

Reducing Risk

Landscape Approaches to Sustainable Sourcing

Starbucks and
Conservation International
Case Study

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Coffee Landscape of Minas Gerais, Brazil. Courtesy of Starbucks.

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Landscapes for People, Food and Nature is a collaborative Initiative to foster cross-sectoral dialogue, learning and action. The partners involved aim to understand and support integrated agricultural landscape approaches to simultaneously meet goals for food production, ecosystem health and human wellbeing. The Business Working Group seeks to expand the potential for this innovative approach in sustainable sourcing, test the concept with key commodities or sourcing regions and identify future partnerships. For more information, please visit: landscapes.ecoagriculture.org.

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Executive Summary

Starbucks is a global coffee brand, and experienced rapid growth over the last ten years. However, the company faced operational risks from climate change impacts in key sourcing regions and poor prospects for farmers in the coffee sector, due to low coffee bean prices. With coffee production and yields more erratic over the last ten years due to climatic variability, the quality of coffee beans was of concern, as well as increasing price volatility. Some key coffee producing areas were identified as particularly vulnerable to climate change impacts.

For instance, in Chiapas, Mexico, climate vulnerability research projected a 77% reduction in areas suitable for growing Arabica coffee by 2030. A partnership with Conservation International, formed in 1998, resulted in creation of the Coffee and Farmer Equity (C.A.F.E.) Practices, which are now embedded in Starbucks operations, and form the basis for piloting landscape approaches. This case study reviews landscape pilots promoting climate-smart coffee production, producer support, and partnerships with government in Chiapas, Mexico and Sumatra, Indonesia.

In these landscapes, Starbucks has mitigated operational risks in supply and key sourcing areas, leveraged capacity and expertise through partnerships, and is integrating climate resiliency in the coffee sector. Further, Starbucks is delivering producer support, addressing livelihood needs and income supplements through carbon payments, and providing incentives for farmers to not expand coffee growing areas into surrounding forests, thus reduce deforestation pressure. Starbucks is now looking to build on their experiences in Brazil—the world's largest coffee producer—in order to improve coffee production practices, support farmers adopting C.A.F.E. Practices, maintain biodiversity and increase carbon stocks within coffee production landscapes.

“We take a holistic approach using responsible purchasing practices, farmer loans and forest conservation programs.”

—Starbucks



Case Study

Risks to Starbucks: Coffee + Community + Climate

Operational risks

- » Declines in production and yields due to climate change
- » Risk coffee farmers in key regions would switch commodities
- » Increasing price volatility

Local community risks

- » Farmers faced low commodity prices, thus enticed to convert coffee farms to other uses.

Lack of best practices and standards

- » Critical to ensuring supplies and quality
- » Value-chain inefficiencies

Box 1. Risks to Starbucks

Context and company profile

Starbucks serves millions of customers daily through almost 18,000 retail stores in 60 countries, has 200,000 employees, and net revenues in 2012 of US\$13.3 billion.¹ The company is noted for its coffee, with coffee buyers travelling to coffee farms in Latin America, Africa and Asia to source beans, custom roasted by Starbucks to create a range of blends and single origin coffee products. The brand portfolio includes Starbucks Coffee, Seattle's Best Coffee, Tazo Tea, Teavana, Evolution Fresh, La Boulange and Torrefazione Italia Coffee.

The Starbucks Coffee company prominently features its commitment to 'responsibility' in its company profile, seeking to strike a balance between profitability and a social conscience. The company commitment to responsibility is based on three focal areas: ethical sourcing, environmental stewardship and community involvement. Ethical sourcing involves taking a holistic approach to sourcing coffee in a fair and sustainable manner. This includes responsible purchasing practices, supporting farmer loans and forest conservation programs.

Quality and price of beans

In 2011, Starbucks total coffee purchases amounted to 194 million Kg (428 million lbs).² Seventy-five percent of the company's retail sales are from beverages, with most being coffee.³ As the company seeks to ethi-

cally source 100% of its coffee by 2015, Starbucks seeks to control coffee purchasing, roasting and packaging, and the global distribution of coffee used in their operations. The volatility of coffee prices is of concern. Starbucks prefers to purchase its high-altitude arabica coffee on a negotiated basis above commodity prices. Starbucks' 2012 Annual Report notes, "Supply and price can be affected by multiple factors in the producing countries, including weather, natural disasters, crop disease, general increase in farm inputs and costs of production, inventory levels and political and economic conditions," and other factors. The company has also been acutely aware of climate change impacts in sourcing regions. Starbucks notes future price risk can only partially be mitigated through purchasing practices and hedging activities.

Most of these risk factors affecting price also affect quality of the beans. To support sustainability and future supplies of high-quality green coffees, Starbucks operates Farmer Support Centers in six countries, staffed with agronomists and experts who work with coffee farming communities to promote best practices, thus improving coffee quality and yields. Ethical sourcing is viewed as a critical means of delivering the quality beans Starbucks requires, thereby decreasing risks. This is described in more detail below, as Ethical Sourcing provides the basis for Starbucks' to step beyond farm-level interventions to more robust landscape approaches.

¹ Starbucks 2012. Annual Report.

