THE STATE OF SUSTAINABILITY INITIATIVES REVIEW 2014

Standards and the Green Economy

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SSI STATE OF SUSTAINABILITY INITIATIVES

A Joint Initiative of ENTWINED, IDH, IIED, FAST, IISD

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Note from the SSI Management Team

The State of Sustainability Initiatives (SSI) project is facilitated by the Sustainable Commodity Initiative and has been directly managed by the International Institute for Environment and Development (IIED), the International Institute for Sustainable Development (IISD), the Finance Alliance for Sustainable Trade, Environment and Trade in a World of Interdependence (ENTWINED), and the Sustainable Trade Initiative (IDH). The SSI project is motivated by recognition of the need for improved information exchange among stakeholders in voluntary sustainability initiatives and among voluntary sustainability standards themselves. The objective of the SSI project is to stimulate regular reporting on the state of play across voluntary sustainability standards, offering a framework for understanding the characteristics, important issues and market trends for select sustainability initiatives and standards operating in global markets. It is hoped that the Review can serve as a valuable tool for learning and strategic decision making between the private sector and the sustainability initiatives themselves.

The SSI management team

SSI State of Sustainability Initiatives

The Swiss State Secretariat for Economic Affairs is a founding and core donor of the State of Sustainability Initiatives project. Current funding for the SSI is provided as part of a larger initiative led by SECO entitled the "VSS Information System Programme," which supports data collection and dissemination to enable more strategic decision making by investors and other stakeholders in sustainable supply chains.

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Shaping Sustainable Markets is the flagship research project for the Sustainable Markets Group at IIED. Can markets be "governed" to better benefit people and planet? This project explores the individual and combined impact of market governance mechanisms on sustainable development to find out what works where and why. We want to improve and broaden understanding of how market governance mechanisms can be designed and used to secure livelihoods and protect environments. Find out more about our work at http://shapingsustainablemarkets.iied.org.

SHAPING SUSTAINABLE MARKETS

This research was funded in part by aid from the UK Government; however, the views expressed do not necessarily reflect the views of the UK Government.

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FOREWORD

In 1992 the leaders of the world came together at the first Rio Earth Summit, historically acknowledging the imperative of a needs-based approach to sustainable development. Although Agenda 21 and the corresponding Rio Declaration made a call upon all citizens of the world to play a role in ensuring sustainable development, the UNCED process primarily spoke to the aspirations and obligations of governments.

Now, some 20 years later, we are forced to make a further acknowledgement, namely that governments alone cannot be relied upon to generate coordinated action at the global level with either the precision or timeliness typically required by the plethora of sustainability issues facing the planet today. The recent growth in the number and use of voluntary sustainability standards can largely be traced to a growing recognition of the failure of public action in addressing a host of sustainability issues.

In a very real sense, voluntary sustainability standards allow the very actors implicated in the processes leading to sustainable development impacts to identify and implement the appropriate corrective measures while integrating them directly within their business models. The need and ability of private sector innovation and investment, not to mention allocative efficiency of the market, to provide a more targeted and nimble approach to the implementation of sustainable development also explains the recent emphasis put on the need for a "green economy."

Both voluntary sustainability standards and policy measures aimed at promoting a green economy hold the promise of more efficient and effective implementation of sustainable development goals. The common logic underlying green economy and voluntary sustainability standards discussions points toward their potential to play mutually reinforcing roles.

However, if voluntary sustainability standards and the green economy are tied by a common potential, they are also tied by common challenges. Both efforts, by virtue of their voluntary and largely unregulated character, have the ability to "say more than they do"—that is, to market themselves beyond their actual capacity to deliver. In so doing, voluntary sustainability standards and related green economy measures have the potential to enable a misguided sense of complacency—potentially leading to reduced vigilance when vigilance is needed most. Rather disconcertingly, the "danger" posed by such approaches grows in proportion to their acceptance—which speaks to the immediate importance of deepening our understanding of whether, how and where such initiatives are delivering the desired outcomes.

The *State of Sustainability Initiatives Review 2014* represents one small effort toward strengthening our understanding of how voluntary sustainability standards are developing over time, both in terms of the systems they deploy and the market impacts that they have. It is hoped that the ensuing data and analysis, when read in conjunction with the growing body of field-level impact data, will allow supply chain decision-makers to strengthen their own strategic decision-making processes in ways that provide optimal sustainable development impact.

The importance of improving our knowledge of the potential role of voluntary standards, however, goes beyond merely pragmatic questions of what the "most efficient means for achieving sustainable development" might be. The combined forces of globalization and trade liberalization have arguably established economic rationality as the supreme authority in international relations. When the very institutions that define "who we are" absorb and embody the vision of humans as *homo economicus*, we risk losing the capacity to care for those who lack economic "voice," of which the poor and the environment are only too evident as examples.

Voluntary standards represent one of the most explicit efforts to balance purely "economic" interests with a deeper sense of human morality by asserting the primacy of care and compassion for others. In a word, the highest promise of voluntary standards may rest in their potential to make us more human. And so it is that we can also hope that by improving our understanding of the world of voluntary sustainability standards, we may also be able to improve our understanding of ourselves.

Sustainably yours,

Jason Potts, 2014

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Finally, the SSI Review would not have been possible without the monetary and in-kind contributions of the Swedish Foundation for Strategic Environmental Research (MISTRA) through the ENTWINED Research Consortium, UKAID, the Norwegian Agency for Development Cooperation (NORAD), and the State Secretariat for Economic Affairs (SECO). This report was also financially underwritten by IISD and IIED.

