Seeking Sustainability: COSA preliminary analysis of sustainability initiatives in the coffee sector

Giovannucci, Daniele and Potts, Jason and Killian, B. and Wunderlich, C. and Schuller, S. and Soto, G. and Schroeder, K. and Vagneron, I. and Pinard, F.

Committee on Sustainability Assessment

2008

Seeking Sustainability

COSA Preliminary Analysis of Sustainability Initiatives in the Coffee Sector

iisd International Institute for Sustainable Development / Institut international du développement durable

Seeking Sustainability

COSA Preliminary Analysis of Sustainability Initiatives in the Coffee Sector

September 2008

Lead Authors: Daniele Giovannucci and Jason Potts

Contributors: Bernard Killian, Christopher Wunderlich, Susana Schuller, Gabriela Soto, Kira Schroeder, Isabelle Vagneron, Fabrice Pinard.

iisd International Institute for Sustainable Development / Institut international du développement durable

The Committee on Sustainability Assessment (COSA) executive committee is co-ordinated and led by the International Institute for Sustainable Development (IISD) and includes Nicaragua's Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Costa Rica's Centro de Inteligencia sobre Mercados Sostenibles (CIMS/INCAE), France's Centre de coopération internationale en recherche agronomique pour le développement (CIRAD) and Switzerland's State Secretariat for Economic Affairs (SECO). This committee, with the endorsement of the International Coffee Organization and initial seed support from USAID, NORAD and BTC worked with leading institutions in several producing countries to adapt and develop the COSA methodology.

The data, material and opinions expressed are strictly those of the authors and do not imply any endorsement whatsoever on the part of the organizations participating.

Citation: Daniele Giovannucci and Jason Potts with B. Killian, C. Wunderlich, G. Soto, S. Schuller, F. Pinard, K. Schroeder, I. Vagneron. 2008. Seeking Sustainability: COSA Preliminary Analysis of Sustainability Initiatives in the Coffee Sector. Committee on Sustainability Assessment: Winnipeg, Canada.

Table of Contents

Acknowledgements

Scores of experts and scientists on a mostly volunteer basis have contributed to the COSA model originally drafted by Daniele Giovannucci, Jason Potts, Christopher Wunderlich, Gabriella Soto and Bernard Killian in 2005. The authors would like to explicitly thank the many stakeholders, experts and project partners who have provided their time and expertise for the methodological development phase of the COSA project. These include, but are in no way limited to, the members of the COSA Advisory Panel, the COSA Scientific Committee, and the Sustainable Coffee Partnership (see Tables below for members), and the members of the COSA Executive Committee (CATIE, CIMS, SECO, CIRAD and IISD). We would specifically like to thank Dr. Nestor Osorio, Executive Director of the International Coffee Organization, for his guidance and support in convening broad international, national and stakeholder participation in the project.

We want to recognize the more than 50 producers who agreed to participate in the COSA testing process. We also acknowledge the Federación Nacional de Cafeteros de Colombia, the Peru Federación Nacional de Café and the Junta National de Café de Peru for their guidance and support during the testing process. We would also like to thank Marjan van Herwijnen of the Institute for Environmental Studies at the University of Amsterdam, Dr. Laura Raynolds of Colorado State University, Dr. Matthew Cohen at University of Florida, Dr. Stefano Ponte of the Danish Institute for International Studies and INCAE's Lawrence Pratt. We have benefitted from the contributions of numerous international bodies, including: Social Accountability International (especially Judy Gearhart), the International Labour Organization (especially Ann Herbert) and the International Social and Environmental Accreditation Alliance (Sasha Courville and Patrick Mallet). We would also like to give a special thanks to the staff of the voluntary standards bodies for their detailed comments and input into the methodological development of the COSA Questionnaire.

Finally, we wish to thank the team of donors who have helped make COSA a reality, including the United States Agency for International Development, the Norwegian Agency for Development Cooperation, the Belgian Agency for Technical Cooperation and the Swiss State Secretariat for Economic Affairs.

The initial members of the Advisory Panel are listed below.

Members of the COSA Advisory Panel

CABI Bioscience	Peter Baker
Common Code for the Coffee Community	Carsten Schmitz
Coffee Quality Institute	Ted Lingle
Colombian National Federation Coffee Growers	Gabriel Silva
Columbia University	Pedro Sanchez
Cornell University	David Pimentel
East Africa Fine Coffees Association	Leslie Omari
ECOM	Teddy Esteve/Eric Poncon
Embrapa (Brazil)	Gabriel Bartolo
Ethiopia Coffee Tea and Spice Development Dept.	Yehasab Aschale
European Coffee Federation	Roel Vassen
European Commission	Enzo Barattini
Food and Agriculture Organization	David Hallam
Fairtrade Labelling Organizations International	Kimberly Easson
Green Mountain Coffee	Rick Peyser
Guatemala Anacafe & Fedecocagua	Gerardo De Leon
International Coffee Organization	Nestor Osorio* chairperson
International Development Bank	Robert Kaplan
International Federation of Organic Agriculture Movements	Bo Van Elzakker
Coffee Board of India	G V Krishna Rau

Inter-African Coffee Organization	Josefa Sacko
International Social and Environmental Accreditation Alliance	Sasha Courville
Junta Nacional de Café Peru	Lorenzo Castillo
Kraft Foods	Vacant (formerly Annemieke Wijn)
Amecafe, Mexico	Rodofo Trampe
National Coffee Association USA	Robert Nelson
Nestle	Hans Joehr
OXFAM	Constantino Casasbuenas and Seth Petchers
Papua New Guinea Delegate and SCAE	Mick Wheeler
Rainforest Alliance	Chris Wille
Sara Lee International	Stefanie Miltenburg
Specialty Coffee Association of America	Ric Rhinehart and Mark Inman
SNV (Holland/Ecuador)	Christian Marlin
Starbucks Coffee Company	Sue Mecklenberg
Sustainable Agriculture Initiative (SAI) Platform	Emeline Fellus
United Nations Conference on Trade and Development	Olle Ostensson
United States Agency for International Development	Chris Kosnick
Utz Certified	Vacant (formerly David Rosenberg)

* Members serve as voluntary advisors. Their participation does not imply endorsement of the findings.

Members of the COSA Scientific Committee

Lawrence Busch
Alain De Janvry
Jeremy Haggar
Steven Jaffee
SietzeValeema

COSA Director of Research

Daniele Giovannucci

Members of the Sustainable Coffee Partnership

Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)
Common Code for the Coffee Community Initiative (CCCC)
Commission for Environmental Cooperation (CEC)
East African Fine Coffee Association
EMBRAPA (Brazil)
European Coffee Federation
FEDECOCAGUA/ANACAFE (Guatemala)
Federación Nacional de Cafeteros de Colombia (FNC)
Inter African Coffee Association
International Coffee Organization (ICO)
Junta Nacional de Café de Peru (JNC)
Karnataka Growers Federation (India)
OXFAM/Global Alliance on Coffee and Commodities (GLACC)

Sustainable Agriculture Initiative Platform
Sustainable Agriculture Network (SAN)
Specialty Coffee Association of America (SCAA)
State Secretariat for Economic Affairs, Switzerland (Observer)
Technoserve
United Nations Conference on Trade and Development (UNCTAD)

Program Manager

Jason Potts

Executive Summary

The growing economic value and consumer popularity of sustainability standards inevitably raise questions about the extent to which their structure and dynamics actually address many environmental, economic and public welfare issues. The COSA (Committee on Sustainability Assessment) project emerged from the concerns of many industry practitioners and the two dozen institutions collectively organized as the Sustainable Coffee Partnership (see Acknowledgements) about the lack of knowledge and dearth of sound scientific inquiry on what actually happens in the process of adopting sustainability initiatives.[1] The committee set out to develop a scientifically-credible framework with which to examine and measure the various types of costs and benefits associated with different sustainability approaches. The COSA method is an innovative farm management tool because it incorporates not only economic methods, but also environmental and social metrics to offer a multi-faceted view of sustainability that reflects the intentions and results of the 2002 World Summit on Sustainable Development.

The basic COSA approach consists of a data gathering and analysis process so that farmers and other stakeholders can more effectively assess and predict what sort of social, economic and environmental outcomes they may have by implementing different sustainability initiatives. This report covers the initial pilot phase of the COSA project: a process of vetting and testing to prepare the COSA methodology for wider application. Although the primary objective of the testing phase is to identify improvements for making the methodology more suited to diverse producer applications, the opportunity was also taken to compile and analyze the data to demonstrate the analytic capacity and relevance of this work.

During testing, the COSA questionnaire was reviewed by the Scientific Committee and external stakeholders prior to being applied in five countries (Kenya, Peru, Costa Rica, Honduras and Nicaragua) across more than 50 farms that represented the most widely-known sustainability initiatives, including Fair Trade, Organic, Utz Certified and Rainforest Alliance. This was followed by several review workshops and basic data compilation and analysis.

Data gathered during the testing process do provide a reflection of the actual experience of the specific farms tested and, as such, can provide pointers for a deeper understanding of the functioning of sustainability initiatives in the field. Nevertheless, given the inherent challenge of extracting statistically significant results, the expectation of doing so in the COSA testing process would be unreasonable given the small sample. As such, the data presented by this report must be considered nothing more than observations and NOT firm conclusions or generalizations.

Based on our observations:

1. Farm performance along social, economic and environmental indicators is highly variable. This appears to confirm that the effectiveness of sustainability initiatives is heavily influenced by local conditions in terms of the manner in which they are implemented and enforced. In some cases they may be a boon and in others a bane.
2. Certified farms observed in the testing process generally appear to be better off economically (assessed by net income) than their conventional counterparts, but the gap can be narrow.
3. With respect to many of the environmental parameters measured (such as biodiversity and shade coverage), there is little evidence that certification had a significant effect on the environment over the first two years of certification—possibly due to the lag time between implementation of practices and environmental impact (e.g., planting of shade trees or creating erosion barriers).
4. With respect to social parameters, certified farms appear to have distinctly better occupational health and safety, employee relations and labour rights performance.

More specifically, some of the key observations arising from the testing process are:

1. A majority (60 per cent) of certified farms reported an improved overall economic situation due to certification and generally superior net incomes as compared with conventional farms, and this despite the fact that a majority (62 per cent) of certified farms reported reduced yields.

1 COSA the project and COSA the committee are often used interchangeably.

2. Though certified farms on the whole had superior pollution management systems as compared to conventional farms, only minimal differences in biodiversity and soil health could be detected.
3. A slight majority (54 per cent) of certified farms reported improved market access due to certification.
4. Four times as many certified farms had occupational health and safety policies as non-certified farms; twice as many certified farms had a basic health and safety feature: first-aid kits.
5. Certified farms used written employment contracts twice as often as conventional farms.
6. Aggregate producer satisfaction of certified farms was marginally higher following certification; however, more than 75 per cent of certified farms noted somewhat improved or significantly improved conditions following certification, while 90 per cent of certified farms noted they were either "likely" or "very likely" to continue in the certification program.

Notwithstanding these general observations, the principal purpose of the testing process was to identify the viability of the draft COSA methodology (indicators, questionnaire, field application and processing). A number of methodological issues were identified and are being addressed, including the creation of an even simpler COSA tool that can be more readily employed by producers for their farm or co-op management. Overall, the questionnaire was well received by farmers who consistently confirmed the need for information on the effects of sustainability initiatives.

1. Introduction

The COSA (Committee on Sustainability Assessment) project addresses important concerns of consumers, farmers, the agri-food industry and dozens of institutions. Its primary purpose is to improve the understanding of what actually happens in the process of adopting sustainability initiatives. Given the lack of sound or reliable scientific information, the committee set out to develop a scientifically-credible framework with which to examine and measure the various types of costs and benefits surrounding the different sustainability approaches. Beyond its primary partnership with research institutions in coffee-consuming and producing countries, COSA has integrated the inputs of producer groups, intergovernmental agencies, private sector firms, academicians, industry experts and several of the sustainability initiatives themselves in developing its methodology.

On the one hand, COSA offers a uniquely detailed perspective into the costs and benefits of adopting sustainability systems on the ground—paying explicit attention not only to direct costs and benefits, but also to indirect costs and benefits such as those associated with learning, organizational changes, health and well-being, and market access. On the other hand, COSA goes well beyond a traditional "cost-benefit" analysis by including measures not only along economic parameters, but also along social and environmental parameters, thereby allowing for truly "integrated" analysis.

Finally, COSA is founded on recognition of the fact that diverse perspectives on what constitutes sustainable development not only exist, but are actually inherent to the definition of sustainable development. With this in mind, the COSA methodology applies a multi-criteria analysis approach that provides for maximum flexibility in the use and compilation of the field data gathered under the process. The COSA project offers a program not only for building knowledge and understanding of the effects of sustainability standards, but also for developing management capacity around the adoption of such standards and their associated practices. In this light, even over the course of the testing process, COSA has been exploring mechanisms for enabling the integration of its indicators and measures within national technical assistance and decision-making processes.[2]

1.1 The growth of a new model for sustainable trade

Increasing public concern for the quality, safety and methods of agri-food production have combined with increasingly globalized commodity chains to result in a greater demand for goods produced according to private standards (Busch *et al.*, 2007; Jaffee & Henson, 2006; Reardon *et al.*, 2001). Among these are standards branded on their ability to promote sustainable development such as Organic, Fair Trade, Rainforest Alliance, etc. Virtually all of the major sustainability standards embody some combination of environmental, economic and social goals, though the degree to which they endeavour to achieve each of these sustainability objectives varies considerably.

Sustainability in commodities production and trade is influenced by varied factors including both public and private choices. At the public level, regulation and policy on environment, agriculture, trade, tax, investment, energy and climate change bear core relevance. At the private level, decisions about quality and safety standards, globalized supply chains, cost-driven procurement and differentiation all have profound impacts on sustainability in agri-food production and trade. While these approaches may operate with different assumptions and objectives, any discussion of sustainability in commodities in recent years has revolved around the issues of standards (Raynolds *et al.*, 2007; Giovannucci & Ponte, 2005). Beginning with Organic and Fair Trade standards and increasingly encompassing perspectives of trade associations and private firms, these standards have evolved beyond niche markets into mainstream distribution channels that are accessible to many consumers (Daviron & Ponte, 2006; Lewin, Giovannucci & Varangis, 2004).

