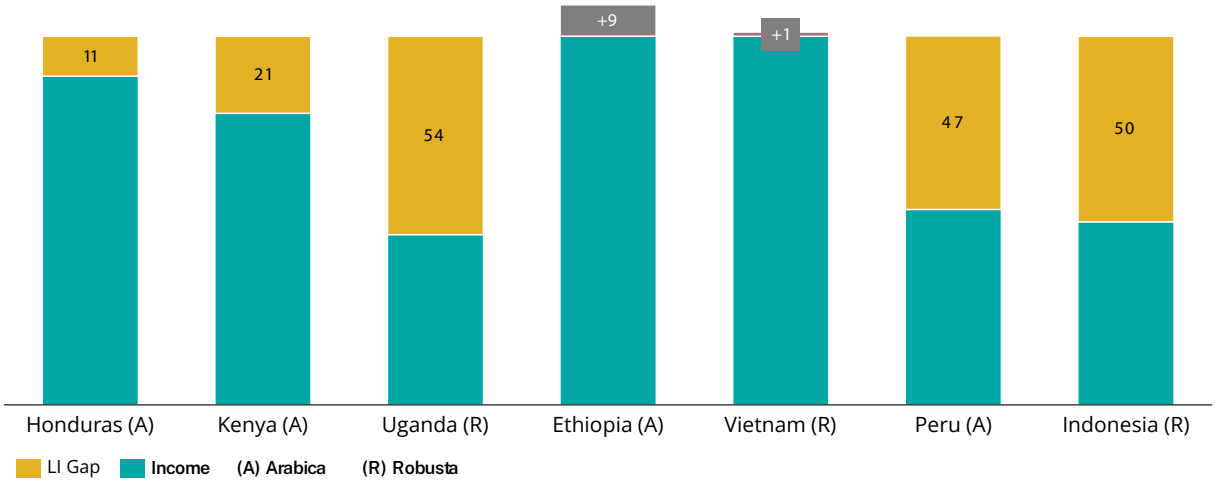


Figure 2

Even in countries where the typical farmer does not reach the benchmark, however, the significant reduction of the living income gap represents a real and meaningful improvement in livelihoods. Additionally, beyond these absolute income increases, regenerative practices build farm resilience: regenerative farms are better able to weather shocks resulting from climate change, while higher incomes enable savings and a financial buffer against market volatility.

Having modeled the income impacts of regenerative practices, this paper then outlines a range of potential actions that will help farmers close the living income gap, both by enabling them to effectively adopt new practices and helping them benefit from other income streams.

While these recommendations are rooted in coffee examples, the underlying principles and the approach are applicable across agriculture systems.

6.Assuming all coffee is sold at long-term average coffee price

Closing the living income gap requires action across multiple income drivers and by different actors across the value chain:

a. Removing barriers to practice adoption by aligning programs with the economic and risk-management realities of the farming household

b. Improving procurement practices to stabilize and improve farming income and enable farmers to invest confidently

c. Strengthening production and market conditions for other agricultural products grown on the farm

The significance of each action for household income and resilience will depend on the country and the nature of the specific farm involved.

For some households, especially those with very small landholdings, farm income alone cannot close the living income gap.

For these households, further narrowing the gap will require developing off-farm income opportunities in partnership with governments and other stakeholders.

Just as regenerative practices can move households toward a living income, progress toward a living income enables the transition itself: households with greater financial stability and a savings buffer are better positioned to absorb the short-term risks of adopting new practices. In this way, regenerative agriculture and a living income reinforce each other, each acting as both a driver and an outcome of the other.

By clarifying both the potential and the limitations of regenerative agriculture as a pathway to living incomes, and by identifying complementary strategies for closing the gap, this paper seeks to support more effective investment and action in the coffee sector and other agricultural value chains.

Figure 3 offers a practical pathway for stakeholders to advance regenerative agriculture and living incomes for smallholder farmers. The graphic synthesizes the key pre-conditions, actions, roles, and resources discussed throughout this paper.

A regenerative agriculture pathway to living incomes: Actions for smallholder value chains

Pre-conditions

- Understand key household challenges (income, risks, constraints).
- Identify and convene the right actors across the ecosystem.
- Map resources and data gaps.

Actions	Roles and resources
Make the whole farm system work Companies are responsible for the crop they buy. Ensuring the economic viability of other crops in the farming system can enable the regenerative transition.	
Optimize income from the crop you buy Regenerative practice adoption (technical assistance, transition finance, demo plots) plus procurement (fair, stable prices and secured volumes).	• **Lead:** Company (as buyer) and/or implementing partner • **Support:** Input and seed suppliers, finance providers • **Resources:** Blended finance, technical assistance, offtake commitments
Build other on-farm income Intercrops, cover crops, and livestock in the regenerative system, plus reliable markets for non-focus crops.	• **Lead:** Implementing partner • **Support:** Company, processors, government on market development • **Resources:** Agronomic training, market development, processing
Off-farm income and structural support For very small farms when farm income alone cannot close the gap: enterprise development, services, infrastructure, social protection.	• **Lead:** Government + development finance institutions • **Support:** Company convenes and co-invests; NGOs deliver • **Resources:** Public investment, blended and development finance

Higher income → savings and resilience → capacity to keep investing in regenerative practices

Collective action in every area

Sector platforms pool resources and engage governments and development finance at scale on shared challenges no single buyer can solve alone (e.g., resilient varieties, infrastructure, non-focus crop markets). It should complement, not replace, a company's own supply-chain investment.

Figure 3

Adding a Living Income Lens to the TechnoServe Regenerative Coffee Investment Case

The **TechnoServe Regenerative Coffee Investment Case** models the sector-level case for investing in regenerative agriculture. It shows that adopting regenerative practices could lead to a 62% increase in net farmer income[7] across 3.2 million farms, a 38% reduction in GHG emissions across 2.7 million hectares of coffee-growing land, and a 30% increase in coffee exports across the 10 selected origins/archetypes.

These projections consider the farm-level costs of regenerative practices and assume a 50% adoption rate for regenerative practices among 6.5 million smallholder farms across the selected origins/archetypes.

In the medium- and long-term, farmers benefit financially from the transition to regenerative production, collectively earning an estimated $2.1 billion in additional income every year. The analysis also shows that the investment needed to unlock this opportunity is attainable.

Over the course of seven years, farmers will require access to $2.7 billion in finance to make up-front investments, pay for transitional operating expenses, and cover the dip in net income typically experienced in the early years before all regenerative practices take hold. An additional $1.3 billion is needed to fund the technical assistance needed to help farmers transition to regenerative production.

The Regenerative Coffee Investment Case quantified the projected net farm income gains (coffee plus intercrops) for farmers in each country, ranging from a **10% increase** for Arabica farmers in **Brazil** to a **196% increase** for Arabica farmers in **Kenya.**

7. This analysis includes the cost of additional hired labor, but not additional labor provided by members of the household. In the case of producing regions where there is no available household labor, all additional labor for regenerative practice adoption is valued as additional paid labor.

The Significance of Living Incomes

Percentages alone do not tell us what those gains would mean for farming households' day-to-day lives, however. That is where a living income lens is useful. Living income analysis compares a household's total income from all sources[8] with the cost of covering the basic elements of a decent life.[9]

It helps translate projected income gains into a clearer picture of household well-being, enabling stakeholders to understand if families are moving closer to the level of income needed to meet their basic needs.

Given that living income sits along a continuum of livelihood indicators, however, a living income approach should not focus narrowly on the binary distinction of earning more or less than the benchmark.

Progress matters, and so does context. Meaningful improvement will look different across countries, regions, and crops, depending on farmers' starting points and the local constraints they face.

> "Living income has the potential risk of excluding those it intends to support when it is focused on reaching the living income benchmark as the only target, rather than also focusing on progress on increasing income toward and above the living income benchmark. Targets/goals that promise that 100% of farmers will reach a living income can incentivize a move away from the most vulnerable, as they are not likely to reach the living income benchmark due to factors beyond the program's control."
>
> *- Living Income Community of Practice,* **Aligned, Inclusive Living Income Narrative and Indicators**

In addition to comparing income against a standardized benchmark, a living income lens is useful because it takes the whole farm household as its unit of analysis, accounting for all sources of income, both on and off the farm. This perspective shows how regenerative farm systems perform at the household level, rather than for a single crop in isolation, capturing the contributions of diversified production and earnings beyond the farm.

By clarifying the financial contribution that any one crop plays in a household's livelihood, a living income approach helps companies, governments, and other stakeholders understand their roles and responsibilities in supporting income improvement.

8. This analysis includes on-farm and off-farm monetary income. Food grown for home consumption also represents a genuine economic contribution to household income, but this paper's income modeling does not include it because the data was not accessible. As a result, the living income gap may be overstated in countries where subsistence production is significant.

9. https://www.living-income.com/the-concept/

The Contribution of Regenerative Agriculture to Living Income

This paper compares projected income gains from regenerative coffee practices against living income benchmarks with detailed country-by-country analysis found in this paper's appendices.

At baseline, before adopting new regenerative practices, the typical farming household in all seven countries falls short of a living income.

Peru and Indonesia have the largest gaps, with typical farmers earning only 26% of their respective benchmarks. Vietnam has the smallest gap, with farmers earning 81% of the benchmark (see Figure 1).

The picture changes dramatically with the adoption of regenerative practices.

Under these conditions, typical farmers in Ethiopia and Vietnam achieve a living income, and the gap narrows significantly in Honduras and Kenya. In Uganda, Peru, and Indonesia, the gap remains substantial even after adoption, with typical farmers in those origins earning roughly half the living income benchmark (see Figure 2).

This is primarily driven by small farm size and low productivity (in the case of Uganda and Indonesia) or high production costs (in Peru). It's also important to note that in Uganda and Indonesia, coffee represents only about one third of the total income for a typical coffee-farming household, somewhat limiting its potential impact on families' overall livelihoods.

Resilience is an Outcome and Enabler

In addition to the increases in income—whether they fully erase the living income gap or not—it's important to consider the role that regenerative practices play in boosting resilience of farms.

According to the *Regenerative Coffee Investment Case,* the farming techniques themselves reduce losses from extreme weather by 10-40%.

That resilience in turn reinforces practice adoption: a household that can withstand an extreme weather event is one that can keep investing in the practices that close and stabilize the income gap over time.

Resilience and a living income are therefore both an outcome and an enabler of regenerative agriculture. Households with higher incomes have the capital to invest in multi-year agronomic changes, and those with savings are better positioned to absorb the short-term risks of transition.

A living income strategy draws attention to this dynamic and helps identify a wider mix of interventions—such as transition financing, long-term volume commitments, and diversified income strategies—that both increase and stabilize household income.

Figure 4 illustrates the reinforcing relationship at the heart of this paper: the connection between regenerative agriculture, household income, and farm resilience. By diversifying on-farm income sources and improving the profitability of the primary crop, regenerative practices help farmers earn more stable, year-round income while strengthening the climate resilience of their farms and surrounding ecosystems. That added income and resilience, in turn, give households the means and the confidence to keep investing in the practices that produced them.