² Starbucks 2011. Global Responsibility Report Scorecard.

³ Starbucks 2012. Annual Report.

More broadly, Starbucks recognizes climate change can have long-term impacts on coffee supplies and the health of the communities it sources from. Starbucks seeks to reduce the environmental impact of its business operations, via energy and water efficiency and recycling (focus is mostly on direct operations). Starbucks also works with other companies to advocate for stronger clean energy and climate policies as a founding member of the Business for Innovative Climate and Energy Policy (BICEP) coalition in the United States.

Starbucks' commitment to ethical sourcing, environmental stewardship and community involvement means that when the company identifies risks and future challenges beyond its farmers and supply chain, the company is open to finding innovative solutions, described below.

..... **Business rationale for landscape approach: Addressing climate, operational, reputational and community risks**

Operational Risks

While global consumption of coffee has increased over the last 20 years, production in key coffee producing regions is at risk. Climatic variability is the main factor responsible for changes in coffee yields.⁴ It is generally agreed that both Arabica and

Robusta coffee will be negatively affected by climate change, though Robusta (accounting for 42-45% of global production) is better adapted to lower altitudes, higher temperatures and humidity than Arabica (accounting for 55-58% of global production).⁵ While a shift in suitable growing areas will occur in many coffee growing countries, so too will the increased use of irrigation and pesticides. Increased and poor irrigation practices will increase pressure on scarce water resources. Incidences of pests and diseases, such as coffee berry borer, leaf miner, nematodes, and coffee rust, are predicted to rise, while also decreasing coffee bean quality.⁶ All of the above factors will increase price volatility. While coffee prices have generally increased between 2000 and 2010, price volatility is of growing concern.

Coffee production and yields are not consistent, and have become more erratic over the last ten years, despite overall global production increasing. Brazil's production remains strong, though for the 2012/2013 season, it is forecast slightly below last year's due to frost damage and dry conditions in Minas Gerais, the primary growing region.

Indonesian coffee area has declined over 5% as higher prices for cocoa, rubber, and palm oil have encouraged substitution. Colombia's production is at a four-decade low, and over the past five years has seen production decline due to the coffee berry borer, erratic climate conditions, large reno-

“We are working together with CI to mitigate the impact of climate change on coffee growing communities globally, and to ensure the long-term stability of coffee farms and coffee quality.”

— Ben Packard
Vice-President
Global Responsibility
Starbucks

4 International Coffee Organization, 2009. Climate Change and Coffee. ICC 103-6 Rev. 1.

5 Starbucks procurement department statistics.

6 International Trade Centre, 2010. Climate Change and the Coffee Industry. Geneva. SC-10-174.E.

vation programs and coffee leaf rust. Although coffee leaf rust has been present and constrained production in Central American countries,⁷ it has recently become very problematic and will have a greater negative effect on production for the next few years.

Starbucks also felt exposed to reputational risks from the deforestation associated with coffee production and sourcing. This risk is a key factor that led to the development of certification/verification programs for coffee (in addition to social/labor risks) and is the only zero tolerance indicator on environment in Starbucks coffee production standard, C.A.F.E. Practices (described in more detail, below).

.....

Operational and local community risks: Thriving coffee farmers and compliance to voluntary standards

Starbucks is concerned about the future prospects of the coffee sector. The sourcing and procurement staff increasingly heard from farmers about the growing challenges related to climate change, and at the same time, commodity prices were declining. With such low prices, farmers were questioning staying in the business. The importance of committed farmers and thriving farming communities is important to Starbucks. The percentage of 'economically active population' working in agriculture in developing countries fell from 81.8% in 1950 to 49.4% in 2010.⁸ While this general trend is of concern to a coffee company, the nature of coffee farming makes such declining numbers even more troubling. When farmers rip out coffee trees, it is very unlikely

that they would switch back to coffee production when markets improve, given the time it takes to grow coffee trees. There is also an added environmental risk in land clearing due to release of greenhouse gas emissions. The solution for Starbucks was to find a way to pay farmers more, but to base those higher commodity prices on farmers adhering to best practices, thus ensuring social and environmental benefits. Starbucks also recognized that while they are a major global buyer, the supply chain is much larger. Therefore, to be effective, they would need to work beyond their own supply chains in order to support thriving coffee growing communities.

Most of the world's key coffee-growing regions also contain rich biological diversity which are being threatened by the combined effects of deforestation and climate change. Thus, a collaboration with Conservation International (CI) was formed in 1998, in order to create a system of agricultural best practices for coffee production that maintained ecosystem services while protecting biodiversity. The result is Starbucks' own tailor-made coffee standard—Coffee and Farmer Equity (C.A.F.E.) Practices. C.A.F.E. Practices combine roughly 200 economic, environmental and agronomic indicators into a single reporting tool. C.A.F.E. Practices are farm-level and mill-specific performance indicators and best practices, with a sub-set of indicators reaching beyond the farm-level.⁹ The focus on quality as a pre-requisite is and remains an important aspect of the standard that sets it apart from other industry standards. Farms and

7 USDA, 2012. Coffee Markets and Trade. <http://www.fas.usda.gov/psdonline/circulars/coffee.pdf>

8 FAO and ILO Statistics Divisions. See: http://www.fao-ilo.org/fileadmin/user_upload/fao_ilo/pdf/World-Wide_Estimates_Projections_of_the_Agricultural_Population_Labour_Force_1950-2010_3_.pdf

9 Indicator CG-CB3: on Conservation Areas contains "zero tolerance" for conversion of natural forest to agricultural production since 2004, and a standard indicator that the farm will assess for areas of high conservation value, and these areas will be defined and managed for HCV. There is also a requirement of a 5% conservation set-aside on the farm (resulting in over 102,000 hectares (250,000 acres) as conservation areas, in each year, between 2008 – 2010). While not landscape-level indicators, these can have landscape benefit.