As such, products certified to the most popular sustainable standards have begun to capture not only significant market share, but also significantly greater value than comparable agri-food commodities (Liu (ed.), 2008; Potts, Wunderlich & Fernandez, 2007). Coffee is not only one of the world's most important traded

2 For example, with Embrapa in Brazil, the FNC in Colombia, the Junta Nacional de Café in Peru and the Coffee Board in Tanzania.

commodities, it is also the leader in both market share and sustainability experience (the first certified coffee was traded in 1967). Though in most countries the joint market share of certified coffees is still modest, it has grown at a much faster pace than any other segment of the coffee industry (Giovannucci, Byers & Liu, 2008). In the Netherlands, certified coffees now account for nearly 30 per cent of the market (Coffee Coalition, 2006). In 2006, certified coffees reached eight per cent of the U.S. coffee market which is the world's biggest (Giovannucci & Villalobos, 2007), and are expected to have topped 10 per cent in 2007.

Beyond their economic value and consumer popularity, the structure and dynamics of sustainability standards attempt to address many environmental and public welfare issues using private sector methods and channels (Bacon *et al*., 2007; Utting, 2005; Giovannucci & Ponte, 2005). As such, even some distinctly private standards can take on a certain public character in their application and reach. In fact, two have been developed by coffee market leaders Starbucks (C.A.F.E. Practices®) and Nestle (Nespresso AAA Sustainable Quality Program®). This has given rise to new prospects for the promotion of sustainable production and even some new and more transparent trading practices in supply chains (Potts, Wunderlich & Fernandez, 2007). Yet it is not at all certain whether or to what extent standards are achieving the basic objectives of sustainable development as defined by the WSSD process or, for that matter, the objectives identified by the individual standards bodies themselves.

On the small-scale basis of their genesis, sustainability standards may well have been mostly positive in terms of their impacts. As one standard after another develops,[3] however, it becomes difficult to discern their relative merits and actual value. As they grow rapidly into new billion-dollar segments and scale up to meet the demands of mainstream market channels, understanding their actual effects becomes more important. This is particularly true for producers who are faced with this growing array of choices without the necessary understanding or data to make informed choices. The rapid evolution of such production standards in recent years makes it hardly surprising that even policy-makers and businesspeople alike are increasingly perplexed as to the actual contributions of the various sustainability initiatives to long-term sustainable development.

To date, there has been considerable rhetoric, both pro and con, and yet there is actually very little detailed information about the impacts of sustainability standards. For example, we do not even know answers to the most basic questions such as what are the producers' costs and benefits of compliance with any given sustainability initiative. Similarly, there is very little data on what the time scale of returns to investment is for producers involved in such initiatives. Where information is available, it is usually partial, often partisan and rarely based on a comparable science-based methodologies. Moreover, there are few efforts to apply any rigorous measures and to assess larger trends in the marketplace. An apt analogy may be that we have designed a class of medicines but are not really certain of their full impact or to what extent they may have unintended side-effects.

As a result, farmers—as well as consumers, policy-makers and companies—lack objective information on what it really means to become compliant with social, economic and environmental sustainability initiatives. In the coffee sector alone, about 20 million of the world's rural poor depend upon its production for their livelihoods. Many millions more work in other commodities such as cotton, sugar, cacao, grains, etc. where similar standards are being either requested or required by buyers in the market—making the need for improved information on field level impacts increasingly urgent.

Recognizing this need, the Sustainable Coffee Partnership,[4] under its "Committee on Sustainability Assessment" (COSA), launched the Cost Benefit Analysis of Sustainable Practices in Coffee. The COSA project seeks to generate science-based information on the social, economic and environmental effects of sustainability initiatives operative in commodity production—beginning with tool development and implementation in the coffee sector. Although COSA is designed to be able to provide measures of the sustainability outcomes of any systemic farm intervention, including more locally developed standards systems, the initial focus of the coffee program is on the major "recognized" sustainability standards: Organic, Fair Trade, Rainforest Alliance, Utz Certified, Starbucks C.A.F.E. Practices and the Common Code for the Coffee Community.

---

3 Currently, at least nine standards with sustainability objectives apply in the coffee sector (Organic, Fair Trade, Rainforest Alliance, Utz Certified, Biodynamic, Smithsonian Migratory Bird Center, Nespresso AAA, Starbucks C.A.F.E. Practices, and 4C).

4 The Sustainable Coffee Partnership is an international multi-stakeholder platform for co-operation in the promotion of global sustainability in the coffee sector (See Annex 1 for members). The SCP is facilitated by IISD and UNCTAD under the Sustainable Commodity Initiative.

Appreciating that sustainability is broad and multi-faceted, COSA does not expect to have the only answer or the perfect answer. It does however believe that it is important to make a start in such measurements for producers and policy-makers to understand the realities of sustainability initiatives.

COSA is intended to be primarily a didactic or farm management tool for use by farmers and their organizations. The data sets and the analytical options will inevitably also make COSA useful for policy-makers, NGOs, firms and the sustainability initiatives themselves in order to better understand what works and what doesn't work under different circumstances.

1.2 A brief history of sustainability initiatives in the coffee sector

Coffee is one of the world's most widely traded agricultural commodities and is produced by 60 developing nations. Most of the 20 million or so producers are very small farmers and subject to the cyclical difficulties of commodity production. Even larger farms are typically dependent upon highly vulnerable seasonal effects and migrant labour.

With its relative high value to volume ratio and durability as a crop that can be readily transported or even stored, coffee has become a cash crop of choice wherever it can be grown. Coffee is also somewhat unique in that it can be grown as part of a multi-functional ecosystem and within existing forest areas. For smallholders and the remote rural poor, different factors combine to make coffee extraordinarily valuable—perhaps the most valuable cash crop in the developing world. Thus, because of its considerable importance in both producer and consumer nations, coffee has become an ideal crop around which various market-oriented sustainability approaches have been first tested and developed.

One of the earliest attempts to introduce sustainability to commodity trade was the Fair Trade movement. The organized concept of Fair Trade began in the mid-1950s in Europe and entered its current phase in 1988 when it began a new level of expansion and invited mainstream importers, roasters and retailers to participate through the creation of a product-based labelling system (Potts, 2002; Giovannucci & Koekoek, 2003). Fair Trade is an approach to trade that aims to improve market access and continuity for small producers, strengthen their organizations and pay them a fair price by requiring producers and traders to comply with specific production and trading criteria. Since 1997, national Fair Trade organizations—now numbering 20—have been cooperating under the banner of Fairtrade Labelling Organizations International (FLO).

At the end of 2006, 569 certified producer organizations with over 1.4 million members and workers worldwide participated directly in Fair Trade commerce. That commerce is currently valued at more than US$2.3 billion (FLO, 2007).Today, FLO Fair Trade standards exist for food products such as tea, coffee, cocoa, honey, juices, wine grapes, fresh fruit and vegetables, dried fruits, nuts and spices, and non-food products such as flowers and plants, sports balls and cotton.

> "(*Some reports on Fair Trade) are so superficially researched that they either only paint a very small part of the picture, or are plainly erroneous*." – Luuk Zonneveld, Managing Director FLO (FLO 2007).

The growth of organic production systems dates back to the first half of the 20th century with systemic guidelines and formulations for "sustainable" production already published in Europe, the U.S., and South Asia by that time (Giovannucci, 2006). The first *trade* of a third-party-certified organic product happened to be coffee from Mexico in 1967 (Giovannucci & Koekoek, 2003). Worldwide, nearly 130 countries produce certified organic products in commercial quantities, including more than 90 developing countries. The global value is expected to top US$40 million in 2007. Like other organic offerings, organic coffee remained a limited niche product until the late 1990s when the combination of growing health and environmental concerns led to rapid growth (around 20 per cent per annum) within the sector. It is the most widely exported of the certified coffees, shipping from 30 countries. In 2006, this amounted to about 148 million pounds (Giovannucci, Byers & Liu, 2008).

Organic products are produced with methods intended to preserve and improve the soil, without the use of synthetic chemicals. As such organic agriculture has traditionally been a systemic approach that aims to balance and optimize agriculture within a larger eco-system that includes productive or economic functions (IFOAM). In most major markets such as the EU, Japan and the U.S., labelled organic products must meet defined legal standards and the producer and processors must be certified by third-party certification bodies.

The Rainforest Alliance and Smithsonian Migratory Bird Center emerged as certifiers of specific social and environmental criteria in the 1990s. The Smithsonian certifies the maintenance of ecologically-sound habi-

tat and requires compliance with organic principles. While relevant, from a market standpoint it retains a very modest niche. The Rainforest Alliance integrates both biodiversity conservation and social development in its standards and it certifies fruits, cocoa, coffee, forest products (nuts, hearts of palm, vanilla), flowers and ferns, rubber and tea. At the end of 2007, it had certified about 17,000 farms, and coffee certified by the Rainforest Alliance was exported from 13 countries

Among the most popular recent sustainability codes or certifications are Utz Certified, the Common Code for the Coffee Community (4C), Nespresso AAA and Starbucks C.A.F.E. Practices.

Utz Certified sets basic social and environmental criteria encouraging good agricultural and management practices that are embodied in the Global Gap code for coffee with additional social components. In 2007, Utz certified thousands of farmers in 18 exporting countries. They have begun certifying cocoa and are exploring other crops such as tea, palm oil, soy, cotton, sugar and biofuels.

The 4C builds on basic good agricultural and management practices. Its code of conduct intends to eliminate the most unacceptable practices and encourage ongoing improvement. The 4C distinguishes itself from organic, Fair Trade and related labelling systems by relying on "verification" rather than "certification" of standards compliance. Verification entails an internal monitoring system incorporated within the initiative's corporate business model rather than relying on external verifiers and/or third party guarantees. Verification of compliance under the 4Cs is now performed in nearly a dozen producing countries with the first independently verified crops emerging in late 2007. The 4C hopes to achieve a baseline benchmark for coffee production across mainstream industry.

Starbucks's own private standard, termed Coffee and Farmer Equity (C.A.F.E.) Practices, sets basic social and environmental criteria for several thousand certified farmers and co-operatives in more than two dozen countries. Their standard includes quality parameters and has been one of the fastest growing. In 2006, Starbucks imported approximately 155 million pounds of certified coffee. Nespresso has a similar approach for its private AAA standard and also focuses on quality. Like 4Cs, it is not a certification system but seeks to verify farm practices. It is operating in six countries and imported over 13 million pounds in 2006.

1.3 The economic and policy rationale for voluntary standards

Standards-based sustainability initiatives are fundamentally instruments for monitoring and communicating the sustainability of products based on the production and processing methods applied along the supply chain. Where products are identified as complying with specific sustainability criteria, they provide a direct instrument for enabling the market to value them. To the extent that the market actually does place additional value on "sustainable products" as compared with "conventional products," standards can be said to play an explicit role in internalizing the social and environmental costs of production—itself a core principle of sustainable development.[5]

But the role of standards in promoting sustainable development extends beyond the mere promotion of "good practice"—indeed, the very fact that standards produce additional information about market activity that is relevant to economic decision-makers (e.g., information about production practices)—means that standards have the potential to improve overall social welfare by enabling more informed decision-making (e.g., more efficient markets).

By providing such information, standards have the potential to reduce or eliminate the presence of some market externalities by more accurately matching individual preferences in the marketplace.[6] To the extent

5 See, for example, "Principle of Efficiency and Cost Internalization" of the Winnipeg Principles (IISD (1994)). Note that the ability of standards to generate premiums is closely related to the degree to which they operate as niche or mainstream markets. See Jason Potts (2007a).

6 An externality generally refers to specific cases where one economic actor's activities have uncompensated effects on another actor's welfare. The presence of externalities can lead economic actors to act without full information on the costs or benefits associated with any given economic decision and, as such, can lead free markets to a sub-optimal allocation of resources. Externalities allow social and environmental costs to be imposed upon society without corresponding compensation. J. E. Meade *The Theory of Externalities The control of Environmental Pollution and Similar Social Costs* (Sijthoff-Leiden 1973).

that negative externalities are a core cause of both market inefficiency and negative social and environmental outcomes, standards have the capacity to systemically improve overall social welfare and sustainable development through their communication and governance roles (Potts, 2002; Giovannucci & Ponte, 2005). Thus, while premiums for standards compliance are commonly cited as the most important economic achievements of such initiatives, the potential for premiums arguably pales in comparison to the more generic role of standards in improving transparency and information in the market (Potts, 2007a).

In addition to helping promote economic efficiency, voluntary standards can leverage market forces to reach policy objectives. Such market-based policy promotes static and dynamic efficiency in the market place and is thus more effective than traditional "command and control" policy.[7]

The ability of sustainability standards to play an effective role in cost internalization, market efficiency, or efficient policy implementation fundamentally depends upon the degree to which such systems operate as effective communications tools. The implementation, monitoring and communication infrastructure which has developed around sustainability standards and initiatives represents a significant advancement over conventional manufacturer and retailer driven "on package" and advertising-based communication channels. The use of multi-stakeholder-developed criteria, available for public scrutiny and verified through independent third-party auditing, although not always a feature of such standards, has been positively elaborated, promoted and applied by many of the sustainability standards systems.

Yet, the growing multiplicity of such initiatives, combined with a lack of independent oversight of their *actual impacts*, continues to represent a major information challenge for the sector as a whole. COSA, by establishing an independent and science-based reference point for the monitoring and analysis of the effects of diverse standards initiatives, provides a critical tool for them to achieve their full development potential.

7 Static efficiency refers to the efficient allocation of preferred practices among companies based on existing technologies. Dynamic efficiency refers to the efficient *development* of new technologies. Market-based measures promote both forms of efficiency by allowing companies to increase profits as they improve their compliance levels.