Data Sources and Disclaimer

One of the objectives of the SSI project is to contribute to the development of a more harmonized infrastructure for data collection and reporting. To that end, the SSI has worked in close partnership with a number of other leading organizations that share a similar objective, including, among others, the International Trade Centre (ITC), the International Social and Environmental Accreditation and Labelling Alliance (ISEAL), and the Research Institute of Organic Agriculture/Forschungsinstitut für biologischen Landbau (FiBL).

In particular, and in order to promote efficiency and accuracy, we have both fed data to, and drawn data from, the ITC's Standards Map Database wherever possible. For data not covered under the ITC Standards Map Database, we have relied primarily on direct communication with standard-setting bodies and on third-party literature. Below is a brief listing of data sources, unless otherwise specified in the report:

- Standard system data: ITC
- Governance data: Standards bodies and ITC
- Standard system content and criteria data: ITC. Note: Criteria coverage only reflects specific matching with SSI indicators and should not be understood to suggest a given initiative's entire treatment on a specific sustainability topic.
- Market data: Standards bodies and third-party literature. Note: SSI organic market data, unless otherwise specified, represents estimates made by the SSI drawing from FiBL and other data sources.

Unless otherwise reported, all of the market analysis and numerical representations of all data, regardless of the source, are strictly the work and responsibility of the SSI. Although we have done our best to ensure that our reporting reflects the data as provided by these sources as accurately as possible through a two-stage vetting process, the SSI takes full responsibility for all data and analysis contained within this report.

The Sustainable Agricultural Network (SAN) sets the standards for the Rainforest Alliance (RA) label. Therefore, the systems section of this review, with its focus on the standards bodies, refers to both SAN/RA; however, for simplicity, the market section refers to only Rainforest Alliance. Similarly, the systems section describes the work of the International Federation of Organic Agriculture Movements (IFOAM), which sets the standards for organic commodities. The market section uses "organic" to refer to commodities certified under any recognized organic certification, independent of whether or not they are actually compliant with IFOAM global standards.

Acronyms

ACP	African, Caribbean and Pacific
BCI	Better Cotton Initiative
CAGR	compound annual growth rate
CmiA	Cotton made in Africa
CoC	Chain of Custody
COSA	Committee on Sustainability Assessment
CSPK	Certified Sustainable Palm Kernel
CSPO	Certified Sustainable Palm Oil
ETP	Ethical Tea Partnership
EU-RED	European Union Renewable Energy Directive
FAO	Food and Agriculture Organization of the United Nations
FAST	Finance Alliance for Sustainable Trade
FiBL	Research Institute of Organic Agriculture
FLO	Fairtrade Labelling Organizations International ("Fairtrade" or "Fairtrade International")
FSC	Forest Stewardship Council
GMO	genetically modified organism
GRASP	GLOBALG.A.P. Risk Assessment on Social Practice
ICCO	International Cocoa Organization
ICI	International Cocoa Initiative
ICO	International Coffee Organization
IDH	Sustainable Trade Initiative
IFOAM	International Federation of Organic Agriculture Movements ("Organic")
IISD	International Institute for Sustainable Development
ILO	International Labour Organisation
ISEAL	International Social and Environmental Accreditation and Labelling Alliance
ISCC	International Sustainability and Carbon Certification
ISO	International Organization for Standardization
ITC	International Trade Centre
NGO	non-governmental organization
OECD	Organisation for Economic Co-operation and Development
PEFC	Programme for the Endorsement of Forest Certification
PPM	production and processing method
RA	Rainforest Alliance
RED	Renewable Energy Directive
RSB	Roundtable on Sustainable Biomaterials
RSPO	Roundtable on Sustainable Palm Oil
RTRS	Round Table on Responsible Soy
SAN	Sustainable Agriculture Network
SFI	Sustainable Forestry Initiative
SSI	State of Sustainability Initiatives
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USDA	United States Department of Agriculture
VSS	voluntary sustainability standard
WCF	World Cocoa Foundation
WTO	World Trade Organization

Units and Measures

KG	kilogram
MT	metric ton
HA	hectare
US$	U.S. dollar
USD	U.S. dollar
€	euro
£	pound sterling

EXECUTIVE SUMMARY

Voluntary sustainability standards have grown rapidly in number and importance in global commodity markets over the past decade. The growth of voluntary sustainability standards has occurred in parallel with growing recognition of the importance of economic drivers in implementing sustainable development, as evidenced by the global call for a green economy.

The *State of Sustainability Initiatives Review 2014* reports on systems and market trends across 16 of the most important standards initiatives operating across 10 key commodity sectors. Initiatives covered in this report account for an estimated $31.6 billion in trade value, pointing toward their growing importance in defining terms of trade and opportunities for development across the commodity-producing world.

Key findings of the *SSI Review 2014* include:

Sustainability standards continue to experience exceptional growth: The average annual growth rate of standard-compliant production across all commodity sectors in 2012 was a stunning 41 per cent, significantly outpacing the annual average growth of 2 per cent in the corresponding conventional commodity markets. Growth in compliant production was strongest in the palm oil sector, which experienced 90 per cent growth in 2012. Other leading commodity sectors for production growth in 2012 were sugar (74 per cent growth), cocoa (69 per cent growth) and cotton (55 per cent growth).