Partnership between Starbucks and Conservation International

Partnership: Conservation International

Solutions: Improving coffee production in conservation landscapes

Operates in: Mexico, Indonesia and Brazil

Timeline:

- 1998:** Partnership launched to develop recommended practices and methodologies to support shade coffee producers in the multiple-use zone of El Triunfo Biosphere Reserve in Chiapas, Mexico to improve quality, increase production and improve environmental performance.
- 2000-2003:** Jointly committed to continue support of shade coffee cultivation in El Triunfo Biosphere Reserve in Chiapas, Mexico and expand into Colombia, Costa Rica, Panama and Peru.
- 2004:** USAID agrees to support partnership to co-fund a 3-year GDA project to continue work in all 4 regions. Results led to the development of the Preferred Supplier Programme which eventually became the C.A.F.E. Practices programme.
- 2008:** 5-year collaboration agreement focusing on climate and coffee, impact assessment of C.A.F.E. Practices, and marketing and communications. This agreement is being implemented in two phases. The first completed in June 2011. The second, and current phase, began in July 2011.

Key Outcomes:

- Development and implementation of C.A.F.E. Practices; 86% of Starbucks' coffee now verified to this standard.
- Chiapas: Regional climate change adaptation vulnerability and mitigation strategy in place, government adoption and commitment, successful PES benefitting farmers, 110 farmers participating in coffee + climate carbon programme, improved best practices among over 1000 farmers in region.
- Indonesia: Increasing coffee yields, restricting deforestation, integrating climate resiliency into the coffee sector and public policy.

2013 and Beyond:

Experiences from Mexico and Indonesia (shade growing coffee regions) inform new developments being piloted in sun-growing coffee production areas in Brazil.

Box 2. Partnership between Starbucks and Conservation International



Carrying coffee. Photo courtesy of Lee Gross.

mills are evaluated by third-party verification organizations, overseen by SCS Global Services. In 2011, 86% of Starbucks coffee was verified through C.A.F.E. Practices. Starbucks has purchased Fairtrade coffee since 2000, and by 2011, 8% of coffee purchases were Fairtrade certified. Certified organic coffee accounted for 2.2% of purchases in 2011.

While C.A.F.E. Practices has addressed operational and community risks for Starbucks, it has also promoted value-chain efficiencies. Since C.A.F.E. Practices was developed with CI and SCS in 2004, Starbucks estimates it has had positive social, environmental and economic impacts for more than one million workers employed by participating farms. CI continues to measure the impact of C.A.F.E. Practices within individual countries and globally.

This experience has led Starbucks to apply the knowledge gained through work with coffee farmers to sourcing approaches for other product ingredients. For example, Starbucks' Tazo tea brand is a member of the Ethical Tea Partnership, working with other buyers to improve conditions for workers on tea estates. And Starbucks seeks a long-term supply of high-quality, ethically sourced cocoa via its Cocoa Practices program which seeks to verify the supply chain for cocoa beans used in Starbucks beverages, with inspections of social and environmental performance completed by independent verifiers overseen by SCS Global Services.

All of the above interventions provided essential platforms for Starbucks to mitigate risks, source quality beans, and promote partnerships for shared outcomes. The farm- and mill-based C.A.F.E. Practices standard is embedded in Starbucks operations. However its ability to influence practices beyond the farm and larger-scale risks to ecosystem functions in the regions Starbucks sources from is still being developed, based on lessons learned from the pilots. Thus, the partnership with Conservation International provided Starbucks with a new opportunity to invest in and support communities across select coffee-growing landscapes who engage in climate-friendly activities, including protecting existing forests and helping to restore degraded landscapes to promote mutually beneficial forest conservation and the sequestration of carbon. Below we investigate how Starbucks and CI worked beyond the farm-scale in Chiapas, Mexico and Sumatra, Indonesia, to address the broader set of risks coffee production and coffee farmers face from climate change. These efforts have begun to inform a new phase of the partnership in Brazil, detailed at the end of this case study.

..... **Modes of engagement in landscape approach**

Starbucks, in collaboration with CI and other partners, has invested in projects promoting landscape conservation and broader community development since the beginning of the collaboration in 1998. Sites selected for investment were based on the need to develop sustainable

coffee production systems in the multiple-use/buffer zones of protected areas within a landscape. This resulted in the development of conservation practices for coffee production that promoted shade-grown coffee systems that used minimum inputs. Together, Starbucks and CI implemented the conservation coffee model in five countries (Mexico, Costa Rica, Panama, Colombia, and Peru). The results of this work led to the development of the C.A.F.E. Practices program, and the investment today in understanding the potential impacts of climate change on these landscapes and communities, pursuit of carbon finance, and multi-stakeholder engagement. The following modes have been applied as part of the landscape approach.