2. Methodology

To assess both the direct and the indirect costs and benefits of sustainability standards in all three areas requires an integrated "econo-enviro-social" tool. COSA, reflecting the multiplicity of views on sustainable development, has emerged from a multi-stakeholder dialogue facilitated by the Sustainable Coffee Partnership. COSA's appeal to an expert multi-stakeholder advisory panel and high-level scientific review committee, combined with the application of multi-criteria analysis, helps to preserve the objectivity and flexibility of the resulting methodology and tools.

2.1 The COSA approach

The basic COSA approach consists of the development and application of an internationally-recognized methodology and data gathering process so that farmers and other stakeholders can more effectively measure, and predict, the outcomes, including costs and benefits, of the adoption of one or more sustainability initiatives. In order to ensure both the relevance of the COSA methodology to the diverse conditions of producers around the world, as well as the overall objectivity and credibility of the work, the COSA process has initially focused on an intensive vetting and testing phase.

COSA does not aim to provide a subjective evaluation method *per se* but rather an objective and reasonably complete data gathering and analysis tool whereby others can assess the relative costs and benefits of sustainability based on their own specific value and sustainability frameworks. See Box 1.

Box 1. Building lasting infrastructure for data collection: COSA's dialogue with national partners and sustainability initiatives

While it is widely recognized that better data are needed on the sustainability impacts of agricultural activities, there has been no common basis or consistent methodology for gathering and managing such information.

COSA has placed significant emphasis on building partnerships with national networks and sustainability initiatives in order to establish the foundation for longer-term data gathering through *existing* systems. Established COSA partnerships already include:

- unanimous endorsement by the International Coffee Organization;
- agreement to apply COSA nationally in Colombia with the Federación Nacional de Cafeteros;
- agreement to apply COSA nationally in Peru with the Junta Nacional de Café;
- agreement to apply COSA nationally with TACRI in Tanzania;
- initiated dialogue with VICOFA (Vietnam), ICAFE (Costa Rica) and Embrapa (Brazil); and
- co-operation with several of the major sustainability initiatives in developing their own internal evaluation strategy.

Targeting: COSA serves not only producers and policy-makers, but also other key stakeholders.

- *For producers:* COSA offers relevant information on what they can expect the required financial and time investments to be. This process also identifies various benefits and therefore will enable more sound business choices and help producers to select and manage whichever sustainable practices they choose in a cost-effective manner.
- *For traders, manufacturers and retailers:* COSA provides realistic information for those that have an interest in maintaining the basis of long-term stability, quality and good farm management for their supply chain.

- *For policy-makers:* COSA offers clear and objective information on how different sustainable practices affect producers and their communities. They can then make better-informed decisions on what mix of policy instruments is more likely to have the desired outcome in specific rural regions and on specific types of producers.
- *For the standards bodies and NGOs:* COSA presents a credible way to better understand their effects under different conditions and therefore help ensure the desired impacts of their sustainability systems.

2.2 The COSA methodology

The "full" COSA methodology is built upon a process of annual field visits to farms located throughout the major growing regions to gather information based on a common set of measures/indicators. The basic parameters of the full methodology include:

- farm visits over a minimum of a three-year period to discern measurable changes over time resulting from the implementation of different initiatives;[8]
- indicator selection criteria using SMART (**S**pecific objectives, **M**easurable results, **A**chievable by participants, **R**ealistic given the resources, **T**ime-bound within the established framework) concepts;
- farm selection criteria ensuring balanced representation across:
  - the six major sustainability initiatives operative in the coffee sector (Organic, Fair Trade, 4Cs, Utz Certified, Rainforest Alliance and Starbucks C.A.F.E. Practices);
  - major coffee growing regions (Africa, Asia and Latin America);[9]
  - small and large farms (based on national norms);
  - distinct agro-ecological zones (rainfall, altitude, etc.);
  - coffee types (Robusta, Arabica etc.); and
  - different production systems (traditional shade, intensive sun, etc.).

After being checked for general consistency and accuracy, the data collected will be subject to the following forms of analysis:

- description of statistical trends;
- application of Analysis of Variance (ANOVA) to assess statistical relevance (See Figure 4.6); and
- multi-criteria analysis in order to provide basic "outcomes" along core sustainability criteria (see Box 2).

In addition, COSA envisions the future global availability of comparably-defined data so that producers and policy-makers can better determine how they compare with producers operating in different regions or applying similar or different standards.

Although the COSA process is designed for integration within national extension and planning infrastructures, data collected under the guidance of COSA can also be made available on the Web for access and treatment by interested stakeholders, policy-makers and researchers.

COSA has been designed to provide primary, functional data on the outcomes of sustainability initiatives, and although many stakeholders may be interested to rank different sustainability initiatives, the core COSA methodology is not designed to provide such rankings. The COSA approach is fundamentally built to allow multi-criteria analysis in recognition that while basic principles must underlie all sustainability analysis, needs and perspectives vary (for example, some may be interested primarily in worker health and safety while others may wish to apply specific analytic methods such as Ecological Footprinting or Lifecycle Analysis).

---

8 The intention is that eventually COSA can serve as a tool for integration within national extension and support systems.

9 Priority countries for the initial implementation of the COSA process include: Brazil, Colombia, Mexico, Ethiopia, Indonesia, India, Tanzania, Guatemala, Nicaragua, Uganda, Peru and Costa Rica.

Box 2 A tool for building informed decision-making

Multi-criteria analysis provides a structured approach to the management and analysis of distinct variables that contribute to a common decision-making process.[a] The key attribute of multi-criteria analysis is the simultaneous measurement of distinct variables without the attempt to translate individual variables into a single common unit.

This key feature of multi-criteria analysis distinguishes it from other analytic tools (such as cost benefit analysis and ecological footprinting). This helps ensure the integrity of measured variables by avoiding heavily subjective weightings, while allowing users of the analysis the freedom to apply their own weighting and evaluation system to the data. Multi-criteria analysis does require some interpretation and weighting in the identification and constitution of the key variables for measurement. In order to ensure that the multi-criteria analysis draws from common understandings, the COSA process has invested heavily in ensuring ongoing stakeholder and scientific input into the variable identification and testing.

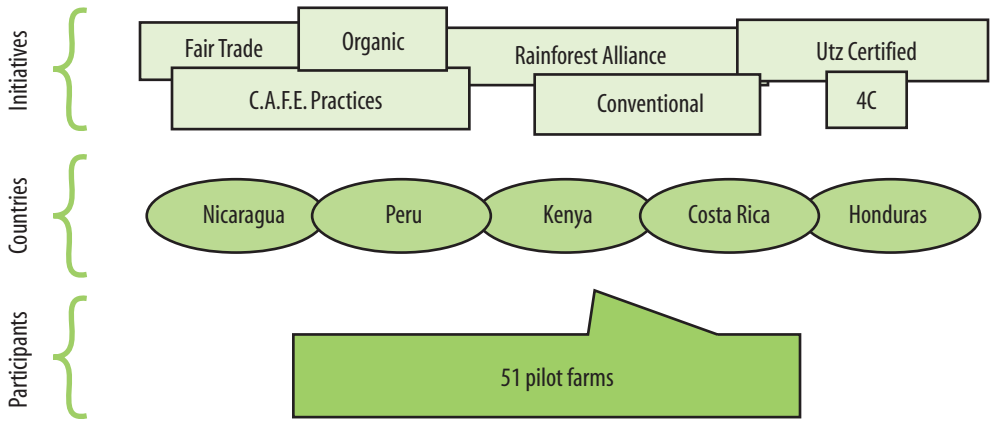
[a] Building on the work of Morris Hill (Goals Achievement Matrix-GAM) and Nathaniel Lichfield (Planned Balance Sheet-PBS). See Sager (2003)

2.3 Testing the indicators and data collection process

This report documents the results of the first phase of the COSA project—namely the initial development and testing of the COSA questionnaire and indicators. In testing the COSA questionnaire, the following activities were undertaken:

- review of the draft indicator set by the Scientific Review Committee and external stakeholders;
- application of the COSA draft questionnaire in five countries (Kenya, Peru, Costa Rica, Honduras and Nicaragua) on farms using the most widely-known sustainability initiatives including Fair Trade, Organic, Utz Certified and Rainforest Alliance;
- producer feedback workshop (Peru);
- several review workshops facilitated by the international COSA Executive Committee; and
- data compilation and analysis.

Figure 2.1: Key variables in the COSA testing process



Although the primary objective of the testing phase was to identify improvements for making the methodology more suited to diverse producer contexts, data were also collected in this phase in order to provide an initial snapshot of the conditions found on farms throughout the certification process. The remainder of this report presents the results of the data collected during the testing phase.

Limited availability of certain certifications in some countries did not permit an even distribution of farms for each individual certification. Farm sizes ranged from 2 to 124 hectares for each initiative. This range met COSA's intent to have a representative sampling of farm sizes; however, the range used to sample during the testing phase should not be taken to be representative of the average farm sizes associated with the specific certification initiatives.

3. Field testing results

As noted above, the principal objective of the COSA Field Testing phase was to test the viability and relevance of the COSA Questionnaire and data measurement process. In order to understand these issues, the COSA Questionnaire was applied with four of the most commonly applied sustainability initiatives across five countries. As a corollary to this testing process, actual farm data were gathered and are reported in section 3.2 below. To aid better understanding of the data, the following briefly summarizes the principal methodological observations noted during the testing phase.

3.1 Methodological observations

Farm level reporting, in most cases, simply does not exist in coffee producing countries. Moreover, where data do exist they usually do not cover the spectrum of indicators which constitute "sustainability" as defined by commonly recognized sustainability initiatives. The persistence of this information gap has left producers and policy-makers in the unenviable position of being faced with a growing range of "sustainability options" with very little in the way of hard data to help guide them in the increasingly complex decision-making process. In short, the task of "choosing to be sustainable" has, itself, become increasingly unsustainable.

Table 1: Summary of methodological observations gathered during the testing process

Issue	Specific Challenge	COSA Response
1. Farm Selection	i. Significant challenges were found in locating farms that had: 1. recently adopted a sustainability initiative; and 2. were *only* involved in a single initiative so as to minimize any attribution gap.	Credible attribution requires disaggregating outcomes on an initiative by initiative basis, and having a statistically significant sample size. The COSA team has begun exploring methods for extracting initiative specific results from multiple certified farms.
	ii. Based on the reduced availability of single initiative farms, it was difficult to identify farms with the geographic diversity and representativeness that was sought.	Same as above.
	iii. Some farms were unwilling to participate due to a concern about releasing commercial information	COSA continues to strengthen its fundamental premise of full participation and collaboration with locally-established institutions that farmers already work with and trust.
2. Data Gathering	i. Considerable variation in the nature and meaning of local measurement units not only between countries but even *within* countries needs to be addressed by the COSA team *before* beginning field tests in a given country.	Based on an initial overview of the country's geographic, political and "measurement" context, COSA has integrated an initial multi-farm "test" as the first step in applying COSA in any given country. This test will adapt specific elements of the questionnaire to the local context.
	ii. Economic data were particularly difficult and time consuming to gather. The results of the economic data were compromised by a lack of robust record keeping by farm owners.	COSA will develop a simple farmer "economic log" for farmers to use on an ongoing basis. This will improve COSA data and be a simple way for producers to improve their farm management.
3. Questionnaire Format	i. The questionnaire is too long—largely, due to time spent on gathering economic data, but also due to initial confusion on who needs to be asked which questions. Repeated areas of questioning leads to greater time requirements.	In addition to streamlining the gathering of economic data, COSA is breaking the questionnaire down into separate questionnaires for each "target audience." Related data gathering processes have been consolidated in the questionnaire.

The COSA field questionnaire is designed to provide a basis for gathering data based on internationally recognized definitions of sustainable development within the sector in a format that allows for comparison of results across regions, enabling producers in one region to benefit from the experience and observations of producers across their region and in other regions. In order for COSA to serve this basic purpose, the COSA questionnaire needs to be sufficiently easy and efficient that field researchers, producers or extensionists can apply it across a substantial number of farms with limited resources and training. It was largely within this optic that members of the COSA Executive Committee accompanied field auditors in the "testing" of the questionnaire.

Importantly, there was a general consensus among all of the farms visited that the information being gathered and the general objective of COSA were not only relevant, but critical to improving the decision-making of producers. Notwithstanding this broad support for the approach, a number of challenges were identified. Table 1 summarizes the main challenges as well as the initial responses from the COSA team.

3.2 Data results and analysis

The COSA draft questionnaire was tested on approximately 10 farms per country with approximately 20 per cent of the sample consisting of conventional farms as a control. Due to the small sample size, the observations recorded through the testing process can only be considered as "tentative indications" and *do not bear any statistical relevance whatsoever*.

It cannot be emphasized enough that the pilot phase was designed only to test the methodology under diverse conditions and situations and not to provide any data on the individual initiatives. As such, *none of the outcomes should be interpreted as accurate or representative of the average reality of any region or certification*. The data gathered over the course of the testing process can only be considered accurate at the level of the individual farm itself and nothing more. In order to avoid the drawing of inappropriate conclusions regarding specific certification systems, below we report the results across the four systems analyzed in terms of systems A through D without specifically naming the system being measured. Notwithstanding the obvious limitations of this approach, the results demonstrate the kinds of data and analysis that can result from the COSA process under a full implementation process.

3.2.1 Economic outcomes

Economic sustainability, as the prerequisite for continued productive activity, forms the practical foundation of any approach to sustainable development. However, in the coffee sector, as in other agricultural production systems, economic sustainability is not merely about maintaining productive activity—but rather about directly maintaining the livelihoods, environment and social needs of rural communities who often have little opportunity for other sources of revenue generation. The direct link between coffee production and survival at the household and community levels gives the economic component of sustainability a special primacy in the assessment of the costs and benefits of sustainability initiatives operative in the coffee sector.

COSA measures economic sustainability along the following broad parameters:

- income;
- production, processing and marketing costs;
- access to credit;
- farm management;
- quality levels;
- market access; and
- profitability.

Farm income

The testing process measured farm income parameters and the basic results of this analysis are described in Figure 3.1 where the average gross revenue on certified farms varied from US$1,800 to US$2,343 per hectare. The range of individual farm gross income ranged from US$62 to more than US$4,000 per hectare.