Sustainability standards have forcefully penetrated mainstream markets: The Review documents a persistent trend in sustainable sourcing commitments by manufacturers, which is resulting in significant market penetration in several commodity markets. For example, standard-compliant coffee, which led in terms of market penetration, reached a 40 per cent market share of global production in 2012 (up from 15 per cent in 2008). Other commodities with significant market shares (in terms of global production) in 2012 include cocoa (22 per cent; up from 3 per cent in 2008), palm oil (15 per cent; up from 2 per cent in 2008) and tea (12 per cent; up from 6 per cent in 2008).

Sustainable markets continue to be defined by persistent oversupply of standard-compliant production: While standard-compliant production has reached significant levels across select commodities, actual sales of products as "standard compliant" have not grown as rapidly, resulting in significant oversupply (typically between one-third and one-half of total compliant production is actually sold as compliant). This situation means that companies have ample choice for sustainable sourcing (positive outcome), but also suggests that the market may be placing downward pressure on the prices of sustainable products due to oversupply (negative outcome).

Production for sustainable markets is concentrated in more advanced, export-oriented economies: Supply of sustainable products is concentrated in select regions with more developed production capacity. Across developing countries, sustainable production is concentrated in Latin America. When developed countries can supply sustainable markets (as in the forestry sector), they tend to dominate supply. In light of this, special investment will be necessary if voluntary standards are to effectively operate as tools for poverty reduction among those most in need.

Sustainability standards are creating new opportunities for stakeholder participation in supply chain decision making: Whereas conventional commercial relationships rely principally on agreement between buyer and seller, sustainability standards have done a good job at integrating non-traditional perspectives into supply chain decision making by the standard-setting and implementation process, as represented by board member representation. Although developed country representation is still dominant across most boards, developing country representation is significant and remarkable.

Sustainability standards are strengthening the reliability of market claims through increasingly independent monitoring and enforcement processes: All of the initiatives surveyed applied some form of third-party conformity assessment procedure. A full three-quarters apply third-party certification—which adds to the independence of claims. Some of the newer initiatives have focused on using only verification for conformity assessment in order to cut costs and allow for more rapid growth.

Average criteria coverage of voluntary sustainability standards is declining as standards target mainstream markets: An analysis of voluntary sustainability standard criteria suggests that newer, mainstream-oriented standards apply criteria of reduced depth and breadth as a means for allowing for more rapid uptake. Across the initiatives surveyed, negative rights related to ILO core labour standards, as well as environmental practices with direct quality and yield outcomes, show the greatest degree of coverage. Most initiatives contain few criteria related to economic sustainability, reflecting a general belief that economic benefits should follow automatically upon reaching compliance.

Voluntary sustainability standards offer an important contribution to the green economy but cannot be assumed to deliver sustainable development outcomes: Voluntary standards have a close relationship with efforts to build a green economy. On the one hand, sustainability standards can help the market better achieve full-cost accounting in the pricing mechanism. On the other hand, voluntary sustainability standards can facilitate investment in sustainable technologies and practices. The ability of voluntary standards to do so, however, depends fundamentally on the credibility and objective accuracy of such initiatives in linking product sustainability claims to truly sustainable outcomes on the ground. The report highlights the many ways in which such accuracy and objectivity can be challenged by market forces, signalling the importance of public policy and related “non-market” frameworks for creating a level and transparent playing field in the standards sector.

Overall, the SSI Review concludes that the opportunities for voluntary standards to enable transformational change across major mainstream markets are now well established and continue to grow, but that taking full advantage of them will require a better understanding of field-level impacts, as well as a host of strategic policy measures to ensure that such standards effectively serve public sustainable development objectives.

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1 VOLUNTARY SUSTAINABILITY STANDARDS AND THE GREEN ECONOMY

The origins of contemporary voluntary sustainability standards can be traced back to a combination of growing consumer awareness around sustainability issues, changing global trade patterns through globalization, and a growing recognition of the limitations facing intergovernmental collaboration for addressing global supply chain sustainability issues.[1] The two principal precursors to contemporary sustainability standards, namely boycotts and eco-labelling, responded to these changing conditions by providing companies with direct, but limited, incentives for either avoiding unacceptable practices or adopting best-in-class practices.[2] Voluntary sustainability standards, by contrast, have differentiated themselves from their predecessors by offering a *systemic* means for ensuring that certain specific sustainability practices or outcomes are attained through the production cycle. Voluntary sustainability standards, in principle, begin from the premise that *any and all* actors within a sector can (and ultimately should) seek compliance with a given set of practices (criteria) set forth under a given standard. Voluntary sustainability standards are therefore unique in their ability to be generally applicable across entire markets. As such, voluntary standards are particularly well situated among private sector initiatives to play a systemic role the promotion of a green economy.

The UN Environment Programme (UNEP) defines the green economy as "one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities" (UNEP, 2011). Although economists have long maintained the importance of the free market as a vehicle for enabling optimal social welfare, the use of the term "green economy" owes its current usage largely to the publication of *A Blueprint for a Green Economy* (Pearce, 1989). Beginning from the perspective of economic analysis, the basic premise Pearce's work is that the pricing mechanism, which is determined by the forces of supply and demand (as dictated by consumer preference and factor endowments), does not function optimally (i.e., produce optimal social welfare) when various capital inputs are not fully included in the equation. Following this approach, a green economy is fundamentally a system of economic interaction that fully recognizes, and accounts for, the costs associated with not only private capital, but also natural (and social) capital.