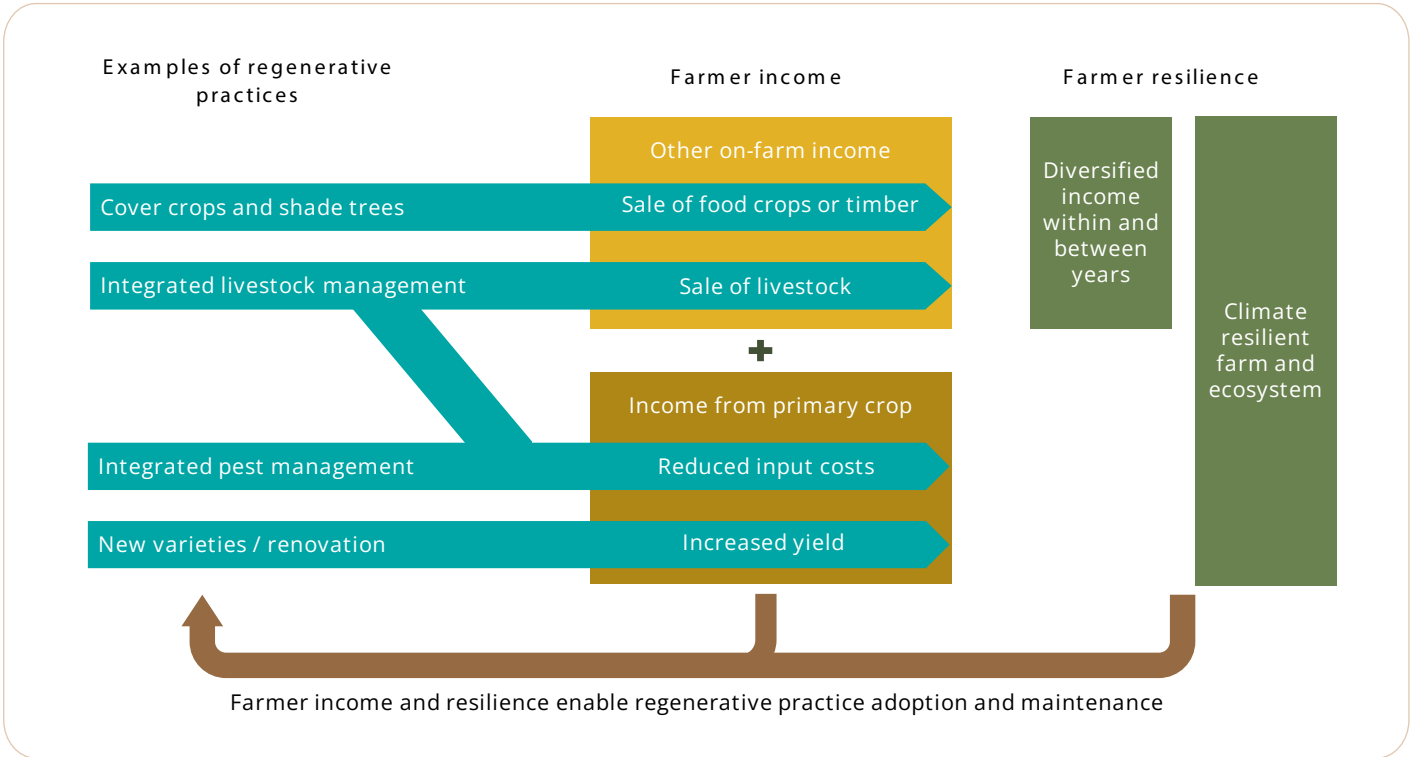


Figure 4

Higher Income and Greater Resilience in Kenya

For Lucy Wacuka and James Kinyua Kamanjiri, coffee once felt like a gamble. In 2017, the trees on their coffee farm in Kenya flowered heavily, and the couple expected a strong harvest. Instead, coffee berry disease swept through the farm, and much of the crop dropped to the ground before it could mature. After investing in fertilizer and other inputs, the couple harvested just 100 kilograms of coffee—far too little to even cover their costs.

Through agronomy training, James and Lucy learned regenerative practices that helped change the trajectory of the farm. They began mulching and composting, pruned trees to improve productivity, and adjusted their nutrition regimen after learning that overuse of certain fertilizers may have contributed to disease pressure. The changes reduced their spending on fungicides and helped restore the health of the coffee trees.

The results were dramatic. The following year, Lucy and James harvested 1,160 kilograms of coffee cherry, and their productivity continued improving over the following years. By 2023, they achieved a living income having harvested more than 2,000 kilograms of coffee, earning $1,300 in net coffee income. Just as important, the farm became more resilient. By improving soil health, tree management, and disease control, the couple reduced their exposure to the kinds of production shocks that had once devastated their income. Coffee helped them finish their home, pay school fees, and diversify into vegetables.

Strategies to Close the Living Income Gap

While this paper's analysis makes clear that regenerative agriculture has a significant impact in closing the living income gap, it also highlights the importance of a holistic approach to household income. Farming households often draw income from multiple sources: a focus cash crop (like coffee), other cash crops, crops for home consumption, off-farm labor, and more. One of the cornerstone characteristics of a living income approach is that it includes a mix of interventions to address challenges to multiple income drivers (e.g. price, productivity, cost of production, diversified income sources).[10]

The priority of a company should be to help optimize the income from the crop that it buys, for example by supporting practice adoption and implementing procurement practices that benefit farmers. Then, it can look at how that focus crop income fits in with other farm income, and finally determine if off-farm income support is also necessary.

Expanding attention past the focus crop helps identify complementary strategies that various stakeholders can implement to build household income and resilience. This, in turn, supports the adoption of regenerative practices for the focus crop.[11]

Households continually weigh the return on their labor, land, and capital in a given crop against the alternatives, and they will sustain investment in it only where it offers a competitive return.

The future of any crop therefore depends not just on closing the living income gap, but on it remaining an attractive use of farmers' investment relative to competing crops and available off-farm income opportunities.

Boosting Farm Income and Resilience

This impact starts on the farm, helping farmers earn more through their cash crops and other crops. Strategies to help farmers adopt regenerative practices, sell their crops under equitable trading terms, and derive income from other on-farm activities are all important in closing the living income gap.

A) Support for Practice Adoption

To realize the adoption of the regenerative coffee practices underpinning this analysis, smallholders will require context-specific support, including technical training, tailored financing, and improved access to inputs.

Regenerative transition economics often follows a J-curve: after an initial decline as farmers renovate trees or invest in new equipment, farm incomes recover and ultimately reach significantly higher levels than the baseline. For example, the TechnoServe modeling for the regenerative coffee transition in Honduras showed that farm income may fall by up to 45% in the first two years before recovering by year three and reaching an elevated level by year six.

10. Living Income Community of Practice, Aligned, Inclusive Living Income Narrative and Indicators
11. For more detailed guidance on implementing a living income strategy within a company, see the Living Income Community of Practice Private Sector Toolkit.

Even with transition financing, smallholder farmers are often hesitant to invest in practices that pay back over several years. Fortunately, there are practical programmatic approaches to address the economic and behavioral barriers to adoption, which actors including development agencies, coffee buyers, local authorities, and non-governmental organizations can implement in partnership. These include, but are not limited to:

- Starting with low-resource, low-risk practices to build early wins and generate near-term household income that can fund later investment in more resource-intensive practices
- Blended finance to bridge investment and income shortfalls during transition, which could include incentives for practice adoption or low-interest loans
- Demonstration plots to make yield and income benefits visible and credible to skeptical farmers
- Developing appropriate insurance offerings in areas where production costs are high
- Co-creating programs with communities to ensure practices are culturally relevant, logistically feasible, and responsive to local labor and resource constraints
- Strengthening land tenure security, often in partnership with governments, in order to give farmers the confidence to invest in practices that pay back only over several years
- High quality labor service groups or labor saving technology, available to farmers on a cost-share basis, to demonstrate the effectiveness of high risk practices (e.g., stumping and structural pruning) or the use of new technology.

Program design also needs to account for the wider service delivery ecosystem that farmers depend on. Fertilizer companies, nurseries and seed suppliers, irrigation providers, and similar actors determine whether farmers can access the inputs and services a regenerative transition requires. Equally, local agricultural policy shapes the environment in which any program operates. Interventions designed without engaging these actors from the outset tend to underperform or fail to sustain once external funding ends.

B) Market Dynamics and Procurement Practices

What farmers are paid, and how they receive payment, are critical determinants for achieving a living income. Market-based mechanisms—including value-chain efficiencies that increase the share of the Free on Board price captured by farmers, sourcing relationships that reward quality, and procurement practices that go beyond price alone—can directly boost farmer incomes and give smallholders the confidence to invest in regenerative practices.

A company cannot control global market prices, but it can use procurement practices to help stabilize and increase farmgate price within a shifting market.

Farmgate prices play a critical role in determining whether farmers can achieve a living income through the regenerative transition, a dynamic reflected in TechnoServe's income modeling. The analysis presented earlier in this paper, in which only the typical farming households in Ethiopia and Vietnam cross the living income benchmark through the adoption of regenerative practices, assumes constant coffee prices. However, if the transition to regenerative production was accompanied by a 25% increase in farmgate prices, households in Honduras would also cross the living income threshold, while the living income gaps in Kenya and Peru would narrow substantially (see Figure 5). With a 50% price increase—similar to the historic price rally experienced by many farmers in 2025—only typical households in Uganda and Indonesia would remain below the living income benchmark.

Annual smallholder coffee farm household net income with adoption of regenerative practices +25% higher prices

% of Living Income Benchmark for Typical (Median) Farmer

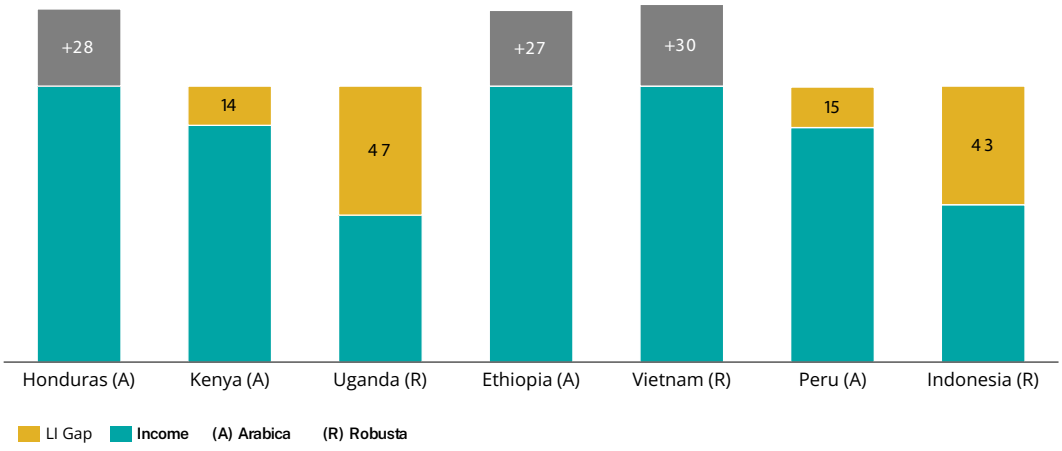


Figure 5

Conversely, a 25% price decrease largely erases the income gains from regenerative practices, returning most countries to living income gaps similar to the baseline or worse (see Figure 6).[12]

Annual smallholder coffee farm household net income with adoption of regenerative practices -25% lower prices