Although the cost of production correlates to revenue (e.g., those farms with higher levels of revenue also have higher production costs), the overall variance in the cost of production tended to be *less* than the variance in gross revenue. As such, the certifications with lower costs are not necessarily those with higher incomes. Even though C farms had higher production costs than E farms, C farms still had average net revenue of approximately US$757 per hectare, while those of E farms had an average net revenue of approximately only US$528 per hectare. These results must be considered cautiously however in light of not only the small sample size, but also the high level of variation in other factors such as average farm size.[10]

Figure 3.1: Average gross revenue and cost of production

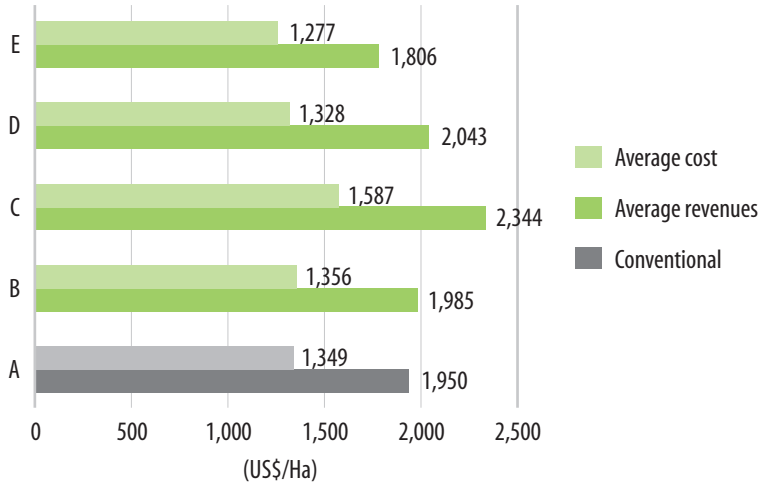
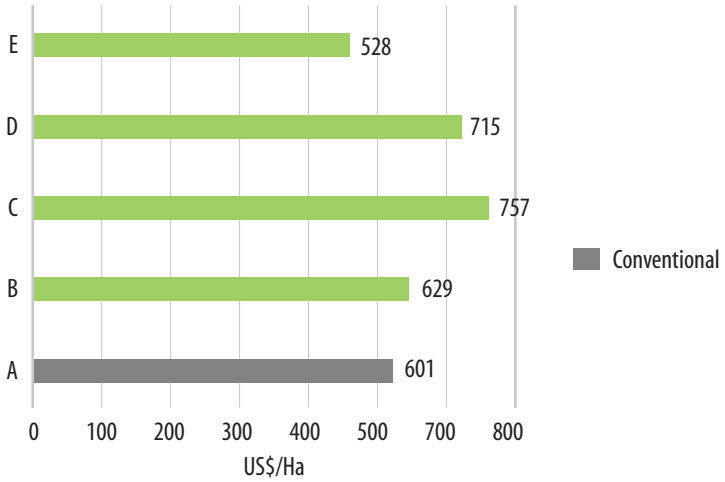


Figure 3.2: Average net income in coffee farms according different certifications



While our pilot studies are not necessarily indicative of systemic trends regarding the economic profitability of one certification system over another, a general trend of superior net income for certified farms over conventional farms is apparent. Although the cost of production associated with most of the certified farms visited were somewhat higher than conventional production costs, they nevertheless displayed generally higher net incomes.

10 As a general rule, larger farms can be expected to have lower per unit costs. In a separate analysis conducted by the Sustainable Coffee Partnership, the per unit cost for reaching compliance was observed to vary inversely with farm size. In that study, a 0.35 hectare farm in Uganda was found to have compliance costs approximately 35 times that of a 10 hectare farm in Brazil (Potts & Opitz, 2008).

C farms, for example, averaged 14 per cent higher costs than conventional farms but also averaged 40 per cent higher gross revenues giving a result of overall improved net income (26 per cent). Figure 3-2 provides the average net income on a certification by certification basis.

Variations in all of the core economic measures (e.g., cost of production, gross revenue and net income) are observed not only across the different certification initiatives but also *within* each certification initiative. Figures 3.3 and 3.4 show the variation in core economic criteria for certification schemes D and E respectively on a county-by-country basis. The fact that such a high level of variance is observed within a given system suggests the strong influence of geographic and country-specific production conditions in determining overall farm sustainability. The specific case of the Nicaraguan E farms, whereby average net income for the certified farms is actually lower than for conventional farms indicates that the cost of transition to sustainable practices can indeed exceed returns—at least in the early stages—on a consistent basis. Overall, the variation observed across countries suggests the value in having a deeper understanding of the local effects and performance of different systems in order to facilitate effective decision-making.

Figure 3.3: Economic aspects of D-certified farms in different countries

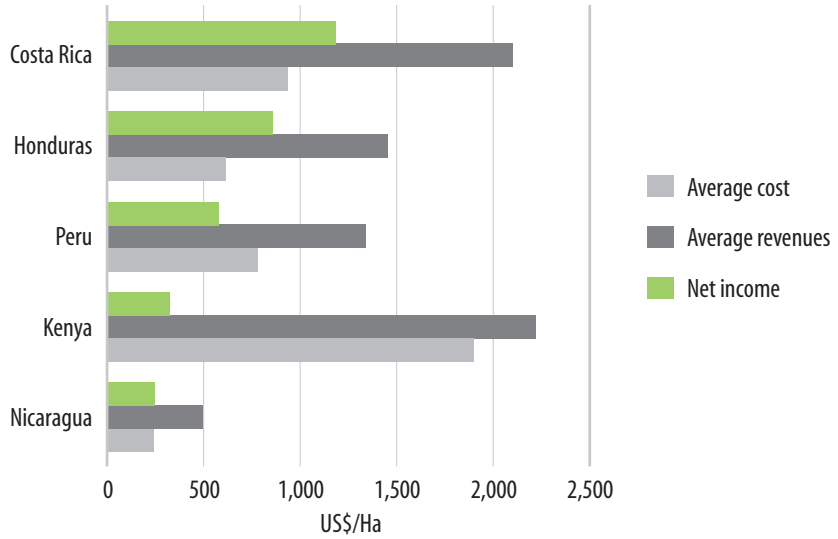
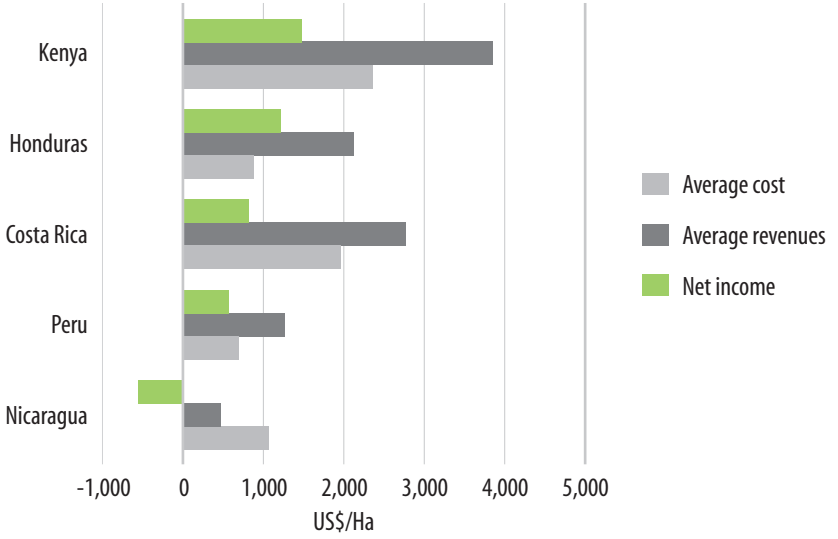


Figure 3.4: Economic aspects of E-certified farms in different countries

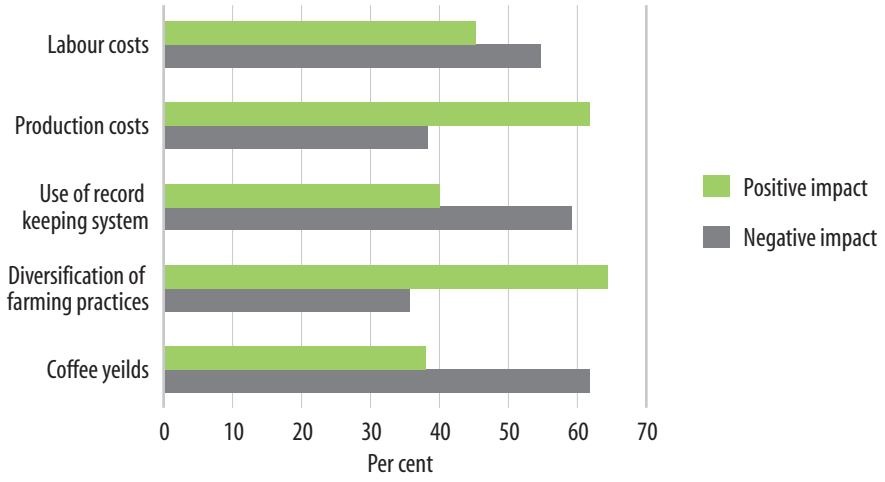


Indirect economic outcomes

While measures on net income provide key indicators of the well being and sustainability of a farm, effective decision-making demands a more complete understanding of the precise sources of changes in net income. Through a series of detailed indicators on the nature of costs, COSA has the potential to identify specific cost and revenue trends underlying the higher-level economic trends.

Figure 3.5 provides an indication of the different ways in which the adoption of "sustainability systems" can influence different economic parameters of the farm. Over the full sample of certified farms, 55 per cent of those surveyed found their labour costs were increased through participation in a sustainability initiative. A larger proportion (62 per cent), however, found that their overall production costs were reduced. Nearly two thirds of the respondents (64 per cent) noted that diversification of their farming practices (recommended by some sustainability practices) had a positive economic outcome. Nevertheless, more than 60 per cent of the respondents reported decreased coffee yields as a result of participation in a recognized sustainability system.

Figure 3.5: Other economic outcomes of undertaking sustainability initiatives



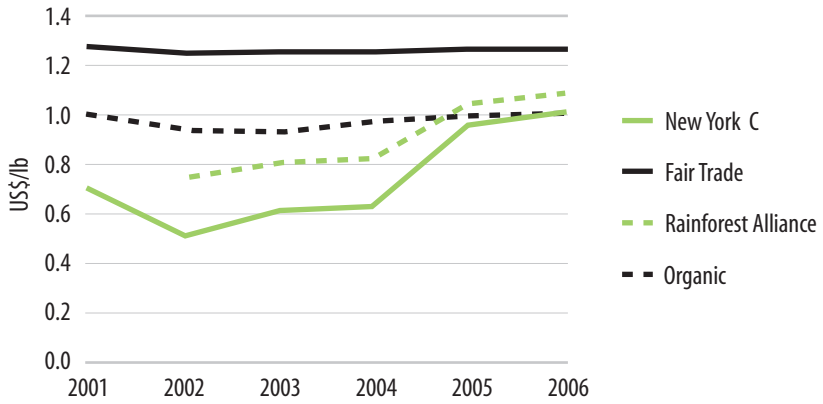
Risk

Risk is one of the most pervasive threats to farmer economic sustainability in the coffee sector. The combination of considerable price and yield volatility with low household savings puts the livelihoods of many producers in a state of vulnerability. Reducing exposure to market volatility and yield volatility should be considered a critical feature in overall sustainability. Since risk impacts only show up over time, it is impossible to draw any risk related observations from the brief COSA testing process. However, a parallel study examining the impact of sustainability standards on "income volatility" conducted by IISD (Potts, 2007a) presents both theoretical and anecdotal evidence. From a theoretical perspective, certified coffees operating in a niche market have higher elasticities than conventional coffee, which can lead to reduced price volatility. Figure 3.6 shows actual prices across farms participating in select sustainability initiatives as compared with prices on the C market, revealing the existence of a potential dampening effect of sustainability initiatives on price volatility.

Market access

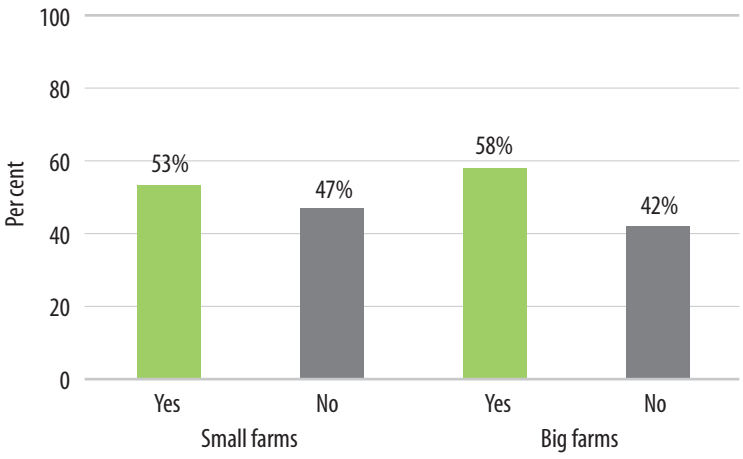
Although market access is a difficult variable to measure objectively, it remains one of the key "assets" that industry players and sustainability initiatives associate with the adoption of recognized sustainability initiatives. One indicator of market access measured by COSA is the change in the amount and quality of market information available as a result of certification (Figure 3.7). Although, farms involved in sustainability initiatives reported slightly improved access to market information (53 per cent) as compared with their access prior to participating in the initiative, larger farmers reported benefiting more significantly in this regard (58

Figure 3.6: Price volatility of certified farms compared with "C" market volatility[11]



per cent reported improved access to market information). One possible explanation for this could be that small farmers are typically one step removed from the sustainability initiatives and any market information they might provide—such information and contacts flowing directly to small farmers' co-ops or producer organizations. Larger farmers have a greater likelihood of receiving such information directly. Further data and analysis is required to substantiate this hypothesis and to see whether co-operatives or farmer associations enjoy benefits similarly to larger farmers.[12]

Figure 3.7: Farmer perspectives on improved access to market information



Farmer perception of the economic effect

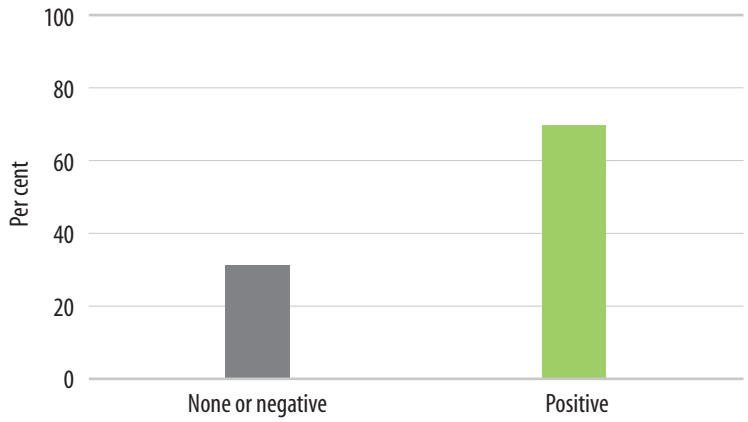
Given the small sample size and absence of a time series of observations over the course of this testing (e.g,. only one year's data), farmer perception of economic effects may provide one of the most informative measures. By a margin of more than a two to one (69 per cent versus 31 per cent) certified producers within our

11 Prices listed are for exporters. Prices at the producer level are typically lower than export prices and may vary at different rates than exporters.