The implementation of a green economy therefore, typically implies some version of full-cost accounting as a means of internalizing the social and environmental costs of production.[3] Voluntary sustainability standards themselves, through criteria-setting and auditing processes, rely upon metrics development and measurement at specific points along the supply chain as a tool for building market recognition and, ultimately, pricing that incorporates, among other things, non-product-related ecosystem services (e.g., natural capital) into the pricing equation. As such,

1 Although global recognition of the need to promote sustainable consumption and production can be traced back to Principle 8 of the Rio Declaration (1992), a more pervasive recognition of the limitations of global intergovernmental cooperation in promoting sustainable consumption can be attributed to the failure of international trade negotiations under the World Trade Organization in addressing such issues adequately. Civil society protests of the World Trade Organization ministerial in Seattle (1999) represented an apex of civil society discontent and perceived "alienation" resulting from the global trading system—a sentiment that, in its generalized form, can be considered one of the major motivating factors for the development and expansion of "private" instruments for managing sustainable trading relationships.

2 The practice of avoiding purchasing from companies with poor environmental or human rights records through boycotts was popularized over the 1980s and 1990s. Since the Rio Earth Summit, a number of national eco-labelling programs have been established with the intention of recognizing environmental leadership across specific product domains. Following this philosophy, eco-labels seek to provide incentives for companies to compete on environmental performance by restricting eligibility for the eco-label to a portion of the market in any given product category. Examples of national eco-labelling programs include Green Choice Philippines (NELP-GCP) and India's "Ecomark."

3 The Economics of Ecosystems and Biodiversity (n.d.), The Millennium Ecosystem Assessment (2005) and Bank of Natural Capital (n.d.) each represent important initiatives aimed at improving understanding and techniques for implementing a green economy through accounting systems that seek to establish prices for natural capital.

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they potentially have an important, if not critical, role to play in the implementation of a green economy.

More recently, the concept of the green economy, largely inspired by the economic crisis of 2008, has emphasized the role of public and private *investment* in driving more sustainable production practices rather than implementing full-cost accounting per se. Under this rubric, green economy policy discussions have largely revolved around the creation of appropriate incentives to stimulate investment that promotes sustainable production and consumption. Following this line of thought, policy-makers have referred to the notion of "green stimulus" as the focal point for discussions on the green economy (see UNEP, 2009).

Voluntary sustainability standards also have a specific role to play in promoting investment in sustainable practices. By providing a basis for making (credible) market claims related to sustainable practice, voluntary standards can be regarded as tools for both brand development and risk management, thereby providing a basis for targeted investment into green supply chains. The potential of voluntary standards to operate as a stimulus to investment in green production systems is perhaps nowhere better evidenced than through the multitude of mainstream corporate commitments to adopt standard-compliant supply within the coming decade.[4] Achieving such rapid and widespread adoption of compliant practices across many markets almost necessarily implies concordant investments at the level of production.[5]

Whether one considers a green economy in terms of corrections to the pricing mechanism or in terms of targeted investments for sustainable production and infrastructure, there can be little question that voluntary sustainability standards have the potential to offer a positive contribution. What remains less certain, however, is precisely what the boundaries of that contribution might be.

Notwithstanding the promise of sustainability standards through their applicability to entire markets, the relationship of such standards to the market more generally has, at best, been relatively opaque. At the most basic level, voluntary standards have, historically, focused on building their markets rather than measuring them. As a result, there has been, and continues to be, a rather startling absence of consistently reported information related to the market performance of such initiatives. Similarly, there is little explicit recognition or research on the potential effects of voluntary sustainability standard systems on the pricing mechanism, despite the fact that, from an economic perspective, this represents one of the main pathways through which such systems operate.

At the same time, and equally importantly, voluntary sustainability standards offer a number of "non-market" pathways for promoting sustainability across global supply chains, through the provision of institutions for participatory governance, criteria development, education, technical assistance and so on. However, as market-based instruments, even these non-market pathways remain subject to market forces, raising the question of how, and to what degree, such pathways can be considered extensions of the market itself (see Box 1.1, Voluntary standards and the green economy: Potential contributions and constraints).

As market-based instruments, voluntary sustainability standards may be able to provide efficiency gains over more traditional command-and-control mechanisms for correcting for market failure. However, as instruments *of the* market, voluntary standards remain inherently challenged in their ability to fully "correct" for market imperfections (see Figure 1.1, Voluntary sustainability standards and the pricing mechanism.). This context provides the backdrop for supply chain decision-makers seeking to play a proactive role in the green economy and/or to understand the potential role of sustainability standards within a context of policy measures for promoting a green economy. It also provides context for understanding the role different implementation and content systems may have in contributing to the broader goal of building a greener economy.

Although the current review cannot hope to determine whether or when sustainability standards are effective at promoting a green economy, it does hope to provide a window into understanding the current state of play and issues related to the implementation of a green economy among 16 leading sustainability standards in the agriculture and forestry sectors. And if we are not able to find the perfect path to a green economy through our analysis, perhaps we can be contented by a greater awareness of the boundaries of that path.

4 Many leading retailers and product manufacturers have made public commitments to source 100 per cent of their supply from sustainable sources by 2020. Enabling such a widespread transition, particularly among developing country supply, may imply significant investments upstream in the supply chain. See Market Development sections of individual commodity market chapters.

5 Some voluntary sustainability standards, such as Fairtrade (through its Producer Support Network) and UTZ Certified (through its relationship with Solidaridad), have also played significant roles in raising affiliated investment in technical assistance to facilitate a transition to compliance. Increasingly, there is a trend to use certification as a component in broader sustainable supply chain investment strategies. Two important programs with an explicit mandate of facilitating investment in certified supply chains include the Sustainable Trade Initiative/Initiatief Duurzame Handel (IDH) and the Sustainable Commodity Assistance Network (SCAN). In 2012 the annual budget of IDH was €32.5 million (IDH, 2012).