% of Living Income Benchmark for Typical (Median) Farmer

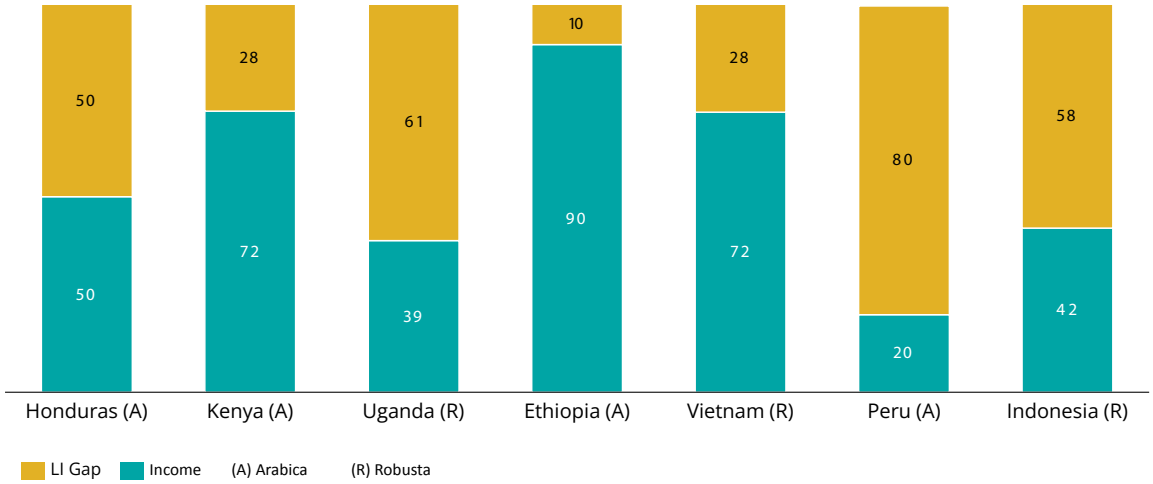


Figure 6

Predictable revenue derived from stable prices and secured offtake volumes can be as important as the price itself, so that farmers have incremental income to invest over time and confidence in the return that the investments will provide. Mechanisms may include minimum volume commitments, more transparent and timely communication on any changes in buying, price floors, and payment for carbon and ecosystem services.[13]

Procurement practices look different depending on where a company sits in the value chain. Roasters and brands rarely buy from farmers directly, sourcing instead through importers, exporters, traders, and cooperatives. By embedding and funding these practices in their own sourcing agreements, roasters and brands can help cascade them down through each tier of the supply chain to the first-mile partners who hold the farmer relationship.

12. Indonesia is the exception: even with a 25% decline in coffee prices, regenerative agriculture would still result in higher incomes than the baseline, because income diversification through fruit tree agroforestry represents a greater share of net income and thus provides greater relative resilience to coffee price shocks.

13. For more examples, see the IDH Procurement Intervention Library.

Better Market Access and Higher Incomes in Honduras

For years, coffee farmers in the Pech community of Subirana, Honduras, had little incentive to invest in their farms. Isolated in the buffer zone of the Río Plátano Biosphere Reserve, they depended on local intermediaries who paid low and unpredictable prices for their coffee, regardless of quality.

"Before the project I did not take care of my farm, and my income was very low," recalls farmer Nora Echeverría. "We did not control pests or diseases."

Farmers in the community organized, aggregating their production and starting to sell directly to one of the country's leading coffee exporters. The promise of better, more reliable prices gave farmers a reason to improve their production. They adopted climate-smart practices, improved coffee quality, and increased their yields.

By selling collectively to a higher-value market, the community increased coffee profits by 66%. For families like Nora's, higher incomes translated into better housing, education, and renewed confidence in coffee farming.

C) Other Agricultural Income

Regenerative systems often include shade trees, cover crops, and livestock alongside the principal cash crop. Supporting farmers to turn these resources into revenue streams or sources of nutrition can help buffer income and improve food security, particularly early in the regeneration transition when production of cash crops may temporarily decline.

For example, farmers can intercrop renovated coffee trees with faster-maturing crops that provide agronomic and economic benefits: banana plants offer shade for young coffee trees while also generating income or food, and beans planted between rows of young coffee add nitrogen to the soil while providing an additional source of income or nutrition. Similarly, goats can eat the leaves of leguminous trees intercropped on a coffee farm, while their manure-enriched compost can reduce farmers' fertilizer costs. Farmers can additionally sell or consume the goats' milk.

In addition to buffering income during a multi-year regenerative transition, there are many instances where non-focus crops in regenerative systems can meaningfully increase long-term farm incomes and smooth cash flow throughout the year.

In the TechnoServe income modeling for Indonesia, for example, 32% of the modeled farm income increase comes from the sale of avocados, which serve as shade trees on coffee farms.[14] Year-round income also reduces farmers' need to take on high-interest credit.

Realizing the benefits of regenerative agriculture often depends on farmers capturing income from diversified farm systems, which in turn requires reliable markets for other crops. Supporting this transition may involve activities that support other crop production such as training, investments in processing infrastructure, and market development, often delivered by implementing partners.

Building a new income stream through agroforestry

Doumbia Moustapha, a cocoa farmer and member of the COOBADI cooperative in Côte d'Ivoire, was initially skeptical that shade trees could benefit his farm. After a cooperative learning session on agroforestry, he registered for a trial and received a package of 140 timber and fruit trees to cover two hectares.

He was especially drawn to the avocado trees, which he expected to generate income within five years.

Despite an ant infestation and a five-month drought, Moustapha kept the trees alive, and after six months they had grown an average of half a meter. He now plans to produce seedlings himself and sell them to neighboring farms, adding a second income stream. Once a doubter, he is now known locally as an ambassador for agroforestry.

14. Note, the modeling assumes that all non-coffee crop production is sold, which may not hold in practice.

Off-farm Income

For households with very small farm sizes—for example, in Uganda, where the average coffee-growing household has just 0.5 hectares of the crop—farm income alone cannot close the living income gap, even with full regenerative practice adoption and high coffee prices.

For these households, closing the living income gap requires partnerships and investments beyond the farm. This could include off-farm income opportunities, such as supporting small enterprise development; subsidies for education, healthcare, and housing; or expanding government services and infrastructure investments.

Agriculture plus micro-enterprise for better livelihoods

In Côte d'Ivoire, off-farm revenue streams—and especially micro-enterprise—have long been an important complement to cocoa incomes, particularly during the lean seasons between harvests. Yet many of these businesses remain very small and struggle to generate significant income for households.

That was the case for Gannou Diata, who spent two decades running a small broom-making business with limited success. That changed when she received training on core business skills like record-keeping, how to calculate her profits, and how to reinvest earnings to sustain the business's growth. She also joined a village savings-and-loan association, in which members deposit savings and access small loans. This has enabled her to buy more broom-making material at the same time, improving her profit margins.

Collective Action

Many of the strategies this paper outlines are most effective and efficient when pursued collectively. Joint action plans through sector platforms and industry coalitions can pool resources and expertise to address shared challenges that no single actor can solve alone. This could include research into climate-resilient varietals, coordinated investment in rural infrastructure and agricultural services, or market development for non-coffee crops.

Multi-stakeholder initiatives also create opportunities for industry to engage governments and development finance institutions at scale, helping to address structural barriers and amplifying the impact of individual companies' efforts. It's important to clarify, however, that such multi-stakeholder initiatives should complement rather than replace supply chain investments, where companies have the most direct leverage as buyers in a specific market.

From Analysis to Action

The income modeling in this paper shows that the adoption of regenerative practices can play a significant role in helping smallholder coffee farmers narrow or eliminate the living income gap. However, regenerative production on its own is not a panacea: farmers face financial and behavioral obstacles to investing in new practices; price volatility can counter the income improvement from yield gains; and structural constraints such as small farm sizes and limited market access can limit the income potential from non-focus crops.

Farmers will keep investing in a crop only where it offers a competitive return on their time and investment. By improving that crop's profitability, regenerative agriculture helps to secure its future supply.

Regenerative practices also build resilience to extreme weather, which in turn enables farmers to continue investing in the practices that close and stabilize the income gap over time.

Resilience and living incomes are therefore both outcomes and enablers of regenerative agriculture: higher incomes and savings give households the capital to make multi-year agronomic investments and the buffer to absorb the short-term risks of transition.

Environmental and economic resilience reinforce each other, and neither can be fully achieved without the other.

The transition to regenerative production is therefore most effective when embedded within a broader living income strategy. Achieving a living income at scale requires coordinated, sector-wide action across agricultural value chains, including procurement practices that support farmer investment, programs that help households benefit from diversified income streams, and collaboration to address structural constraints both on and off the farm.

With millions of smallholder farming households falling short of a living income and threatened by the impacts of climate change, the time for such coordinated action is now.

Country Annex: Honduras

1. Living income benchmark

This analysis utilized the living income benchmark for rural households in Honduran coffee-growing regions, which was collected in 2023, the same year as the coffee price data used in the household income modeling. For more detailed information on the living income benchmark, please refer to the ICO Global Knowledge Hub.

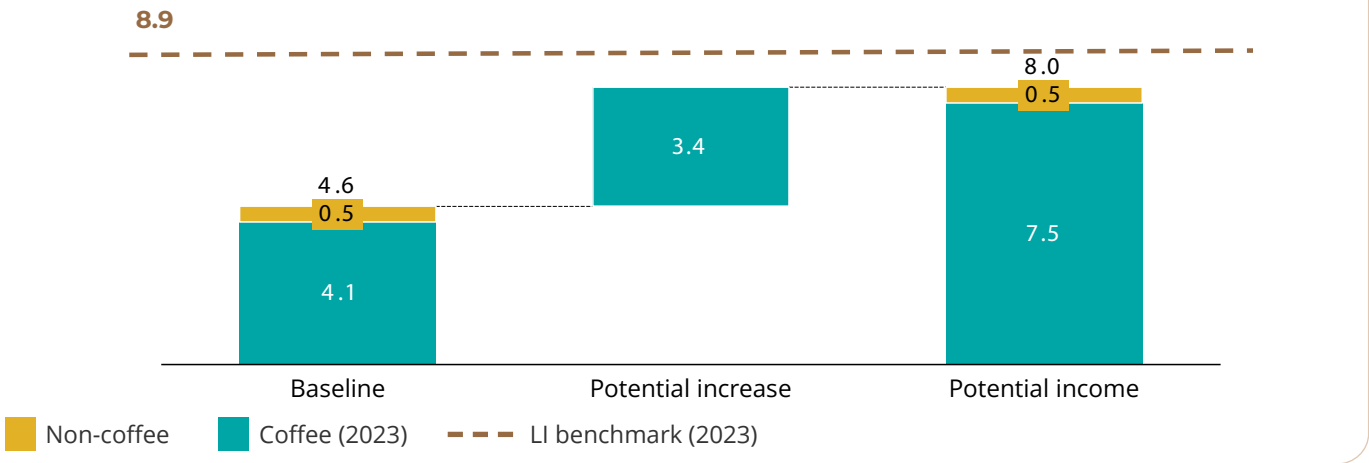
2. Farm archetype

To ensure that the findings accurately reflect the characteristics of the majority of coffee producers in the country, this analysis focuses on rain-fed, shade-grown, medium input intensity Arabica farms cultivating less than three hectares of coffee, a group representing ~80% of the ~120,000 coffee farms in Honduras.