12 If true, this would suggest that market access for smallholders should be measured at the level of the producer organization.

testing sample expressed that the sustainability initiatives they had undertaken had a positive economic effect (Figure 3.9). With such rapid growth in the number and variety of sustainability initiatives over the past decade, it is possible to consider such growth as the expression of a passing trend. Farmer perceptions of the economic effects of such initiatives among our sample size, however, would appear to suggest that those farmers that have affiliated with one or another initiative have sufficient incentives to maintain participation—although it is clear that changing market conditions such as reduced premiums could influence this.

Figure 3.8: Economic outcome perceptions



3.2.2 Environmental outcomes

The COSA methodology includes a wide range of questions designed to measure farms' environmental status and performance. The main categories covered by COSA's environmental analysis include measures on:

- energy management (amount and kinds of energy used);
- water management (evidence of water conservation practices);
- soil resource management (erosion and coverage or prevention);
- biodiversity and resource management (percentage, quality and diversity);
- pollution reduction (record keeping, products and chemicals applied, IPM);
- recycling and re-using (systems in place); and
- carbon sequestration (vegetation density and quality).

Environmental outcomes are among the most difficult measures to assess within the context of a single farm visit, particularly in the case where farms have only recently undertaken the certification process since—apart from drastic changes such as clear cutting forest or large scale plantings—changes often require several seasons or years to evince readily measurable differences. In this sense, measurements of the outcomes of sustainability initiatives on environmental parameters gathered over the testing process can be expected to "underestimate" *actual* outcomes over the longer term. The results presented below should be considered with this in mind.

Soil health

Soil exposure and erosion are important indicators for soil integrity. The COSA methodology includes measures on the percentage of exposed soils and percentage of land with evidence of erosion. The surveys observed these parameters and scored them on a scale of 1 to 10 corresponding to the percentage of soil showing either coverage or no signs of erosion (8 = 80 per cent). Farms with B or E certifications had the highest score for soil coverage and soil erosion prevention across our sample farms, while C certified farms had a consistently lower score. Figures 3.10 and 3.11 show that variation between the different systems on

soil coverage and especially erosion is relatively small as compared with the variation on other indicators. This may suggest that such effects are mostly visible in the longer term or that initiatives as a whole may only have a marginal effect on these parameters.

Figure 3.9: Aggregate soil coverage levels by sustainability initiative as compared with conventional

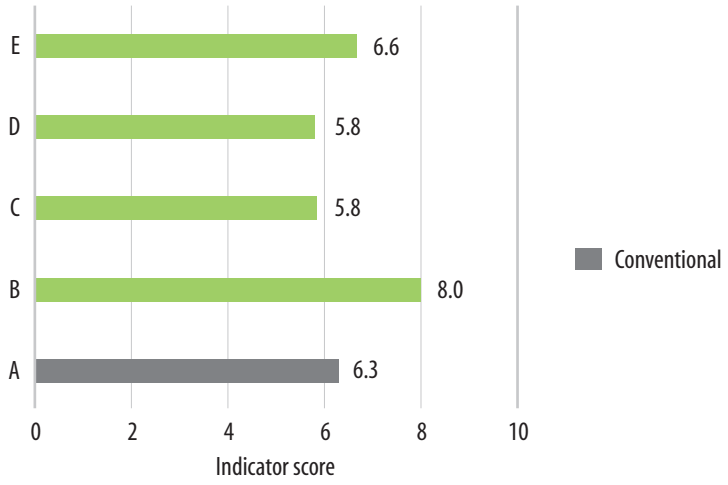
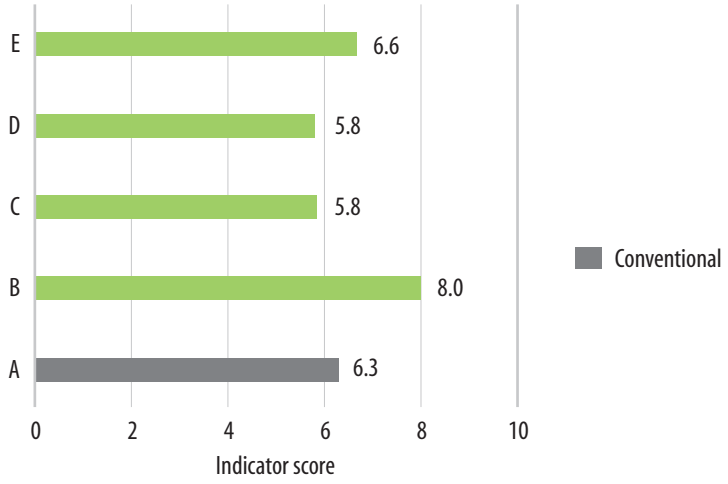


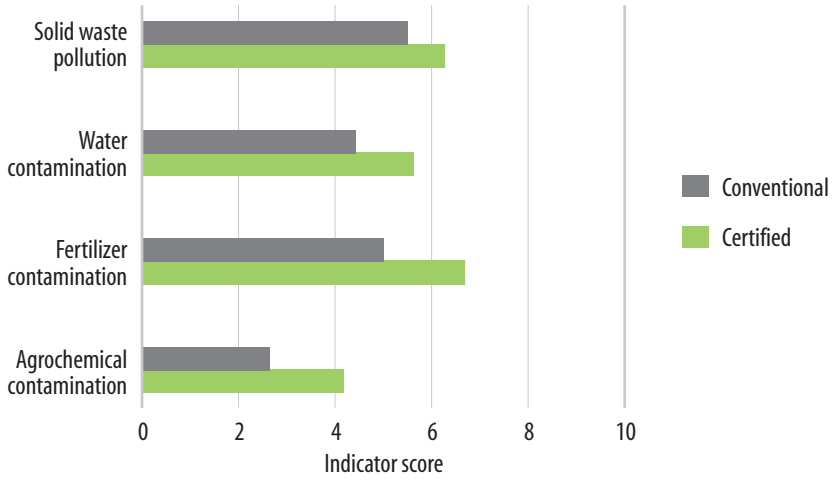
Figure 3.10: Aggregate soil erosion levels by sustainability initiative as compared with conventional



Pollution

COSA includes a number of measures to assess the level of pollution associated with a given farm's practices. Due to the resource intensiveness of direct soil and water sampling, COSA focuses on tracking the existence of management systems, waste reduction measures and evidence of safe chemical use procedures. Figure 3.11 compares a set of diverse pollution indicators across certified and conventional farms with an achievement scale of 1 to 10, 10 being excellent. The overall findings show that those farms participating in a sustainability initiative had measurably better pollution prevention systems in place than their conventional counterparts. The consistency of this finding is largely in line with the emphasis that the sustainability initiatives place on improved farm management systems. In aggregation, the levels attained, even by certified farmers, appear not very high.

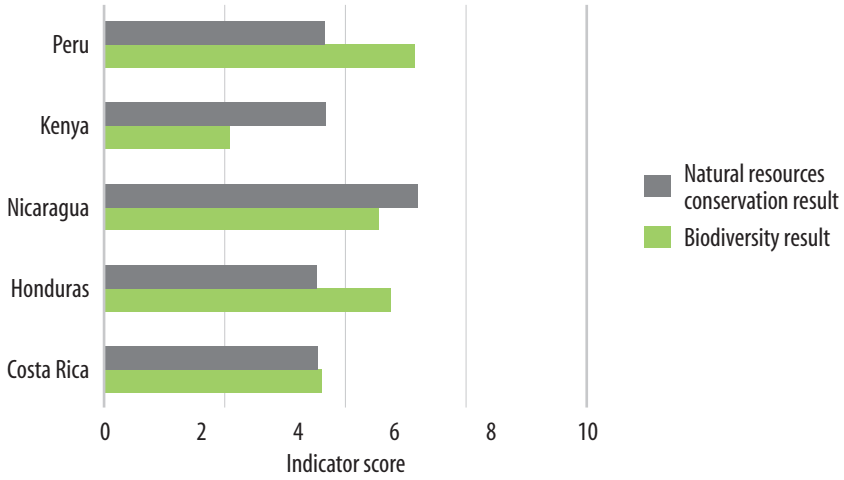
Figure 3.11: Pollution and contamination comparison with conventional farms



Biodiversity

COSA's measures of environmental management and biodiversity look at the quantity and quality of natural vegetation with trees as a key indicator. More specifically, COSA measures tree density and the percentage of different categories of tree coverage on the farm.[13] As such, biodiversity scores within COSA are a function of both the number of trees per hectare and the variety of tree species present on the farm. Figure 3.12 shows the environmental management and biodiversity scores for certified farms on a country by country basis. The scale used is, again, levels of achievement ranked from 1 to 10. For biodiversity, a rating of 10 indicates both a high quantity and a broad diversity of indicator species (trees in this case). For conservation, higher scores reflect higher levels of evidence of environmental management. The wide variation between countries points towards the major role local production practices and systems play in determining shade coverage and biodiversity.

Figure 3.12: Environmental management and biodiversity scores for certified farms

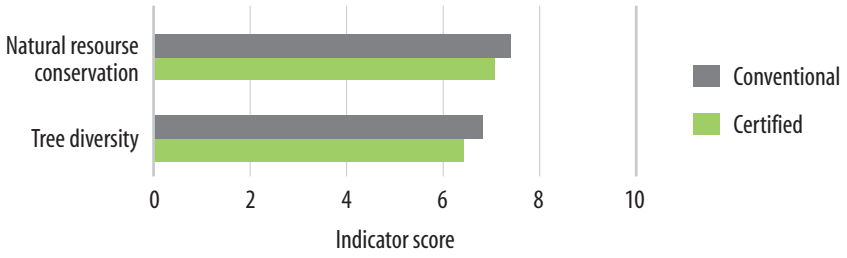


This observation is further confirmed in Figure 3.13, where environmental management and biodiversity results are compared across the complete group of certified farms and conventional farms. Figure 3.13 shows little variation between conventional and certified farms overall, pointing to the likelihood that, for early

13 Characterized as either: no coverage; coverage by a single species; moderate functional diversity; and natural forest.

periods of certification, there is usually little or effect on these measures. Given the important role of local conditions and the length of time required for tree growth, this makes intuitive sense and suggests that longer measurement periods (three to five years) are required to more effectively show how certification affects these indicators.[14]

Figure 3.13: Environmental management and biodiversity



Carbon sequestration

The ability of coffee farms to produce high quality products under natural forest conditions can make coffee production particularly attractive from a carbon sequestration/climate change perspective. To the extent that certification initiatives promote shade coverage and tree diversity, they can also play an important role in maintaining global carbon sequestration capacity, and thus in mitigating the greenhouse effect. Our testing process relied on tree density and size as the principal measures for assessing farm carbon sequestration capacity. Collection of actual figures on carbon sequestration and refinements to the measurement methodology are currently underway. As such, no specific results are presented on this parameter.

3.2.3 Social outcomes

Social outcomes are intrinsically difficult to quantify, because of diverse causal variables and the difficulty of precise calculation. COSA considers the following key indicators of social sustainability:

- health and safety;
- working hours and wages;
- basic rights;
- community relations; and
- farmer perception and satisfaction.

3.2.3.1 Occupational health and safety

The COSA Occupational Health and Safety measure is based on an aggregate of the following indicators:

- existence and application of a health and safety policy;
- access to medical services and first aid;
- secure handling of agrochemicals;
- access to potable water; and
- living conditions for workers.

14 Another possible explanation relates to the size and specificity of our sample farms. In order to ensure comparability, we selected our conventional farms with similar production systems to those of certified farms. This basic selection point, however, establishes a natural bias for reduced variation along our biodiversity and conservation indicators across conventional and certified farms. In order to correct for this, an analysis of trends and averages of conventional production (and corresponding cover) would need to be made.

Although only a small minority of farms visited were found to have clear health policies, a higher percentage of certified farms had written worker health policies (42 per cent of certified farms versus 10 per cent of conventional farms). Certified farms also appeared to have an advantage over conventional farms with respect to the availability of immediate attention for an accident (22 per cent of certified farms had first-aid kits as opposed to 10 per cent of conventional farms). On virtually all indicators, certified farms scored somewhat higher than conventional farms. The only notable exception to this was a slightly higher score for conventional than certified farms on the indicator of "safe application of agrochemicals relating to minors and pregnant women."

