



# Managing a Sustainable Supply Chain

This new quarterly report will examine the evolution of a sustainable coffee supply chain project over the course of its first year of implementation in the Amazonas and Cajamarca regions of northern Peru. By covering one project, its components, and their impacts on stakeholders, *Tea & Coffee Trade Journal* provides an unprecedented look at how supply chain innovations take shape, in real time. Part one concentrates on managing a sustainable supply chain.

By Rachel Northrop *All photos courtesy of Rachel Northrop*





Lonya Grande, Utcubamba, Peru

**S**ustainability and profitability along coffee supply chains are often tackled incrementally, with separate projects implemented to address concerns regarding smallholder financial sustainability and environmental sustainability of larger farms and mills.

### Sustainable by Design

While discrete efforts are important steps, Quebec-based project developer Ecotierra approaches sustainability through overhauling the full supply chain to integrate coffee production, milling, export, and sales activities into a sustainable, climate-smart cycle.

“Ecotierra accomplishes this turnkey solution through capacity acquisition, educating stakeholders on the reality of climate change, and training communities in responsive strategies tailored to local conditions,” said Thibaud Joubert, Ecotierra’s chief sales officer.

The Café Selva Norte project is the first application of this turnkey design, implemented across four cooperatives in Peru’s Amazonas and Cajamarca provinces. The crucial goal of the design is that the main agricultural activity, coffee production, through adaptation into a managed agroforestry system, generates the environmental added values of carbon sequestration, which is itself, a saleable service in the form of carbon credits, and of land revitalization to neutralize and ultimately reverse land degradation.

First, cooperative members receive micro loans through existing micro credit institutions, covering the costs of labour and materials to convert land from low-yield, semi-abandoned farms and cattle pastures to agroforestry models combining coffee and various hardwood tree cultivations. Second, the construction of shared dry milling infrastructure located between four cooperatives allows each to independently prepare coffee for export without transporting it to private mills, improving efficiency of the dry milling process and quality of exportable coffee.

Third, Ecotierra’s Greener Green Coffee division connects Café Selva Norte’s dually certified products with buyers seeking value-added coffee produced as part of a fully sustainable cycle. A portion of the carbon credits generated by the agroforested coffee plots is used to offset transport from farm to port, offering a coffee product with negligible net emissions. Fourth, the remaining carbon credits generated from land reforestation are sold to pay salaries of agronomists, who train micro credit recipients in maintaining agroforestry systems. Finally, the sale of green coffee enables producers to repay loans and continue the cycle.

For components of micro credit distribution, agroforestry expertise, mill infrastructure, brokerage services, and carbon sequestration measurement to







be implemented in one location as a systemized approach to coffee supply chain modernization is a new achievement in transforming coffee into a truly environmentally and financially sustainable crop.

### Reversing Land Degradation

“The problem of coffee agriculture as a net carbon emitter and cause of land degradation is particularly grave in Northern Peru, where slash-and-burn techniques offer a quick fertilizing layer for soil,” shared Ronal Carranza Montenegro, manager of the Juan Marco El Palto (JUMARP) cooperative in Lonya Grande, Utcubamba.

Building soil fertility through the combination of inputs and tree inter-cropping is a profitable way to establish resilient coffee production while reversing land degradation. In 2012, Ecotierra began the Shade Coffee and Cocoa Reforestation Project (SCCRP), which ultimately served as the pilot for the land revitalization portion of what is now the Café Selva Norte project.

“We’ve been working on these pilot plots for years,” said Montenegro. “Now we can produce coffee through agroforestry allowing the co-op to enter a new niche market while recuperating damaged lands.”

The Peruvian Andes are the site of other established forestry projects. The Pichanaki Model Forest, started in 2015 in Junin, Chanchamayo, studies 16 different hardwood species planted with coffee to determine those best suited for different land conditions. Forest advisor Jose Manuel Cornejo Herrera noted, “Once we know the most apt conditions for each, we can promote the implementation of agroforestry systems

with double proposition: crop cultivation and timber harvesting.”

All trees inter-planted with coffee add benefits of reducing erosion and mitigating spread of diseases like leaf rust by acting as physical barriers, but faster growing species also enrich soil by fixing nitrogen and slower growing species provide second revenue stream.

### Carbon Capture and Offset

Agroforestry systems capture additional carbon, which is a major transformation from coffee farms emitting carbon through slash-and burn. To track this transformation, Ecotierra developed a group carbon project in accord with the standards of Verified Carbon Services (VCS). The tool measures the baseline emissions given the evaluated hectare’s

(Above) Areas where the Café Selva Norte project is taking place.  
(Below) JUMARP’s Forest advisor Jose Manuel Cornejo Herrera.



current use, accounting for a buffer zone to prevent against emissions activities being displaced beyond the radius of measurement, and then measures the comparative carbon sequestration or emission in the given time frame.

“The project is validated [by VCS] and then offsets are verified in field by a third party to generate Verified Carbon Units (VCUs) that can be sold,” explained Guillaume Nadeau, Ecotierra’s communications director. This is recorded in the online Minka platform, designed to share key performance indicators, such as number and location of hectares converted to sustainably productive cultivation, and the VCUs generated by this conversion, allowing downstream stakeholders a viewing platform for the work their coffee purchases fund.

In the Pichanaki Model Forest, participating producers are eligible for compensation under a national law on Retribution Mechanisms for Ecosystem Services, which “promotes, regulates, and supervises ecosystem services from voluntary participation and establish conservation actions,” Herrera explained. Prioritizing sustainable forest management mitigates and adapts to climate changes affecting coffee and other agricultural sectors.

### Macro Funding and Micro Credits

Sustainability efforts are often funded by limited philanthropic investments, and unreliable funding sources frequently leave projects incomplete. Café Selva Norte is unique in that all facets of the supply chain renovation – micro loans, reforestation, carbon capture, brokerage services, followed by infrastructure and continued capacity building – are funded by the same USD \$50 million investment made in the Canopy Sustainable Land Use Fund (SLF), managed



by Ecotierra.

At the UN World Climate Conference (COP23) in Bonn, Germany, in November, the first close of USD \$30 million was announced, with principal investors Fondation (Quebec) and Mirova, affiliated with Nataxis Global Asset Management (Paris). Mirova is a structuring partner, with the UN Convention to Combat Desertification and the Land Degradation Neutrality Fund, addressing the UN Sustainable Development Goal of reversing land degradation contributing to climate changes causing resource losses and extreme weather events.

The scale of funding allows Ecotierra to see the design of mutually supportive projects through to integration in a fully operational supply chain, the process of which this quarterly report will cover.

“The integration of climate finance monetizes the projects’ positive environmental impacts,” Nadeu noted. Capital investment is immediately translated to micro credits for small land owners. “We already have a process for distributing micro credits to producer members,” said Montenegro of JUMARP. “Producers with land suited for renovation submit applications for review by a co-op committee and receive the loan in parts to pay for initial cost of preparing land and then for maintaining it.”

Major funding empowers individual families to be the change agents who catalyse a retrofit of the coffee supply chain for scalable, replicable resilience in a changing climate.

*Part II will appear in the April 2018 issue.* ■

(Above) JUMARP coffee harvesters.  
(Below) Ecotierra’s agroforestry nursery.



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