Voluntary sustainability standards have the potential to contribute to a green economy in a variety of ways. Below we consider some of the main market and non-market means by which voluntary sustainability standards can contribute to the implementation of a green economy, as well as key constraints facing each pathway.

1 Perfecting the pricing mechanism

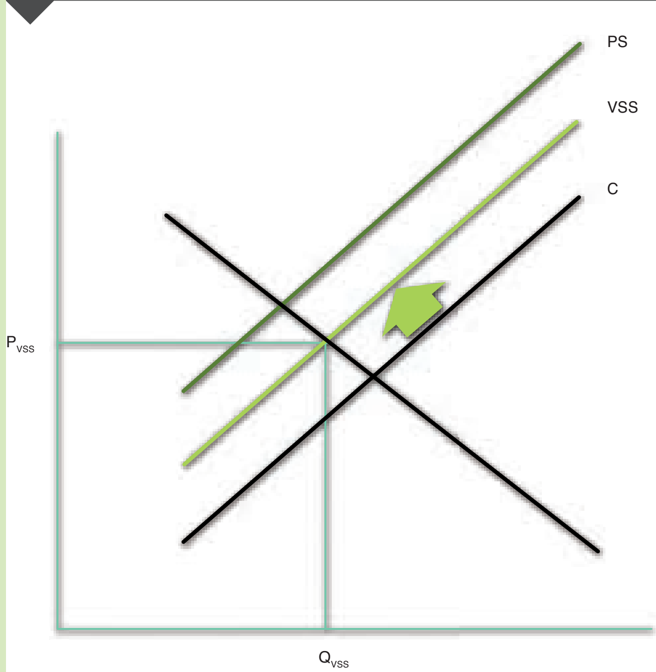
In theory, the "perfect market" provides optimal social welfare based on given factor endowments and, as such, represents a pillar of sustainable development. Indeed, it is widely recognized that many, if not most, of the sustainability challenges facing the planet today are the result of market imperfections. Accordingly, a logical starting point for promoting sustainable development rests with "perfecting" the market.

One of the four conditions of the perfect market is "perfect information," which refers to the ability of buyers and sellers to know everything and anything about the relevant economic inputs to a given transaction.[6] Historically, one of the reasons that sustainable practice has not formed an integral part of economic transactions is simply because no credible, recognized means for understanding or identifying such practice within the market has previously existed with any consistency. Voluntary sustainability standards, by both identifying sustainable practice (through criteria development) and credibly linking such practice to physical products (through conformity assessment systems), directly enable the market in communicating "non-product-related" production practices across the marketplace.[7]

As such, voluntary sustainability standards systems provide a means for integrating sustainable practice within the pricing mechanism in a way that conventional markets, in their absence, may not. This arguably represents one of the most direct and systemic manners in which voluntary standards may contribute to a green economy.[8]

The degree to which voluntary standards are able to actually provide a "perfect" adjustment to conventional market conditions is constrained by a number of factors including, but not limited to, diversity of conditions for sustainable production across different producing regions and systems that decrease the appropriateness of global criteria for local conditions, the need to design rules capable of securing *voluntary* market acceptance, and imperfections in conformity assessment processes allowing for non-compliant practices to be communicated as "compliant" in the marketplace.

FIGURE 1.1 VOLUNTARY SUSTAINABILITY STANDARDS AND THE PRICING MECHANISM.



The light green line (VSS) in Figure 1.1 represents voluntary sustainability standard supply. The dark green line (PS) represents the perfectly sustainable supply curve. The black line (C) represents the conventional supply curve. The voluntary standard's supply curve facilitates movement toward more sustainable equilibrium but faces barriers in achieving perfectly sustainable equilibrium due to system imperfections and/or political processes involved in establishing this curve. Because market acceptance is a major part of decision making, the standard may also face pressures to compromise in rule making, conformity assessment processes or other decisions that increase overall implementation costs. Voluntary standards may also have impacts on the supply curve, either by increasing efficiency of production (shift downward) or by increasing overall costs of production (shift upward). These effects are not represented in the diagram.

6 Imperfect information represents one of the sources of "market externalities" that leads to sub-optimal welfare outcomes through market interaction alone.

7 Non-product-related production and processing methods (PPMs) have earned considerable attention within the context of international trade negotiations. Because protectionism itself is one form of non-product-related PPM (i.e., a product's place of production can be considered a part of the method of production), governments have been cautious to accept differential treatment based on non-product-related PPMs alone. To the extent that governments may have legitimate social or environmental reasons for selecting products based on specific PPMs, the ability to credibly link PPMs to specific products has potentially important repercussions for international trade policy as well (see Potts, 2008).

8 Although one of the most important practical accomplishments of voluntary standards has been their ability to credibly link sustainable practices to physical products, thereby allowing markets to more efficiently include such characteristics within the pricing mechanism, few voluntary standards initiatives advertise this achievement explicitly.

2 Promoting efficiency through the allocation of sustainable production

A common strategy for governments attempting to correct for market imperfections is to resort to the use of command-and-control mechanisms that require firms to comply with specified practices or performance outcomes.[9] Command-and-control mechanisms are attractive because they allow policy-makers to achieve fixed performance outcomes. However, they may not do so in the most efficient manner possible, due to their requiring different market actors to attain equal levels of compliance.