Figure 3.14: Occupational health and safety results for certified and conventional farms

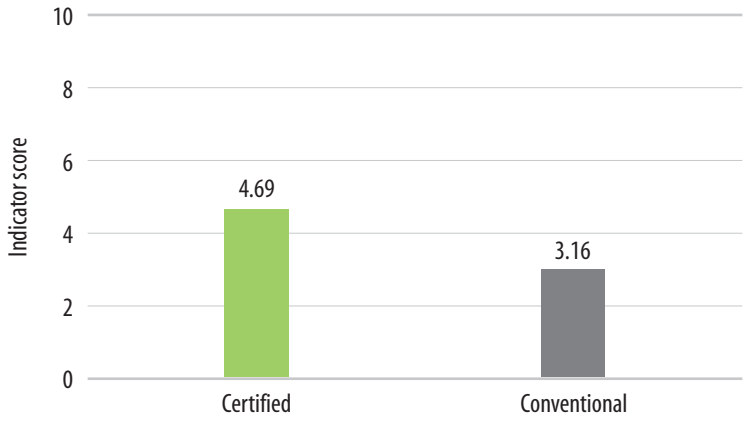
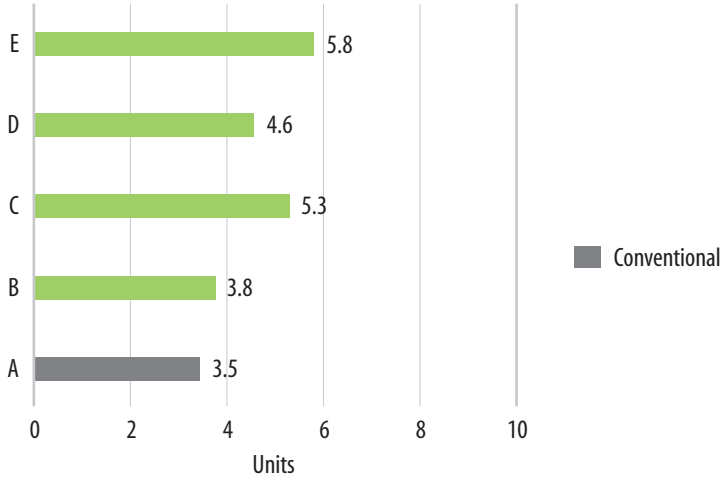


Figure 3.15: Occupational health and safety results, by certification initiative



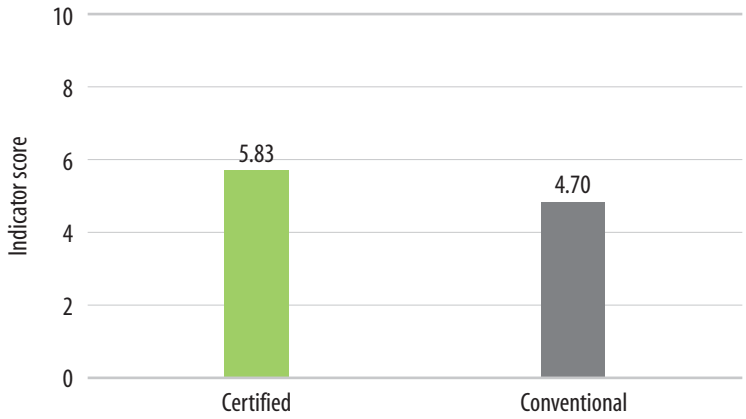
3.2.3.2 Labour rights

COSA includes indicators associated with respect for basic rights. The main parameters that COSA monitors under this rubric are:

- freedom of association;
- child labour;
- discrimination; and
- existence of employment contracts.

The overall score for certified farms was 25 per cent higher than for conventional farms though on individual issues, differences were much more pronounced. The most significant gains by certified farms were found in the use of written contracts and existence of unions or worker organizations—both of which were twice as prevalent on certified farms than conventional farms.

Figure 3.16: Labour rights results for certified and conventional farms



3.2.3.3 Effect on the community

Establishing a causal relationship between supply chain initiatives and changes at the community level is a difficult task. At the same time, however, it is widely recognized that for many small to medium farmers, sustainability is only possible where adequate support, governance and infrastructural resources are available at the local group or community level. Moreover, existing certification initiatives have formally and widely recognized the importance of producer organizations in promoting the overall sustainability of small farmers. It can be reasonably inferred that processes conducted at the broader group level, such as democratic decision-making, are likely to also influence the community in which that group operates. As such, COSA places a high priority on tracking observable correlations between certification and changes at the organization or community level. However, due to the difficulty in producing measurements for entire communities, COSA uses organization level indicators as proxies for communities. The COSA indicators include organizational level measures based on the existence of:

- transparent and democratic processes;
- market information and extension services;
- emergency response plans;
- commercial, health, educational and social activities; and
- crop or price risk management.

Based on these parameters, our test farms revealed only marginally improved (<10 per cent) community and organizational infrastructure, processes, and governance over those farms that were not certified. In some cases conventional farms scored as well or better. (Figure 3.17)

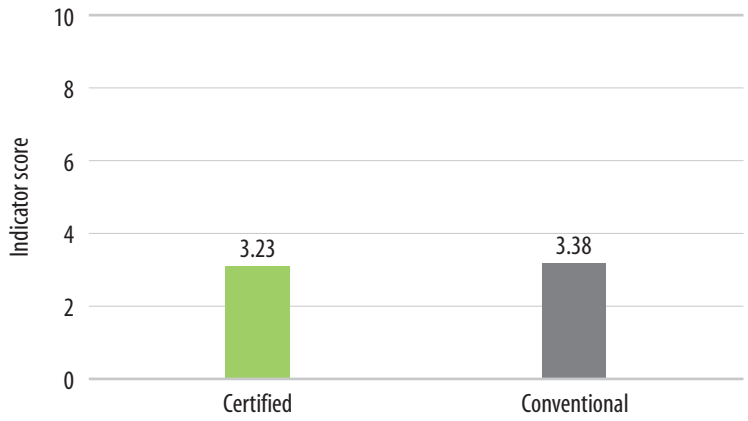
Among the possible explanations for such results are:

- certification systems simply may not significantly promote community level organization;
- changes resulting from certification may take several years and perhaps even a certain critical mass before they manifest in clearly measurable ways;
- certified farms promote improved organization but may only make up a small portion of the larger farming community in any given area, thereby reducing their impact on the community as a whole; and

- certified farms promote improved organization but supply chain requirements are only a small factor across the broad range of circumstances that determine the level and quality of community organization.

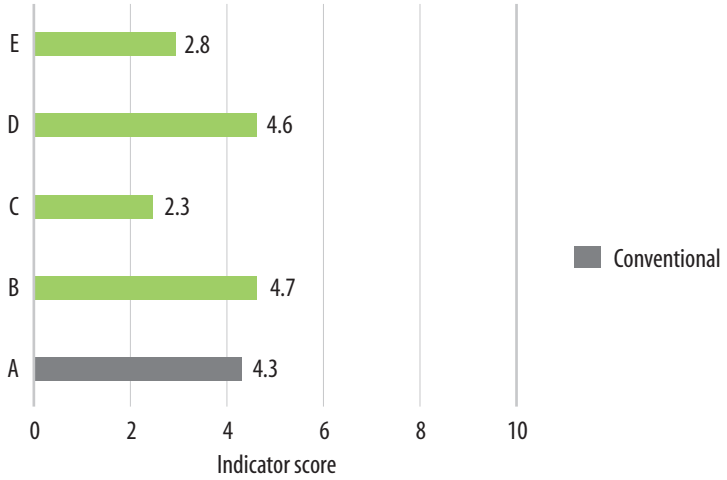
Ultimately the results are probably explained by a combination of all of these factors.

Figure 3.17: Contribution to community sustainability results for certified and conventional farms



While the average level of community sustainability for certified farms in aggregate was low, when considered individually, farms certified to D and B systems were found to be linked to considerably higher levels of community organization. Figure 3.18 shows community sustainability levels of 25–35 per cent higher than conventional farms tested.

Figure 3.18: Contribution to community sustainability by certification initiative



3.2.3.4 Working hours and wages

Employee salaries and working conditions set the framework for sustainable employment relationships. Recognizing this, most sustainability initiatives insist upon compliance with local labour laws such as minimum wage regulations. COSA measures employment activities along the following parameters:

- compliance with local minimum wage law;

- compliance with labour laws for local and permanent workers;
- presence of discrimination; and
- clarity of and compliance with the employment agreement.

On those farms where testing was carried out, those that were certified had substantially higher levels of compliance with local minimum wage laws as well as a moderately greater use of written employment contracts compared with conventional farms. To the extent that these results point towards a causal relationship between certification and working hours and wages, such a relationship is likely explained by the combined effects of ongoing farm level monitoring (audits associated with certification) as well as the implementation of improved management systems more generally.

Figure 3.19: Results for working hours and wages for certified and conventional farms

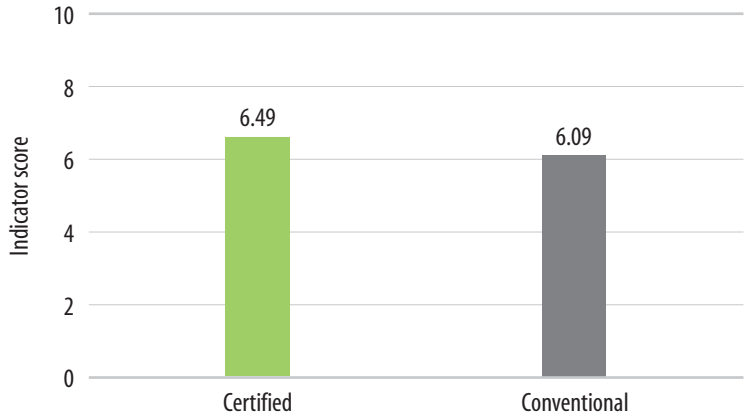
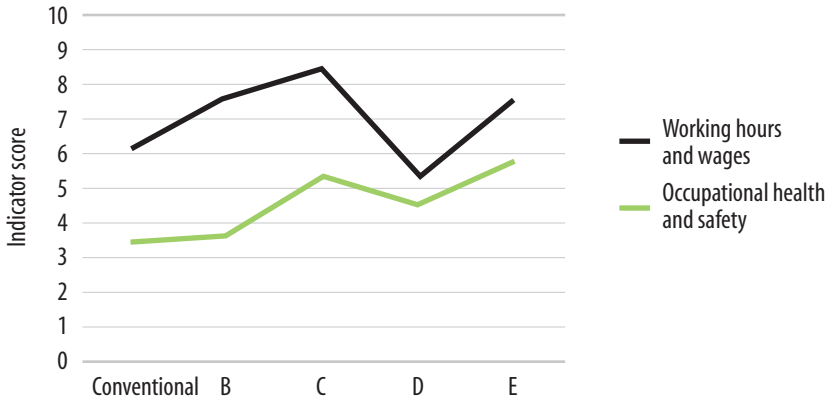


Figure 3.20 shows a general correlation between certification performance on health and safety, as well as working hours and wages scores. Given the similarity in the systems used for managing these parameters, this result makes intuitive sense.

Figure 3.20: Results for working hours and wages and for health and safety, by certification initiative



3.2.3.5 Producer satisfaction

Given the compexity of measuring sustainable development, producer perceptions of the outcomes of adopting a sustainability initiative provide a critically useful, albeit subjective, complement to the objective data. Producer perceptions could be considered to be among the most important measures of sustainability given the fact that even objective measures can be incomplete and/or biased and that the the Brundtland definition of sustianable development asserts the primacy of "the needs of the poor." The COSA measurement process compiles producer perception and satisfaction responses on a variety of sustainability parameters, both specific and general.

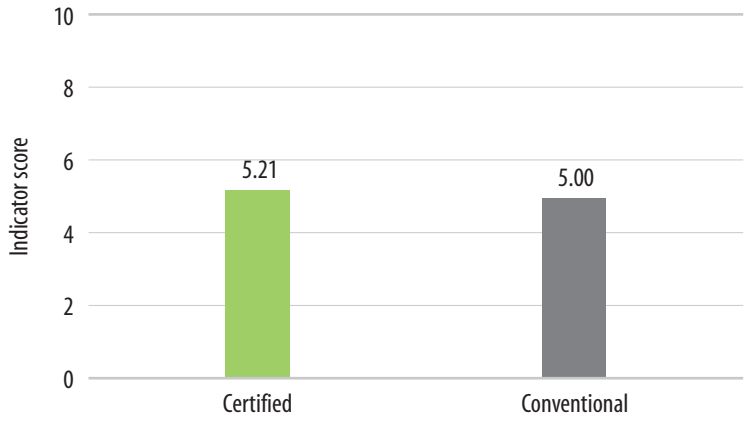
Certified farms were requested to rank their level of satisfaction with respect to expectations along the following parameters:

- impact on social relations;
- impact on environmental quality;
- impact on personal health;
- impact on employee relations;
- impact on management capacity;
- impact on revenues; and
- impact on overall well-being.

Certified producers ranked these items using the following scale: 0=well-being significantly worse; 3=well-being somewhat worse; 5=neutral or no significant change in well-being; 7=well-being somewhat better; 10=well-being significantly better.

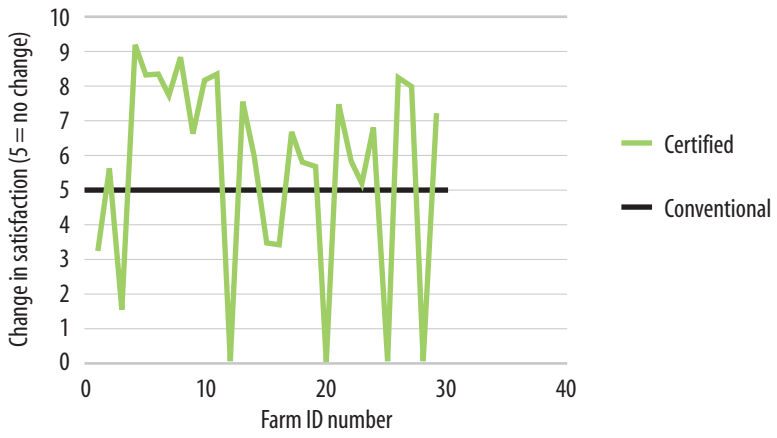
For comparison purposes, in this case, a score of 5 was assigned to non-certified farms indicating the neutral "no change" state. Using this basic framework, the aggregate score for certified farms showed a marginally positive level of satisfaction compared to conventional farms.