..... **Regional producer support: Agronomy and access to capital**

Starbucks and its partners recognized that long-term business success for a rapidly expanding coffee company depended on the success of the millions of smallholder farmers the company sources from and beyond. This focus began in 1998, and C.A.F.E. Practices offered one means of promoting environmentally and socially sound growing practices, while providing farmers access to markets at favorable prices. But Starbucks and CI recognized that was not enough. To implement recommended practices, farmers also need access to capital and technical support. CI launched the Verde Ventures Fund in 1998 to provide farmer cooperatives and other SMEs with critically needed access to financing. Starbucks was one

of the first investors in Verde Ventures and Starbucks began growing its direct investments in sourcing regions via loans to farmers and their communities. Loans reached US\$14.7 million in 2011, made through Root Capital, CI's Verde Ventures and the Calvert Foundation, helping 45,000 coffee farmers in seven countries. Starbucks hopes to increase that to US\$20 million by 2015. However, there is currently no direct link between these investments and the areas of focus for a landscape approach. It is recommended that consideration be given to how to create such linkages, in order to promote clearer synergies to address environmental and social risks in priority landscapes.

..... **Partnership: Conservation International**

At the heart of the partnership between Starbucks and Conservation International is C.A.F.E. Practices and linking project outcomes back into the supply chain by working beyond the coffee farm to protect rich, surrounding landscapes. CI brings considerable technical ability, relationships in the regions and capacity to carry out interventions in the other two modes—carbon finance and regional producer support. By piloting innovative projects with coffee-growing communities, the partnership is improving coffee production, conserving and restoring natural habitat, identifying solutions to help farming communities be more resilient to climate change, and facilitating farmer access to alternative sources of income from forest carbon markets.

While landscape level issues have been a focus since the beginning (e.g. the link between protected areas, livelihoods, and shade coffee systems), the partnership has evolved as climate change was increasingly recognized as a key risk, the science evolved, and project results iteratively refined management direction.

The partnership also has helped to leverage government relations and bring regional climate change vulnerability and adaptation needs into regional and national-level policy-making. This has been critical to reaching scale on adaptation measures. The partnership was renewed in 2011 for another two years.

..... **Partnership: Multi-stakeholder dialogue, planning and management**

In both Chiapas, Mexico and Sumatra, Indonesia, assessment of coffee suitability was carried out with research partners, and then shared with local producers and communities. The result was collective discussion of risks and solutions in multi-stakeholder workshops, which produced recommendations that informed regional government climate action plans.

..... **Carbon finance: Mitigating business risk and building resilience**

In each of the three countries, opportunities to tap into carbon finance have been evaluated to diversify farmer income and entice coffee farmers to stay with coffee production. It is also a means of promoting critical climate change mitigation and

adaptation solutions. Starbucks and CI and local partners including Ambio, have looked to the voluntary sector to sell carbon offsets, with particular success in Chiapas, Mexico. While lack of a global agreement on climate change restricts further opportunity here at scale, it is hoped this may change in the future in order to provide farmers with incentives to maintain best practices, restrict expansion into existing forests, and maintain tree cover in productive coffee farming landscapes.

Starbucks landscape approach in practice

Chiapas, Mexico

This region is and will remain important to the company as a whole, as well as for domestic offerings at Starbucks stores in Mexico. Smallholder coffee farmers in Chiapas, Mexico, have long practiced traditional agroforestry methods of coffee growing practices, using shade-adapted varieties and maintaining tree canopy cover. Shaded coffee farms in the area provide a natural protective buffer around some of the region's most biologically-rich habitats, particularly the 121,400 hectare El Triunfo Biosphere Reserve, home to jaguar, tapir, monkeys and other species.

However, this sourcing region for Starbucks is threatened by significant climate change impacts, with a projected reduction in the area of high suitability for Arabica coffee production dropping from current levels of 265,400 ha to 60,500 ha by 2050.¹⁰ This change is due to a projected 2.1-



Figure 1. Starbucks' Climate + Coffee in Mexico and Indonesia

2.2° Celsius increase in average temperatures and a 80-85mm reduction in rainfall. Thus, areas at 600 metres altitude will become marginal areas for coffee and most likely to be converted to other land uses. Areas at 600 metres currently suitable for coffee will shift to higher altitudes at 850-900 metres. In addition, areas above 1700 metres may become more suitable for coffee production. As suitability moves to higher altitudes, this creates a greater challenge for transportation and market efficiencies. Figure 2 spatially depicts this change will affect coffee growing areas.