3. Living income analysis

Assuming an average coffee farm size of 2.2 Ha, the typical household in this archetype currently earns $4,550 in total annual income, almost 50% below the $8,940 living income benchmark for rural coffee growing regions in 2023. Of this income, 90% is derived from coffee, with the remainder derived from non-coffee sources. By adopting selected regenerative practices, households have the potential to increase their coffee income by 84%, driven primarily by an increase in yields from 1,077 to 1,777 kg green bean equivalent (GBE) per hectare. Assuming a farmgate price[15] of $3.53 / kg GBE, this would result in total farm income of $7,971, closing the gap to 11% of living income, assuming non-coffee income remains constant.

Annual smallholder coffee farm household net income (Honduras – Arabica)
USD (in thousands) for Typical (Median) Farmer



15.2023 farmgate price utilized for financial projections as it closely aligns with the 10-year historical market average (2016-2025). Using this representative year ensures that yield and profit calculations reflect long-term market realities rather than temporary price spikes or historic lows.

Country Annex: Honduras

4. Recommendations for regenerative transition

This income growth is primarily achieved through the adoption of productivity-enhancing regenerative practices including rehabilitation, renovation, and integrated nutrient management.

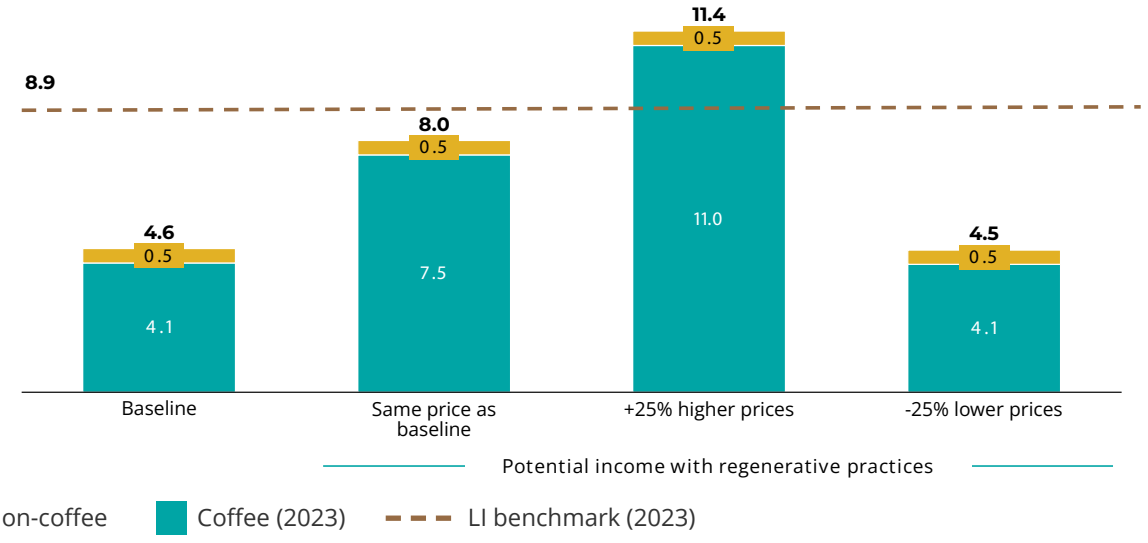
Specific recommendations include replanting 10-20% of trees annually with rust-resistant varieties and correcting typical under-application of nutrients, substituting a portion of synthetic inputs with on-farm-produced organic inputs. While long-term potential income represents a significant increase from baseline levels, the economics of the transition follow a J-curve. In the first 2 years, farm income may decline by up to 45% compared to the baseline due to temporary loss of coffee income from renovated plots and significant upfront investments required. Income begins to improve in year 3 and reaches an elevated steady state in year 6. A blended finance approach is needed to bridge investment and income shortfall during renovation period, enabling farmers to embark on this journey.

5. Price sensitivity of potential income

While regenerative practices have the potential to significantly improve household income, earnings are highly sensitive to coffee prices. A 25% farmgate price increase would result in regenerative farming households exceeding the living income benchmark by 28% with an annual income of ~$11,400. Conversely, a 25% price decrease would erode the potential regenerative gains, returning the living income gap to ~50% and leaving households with an income of ~$4,500 annually.

Annual smallholder coffee farm household net income (Honduras – Arabica)

USD (in thousands) for Typical (Median) Farmer



Country Annex: Honduras - Assumptions

		Value		
Data point	**Unit**	**Baseline**	**Endline**	**Source for baseline value**
Farmer data				
Average coffee farm size	Ha	2.2		Enveritas
Market data				
Farmgate price	$/ Kg GBE	3.53		TechnoServe MOCCA field data
Yield				
Average coffee yield	Kg / Ha	1,077	1,777	TechnoServe MOCCA field data
Secondary crop yield	Kg / Ha	N.A.	N.A.	
Operating costs				
Synthetic fertilizer	$ / Ha	549	731	TechnoServe MOCCA field data
Cost per unit	$ / Kg	0.7	0.7	
Volume applied	Kg / Ha	790	1,051	
Organic fertilizer	$ / Ha	0	0	
Cost per unit	$ / Kg	N.A.	N.A.	
Volume applied	Kg / Ha	1,600	2,600	
Pesticides	$ / Ha	115	115	
Herbicides	$ / Ha	0	0	
Other inputs	$ / Ha	0	76	
Labor	$ / Ha	1,284	1,949	
Processing	$ / Ha	0	0	
Other production costs	$ / Ha	0	0	
Upfront investments				
Equipment	$ / Ha	0	276	TechnoServe MOCCA field data
Other upfront investments	$ / Ha	0	0	
Outputs				
Total revenue	$ / Ha	3,802	6,273	Calculated
Total operating costs	$ / Ha	1,949	2,872	
Total upfront investments	$ / Ha	0	276	
Total coffee operating profit	$ / Ha	1,853	3,401	
Profit margin	%	49	54	
% of total household operating profit	%	90	94	Calculated
Total non-coffee operating profit	$ / Ha	206	206	Calculated
% of total household operating profit	%	10	6	Expert interview
Total household operating profit	$ / Ha	2,059	3,607	Calculated
Living income data				
Living income benchmark	$ / Household	8,940		ICO Global Knowledge Hub

All endline data points were provided by local experts.
For additional information, Please refer to the Regenerative Coffee Investment Case report.

Country Annex: Kenya

1. Living income benchmark

This analysis utilized the 2022 living income benchmark for rural households in Kenya's coffee-growing regions. For more detailed information on the living income benchmark, please refer to the **Anker Research Institute**.

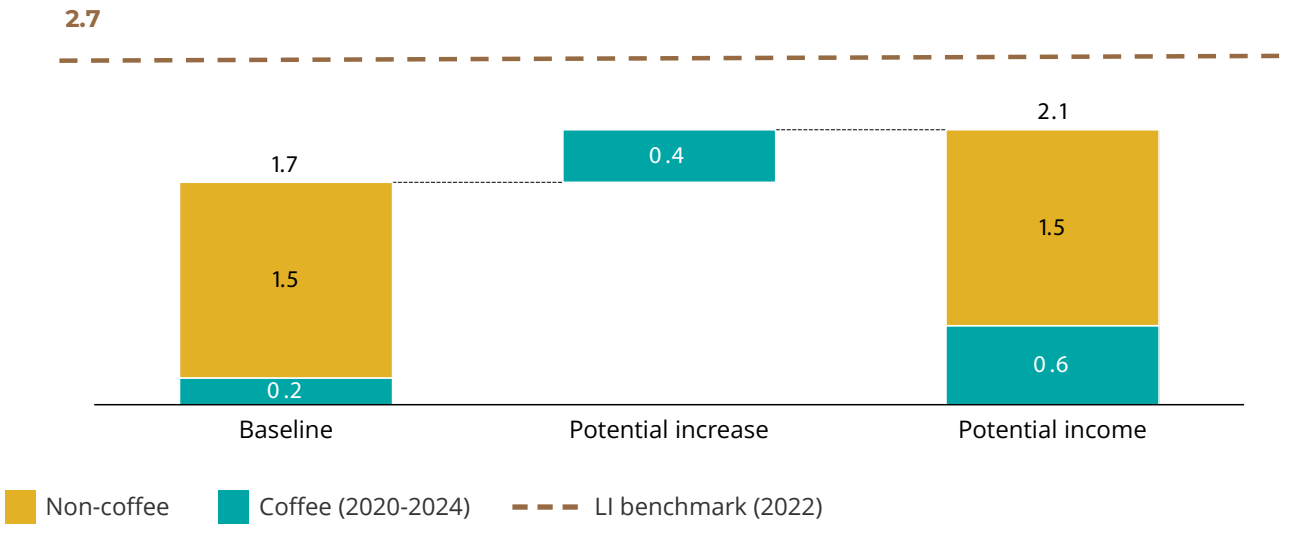
2. Farm archetype

To ensure that the findings accurately reflect the characteristics of the majority of coffee producers in the country, this analysis focuses on rain-fed, shade-grown, medium input intensity Arabica farms cultivating less than 2 hectares of coffee, a group representing 450K coffee farms in Kenya.

3. Living income analysis

Assuming an average coffee farm size of 0.16 hectares, the typical household in this archetype currently earns $1,721 in total annual income, 36% below the $2,688 living income benchmark for rural coffee growing regions in 2022. Of this income, only 12% is derived from coffee, with the remainder derived from non-coffee sources. By adopting selected regenerative practices, households have the potential to increase their coffee income by 196%, driven primarily by an increase in yields from 542 to 1,083 kg green bean equivalent (GBE) per hectare. Assuming a farmgate price of $4.13 per kg GBE, this would result in total farm income of $2,126, closing the gap to 21% of living income, assuming non-coffee income remains constant.

Annual smallholder coffee farm household net income (Kenya – Arabica)
USD (in thousands) for Typical (Median) Farmer



Country Annex: Kenya

4. Recommendations for regenerative transition

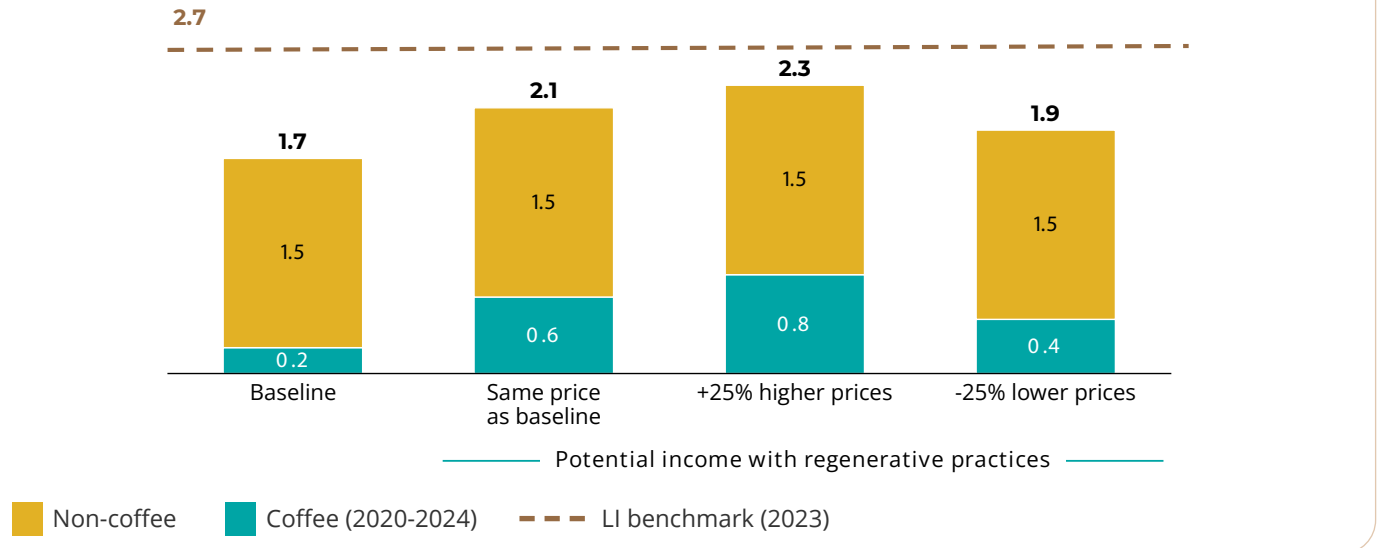
This income growth is primarily achieved through the adoption of productivity-enhancing regenerative practices including rejuvenation and integrated nutrient management. Specific recommendations include following regular pruning and rejuvenation best practices to maintain productive branches and standardize stem age and grafting to introduce improved varieties.