Figure 3.21: Producer satisfaction resulting from the adoption of certification



This result could suggest that the benefits associated with sustainable initiatives are not as universally compelling as some believe them to be. At the very least a breakdown of the individual responses on the question of satisfaction shows that there is a moderate but significant (25 per cent of certified farms visited) section of producers who are clearly not satisfied with the results of certification (see Figure 3.22). The overall score of producer satisfaction is heavily influenced by a few of very negative experiences reported across our testing base.

Figure 3.22: Producer satisfaction by farm resulting from the adoption of certification

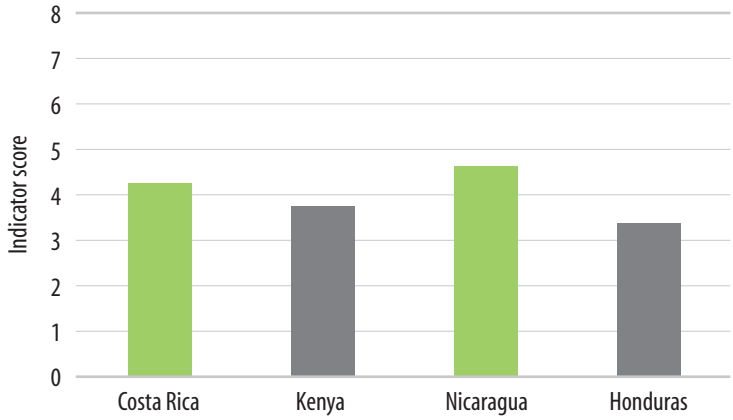


Despite these notable negatives, our results suggest that the majority of producers taking on certification (75 per cent) have experienced a net improvement in their overall condition. Moreover, more than 90 per cent of the certified farms indicated that they were either "likely" or "very likely" to continue within the certification program. Nevertheless, based on the results in Figure 3.22, it is evident that experiences with certification show a high degree of variability. Assuming this is *indeed* a systemic condition, it arguably supports the importance of seeking objective means for decision-making during the adoption stage.

3.2.3.6 Additional analysis

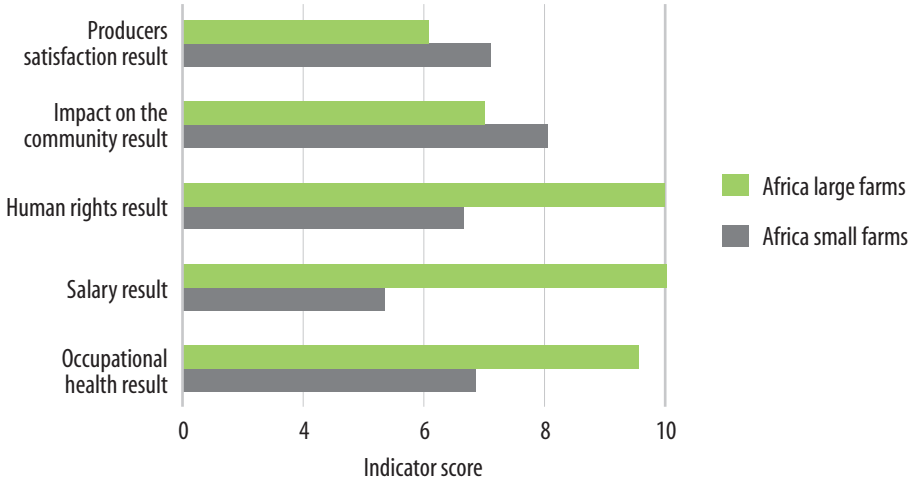
The COSA methodology provides a high degree of analytic flexibility. In the context of growing market demands for compliance with sustainable practices COSA can assist local and national planners in assessing the specific sustainability challenges their farmers face with respect to the different systems available. Regional differences in the effects of standards provides a basis for devising more efficient export development strategies. Figure 3.23, for example, shows there is a considerable difference between the regions in their occupational health and safety practices, suggesting varying degrees of need to address these through local policies and standards bodies in order to ensure uninterrupted market access.

Figure 3.23: Occupational safety



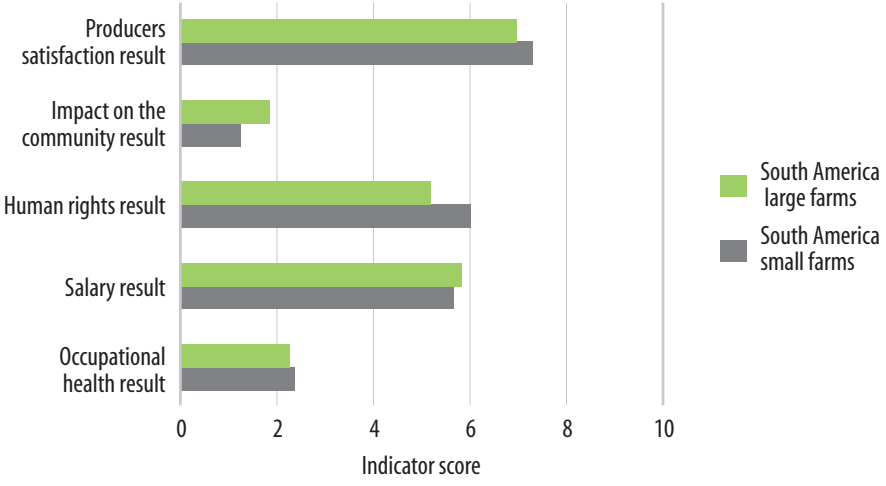
Alternatively, COSA can be used to identify differences in the effects of certification on farms based on individual farm characteristics such as production system, size, climatic conditions, etc. Figure 3.24, for example, suggests that even though in Kenya small farmers had slightly higher levels of satisfaction with certification, larger farms were able to achieve more socially advantageous results on most of the variables. Such a finding could indicate important differences in difficulties of implementation that need to be addressed by the sustainability initiatives or policy-makers in order to better satisfy and induce greater levels adoption by smaller farms.

Figure 3.24: Comparing social outcome between small and large farms in Kenya



Comparing these results with our South American sample country (Peru) in Figure 3.25 shows less distinctive outcomes across farms of different sizes. Further exploration of the differences between regions and farm sizes could be a very important factor in determining the uptake of sustainability initiatives by different types of farmers. Based on this limited body of evidence, the high degree of variability in experiences appears to confirm the potential value of being able to develop tailored strategies based on more substantive data and information on local capacities.

Figure 3.25: Comparing social outcome between small and large farms in Peru



4. Multi-criteria analysis

Although COSA is committed to providing a quantitative basis for comparison and evaluation of the effect of sustainability interventions on coffee farms, it is firmly rooted in the recognition that different social, economic and environmental variables have a natural integrity of their own. As such, considerable emphasis has been placed on retaining the objective quality of the individual indicators.

In the interests of preserving the integrity of different social and environmental measures, COSA has adopted a multi-criteria analysis approach. Thus, although our results may express the two measures conservation and soil erosion in terms of a scale of 1 to 10, this is not in any way meant to suggest that equal scorings along the two different categories are of equal environmental weight in any given situation. Our intent is to provide consistent data for statistical analysis in as neutral a form as possible while allowing decision-makers to apply the specific weighting decisions appropriate to their task and perspective.

With this in mind, COSA data is most usefully presented in the form of a spider graph which can retain the individual integrity of the different social, economic and environmental parameters. Through multi-criteria analysis, it is possible to compare the performance of one standards system with another or with conventional practices on a farm-by-farm basis. For the purposes of the testing data, however, we limit our reporting to a comparison of certified versus non-certified farming systems.

Aggregate results can be usefully shown across social, environmental and economic parameters as individual groupings (see Figure 4.2) or across the full set of parameters (see Figure 4.4).

Figure 4.1 provides one type of overview of the aggregate results across certified and non-certified farms visited over the course of the COSA testing phase. On average, certified farms displayed better social conditions than their non-certified counterparts in most areas. However, certification schemes were not observed to have any significant effect on the community compared to a neutral rating given conventional farms.

Figure 4.1: Comparison of conventional and certified farms across select social indicators

Figure 4.2 provides a comparative analysis for select environmental indicators across conventional and certified farms visited. As with the social indicators, one observes generalized and yet small improvement in environmental indicators in certified compared to conventional farms.

Figure 4.2: Comparison of conventional and certified farms across select environmental indicators

Finally, a "full spider graph" (see Figure 4.3) can provide a quick summary snapshot of the "sustainability performance" by the individual farm or by any grouping such as initiative, farm-size, country or other grouping.[15] Although the data limits of the testing results restrict the applicability of the spider graph representation, Figure 4.3 below shows that, on the whole, certified farms in our testing sample did perform slightly better than conventional farms across the majority of COSA's parameters. Presented in the appropriate context, the COSA spider graph provides an easily accessible indicator of expected outcomes of specific sustainability initiatives and, as such, offers an invaluable resource for certification initiatives, policymakers and producers alike.[16]

By preserving parameter integrity, COSA has the ability to conduct correlation analysis between parameters. Proponents of labour standards, for example, commonly promote improved working conditions as a basis for improved productivity and overall economic success.[17] On the basis of COSA's social and economic data, it is possible to test for correlations between distinct variables measured through the process. For example, Figure 4.4 and Figure 4.5 show the correlation between "social performance" and "net income" and "environmental performance" and "net income" respectively. In both cases, the data from the test farms shows that there was virtually no correlation between net income and these other sustainability parameters over our test farms. However, at this point it is impossible to determine whether or not this represents a true state of affairs or is simply a result of our small sample size.

15 It should be noted that similar comparisons can be provided across individual certification systems. Due to the small sample size for each individual initiative, we have chosen not to present certification-by-certification results at this stage in order to avoid initiative misrepresentation. One of COSA's assets, however, is its ability to provide comparable data across initiatives and along specific indicators.

16 In addition to gathering and analyzing data, an important part of the COSA process involves the proactive dissemination of COSA results as a stimulus for continual improvement.

17 See OECD (2000).

Figure 4.3: Comparison of conventional and certified farms across select social, economic and environmental indicators

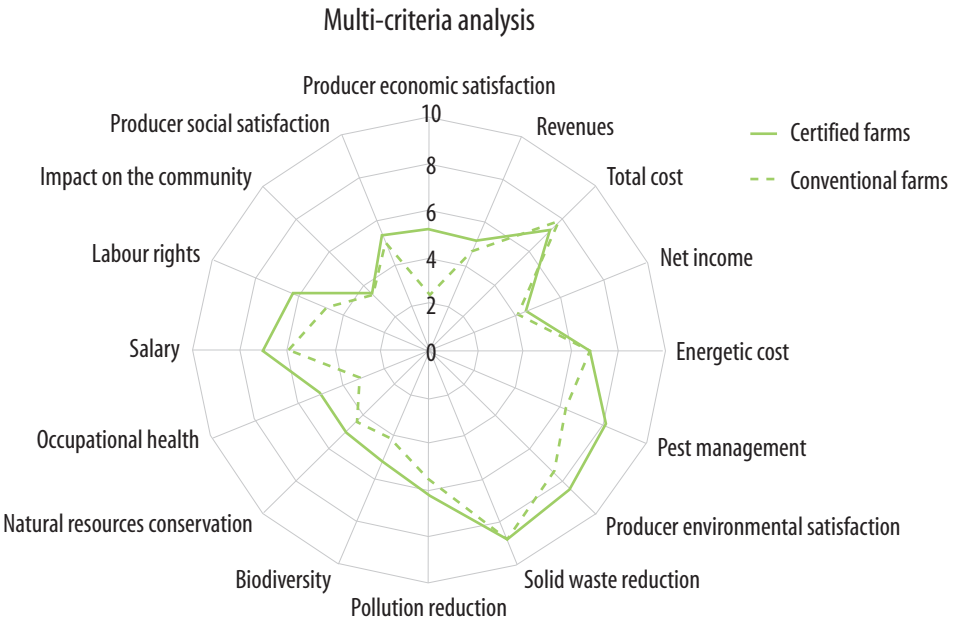


Figure 4.4: Social performance and net income comparison

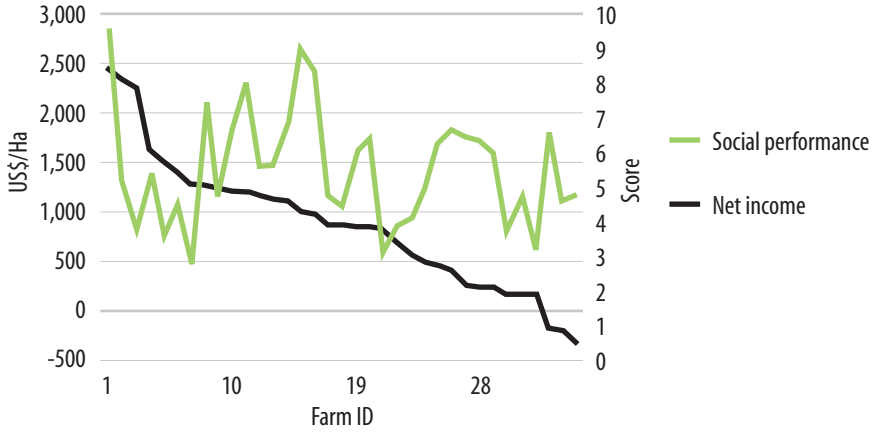
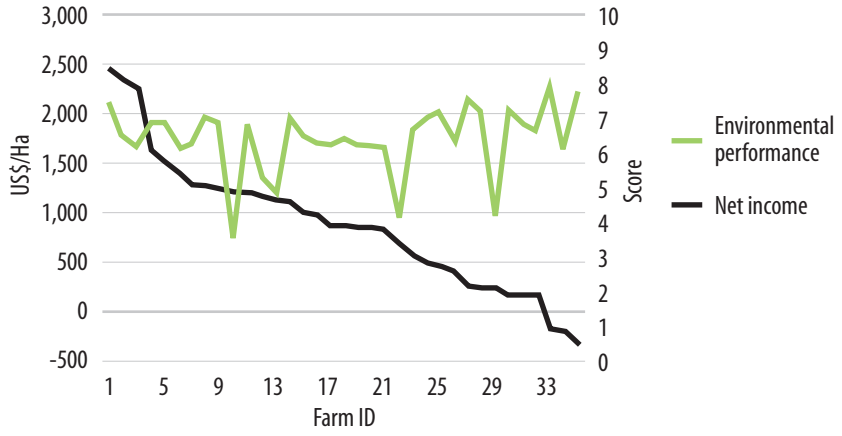


Figure 4.5: Environmental performance and net income comparison



Building statistical relevance

Given the purpose of the testing phase and the small sample size, the preceding cross-comparisons are provided only to indicate the kinds of analysis COSA enables, but the analysis should not yet be considered as conclusive or even indicative of actual performance trends for certification systems.