Starbucks and CI launched an initial three-year programme to encourage coffee growers in Chiapas to continue their sustainable farming practices. In return, they received technical assistance from CI's field staff and Starbucks purchased the farmers' beans. Further financial incentives for the growers have come through CI's work with local partner organizations (Am-

10 Schroth, G., P. Ladderach, J. Dampewolf, S. Philpott, Jm. Haggar, H. Eakin, T. Castillejos, J.G. Moreno, L. Soto Pinto, R. Hernandez, A. Eitzinger and J. Ramirez-Villegas, "Towards a climate change adaptation strategy for coffee communities and ecosystems in the Sierra Madre de Chiapas, Mexico, Mitigation and Adaptation Strategies for Global Change (2009) 14:605-625.

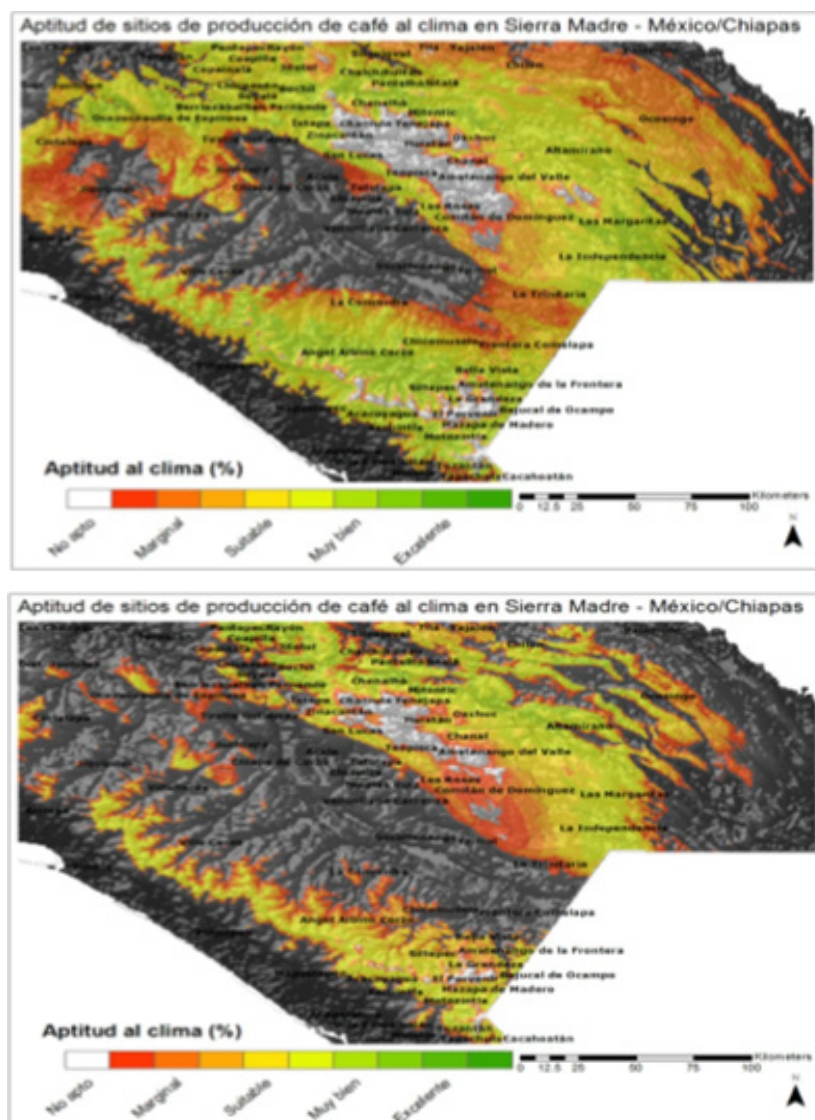


Figure 2. Top: Present state of optimal areas for Arabica coffee, Sierra Madre de Chiapas. Bottom: Optimal areas expected for Arabica coffee in 2050, Sierra Madre de Chiapas.

Source: Chiapas Gobierno del Estado. 2011. Estrategia del Sector Cafetalero para la adaptación, mitigación y reducción de la vulnerabilidad ante el cambio climático en la Sierra Madre de Chiapas. Analysis and maps above by CIAT, 2011.

bio, CIAT and others) to offer farming communities payment in exchange for reforestation commitments. The carbon value is then sold on the voluntary carbon market with payment going directly back to the farmers. The vulnerability assessment and work with the Chiapas state government has integrated the adaptation recommendations in the Chiapas state climate change action plan.

Business risks and rationale for engaging the landscape approach

Operational risks – resource security: severe climate change impacts predicted in the region.

Operational risks – labour shortage and community health: the importance of maintaining the coffee production sector was noted, as farmers faced enticements to abandon the sector.

Mode of intervention in the landscape

Partnership, multi-stakeholder planning and management: CI's work with the communities in this key sourcing region has created incentives for forest and land protection in the region via better access to data and financial assistance.