Furthermore, farmers should correct nutrient imbalances and restore soil pH levels through periodic lime application and composting which offers input cost savings in addition to productivity benefits. Unlike many archetypes in other countries, farmers adopting regenerative practices are expected to begin to see income gains materialize immediately in year 1, with income benefits expanding until reaching a steady state in year 5.

5. Price sensitivity of potential income

While coffee income is highly sensitive to coffee prices, household income is more resilient as 88% of total income is derived from non-coffee sources.
A 25% farmgate price increase would result in regenerative farming households narrowing the living income gap to 14% of the benchmark with an annual income of $2,305. Conversely, a 25% price decrease would halve the potential regenerative gains, resulting in a living income gap of 28% and household income of $1,948 annually.

Annual smallholder coffee farm household net income (Kenya – Arabica)
USD (in thousands) for Typical (Median) Farmer



Country Annex: Kenya - Assumptions

		Value		
Data point	**Unit**	**Baseline**	**Endline**	**Source for baseline value**
Farmer data				
Average coffee farm size	Ha	0.16		Enveritas
Market data				
Farmgate price	$/ Kg GBE	4.13		TechnoServe
Yield				
Average coffee yield	Kg / Ha	542	1,083	TechnoServe
Operating costs				
Synthetic fertilizer	$ / Ha	443	295	TechnoServe
Organic fertilizer	$ / Ha	0	0	
Pesticides	$ / Ha	290	107	
Herbicides	$ / Ha	18	0	
Other inputs	$ / Ha	0	0	
Labor	$ / Ha	194	248	
Processing	$ / Ha	N.A		
Other production costs	$ / Ha	N.A.		
Upfront investments				
Equipment	$ / Ha	N.A.		TechnoServe
Other upfront investments	$ / Ha	0	53	
Outputs				
Total revenue	$ / Ha	2,235	4,470	Calculated
Total operating costs	$ / Ha	944	649	
Total upfront investments	$ / Ha	0	53	
Total coffee operating profit	$ / Ha	1,291	3,821	
Profit margin	%	58	85	
% of total household operating profit	%	12	29	Calculated
Total non-coffee operating profit	$ / Ha	9,467	9,467	Calculated
% of total household operating profit	%	88	71	Expert interview
Total household operating profit	$ / Ha	10,758	13,288	Calculated
Living income data				
Living income benchmark	$ / Household	2,688		Anker Research Institute

All endline data points were provided by local experts.
For additional information, Please refer to the Regenerative Coffee Investment Case report.

Country Annex: Uganda

1. Living income benchmark

This analysis utilized the 2019[16] Living Income benchmark for rural households in Uganda's Lake Victoria Basin. For more detailed information on the living income benchmark, please refer to the **Anker Research Institute Country Index.**

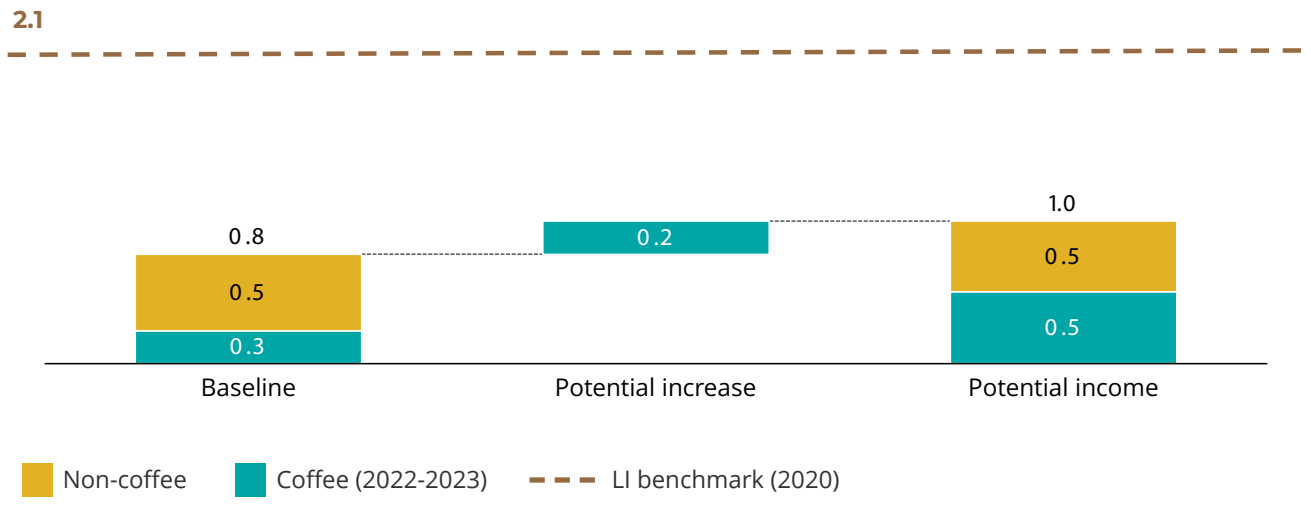
2. Farm archetype

To ensure that the findings accurately reflect the characteristics of the majority of coffee producers in the country, this analysis focuses on rain-fed, shade-grown, low input intensity Robusta farms cultivating less than 2 hectares of coffee, a group representing ~1.3 million coffee farms in the country.

3. Living income analysis

Assuming an average coffee farm size of 0.5 hectares, the typical household in this archetype currently earns $752 in total annual income, 65% below the $2,124 living income benchmark for rural coffee growing regions in 2019. Of this income, 30% is derived from coffee, with the remainder derived from non-coffee sources. By adopting selected regenerative practices, households have the potential to increase their coffee income by 101%, driven primarily by a doubling of yields from 417 to 833 kg green bean equivalent (GBE) per hectare. Assuming a farmgate price of $1.46 per kg GBE, this would result in total farm income of $980, closing the gap to within 54% of living income, assuming non-coffee income remains constant.

Annual smallholder coffee farm household net income (Uganda – Robusta)
USD (in thousands) for Typical (Median) Farmer



16. 2019 Living Income benchmark used as the latest available primary data; subsequent updates were excluded as they utilize secondary inflation modeling rather than direct research.

Country Annex: Uganda

4. Recommendations for regenerative transition

This income growth is primarily achieved through the adoption of productivity-enhancing regenerative practices including rejuvenation and integrated nutrient management. Specific recommendations include regular pruning and rejuvenation practices to maintain productive trees and standardize stem age, and correcting typical under-application of nutrients through a combination of organic and synthetic inputs.

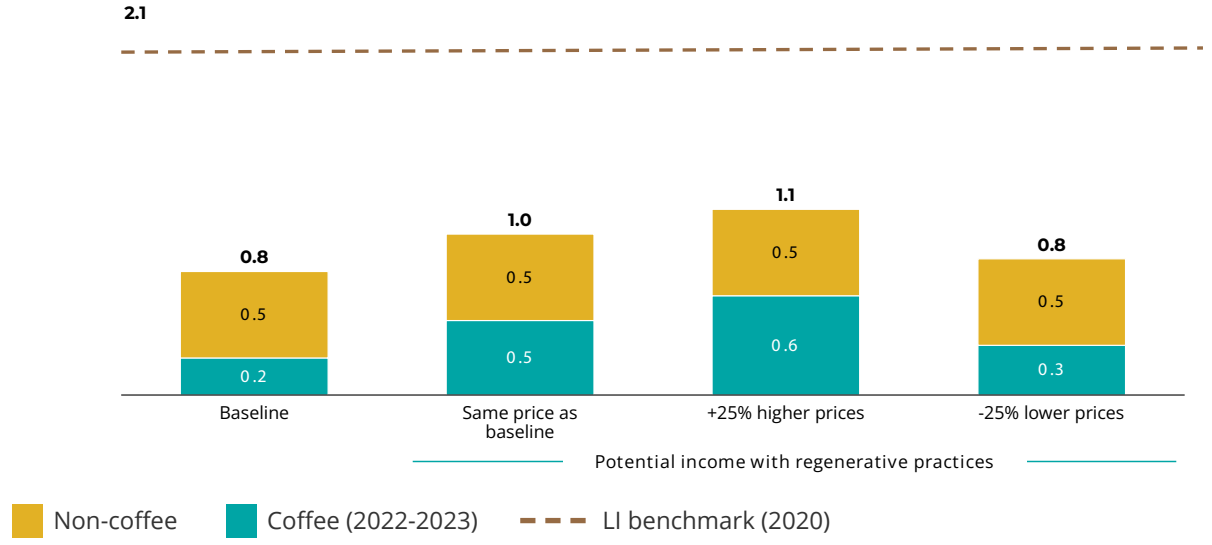
While long-term potential income represents a significant increase from baseline levels, the economics of the transition include an initial profit loss of 23% in the first year due to increased input costs. Income begins to improve in year 2 and reaches an elevated steady state by year 5. A blended finance approach is needed to provide technical assistance and bridge the income shortfall in the first year until yield improvements materialize, enabling farmers to embark on this journey.

5. Price sensitivity of potential income

While coffee income is highly sensitive to coffee prices, total household income is more resilient as 70% of income is derived from non-coffee sources. A 25% farmgate price increase would result in regenerative farming households narrowing the living income gap to 47% of the benchmark with an annual income of ~$1,100. Conversely, a 25% price decrease would erode the potential regenerative gains, returning the living income gap to ~60% and leaving households with an income of ~$800 annually.

Annual smallholder coffee farm household net income (Uganda – Robusta)

USD (in thousands) for Typical (Median) Farmer



Country Annex: Uganda - Assumptions

		Value		
Data point	**Unit**	**Baseline**	**Endline**	**Source for baseline value**
Farmer data				
Average coffee farm size	Ha	0.5		Enveritas
Market data				
Farmgate price	$/ Kg GBE	$1.46		Expert interviews
Yield				
Average coffee yield	Kg / Ha	417	833	Expert interviews
Secondary crop yield	Kg / Ha	0	0	
Operating costs				
Synthetic fertilizer	$ / Ha	0	111	Expert interviews
Cost per unit	$ / Kg	0.7	0.7	
Volume applied	Kg / Ha	150	150	
Organic fertilizer	$ / Ha	0	0	
Pesticides	$ / Ha	5	0	
Labor	$ / Ha	148	188	
Processing	$ / Ha	N.A.	N.A.	
Other production costs	$ / Ha	N.A.	N.A.	
Upfront investments				
Equipment	$ / Ha	N.A.	N.A.	N.A.
Other upfront investments	$ / Ha	N.A.	N.A.	
Outputs				
Total revenue	$ / Ha	609	1,216	Calculated
Total operating costs	$ / Ha	153	299	
Total upfront investments[17]	$ / Ha	N.A.	N.A.	
Total coffee operating profit	$ / Ha	456	917	
Profit margin	%	75	75	
% of total household operating profit	%	30	46	Calculated
Total non-coffee operating profit	$ / Ha	1,064	1,064	Calculated
% of total household operating profit	%	70	54	Expert interview
Total household operating profit[18]	$ / Ha	1,519	1,981	Calculated
Living income data				
Living income benchmark	$ / Household	2,124		Anker Research Institute

All endline data points were provided by local experts.
For additional information, Please refer to the Regenerative Coffee Investment Case report.