One of the key objectives of the testing process was to establish baseline information for determining the sample size required for extracting statistically significant conclusions. Since statistical significance is a function of the standard deviation of samples and the number of samples, we can draw on the standard deviation observed across our testing farms to better predict the appropriate sample size required to produce statistical significance.

Figure 4.6 shows the results of an Analysis of Variance (ANOVA)[18] of the COSA testing data for average income for Fair Trade and Organic Farms. The span between the parentheses in Figure 4.6 outlines the degree of potential error in the result obtained through the testing process (with an average of 10 farms per certification system), again reaffirming the conclusion that the data from the testing process cannot be considered statistically significant.

18 The results presented in the figure were generated by one-way ANOVA (Analysis of variance) carried out with Minitab® statistical software.

Figure 4.6: ANOVA results from COSA testing data for Fair Trade and Organic "average income"

One-way ANOVA: Incomes/Ha versus certification

Source	DF	SS	MG	F	P
Certification	1	1751672	1751672	1.25	1.280
Error	17	23889197	1405247		
Total	18	25640869			

S = 1185 R-Sq = 6.83% R-Sq(adj) = 1.35%

Individual 95% CIs for mean based on pooled StDev

Level	N	Mean	StDev
Fair trade	10	1681	790
Organic	9	2289	1512

1200 1800 2400 3000

Pooled StDev = 1185

By increasing the sample size for each certification to 75 farms per certification system, the probability of error reduces to less than one per cent—thereby allowing for more statistically relevant conclusions.

Figure 4.7: ANOVA based on extrapolated COSA data but with a larger sample size

One-way ANOVA: Incomes/Ha versus certification

Source	DF	SS	MS	F	P
Certification	1	14013374	14013374	11.00	0.001
Error	150	191113575	1274091		
Total	151	205126949			

S = 1129 R-Sq = 6.83% R-Sq(adj) = 6.21%

Individual 95% CIs for mean based on pooled StDev

Level	N	Mean	StDev
Fair trade	80	1681	754
Organic	72	2289	1435

1500 1800 2100 2400

Pooled StDev = 1129

Based on the ANOVA analysis of the data variance observed in the testing process, we can predict that, in a sample spanning the five tested countries (Kenya, Costa Rica, Nicaragua, Honduras and Peru), COSA would have needed a total of 75 farms per organic and Fair Trade certification to produce statistically significant results (i.e., at least 15 farms per certification per country). In order to secure statistically significant results along more specific parameters within each certification system (e.g., effects on production systems or farm size) it is likely that even larger sample sizes will be required.

5. Conclusions

COSA's unique approach to sustainability assessment allows it to be an effective farm management and policy management tool by providing a sound quantitative basis for comparison and evaluation of the effect of sustainability interventions.

The data collected during the COSA field-testing process have enabled us to observe some basic trends—particularly at the level of certified versus non-certified farms (where our sample size was the most robust). All of these preliminary observations cannot be interpreted as conclusive due to the limited size of the tests.

1. The variances between the various certification systems may often be explained by site-specific considerations, especially local geographical and organizational conditions that can play a significant role in determining the performance of farms.
2. *Economically*, as a general rule, the certified farms observed appear to be better off than their conventional counterparts (net income) but the gap is narrow. More than 60 per cent of all certified farms visited perceived their participation in a sustainability initiative as having a positive economic impact on their farm.
3. *Environmentally*, there is little evidence that certification on the observed farms had a significant effect on key indicators such as biodiversity and shade coverage. This may well be due to the expected time lag between implementation and environmental impact. This hypothesis is supported by the fact that certified farms systematically scored better along some of the other environmental indicators such as pollution and waste management.
4. On *social parameters*, certified farms appear to have distinctly better occupational health and safety, employee relations, and labour rights performance. Community-level effects of certification, however, were not noticeably evident in our samples.

The pilot also identified several important challenges, summarized as follows:

1. Farmers across the testing regions confirmed the importance and saliency of the COSA project and the usefulness of the information it could produce though a number expressed a preference for a more streamlined process. *COSA is being refined and simplified for further application based on this feedback*.
2. Field researchers noted a difficulty in locating recently certified farms with only a single certification. As a result, we were not able to perform the testing process on a full range of farm sizes and production systems. In light of this challenge, *COSA is exploring means for attributing outcomes when farms have multiple certifications*.
3. Some field researchers noted difficulty in gathering adequate economic data as many coffee farms do not keep records. This made data-gathering time-consuming and in some cases placed too much reliance on reconstructive accounting with producers. As a result, *COSA is developing a simple self-accounting process that will encourage participating farms to enhance their collection and use of economic data over time*.
4. Considerable variance between coffee production systems both across and within countries means that larger sample sizes are needed to extract more statistically significant results. In order to overcome this challenge *COSA will aim to use larger samples as it is implemented on country by country basis*.

6. Recommendations

The testing process has established two basic points: that farmers are very interested in the information that COSA provides and that there is a need for significant expansion in order to generate statistically significant results. To increase the value of the COSA process, several actions need to be undertaken:

1. The generation of an internal and ongoing measurement system among select farmer groups in collaboration with local institutions;
2. The development of an open access database on sustainability initiatives for policy-makers and producers in order to enable more strategic business, risk and quality management in the adoption sustainable practices; and
3. The generation of concrete commitments from the international community to establish a secretariat or clearing-house to facilitate the gathering and management of credible scientific measurements on sustainability impacts of market initiatives.

At the field level, it has become clear that COSA should now evolve from the initial focus on methodological development to an increased focus on capacity building of local organizations in its implementation. Doing so will help local institutions internalize COSA and other accounting methods as a basis for more effective strategic planning and business management.

While farmers' affirmations of the value of COSA's information suggests the value of the COSA process, it also quite evident that raw information alone will be insufficient to enable gains in improved management capacity across rural commodity producers without an appropriate capacity building and technical assistance framework. Therefore, it is increasingly important that COSA become directly integrated within ongoing capacity building and technical assistance efforts. COSA is actively seeking ongoing partnerships to meet this core priority and its affiliations with the Sustainable Commodity Assistance Network (SCAN) and The Finance Alliance for Sustainable Trade (FAST) are likely to be very synergistic.[19]

The need for COSA has never been more apparent. A growing number of private and public sector stakeholders have approached the COSA team to discuss how to apply its framework to other commodities and supply chains. Some of the sustainability initiatives are exploring how COSA's efforts might be used to fortify their own internal monitoring and evaluation procedures. Efforts are already underway with cacao in West Africa, and discussions around tea, cotton, and other commodities are in the early stages.

The COSA team recognizes the systemic nature of the challenges before stakeholders around the world as more markets make the transition to sustainable practices. As such, COSA is firmly committed to the development of a common and open framework for compiling and disseminating such information. Whether in coffee or across other sectors, however, it is clear that this need cannot be met through the work of the COSA executive committee alone. Valuable input from numerous producers, international bodies and scores of experts and scientists have contributed to the COSA model. We welcome more input; and we invite all stakeholders to join with us in making sustainability more efficient, practical and accessible to all.

19 See: http://www.iisd.org/markets/tech/scan.asp and http://www.fastinternational.org.

References

AIDEnvironment & Profundo. (2006, October). *Increasing the sustainability of EU and Dutch commodity trade through more effective policies*. Ministry of Housing, Spatial Planning and Environmental Management (VROM) of the Netherlands, Volume II: Commodity profiles AIDEnvironment.

Bacon, C. M., Méndez, V. E., Gliessman, S., Goodman, D., & Fox, J. A. (Eds.). (2008). *Confronting the coffee crisis: Fair trade, sustainable livelihoods and ecosystems in Mexico and Central America*. Food, Energy and Environment Series. Cambridge, MA: MIT Press.

Coffee Coalition. (2006). *Coffee Barometer 2006 – Certified Coffee in the Netherlands*. Amsterdam: Coffee Coalition.

DEFRA. (2003). *Use of multi-criteria analysis in air quality policy: A report*. Retrieved from: www.defra.gov.uk/environment/airquality/mcda/index.htm.

DTLR. (2001). *Multi criteria analysis: A manual*. Retrieved from: www.dtlr.gov.uk/about/multicriteria/index.htm

ETR. (1999). *Review of technical guidance on environmental appraisal: A report by Economics for the Environment Consultancy*. Retrieved from: www.defra.gov.uk/environment/economics/rtgea/8.htm

FLO. (2007). *Shaping global partnerships: Fair Trade Labelling Organizations International Annual Report 2006-07*. Retrieved from: www.fairtrade.net/uploads/media/FLO_AR2007_low_res_01.pdf

Giovannucci, D., Liu, P. & Byers, A. (2008). "Adding value: Certified coffee trade in North America." In P. Liu (Ed.), *Value-adding standards in the North American food market: Trade opportunities in certified products for developing countries*. Rome: FAO.

Giovannuccci, D. & Villalobos, A. (2007). *The state of organic coffee: 2006 US Update*. San Jose, Costa Rica: The Sustainable Markets Intelligence Center (CIMS), INCAE.

Giovannucci, D. (2006). Salient trends in organic standards: The opportunities and challenges for developing countries. In *Standards and trade: Challenges and opportunities for developing country agro-food trade course*. Washington, DC: World Bank Institute-USAID, Trade Standards Working Group.

Giovannucci, D., & Ponte, S. (2005). The collective formulation and effectiveness of public and private sustainability standards. *Social Science Research Network*. Retrieved September 2008 from SSRN: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=996101

Giovannucci, D. & Koekoek. F. J. (2003). *The state of sustainable coffee: A study of twelve major markets*. Winnipeg: International Institute of Sustainable Development; London: International Coffee Organization.

IISD. (1994) *Trade and Sustainable Development Principles*. Winnipeg : IISD. Retrieved September 2008 from IISD: www.iisd.org/pdf/2003/trade_sd_principles.pdf.

Lewin, B., Giovannucci, D. & Varangis, P. (2004). *Coffee markets: New paradigms in global supply and demand*. Washington DC: World Bank.

OECD, (2000, September 20). Retrieved September 2008 from OECD: http://appli1.oecd.org/olis/2000doc.nsf/c5ce8ffa41835d64c125685d005300b0/c12568d1006e03f7c125693100393b51/$FILE/00082965.PDF

Potts, J. (2002). *Policy tools for sustainability: Building the market for fair trade coffee*. (Working Paper for IDRC Trade Employment and Competitiveness Program).

Potts, J., Wunderlich, C. & Fernandez, G. (2007). *Sustainable trading practices of the coffee sector*. Winnipeg, Manitoba: IISD.

Potts, J. (2007a). *Alternative trade initiatives and income predictability: Theory and evidence from the coffee sector*. Winnipeg, Manitoba: IISD.

Potts, J. & Opitz, M. (2008). *Closing the gaps in GAPs: A preliminary appraisal of the measures and costs associated with adopting commonly recognized "Good Agricultural Practices" across Three Growing Regions*. Winnipeg, Manitoba: IISD.

Raynolds, L., Murray, D., & Heller. A. (2007). Regulating sustainability in the coffee sector: A comparative analysis of third-party environmental and social certification initiatives: *Agriculture and Human Values, 24*(2), 147–163.

Reardon, T., Codron, J.-M., Busch, L., Bingen, J. & Harris, C. (2001). Global change in agri-food grades and standards: Agribusiness strategic responses in developing countries. *International Food and Agribusiness Management Review*, *23*, 421–435.

Sager, T. (2003, January). Rationality types in evaluation techniques: The planning balance sheet and the goals achievement matrix. *European Journal of Spatial Development*, *2*. Retrieved from: www.nordregio.se/EJSD/-ISSN 1650-9544-Refereed Articles January No. 2

Santoro, M. A. (2003). Beyond codes of conduct and monitoring: An organizational integrity approach to global labour practices. *Human Rights Quarterly*, *25*, 407–424.

Utting, P. (2005). Rethinking business regulation: From self-regulation to social control. Technology, Business and Society Programmed Paper Number 15 (pp. 1–29). United Nations Research Institute for Social Development.

Seeking Sustainability

COSA Preliminary Analysis of Sustainability Initiatives in the Coffee Sector

The Committee on Sustainability Assessment (COSA) was originally formed in response to the findings of the Sustainable Coffee Partnership's Implementation Taskforce. It identified the need for better information on the impacts of operative sustainability initiatives in the coffee sector as a critical stepping stone to the "sustainable" rollout of sustainability initiatives across the mainstream coffee sector. The challenge of identifying the impacts of international supply chains and sustainability initiatives is growing throughout global commodity markets as concerns for global sustainability of international trade increase. The COSA project seeks to establish a transparent, objective and science-based approach to the monitoring and assessment of supply chain sustainability impacts as they arise within the context of voluntary sustainability initiatives across commodities and represents the first global initiative of its kind.

This document, which outlines the basic rationale and approach of the COSA approach, as well as the results of methodological testing across four sustainability initiatives and five countries in the coffee sector, provides a preliminary indication of the potential impacts of key sustainability initiatives applied in the coffee sector. The document also serves as an important foundation for future applications of the COSA methodology both within the coffee sector and across other commodity sectors.

iisd International Institute for Sustainable Development / Institut international du développement durable