CI convened 10 meetings with stakeholders to identify the components necessary for a successful climate strategy. Once the suitability analysis was complete, this information was brought back to the community and other stakeholders to identify how farmers and communities currently experience climate change,

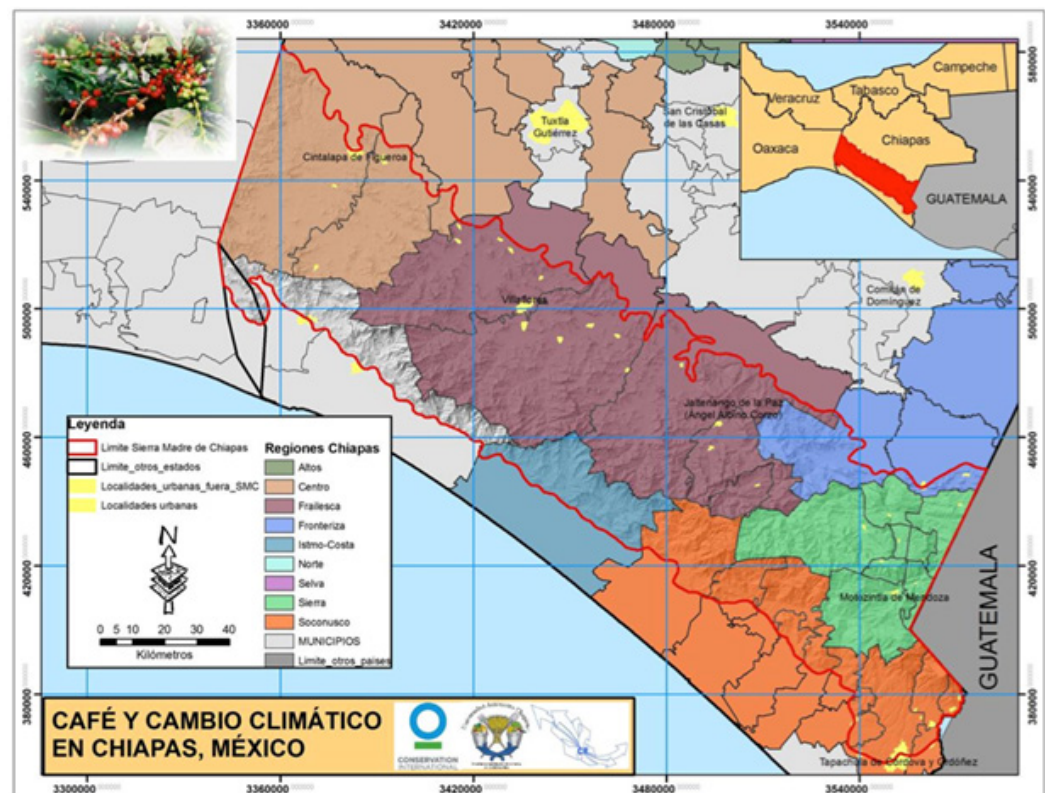


Figure 3. Coffee and Climate Change in Chiapas, Mexico

improve the understanding of climate change impacts in the coffee producing community, and what interventions communities and producers prioritize. These results informed the climate change adaptation recommendations that were adopted by the Chiapas government.

Those meetings resulted in a signed memorandum of understanding to build a successful coffee and climate change strategy for the region with partners from local, regional and national governments, indigenous coffee federation, the social sector and civil society.

A capacity building needs assessment was completed with key partners and stakeholders and municipal gov-

ernment as part of the Global Environment Facility (GEF) project that Starbucks contributed to, in order to identify the types of training necessary to secure ecosystem services among producers and sub-watershed communities in the Sierra Madre de Chiapas. This programme is now underway.

Value-chain approach with landscape elements included: Trainings on C.A.F.E. Practices. Also working with farmers in the region (not just those Starbucks buys from), CI has provided capacity building, technical assistance, seedlings, organic compost, and income diversification via shade-tree planting (fruit trees or palm).

Finance: Payments for ecosystem services (PES) to support coffee farmers with alternative revenue streams and protect the ecosystem services.

.....

Partnership

1998: Partnership between CI and Starbucks launched.

2004: Results: 30% increase in number of participating farmers in coffee conservation programme, international coffee sales of these producers doubled and incomes rose by an average of 40%. Starbucks made its first offering of a shade grown coffee product, *Shade Grown Mexico*.

2008: The partnership with Ambio and Plan Vivo was established to identify incentive programs for farmers to

“Starbucks recognized business growth could not occur if high quality Arabica production declines or is highly volatile. Ensuring a long-term sustainable supply of high quality coffee in this region is important.”

reforest in exchange for payments obtained from voluntary carbon off-sets.

2010: Success leads CI to secure a grant agreement with the Global Environment Facility (GEF) to expand and scale up this initiative to 10 watersheds in the Sierra-Coast region of Chiapas.

..... **Outcomes in Mexico**

- » Farmers in 13 communities received assistance in developing farm plans. It is hoped regional adaptation plans for interventions beyond the farm scale will become operational with additional resources and capacity.
- » Eight community technicians trained on climate change mitigation and adaptation.
- » Advanced productivity measures using well established sustainable best practices for coffee growing for more than 1,000 farmers.
- » Sustainable coffee production method trainings have reached another 1,000 farmers via a train-the-trainers approach.
- » 110 farmers participating in coffee and climate carbon programme, benefitting 197 families in 23 communities.
- » 17,152 trees planted in 442.5 hectares.
- » Three nurseries established producing 210,000 seedlings to restore the natural forest cover by employing shade- growing best practices.