Market-based instruments, including voluntary sustainability standards, have the advantage of allowing market actors to select their level of adoption of sustainable practices based on the relative costs (efficiencies) with which they are able to do so.[10] Moreover, firms that can improve their efficiency in the adoption of sustainable practices (through the development of new technologies) have the potential of being rewarded by the market for doing so.[11] As such, voluntary sustainability standards have the potential to promote more efficient allocation of sustainable practices across a diverse base of firms and regions.

The degree to which voluntary sustainability standards are able to promote the efficient allocation of sustainable development efforts, however, may be constrained by barriers to entry in international markets and correspondingly different levels of development among producing regions and firms, thereby preventing otherwise "efficient" firms from gaining access to sustainable markets.[12]

3 Correcting for collective choice problems

One of the most common sources of market failure is the inability of individual actors to know, or plan for, the actions of other economic actors in a manner that maximizes benefits for all. The "tragedy of the commons," which results from individual, non-collaborative self-interest maximization, is a classic problem in sustainable development[13] and provides the basic rationale for multi-party cooperation through international treaties, etc.[14]

Voluntary sustainability standards have the potential to offer a pre-competitive venue for the identification of common, collectively identified production rules for the entire supply chain, and in so doing can embody a soft form of collective action. To the extent that competitors agree upon basic practices, these practices may become integrated across entire markets, thereby being removed from the competitive equation altogether.[15]

The ability of voluntary sustainability standards to serve this function will be constrained by the degree to which standard systems represent "binding" commitments among competitors to comply with common rules (typically they do not include such commitments[16]) as well as by the degree to which *all* major competitors partake in the standards scheme. Initiatives with limited representation from market players in their governance process may be less likely to serve this particular function in the marketplace.

9 For example, in regulations establishing maximum pollution levels applicable to all firms within a given region.

10 By allowing the market to determine the allocation of adopting sustainable practices, lower cost adopters will bear a larger share of the market for compliant products. In doing so, it is said that market mechanisms promote static efficiency in promoting given sustainability practices.

11 By rewarding firms that can "transition" to sustainable practices most efficiency, market-based systems promote innovative or "dynamic" efficiency.

12 The most obvious example of this comes in the form of less developed countries and producing regions. In Section 4 we observe a general trend toward the concentration of standard-compliant supply in more developed countries. The trend toward seeking efficient supply needs to be balanced against the interest in ensuring that international markets provide benefits to those "most in need."

13 In the face of public goods where joint conservation of resources would result in improved overall welfare, individual self-interest-maximizing decision making results in the persistent overuse of the resource and correspondingly reduced total social welfare (see Hardin, 1968).

14 The solution to the "tragedy of the commons" is known as the "Nash equilibrium" and posits that each player's optimal strategy is that which is subject to the constraint that other players' strategies are also optimal. In tragedy-of-the-commons situations, some levels of individual constraints on the pursuit of self-interest produce outcomes that are better for all involved (Nash, 1950, 1951).

15 Note that to the extent that voluntary standards serve this function, they reduce the role of such practices as a basis for competition among actors. Even where common principles have been established, however, higher level standards may nevertheless be adopted as a means for improving competitiveness within the market.

16 Indeed, most national competition policies would prohibit such agreements among competitors due to the potential risks to the conditions of competition in the market (Potts, 2004).

4 Stimulating investment in sustainable production

Sustainability standards provide a framework for market recognition based on compliance with established criteria. As such, standards effectively have the potential of creating “new” markets. Recognizing this, firms can more safely invest in the adoption of sustainable practices within their product and brand development strategies.[17] The more thoroughly and deeply companies build sustainable practices within their supply chains, the greater the potential gains offered by growing markets for sustainable products are likely to be. Following this logic, the infrastructure offered by voluntary sustainability standards provides a basis for increased investment in the adoption of sustainable practices through supply chains.

The degree to which voluntary sustainability standards are able to stimulate increased investment in sustainable practice is constrained by the market benefits available as a result of adopting sustainable practices. Persistent imperfections in the pricing mechanism therefore operate as constraints on the ability of voluntary sustainability standards to stimulate investment into sustainable practice. Even the mere absence of clear data or understanding of the market benefits of such investments can reduce the investment stimulus effect of standards.[18]

17 There are many rationales by which companies may choose to do so. One rationale is that given the link between social and environmental sustainability and actual physical outputs, firms may seek the adoption of sustainable practices as a means of managing physical risks. Firms may also adopt sustainable practices as part of a risk management strategy on the understanding that the failure to comply with publicly accepted norms may lead to reduced brand value. Finally, firms adopting sustainable practices may be able to secure market advantage by being first movers or otherwise contributing to brand development.

18 The Finance Alliance for Sustainable Trade (FAST) represents a group of leading social lenders seeking to create a better understanding of the impacts (and financial performance) of investing in agricultural small and medium enterprises. The general inability to collect such information through conventional sources or through individual data monitoring efforts provides the rationale for bringing such work together under a single dedicated umbrella organization (Larrea, Minteuan & Potts, 2013).

5 Promoting participatory governance

Participatory governance plays a role in ensuring that the parameters of a green economy respond to the diverse social, economic and geographic conditions of production. One of the main rationales for the adoption of voluntary sustainability standards has been the corresponding failure of public institutions at ensuring desired sustainability outcomes. One of the appeals of voluntary sustainability standards is the immense flexibility they provide in establishing common rules for supply chain management.