17. Total of all investments throughout period

18. Excludes food production consumed at home

Country Annex: Ethiopia

1. Living income benchmark

This analysis used the 2021 living income benchmark for rural households in the Guji coffee-growing region. This 2021 data represents the midpoint of the 2019–2023 coffee price period used in the household income modeling. For more detailed information on the living income benchmark, please refer to the **Anker Research Institute**.

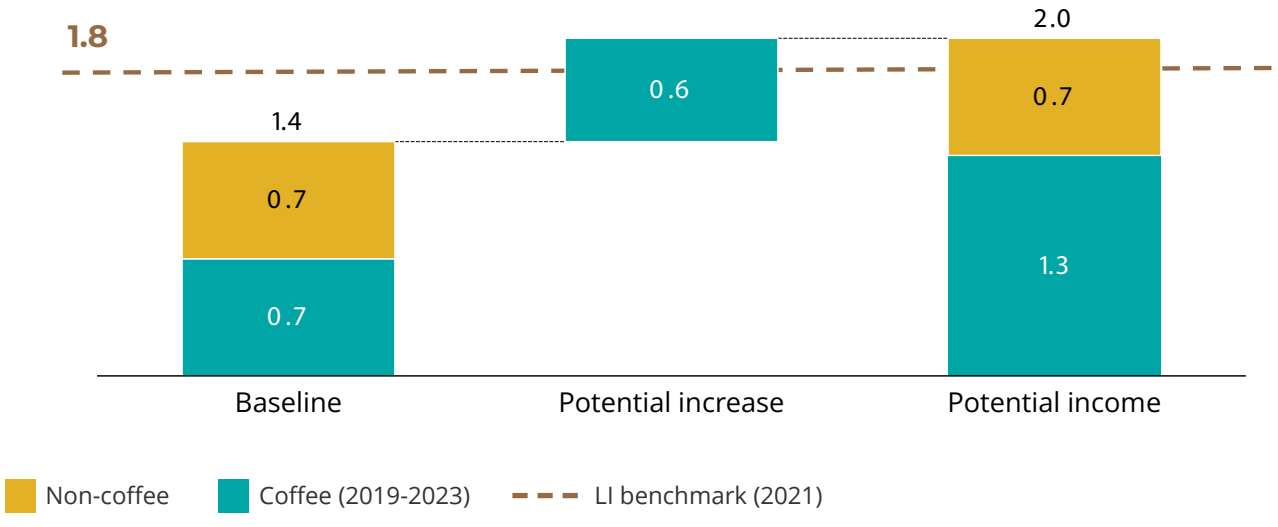
2. Farm archetype

There are multiple growing regions in Ethiopia with significant variances in farm size and dependence on coffee. To reflect the characteristics of one of the largest growing regions, this analysis focuses on rain-fed, shade-grown, low input intensity Arabica farms cultivating less than 2 hectares of coffee in Sidama, a group representing ~750,000 coffee farms in Ethiopia.

3. Living income analysis

Assuming an average coffee farm size of 0.4 hectares, the typical household in this archetype currently earns $1,398 in total annual income, 25% below the $1,857 living income benchmark for rural coffee growing regions in 2021. Of this income, 50% is derived from coffee, with the remainder derived from non-coffee sources. By adopting selected regenerative practices, households have the potential to increase their coffee income by 88%, driven primarily by an increase in yields from 458 to 848 kg green bean equivalent (GBE) per hectare. Assuming a farmgate price of $4.14 per kg GBE, this would result in total farm income of $2,015, 9% above living income, assuming non-coffee income remains constant.

Annual smallholder coffee farm household net income (Sidama, Ethiopia - Arabica)
USD (in thousands) for Typical (Median) Farmer



Country Annex: Ethiopia

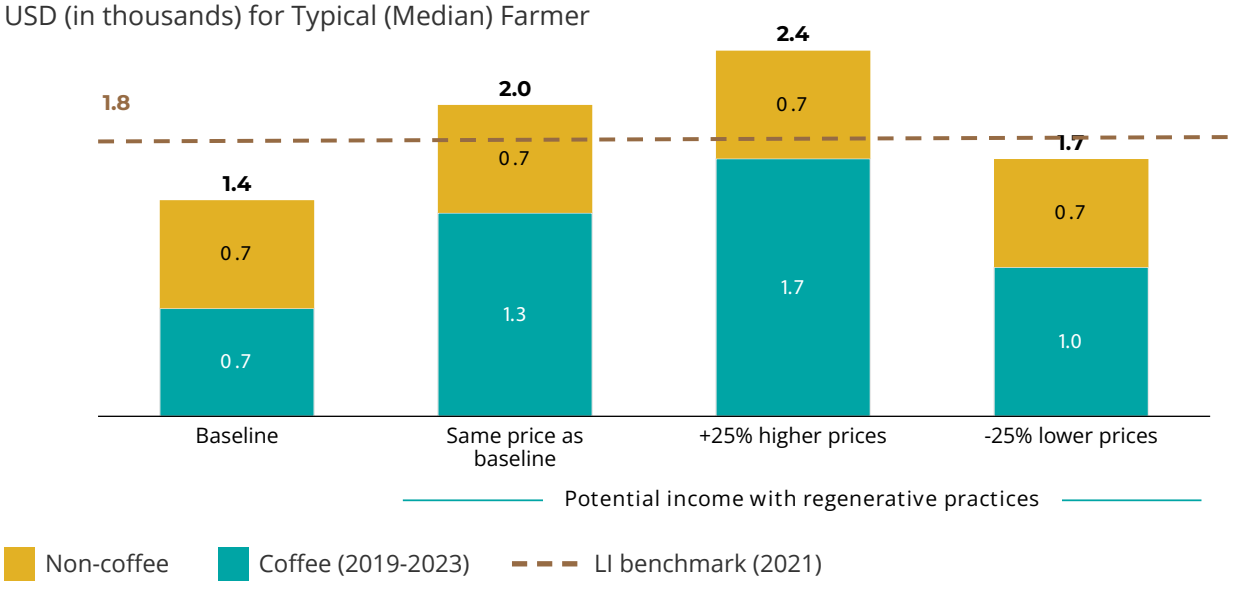
4. Recommendations for regenerative transition

This income growth is primarily achieved through the adoption of productivity-enhancing regenerative practices including rejuvenation and replanting, shade management, integrated weed management, and integrated nutrient management. Among these, rejuvenation–specifically stumping–has the highest impact on yields; best practice is to stump 15% of the farm area per year in the first three years as part of a 7-year cycle to mitigate initial production losses. While long-term potential income represents a significant increase from baseline levels, the economics of the transition follow a J-curve. Farm income in the first three years may decline by 10 to 25% compared to the baseline due to temporary loss of coffee income from stumped plots. Income improves significantly by year 4 and reaches an elevated steady state in year 6. A blended finance approach is needed to bridge income shortfall during stumping period, enabling farmers to embark on this journey.

5. Price sensitivity of potential income

While coffee income is highly sensitive to coffee prices, household income is more resilient as 50% of total income is derived from non-coffee sources. A 25% farmgate price increase would result in regenerative farming households exceeding the living income benchmark by 27% with an annual income of $2,366. Conversely, a 25% price decrease would erode the potential regenerative gains, resulting in a living income gap of 10% and household income of $1,664 annually.

Annual smallholder coffee farm household net income (Sidama, Ethiopia - Arabica)
USD (in thousands) for Typical (Median) Farmer



Country Annex: Ethiopia - Assumptions

		Value		
Data point	**Unit**	**Baseline**	**Endline**	**Source for baseline value**
Farmer data				
Average coffee farm size	Ha	0.4		TechnoServe
Market data				
Farmgate price	$/ Kg GBE	4.14		TechnoServe
Yield				
Average coffee yield	Kg / Ha	458	848	TechnoServe
Operating costs				
Inputs	$ / Ha	N.A.		TechnoServe
Labor	$ / Ha	149	220	
Processing	$ / Ha	N.A.		
Upfront investments				
Equipment	$ / Ha	N.A.		TechnoServe
Other upfront investments	$ / Ha	N.A.		
Outputs				
Total revenue	$ / Ha	1,896	3,510	Calculated
Total operating costs	$ / Ha	149	220	
Total upfront investments	$ / Ha	N.A.		
Total coffee operating profit	$ / Ha	1,747	3,291	
Profit margin	%	92	94	
% of total household operating profit	%	50	65	Calculated
Total non-coffee operating profit	$ / Ha	1,747	1,747	Calculated
% of total household operating profit	%	50	35	Expert interview
Total household operating profit	$ / Ha	3,494	5,038	Calculated
Living income data				
Living income benchmark	$ / Household	1,857	1,857	ICO Global Knowledge Hub

All endline data points were provided by local experts. For additional information, Please refer to the Regenerative Coffee Investment Case report.

Country Annex: Vietnam

1. Living income benchmark

This analysis utilized the 2022 living income benchmark for rural households in Vietnam. For more detailed information on the living income benchmark, please refer to the **Anker Research Institute**.

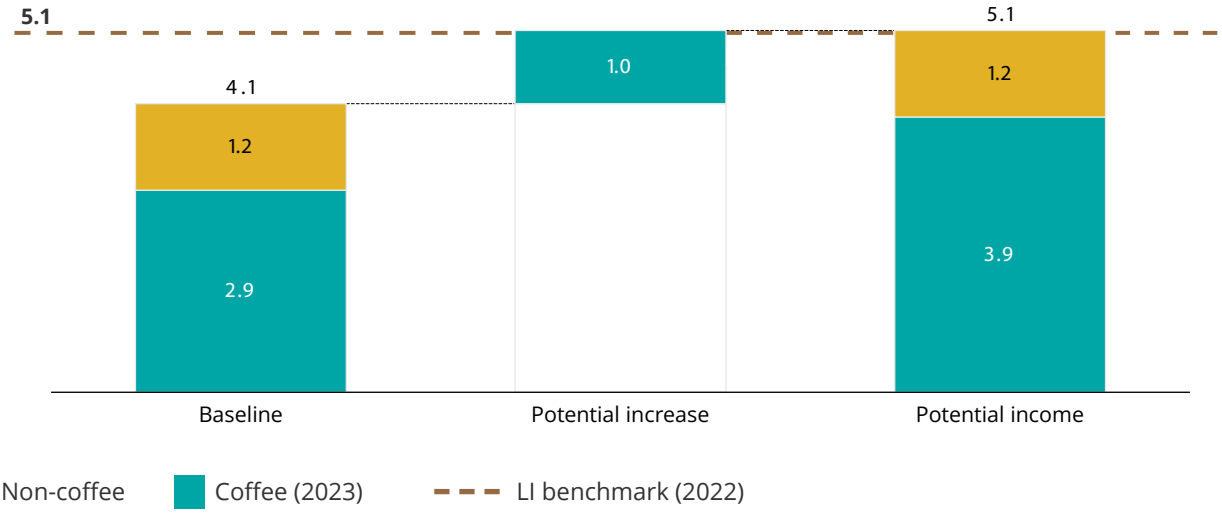
2. Farm archetype

To ensure that the findings accurately reflect the characteristics of the majority of coffee producers in the country, this analysis focuses on irrigated, shade-grown, high input intensity Robusta farms cultivating less than three hectares of coffee, a group representing ~220,000 coffee farms in Vietnam.