» 15,591 carbon credits sold with a potential of 50,000 tCO₂ for the project. Worked with 23 communities in the Sierra Madre de Chiapas to consolidate efforts to protect and restore 120 new hectares of forested area with Ambio, adding 17,000 new tonnes of carbon to the reserve fund for Plan Vivo carbon credits.

» Results in US \$100 of new income per year (for five years) per farmer, representing ~7.6% of coffee income.

» 25 new permanent jobs created, 253 people trained, 150 efficient cooking stoves installed.

» Regional climate vulnerability and adaptation planning from the initiative has been integrated into the regional Chiapas climate change adaptation plan and the National Commission for Protected Areas of Mexico (CONANP) is now utilizing components of the climate change strategy to launch their own adaptation work.

» Benefits to communities: Ambio's assessment confirms there is supplementary value for farmers.

..... **Value proposition of landscape approach to Starbucks**

Starbucks recognized business growth could not occur if high quality Arabica production declines or is highly volatile. Ensuring a long-term sustainable supply of high quality coffee in this region is important.

Aceh, Sumatra, Indonesia

The provinces of North Sumatra and Aceh in Indonesia are significant sourcing regions for Starbucks, in need of support due to low productivity. Starbucks coffees containing an Indonesian component includes: Sumatra, Christmas, Anniversary and Tribute. Indonesian coffee beans are noted for their unique flavor profile in blends, and as a single origin product. Starbucks increasingly heard from farmers that climate risks were increasing, including pests and diseases. Further impacting climate change through greenhouse gas emissions, coffee has historically been one of the drivers of deforestation due to productivity declines after several years of coffee production, pushing farmers to clear more land. There are also risks of farmers abandoning coffee production, in search of more lucrative returns from oil palm and other commodities. To address these challenges, Starbucks and Conservation International began to:

- Test approaches to manage risks and develop new strategies for addressing climate change that will benefit both farmers and the ecosystems upon which they depend,
- Work with coffee communities to improve production practices in return for an agreement to respect forest boundaries and reduce clearing, and
- Link coffee farmers to carbon markets as a means of providing additional income and a source of funding for the delivery of ser-

vices needed to improve their productivity without resorting to land-clearing for new coffee gardens.

Business risks and rationale for engaging the landscape approach

Resource security: Climate change impacts coffee production quantity and quality.

Operational risks: Climate change and shifts in global demand pose risks to economic viability of coffee farming for smallholders.

Mode of intervention in the landscape

Partnership, multi-stakeholder planning and management: CI created maps of both the likely changes in coffee suitability and partnered with University of North Sumatra to assess pest distribution associated with climate change in order to target training and support programs in communities that are likely to have the highest vulnerability to cli-

AREA OF PRODUCTION RISK	RISK LEVEL	ADAPTATION OPTIONS
Drought/Fire	 Low	Follow existing drought/fire management procedures
Storms/Flood	 Medium - Increased risk of flooding	Shade trees for coffee berry protection Vegetate boundaries and slopes
Changing Suitability	 Medium - Risk of suitability at lower altitudes decreased	Change coffee varieties (e.g. Tim-Tim to Bor Bor) Create alternative livelihoods
Changing Seasonality	 High - Risk of more rain in the 'dry' season	Combine coffee with other crops Use drying sheds
High/Low Temperatures	 Medium - Risk of higher maximum daily temperatures	Shade trees to regulate temp Change coffee varieties
Change in Pest/Diseases	 High - Risk of new pests in higher altitudes.	Improve tree maintenance Pest management (e.g. traps) Change to pest/disease resistant coffee varieties

Figure 4. Risk and adaptation responses, Aceh, Indonesia.

mate change. This was followed by multi-stakeholder workshops and work with the Aceh Tengah regional government and several local coffee cooperatives to develop a coffee and regional climate action plan. The recommendations from the vulnerability assessment fed into the action plan.

Regional producer support: Based on the climate change vulnerability mapping, CI was able to target technical assistance, farmer outreach and precise locations for nurseries and demonstration plot development to improve smallholder performance at a landscape scale.

Value-chain approach with ILM elements included: Trainings on C.A.F.E. Practices. Also working with farmers in the region (not just those Starbucks buys from), CI has provided capacity building, technical assistance, seedlings, organic compost, and income diversification via shade-tree planting (banana trees). By increasing yields in the face of climate change, and negotiating specific conservation agreement with communities, a reduction in farmer expansion into neighboring forests is sought.

Finance: Payments for ecosystem services (PES) to support coffee farmers with alternative revenue streams and protect the ecosystem services.

Partnerships

Aceh Coffee Forum, University of North Sumatra, government agencies, communities.

Outcomes

- » CI conducted a vulnerability assessment for North Sumatra and Aceh, with funding from Starbucks, to identify the primary risks for the next 30 years of farming and opportunities to manage those risks.
- » More than 600 farmers have been engaged in farmer extension programs, including farmer field schools and offering support on certification requirements. This helps deliver certified volume, forge direct market linkages, and provides motivation to reduce expansion of coffee growing areas into the surrounding forests.
- » Integrating climate resiliency into the coffee sector and public policies in Aceh Tengah. In particular, this leveraged closer work with the Aceh Coffee Forum to develop a climate change plan designed to improve farmer livelihoods and coffee production in the region.