While the range of governance regimes for voluntary standards is more or less infinite, the credibility of such systems is increasingly understood as a function of the inclusiveness of their governance processes (see, for example, the ISEAL standard-setting code [ISEAL, 2012b]). Importantly, sustainability standards have the potential to integrate stakeholders that might not otherwise have a significant voice within international supply chains and within the voluntary sustainability standard decision-making process. Voluntary standards can therefore promote a green economy by improving participatory governance within economic decision making.

The degree to which voluntary sustainability standards can realize this potential may be constrained by the resources available to voluntary standards systems in managing international governance systems, as well as by the potential need to secure market acceptance and therefore disproportionately accommodate larger market players in decision-making processes (see Figure 1.1, Voluntary sustainability standards and the pricing mechanism.).

6 Changing consumer preference

A green economy is one that is under a continuous process of renewal toward increased sustainability, drawing from and stimulating new knowledge and innovation. Through their rule- and criteria-setting functions, sustainability standards can play an important role in building knowledge on what constitutes sustainable production practices for a given region or sector, which may differ according to situation and context. By doing so, these standards have the ability to increase global understanding of the meaning of, and solutions to, sustainable development challenges at the local and global scale.

The rules that are identified by voluntary sustainability standard systems can serve not only as a vehicle for allowing consumers to act on existing preference (see Figure 1.1), but also as a vehicle for modifying existing consumer preference to select for more sustainable practices. In so doing, the voluntary sustainability standard systems have the effect of adjusting the consumption function toward more sustainable practices.

The degree to which voluntary standards are able to meet this objective may be constrained by the depth and accuracy of the knowledge developed through the standards process itself (including a standard's ability to integrate continual improvement in its own knowledge and processes), as well as the resources available to invest in consumer education. Standards operating on business-to-business models may seek to exert influence on consumer preference through choice editing rather than direct education.

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2 THE STANDARDS CONTEXT

Since the 1992 Rio Earth Summit and the corresponding call for greater attention to sustainable consumption and production,[1] stakeholders from all segments of the global economy have sought mechanisms for integrating sustainable development priorities into everyday economic decision making. The advent of the eco-label, and its evolution into the voluntary sustainability standard, has proven an increasingly popular and pervasive instrument for bringing transparency, consistency and efficiency into efforts to address the challenge of sustainable development.

Over the past decade we have seen rapid expansion in the development and use of voluntary sustainability standards to address key sustainability issues along specific commodity supply chains. As the number and market presence of such initiatives increases, the need for a deeper collective understanding of the strengths and weaknesses of such systems is growing. To date, initiatives have largely developed within the boundaries of specific stakeholder and commodity circles. The State of Sustainability Initiatives (SSI) project seeks to expand the horizon of strategic thinking and planning by analyzing system trends and directions while also facilitating benchmarking and cross-initiative comparison.

This section, on system indicators, is divided into three sub-chapters that discuss general aspects of voluntary sustainability standard development, implementation and conformity assessment processes, standards governance systems, and the content of voluntary sustainability standard criteria. The list of SSI core indicators—developed by the SSI implementing partners and advisory board in coordination with the International Trade Centre (ITC)—provides the framework for the analysis. Appendix I provides an explanation of each index operating within social, environmental and economic dimensions, as well as a full list of the indicators on which they are based.

Drawing from more than 100 data points sourced from the ITC Standards Map (ITC, 2013b) as well as direct communication with standards bodies, this document provides a bird's-eye view of current development, implementation, governance and content-related trends in the world of voluntary sustainability standards across select commodity supply chains.[2]

While it is our intention, and belief, that such information serves a common effort of continual improvement and increased impact of such initiatives, our data is not, in and of itself, intended to measure or draw conclusions related to the specific impacts of individual initiatives.

1 Rio Declaration, Principle 8 (see United Nations, 1999).

2 The initiatives covered in this review manage standards for specific applications in the coffee, cotton, cocoa, tea, banana, soy, palm oil, sugar, forestry and biofuels sectors. Standards applying to these sectors were selected due to the high level of voluntary sustainability standard activity in these specific sectors.

2.1 THE INITIATIVES COVERED IN THIS REPORT

Currently, more than 400 consumer-facing eco-labels are operating across the globe (see Ecolabel Index, 2013). While many of these remain targeted to specific audiences defined along geographical lines, a growing number of global standards initiatives are aimed at altering the way global commodity production and trade are undertaken. Most such initiatives today focus on the agriculture and forestry sectors, which together are estimated to account for more than one-third of all human-sourced greenhouse gases.

This survey covers 16 of the most important standards initiatives currently active in the agriculture, forestry and biofuels sectors with a global reach. These 16 initiatives currently certify or verify production totalling an estimated trade value of US$31.6 billion[3] (2012), accounting for an increasingly important share of the global market in their respective sectors. In 2012, global standard-compliant production accounted for:

- 40 per cent of coffee production
- 22 per cent of cocoa production
- 15 per cent of palm oil production
- 9 per cent of forest area

In every commodity market in which they operate, these standards are growing at rates well beyond the growth rate of production and consumption within the commodity markets themselves, with many initiatives exhibiting compound annual growth rates above 50 per cent over the last five years (see Section 4 for more information). The significant market penetration and growth of the initiatives covered in this report highlight the growing importance of understanding the underlying trends related to their design and implementation.

In order to be included in the *SSI Review 2014*, an initiative had to have global presence and be operational in one or more of the following commodities: bananas, biofuels, cocoa, coffee, cotton, forestry, palm oil, soy, sugar or tea. We are deeply grateful for the support that each of the participating initiatives provided to ensure accurate and up-to-date data. The following is an overview of the initiatives included in this report.