3. Living income analysis

Assuming an average coffee farm size of 1 hectare, the typical household in this archetype currently earns $4,096 in total annual income, 19% below the $5,076 living income benchmark for rural households in 2022. Of this income, 70% is derived from coffee, with the remainder derived from non-coffee sources. By adopting selected regenerative practices, households have the potential to increase their coffee income by 36%, driven primarily by an increase in yields from 2,500 to 2,875 kg green bean equivalent (GBE) per hectare and, to a lesser extent, a 12% decrease in production costs. Assuming a farmgate price of $1.95 per kg GBE, this would result in total farm income of $5,134, slightly above living income, assuming non-coffee income remains constant.

Annual smallholder coffee farm household net income (Vietnam – Robusta)
USD (in thousands) for Typical (Median) Farmer



Country Annex: Vietnam

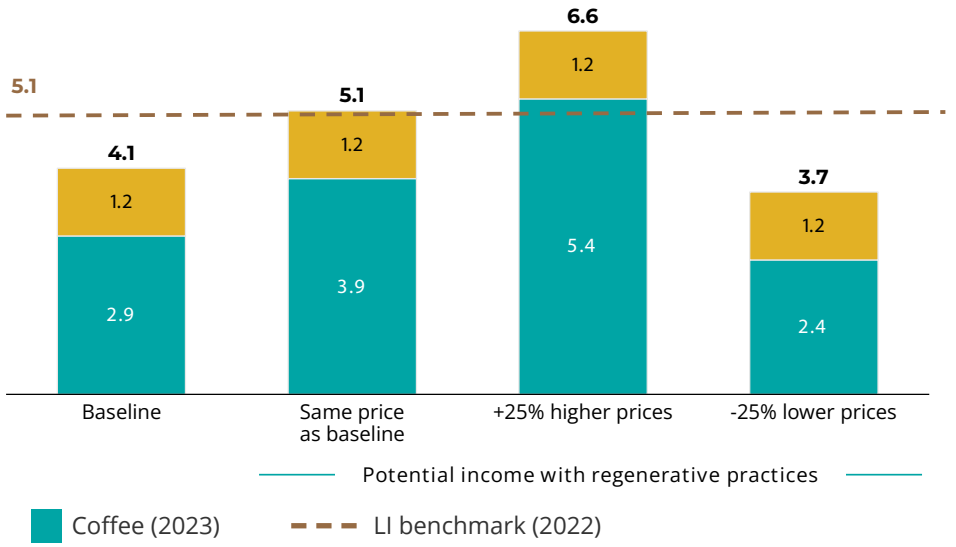
4. Recommendations for regenerative transition

This income growth is primarily achieved through the adoption of productivity-enhancing and cost-saving regenerative practices including integrated nutrient management and cover cropping. Specific recommendations include optimizing nutrient management to address nutritional deficiencies, substituting a portion of synthetic inputs with on-farm-produced organic inputs, and increasing adoption of cover crops with low labor requirements. Unlike many archetypes in other countries, farmers adopting regenerative practices are expected to begin to see income gains materialize immediately in year 1, with income benefits expanding until reaching a steady state in year 4.

5. Price sensitivity of potential income

While regenerative practices have the potential to significantly improve household income, earnings are highly sensitive to coffee prices. A 25% farmgate price increase would result in regenerative farming households exceeding the living income benchmark by 30% with an annual income of $6,579. Conversely, a 25% price decrease would wipe out the potential regenerative gains, expanding the living income gap to 28% and leaving households with an income of $3,664 annually.

Annual smallholder coffee farm household net income (Vietnam – Robusta)
USD (in thousands) for Typical (Median) Farmer



Country Annex: Vietnam - Assumptions

		Value		
Data point	**Unit**	**Baseline**	**Endline**	**Source for baseline value**
Farmer data				
Average coffee farm size	Ha	1.04		Enveritas
Market data				
Farmgate price	$/ Kg GBE	1.95		Expert interviews
Yield				
Average coffee yield	Kg / Ha	2,500	2,875	Enveritas
Operating costs				
Synthetic fertilizer	$ / Ha	1,197	778	Enveritas, Expert interviews
Organic fertilizer	$ / Ha	161	274	
Pesticides	$ / Ha	17	15	
Labor	$ / Ha	549	588	
Processing	$ / Ha	21	24	
Other production costs [19]	$ / Ha	183		
Upfront investments				
Equipment	$ / Ha	N.A.	N.A.	Calculated
Other upfront investments	$ / Ha	N.A.		
Outputs				
Total revenue	$ / Ha	4,885	5,618	Calculated
Total operating costs	$ / Ha	2,128	1,863	
Total upfront investments	$ / Ha	N.A.		
Total coffee operating profit	$ / Ha	2,757	3,755	
Profit margin	%	56	67	
% of total household operating profit	%	70	76	Calculated
Total non-coffee operating profit	$ / Ha	1,182	1,182	Calculated
% of total household operating profit	%	30	24	Expert interview
Total household operating profit	$ / Ha	3,939	4,937	Calculated
Living income data				
Living income benchmark	$ / Household	5,076		Anker Research Institute

19. Includes cost of irrigation

All endline data points were provided by local experts.

For additional information, Please refer to the Regenerative Coffee Investment Case report.

Country Annex: Peru

1. Living income benchmark

This analysis utilized the living income benchmark for rural and small towns of coffee and cocoa growing regions of Peru, which was collected in 2022. For more detailed information on the living income benchmark, please refer to the **Anker Research Institute**.

2. Farm archetype

To ensure that the findings accurately reflect the characteristics of the majority of coffee producers in the country, this analysis focuses on rain-fed, shade-grown, low input intensity Arabica farms cultivating less than 5 hectares of coffee, a group representing ~130,000 (60%) of the 220,000 Arabica coffee farms in Peru.

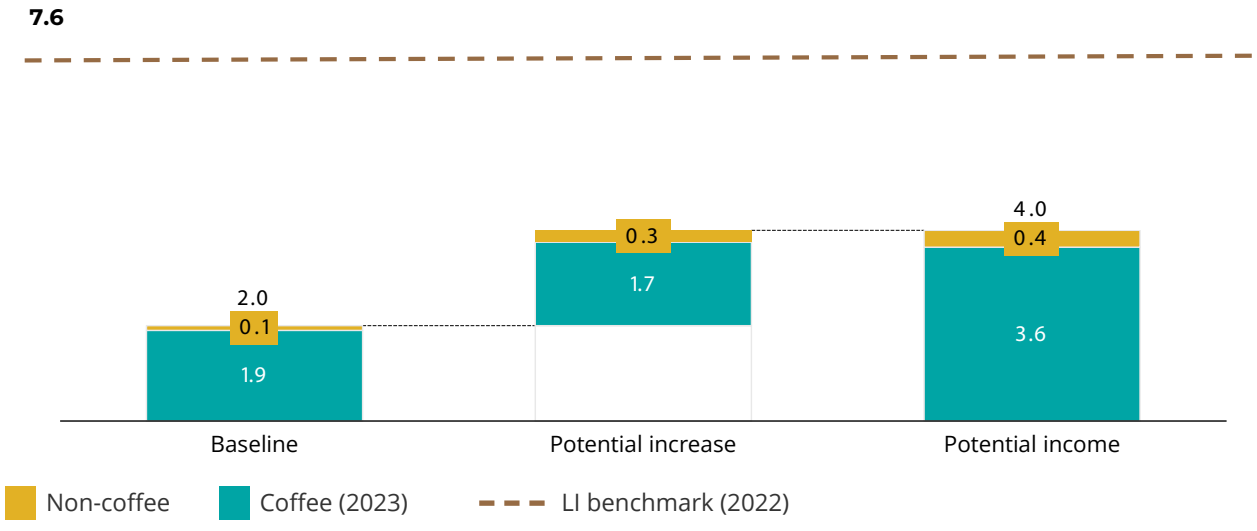
3. Living income analysis

Assuming an average coffee farm size of 2.3 Ha, the typical household in this archetype currently earns $2,000 in total annual income, 74% below the $7,554 living income benchmark for rural coffee growing regions in 2022. Of this income, 95% is derived from coffee, with the remainder derived from non-coffee sources. By adopting selected regenerative practices, households have the potential to increase their coffee income by 92%, driven primarily by an increase in yields from 722 to 1,191 kg GBE / Ha.

Assuming a farmgate price of $3.58 / kg GBE and a 246% increase in non-coffee income, this would result in total farm income of $4,000, closing the gap to 47% of living income.

Annual smallholder coffee farm household net income (Peru – Arabica)

USD (in thousands) for Typical (Median) Farmer



Country Annex: Peru

4. Recommendations for regenerative transition

This income growth is primarily achieved through the adoption of productivity-enhancing regenerative practices including rehabilitation, renovation, and integrated nutrient management. Specific recommendations include implementing a systematic renovation plan to replant 10-20% of trees annually with improved varieties, expanding agroforestry to include commercial shade trees like avocado for income diversification purposes, and correcting typical under-application of nutrients, substituting a portion of synthetic inputs with on-farm-produced organic inputs. While long-term potential income represents a significant increase from baseline levels, the economics of the transition follow a J-curve.

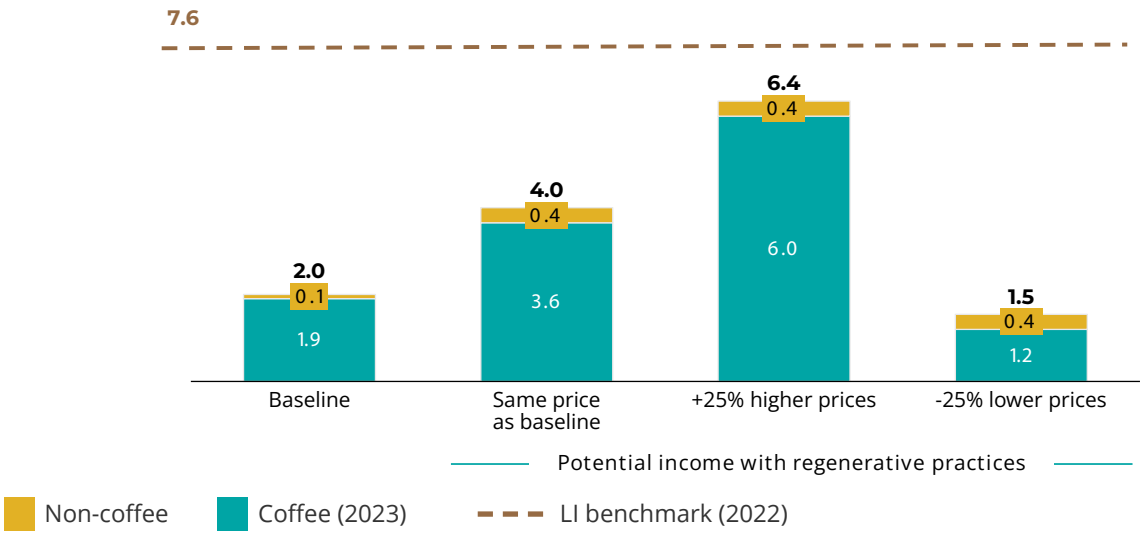
In the first 2 years, farm income may decline by up to 60-80% compared to the baseline due to temporary loss of coffee income from renovated plots and significant upfront investments required for shade tree planting and equipment needed for on-farm biofertilizer and compost production.