Value proposition of landscape approach to Starbucks

Ensure a long-term sustainable supply of high quality coffee.

Key lessons learned and next steps for Starbucks' approach to landscape issues

While it is hard to say what the 'business as usual' approach would have looked like in these key regions had Starbucks not pursued a landscape approach, it is clear that the company's

business model depends upon thriving coffee farming communities and landscapes.

Landscape health is at the core of coffee production

For a rapidly expanding company seeking a sustainable business model, while maintaining strong ethical standards, Starbucks needs to ensure its supplies of quality coffee beans. Therefore, investments the company makes to ensure supplies of quality coffee are core to their business model. C.A.F.E. Practices has enabled Starbucks to have a closer connection to growers and a stronger influence on its coffee supply chain. The investments made at landscape scales in key supply regions allows Starbucks to mitigate risks to coffee production.

Partnerships

A critical enabling condition of Starbucks' engagement beyond farm-scales is its partnership with Conservation International, and the subsequent partnerships CI has formed within the regions. This partnership enables Starbucks to achieve positive coffee supply and quality benefits, and provides Starbucks with capacity they may not currently have in-house. Further, the partnership has enabled significant donor and in-kind financial investments and government commitment in Starbucks sourcing regions (e.g. the GEF grant, Chiapas climate change adaptation plans).

Thriving coffee communities

Maintaining farming communities is a crucial aspect of maintaining supplies



Figure 5. Analytical framework applied to Starbucks

of coffee. Starbucks business model depends on coffee farmers staying in the business and thriving. Solutions pursued included working beyond their own supply chain at landscape scales to support thriving coffee growing communities and paying farmers more to adhere to best practices.

..... Timelines for investment in landscape approaches is years

It is a challenge for any business to look five years out, let alone 15-20 years out. However, planning for climate change adaptation takes time, and getting alignment within a company on how to address long-term

risks is difficult. This is particularly acute in the case of tree crops, which need lead-time in order to address adaptation (in the Mexico and Indonesia examples, 8-15 years is necessary). Starbucks' commitment to climate resiliency in Chiapas is nearing the five-year mark and its commitment in the region dates from 1998. Starbucks hopes the initiative can eventually sustain itself, and recognizes that its role five years from now will be different. However, given the innovative nature of this work for Starbucks, these timelines are ever evolving.

..... Climate change adaptation solutions across the landscape

The mitigation of operational risks from climate change impacts is valued by Starbucks as a priority. Therefore, investing in climate change adaptation strategies in key sourcing regions is an investment in Starbucks' long-term supply of quality beans, and is a cost of doing business.

Overview of Starbucks' business case for the landscape approach

Starbucks' approach to mitigate operational risks resulted in an evolution of their farm- and mill-based standards and best practices to seeking solutions via landscape approaches. This evolution mirrors the analytical framework developed for this Landscapes for People, Food and Nature investigation. Below is a summary of the key rationales and modes that led to the value proposition of Starbucks' landscape approach.

Next Steps for Starbucks: Brazil

While continuing work already started in key sourcing regions, Starbucks and CI seek to specifically replicate the success in Mexico and Indonesia in Brazil, helping to improve coffee production practices and support farmers adopting C.A.F.E. Practices while maintaining biodiversity and increasing carbon stocks within coffee production landscapes. Brazil is the world's largest coffee producer, accounting for 34% of the global supply.¹¹ The International Coffee Organization cites Brazilian Agricultural Research Agency EMBRAPA research projecting a one degree increase in temperature reducing current suitable coffee growing areas by 200,000 square kilometres. A three degree increase would remove a further 320,000 square kilometers.¹² While losses of up to 33% of the current area of Arabica coffee production in Sao Paulo and Minas Gerais could be partially offset by gains in Paraná, Santa Catarina and Rio Grande do Sul, one

recent study finds no practical implementation of adaptation or mitigation measures in the Brazilian coffee sector,¹³ highlighting the urgency of the landscape approach Starbucks and CI are beginning this year.

- Work will occur across two landscapes: East Minas Gerais and South Minas Gerais. The intent is to:
- Perform an assessment of C.A.F.E. Practices on socio-economic advancement (to be completed by April 2013)
- Perform a vulnerability assessment to determine how climate change has impacted the region and identify opportunities to ameliorate current situation and/or prepare for the future
- Identify PES opportunities linked to forest conservation, restoration and reforestation in each landscape. An inventory has been completed of potential programmes to tap. Work currently focuses on modeling potential carbon benefits.

The Minas Gerais region supplies 80% of Brazil's coffee production. Starbucks and CI's work in Minas Gerais with 93 farms has the ability to influence production standards beyond Starbucks direct procurement.

11 Starbucks procurement department data indicates 34%, however Hagggar et al estimate slightly lower, at 25%. See: Hagggar, J., K. Schepp, 2012. Coffee and Climate Change Impacts and options for adaption in Brazil, Guatemala, Tanzania and Vietnam. Natural Resources Institute, University of Greenwich, UK.

12 See: <http://dev.ico.org/documents/icc-103-6-r1e-climate-change.pdf>

13 Hagggar and Schepp, 2012.





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