



Photos courtesy of EcoTierra

To know what works, and to know which actions to repeat or amend, requires data – different kinds of data than agriculture has historically tracked. Typically, hectares planted and productivity per hectare were enough to indicate the economic and environmental viability of cultivating coffee in a given region. With climate change causing localized shifts in temperature, rainfall and extreme weather events, the data collected must be much more detailed, shared much more quickly, and with a wider audience of stakeholders.

Measuring What Matters

The metrics of sustainability fall into four stages. The first is establishing indicators used to determine baseline risk and interventions that respond to that risk. The second is tracking the changes in those indicators using an accessible platform. The third is confirming the outcomes of interventions as they occur, in real time. The fourth is to assess the return on intervention investment to plan for reinvestment allocation.

Ecotierra, the project development organization based in Sherbrooke, Quebec, Canada and Peru, Ivory Coast and Colombia, whose project Café Selva Norte in Amazonas and Cajamarca, Peru this series has followed, uses a proprietary digital platform for integrated sustainability tracking, first implemented in 2012. The web-based interface is called Minka, named for the Quechua term for communal work. It allows users to see, with a single click, both the full provenance of the coffee including producer, farm plot, and cooperative, as well as the associated reforestation activities. “Minka is the field level tool for tracking traceability and carbon offsets,” said Guillaume Nadeau, communications director with Ecotierra.

The Café Selva Norte’s reforestation component both improves the crop’s viability and generates a second revenue stream for farmers with the sale of carbon credits generated by the trees on land reforested as part of a coffee agroforestry system and the conservation of remnant forest lands. But, before the interface can capture the carbon sequestration and land degradation reversal, it must record the initial conditions, gathered into a database of socio-economic data, geographical information, and legal documents.

Baseline Indicators and Interventions

The project criteria for Café Selva Norte, funded by the Canopy Sustainable Land Use Fund, includes working only on degraded land. The Minka platform organizes its data by producer and by plot, “so the zero event is proof of deforestation for more than

The final installment of our series on Sustainable Production in Peru looks at the metrics of implementing and monitoring supply chain overhauls. The theory behind sustainable land management is that certain actions will produce certain results. But how do farmers know what is working? What metrics must stakeholders follow to assess whether sustainable initiatives do, in fact, sustain themselves?

By Rachel Northrop

10 years,” explained Nadeau. Each plot includes photo documentation, and the “initial photo is taken by the technician verifying compliance with project criteria.” Photos are tagged with GPS points, further geomapping is used to plot polygons aggregated into the same zoomable map showing participating projects across the region.

In October, the Global Coffee Platform (Bonn, Germany) held Module Five of its Understand, Design, Act: Climate-Proof Your Supply Chain webinar series, titled, “How Do I Know If My Investment in Climate Smart Agriculture Is Working?” Presenters included Kealy Sloan, project manager with Sustainable Food Lab, part of USAID’s Feed the Future. She noted that coffee production “areas can generally be put into three types of zones: absorb zones where the area will likely remain suitable for target crop production, adapt zones where the area will likely remain suitable but suitability will decline, and transform zones where the area will no longer remain suitable for the target crop production without major adaptation.”

Documenting the starting point is crucial to measuring improvements from that point. Knowing how an area is at risk for adverse impacts from climate change events allows for accurate measurements of improved resilience.

Tracking Changes in Resilience

Another presenter during the Global Coffee Platform webinar was Daniele Giovannucci, president, COSA Committee on Sustainability Assessment. He underscored that “local data gives context to the big data. Understanding the data of local people – households, co-ops, traders, certification organizations – overlaid into big data, is vital to understand the drivers of change.” By going behind the average metrics of both changes in climate, such as length of droughts or millimetres of rainfall, and responsive interventions, such as regional rates of reforestation, actors at the local level can make the efforts necessary for a successful program.

Similar to COSA’s dashboard of indices measuring ▷



COSA's Absorptive Index measures localized data.

local data, the Minka platform tracks each plot's progress in reversing land degradation. The number and type of shade trees, their date planted, coffee varieties planted, density, and date of planting and other maintenance activities are all recorded plot by plot, producer by producer. Each producer's production in parchment delivered to the cooperative is also recorded, showing increases in yield over time to demonstrate the rates and levels at which formerly degraded land is now producing coffee and sequestering carbon.

Real-Time Outcome Confirmation

"Not waiting until the end of the program to do an evaluation, but having data in real time," this is what Giovannucci of COSA sees as central to targeting interventions to see greater success. Knowing the local conditions allows cooperatives or agencies to recommend planting drought-resistant seeds versus the highest yielding seeds, depending on conditions. COSA packages this data into a visible program dashboard. "High quality visuals, everything at your fingertips. Practical tools for managing resilience keep things pragmatic, simple, and low-cost," he said.

Bambi Semroc, vice president, Sustainable Markets and Strategy, Conservation International, recommended assessing coffee at the landscape level during her Global Coffee Platform presentation. "How does what happens on a farm-by-farm level add up? How do we connect big pieces of forest, so we don't have genetically concentrated populations of mammal species? The link between the two is the landscape assessment framework: a tool to evaluate and monitor the status and trends in key indicators that collectively characterize landscape sustainability and disseminate the results through a series of graphs, charts, statistics, and maps presented in an online dashboard."

Each organization invested in measuring and implementing sustainable coffee agriculture creates its own platform and captures slightly different metrics related to sustainable coffee production environments. While this might seem like it prevents comparisons and integrations, it is precisely the localized nature

of climate change impacts that require sustainability metrics to be project- and site-specific. The unifier is that any captured metrics must relate to the investments made in interventions that respond to baseline issues.

Assessing Effectiveness of Investment

"Investors ask for big data — how many trees? How many producers? What is carbon capture?" said Ecotierra's Nadeau. "This was the reason for creating our own fund, because stakeholders all have specific targets. Trying to complete projects with investors who have different goals resulted in weak projects. With the Canopy Sustainable Land Use Fund, Ecotierra can do the bigger project, rather than producing data just to satisfy investors."

Investments in sustainable agriculture must strike a balance between financial returns and restoration impacts. "People see climate change mitigation as an expense," added Nadeau. "But, working on whole supply chain projects has financial return and social and environmental impacts for communities."

Real-time tracking shows progress towards those returns, both financial and environmental; it also gives cooperatives data they can use to make more accurate production estimates. Regarding traceability, "currently, buyers tell producer coops, 'I will buy your coffee if you fill this in,' but then co-op just sells to other buyer who doesn't ask so much. With Minka, data capture also has meaning for the co-op as much as buyer," said Nadeau. But with comprehensive data tools actively tracking a range of metrics, compiling data is as valuable, if not more, to the cooperative.

With real-time tracking of both problems and progress, producer organizations can make more accurate harvest estimations, allowing for the implementation of risk management strategies from forward sales to futures contract hedging, and from that same data set agronomists can make harvest recommendations and buyers can verify their coffee's provenance. The tool also serves as microcredit follow up, showing that a loan recipient has completed a round of reforestation or coffee harvest and qualifies for further credit.

Climate-smart coffee production is even more vital than ever to the health of the industry's supply chain, and new technologies and perspectives also make it more feasible than ever to collectively invest in and implement actions toward this common goal. ■

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