Income begins to improve in year 3 and reaches an elevated steady state in year 5. A blended finance approach is needed to bridge investment and income shortfall during renovation period, enabling farmers to embark on this journey.

5. Price sensitivity of potential income

While regenerative practices have the potential to significantly improve household income, earnings are highly sensitive to coffee prices. A 25% price increase would result in regenerative farming households narrowing the living income gap to 15% of the benchmark with an annual income of $6,400. Conversely, a 25% price decrease would reduce potential annual income to $1,500, well below baseline levels and 80% below the living income benchmark.

Annual smallholder coffee farm household net income (Peru – Arabica)
USD (in thousands) for Typical (Median) Farmer



Country Annex: Peru - Assumptions

		Value		
Data point	**Unit**	**Baseline**	**Endline**	**Source for baseline value**
Farmer data				
Average coffee farm size	Ha	2.3		GCP
Market data				
Farmgate price	$/ Kg GBE	3.58		TechnoServe MOCCA field data
Yield				
Average coffee yield	Kg / Ha	722	1,191	TechnoServe MOCCA field data
Operating costs				
Synthetic fertilizer	$ / Ha	148	252	TechnoServe Cafe Project field data
Cost per unit	$ / Kg	0.9	0.9	
Volume applied	Kg / Ha	166	282	
Organic fertilizer	$ / Ha	107	107	
Cost per unit	$ / Kg	0.3	0.3	
Volume applied	Kg / Ha	336	336	
Pesticides	$ / Ha	81	44	
Herbicides	$ / Ha	0	0	
Other inputs	$ / Ha	0	0	
Labor	$ / Ha	1,153	2,005	
Processing	$ / Ha	111	111	
Other production costs	$ / Ha	158	158	
Upfront investments				
Equipment	$ / Ha	0	112	TechnoServe Cafe Project field data
Other upfront investments	$ / Ha	0	48	
Outputs				
Total revenue from coffee sales	$ / Ha	2,585	4,264	Calculated
Total operating costs	$ / Ha	1,758	2,678	
Total upfront investments	$ / Ha	0	160	
Total coffee operating profit	$ / Ha	827	1,586	
Profit margin	%	32	37	
% of total household operating profit	%	95	91	Calculated
Total non-coffee operating profit	$ / Ha	44	152	Calculated
% of total household operating profit	%	5	9	Expert interview
Total household operating profit	$ / Ha	870	1,738	Calculated
Living income data				
Living income benchmark	$ / Household	7,554		Anker Research Institute

All endline data points were provided by local experts.

For additional information, please refer to the Regenerative Coffee Investment Case report.

Country Annex: Indonesia

1. Living income benchmark

This analysis utilized the living income benchmark for rural households in Indonesia's coffee-growing Lampung region, which was collected in the same year as the coffee price data used in the household income modeling. For more detailed information on the living income benchmark, please refer to the **Anker Research Institute Country Index.**

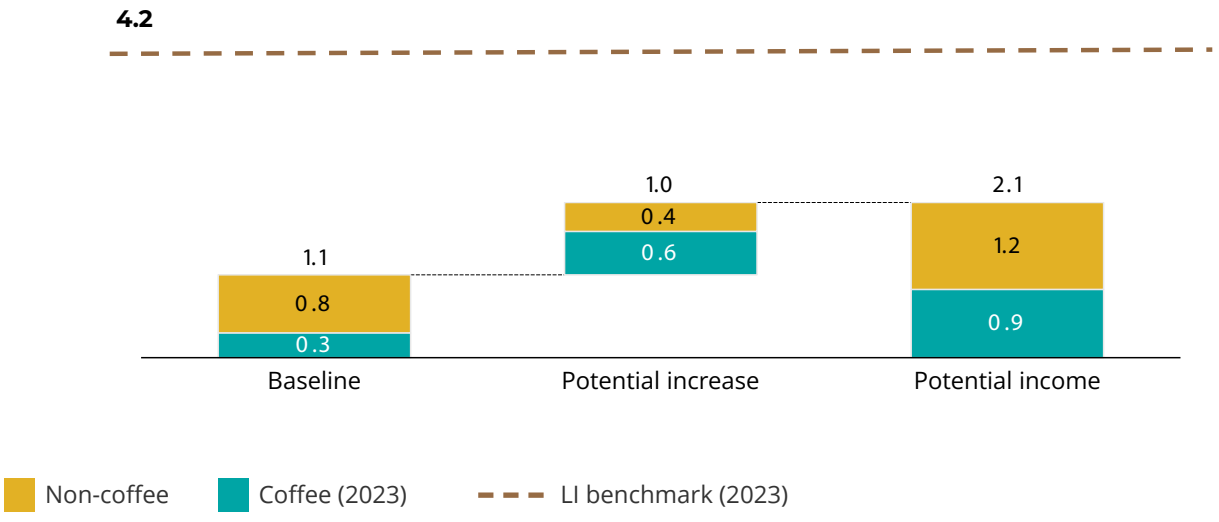
2. Farm archetype

To ensure that the findings accurately reflect the characteristics of the majority of coffee producers in the country, this analysis focuses on rain-fed, shade-grown, medium input intensity Robusta farms cultivating less than three hectares of coffee in the Lampung region, a group representing ~250,000 of Indonesia's ~930,000 small coffee farms.

3. Living income analysis

Assuming an average coffee farm size of 0.8 Ha, the typical household in this archetype currently earns $1,099 in total annual income, 74% below the $4,150 living income benchmark for rural coffee growing regions in 2023. Of this income, 30% is derived from coffee, with the remainder derived from non-coffee sources. By adopting selected regenerative practices, households have the potential to increase their coffee income by 175%, driven primarily by an increase in yields from 540 to 1,107 kg GBE / Ha. Assuming a farmgate price of $1.38 / kg GBE and a 50% increase in non-coffee income, this would result in total farm income of $2,061, closing the gap to 50% of living income.

Annual smallholder coffee farm household net income (Indonesia – Robusta)
USD (in thousands) for Typical (Median) Farmer



Country Annex: Indonesia

4. Recommendations for regenerative transition

This income growth is primarily achieved through the adoption of coffee productivity-enhancing regenerative practices, including renovation through grafting of new varieties, integrated nutrient management, and diversification of shade trees. Specific recommendations include topworking 25% of coffee trees per year over four years and planting fruit trees (e.g. avocado) for additional income. While long-term potential income represents a significant increase from baseline levels, the economics of the transition follow a J-curve. In the first 2 years, farm income may decline by up to 45% compared to the baseline due to temporary loss of coffee income from renovated plots and significant upfront investments required. Income begins to improve in year 3 and reaches an elevated steady state in year 7. A blended finance approach is needed to bridge investment and income shortfall during renovation period, enabling farmers to embark on this journey.

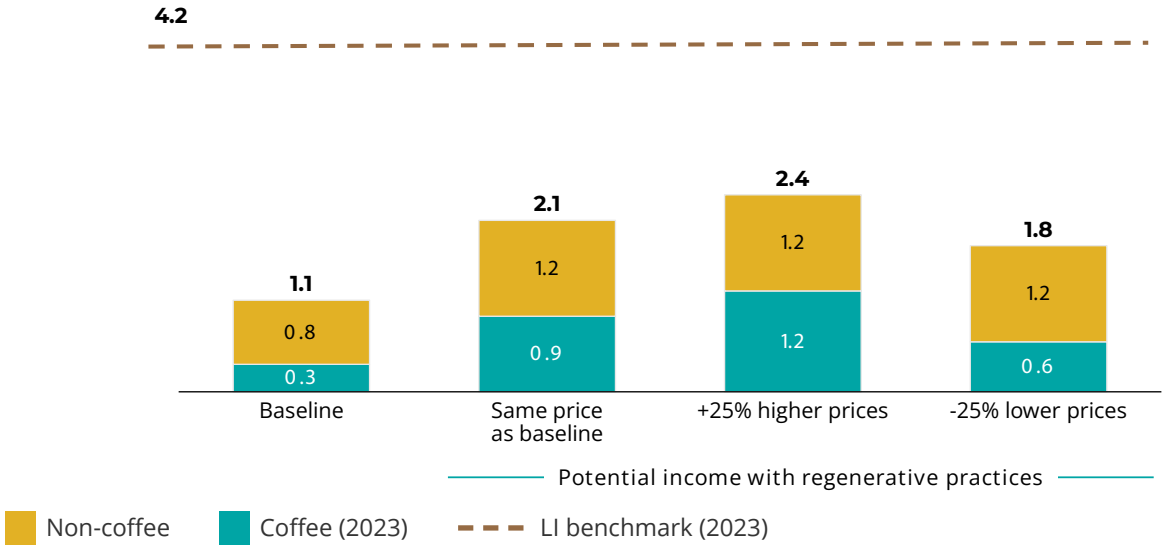
5. Price sensitivity of potential income

While coffee income is highly sensitive to coffee prices, total household income is more resilient as 70% of income is derived from non-coffee sources.

A 25% farmgate price increase would result in regenerative farming households narrowing the living income gap to 43% of the benchmark with an annual income of $2,367. A 25% price decrease would only partially erode the potential regenerative gains due to higher income from fruit trees, reducing the living income gap to 58% and leaving households with an income of $1,756 annually.

Annual smallholder coffee farm household net income (Indonesia – Robusta)

USD (in thousands) for Typical (Median) Farmer



Country Annex: Indonesia - Assumptions

		Value		
Data point	**Unit**	**Baseline**	**Endline**	**Source for baseline value**
Farmer data				
Average coffee farm size	Ha	0.8		Expert interviews
Market data				
Farmgate price	$/ Kg GBE	1.38		Expert interviews
Yield				
Average coffee yield	Kg / Ha	540	1,107	Expert interviews
Secondary crop yield	Kg / Ha	240	1,350	
Operating costs				
Synthetic fertilizer	$ / Ha	168	134	Expert interviews
Herbicides	$ / Ha	30	6	
Other inputs	$ / Ha	0	420	
Labor	$ / Ha	114	210	
Processing	$ / Ha	22	44	
Upfront investments				
Equipment	$ / Ha	0	24	Expert interviews
Other upfront investments	$ / Ha	0	164	
Outputs				
Total revenue from coffee	$ / Ha	745	1,528	Calculated
Total revenue from secondary crop	$ / Ha	224	612	
Total operating costs	$ / Ha	333	394	
Total upfront investments	$ / Ha	0	444	
Total coffee operating profit	$ / Ha	412	1,134	
Profit margin	%	55	74	
% of total household operating profit	%	30	44	Calculated
Total non-coffee operating profit	$ / Ha	962	1,443	Calculated
% of total household operating profit	%	70	56	Expert interview
Total household operating profit	$ / Ha	1,374	2,576	Calculated
Living income data				
Living income benchmark	$ / Household	$4,150		Anker Research Institute

All endline data points were provided by local experts.

For additional information, please refer to the Regenerative Coffee Investment Case report.