3 This figure is the estimated trade value, not the retail value.

4C Association
for a better coffee world

Founded in 2006, the 4C Association is a member-based initiative operating in the coffee sector across 22 countries. As a baseline, product-specific standard, the 4C code implementation process provides a phased-in approach toward full compliance. This phased-in approach makes it possible for producers who are either unfamiliar or not yet able to comply with more stringent certification initiatives to gain market recognition for adopting commitments to more sustainable production. One of the objectives of the 4C Association is to prepare producers for eventual compliance with other consumer-facing initiatives.

The initiative operates business to business, developing standards and verifying compliance with these standards in order to ensure sustainable coffee practices among its members. All 4C units[4] are required to submit self-assessments and undergo subsequent verification audits by accredited third-party auditors. The 4C Association applies the identity preservation and segregation models of supply chain traceability at the unit level. The supply chain traceability model of mass balance is also used; however, the licence/certificate must be passed on with the coffee up to final buyer level. The initiative is funded primarily by membership fees.

4 "4C units" is the name 4C gives to producing entities (V. Perez, 4C Association, personal communication, December 2013).

BONSUCRO®

Founded in 2008, Bonsucro is a multistakeholder initiative operating in the sugar cane sector across seven countries. Bonsucro offers a unique credit-trading scheme to provide efficient certification across a homogenous commodity. Once compliance is approved, the certified products (or credits) can be traded.

The initiative operates business to consumer, developing standards and a marketing label to ensure sustainable sugar cane practices among its members. To verify compliance throughout Bonsucro's three-year certification validity period, all Bonsucro-compliant enterprises are required to undergo surveillance audits, with all audits performed by third-party auditors. Separate Chain of Custody certification is offered, and the initiative applies both the mass balance and book-and-claim models of supply chain traceability to its products. The initiative is funded primarily by membership fees.

BCI Better Cotton Initiative

Founded in 2005, the Better Cotton Initiative (BCI) is a member-based initiative operating in the cotton sector across eight countries. BCI's Better Cotton System provides a holistic approach to building and implementing sustainability in cotton production, which is implemented by major manufacturers.

The initiative operates business to business, developing standards and verifying compliance with these standards in order to ensure sustainable cotton production practices among its members. To verify compliance throughout BCI's one-year licence period, all BCI-compliant enterprises are required to undergo verification audits, with all verification audits performed by third-party auditors. The initiative offers a separate Chain of Custody standard and applies the mass balance model of supply chain traceability to its products. The initiative's revenue is derived almost evenly from both recurring and non-recurring sources (BCI, 2013a).

COTTON MADE IN AFRICA

Founded in 2005, the Cotton made in Africa (CmiA) initiative is an initiative operating in the cotton sector across six countries. CmiA is distinguished by its reliance on and use of the Demand Alliance of international textile companies in driving both market and supply chain uptake through the demand of sustainably produced cotton.

The initiative operates business to consumer, developing standards, verifying compliance with these standards, and using a marketing label to ensure sustainable cotton practices among its members. CmiA's initial approval is based on self-declaration followed by a third-party verification audit every two years to verify compliance. Identity preservation and mass balance models of supply chain traceability are applied to all CmiA cotton products to ensure accountability of compliance claims in the marketplace. The primary source of CmiA's revenue comes from grants and fees and services.

Ethical Tea Partnership

Founded in 1997,[5] the Ethical Tea Partnership (ETP) is a member-based initiative operating across 16 countries within the tea sector. The ETP is a non-commercial alliance of international tea companies working together to improve the sustainability of the tea sector by improving producers' performance against the ETP Global Standard, which was formally launched in 2009. The Partnership also provides training and capacity building to enable producers to meet these standards.

ETP operates business to business, developing standards to ensure sustainable tea practices among its members. All ETP-compliant enterprises are required to submit an initial self-assessment. Feedback is provided to the producers in the form of a risk assessment, allowing the producer to identify areas for improvement and prepare for a verification audit. All ETP audits are performed by third-party auditors. The segregation model of supply chain traceability is applied to all ETP tea products to ensure accountability of compliance claims in the marketplace. The initiative is funded primarily by membership fees.

5 The ETP (originally the Tea Sourcing Partnership) was established in 1997 by major tea-packing companies from the United Kingdom to monitor and ensure its members' supply chains. Originally, this focused purely on the social and labour rights of workers and was measured against local and national laws. In 2009 the ETP launched its own standard, called the ETP Global Standard. The social and labour provisions are based on the Ethical Trade Initiative base code, which covers the relevant International Labour Organization core conventions. The standard also covers key environmental provisions relevant to the tea industry.

GLOBALG.A.P.

Founded in 1997, the Global Partnership for Good Agricultural Practice (GLOBALG.A.P.) is a private initiative operating in the food and agriculture sector across 110 countries. GLOBALG.A.P. acts as a benchmark for local producers to become integrated into the GLOBALG.A.P. system through local G.A.P., a stepwise improvement plan that provides a subset of less-stringent GLOBALG.A.P. checkpoints. This enables emerging growers to meet minimum requirements for food safety and hygiene at the "Foundation" level before advancing to stronger food safety criteria.

The initiative operates business to business, developing standards and offering accreditation and certification services. GLOBALG.A.P.'s certificate validity period is one year. All audits are performed by third-party auditors. GLOBALG.A.P. offers a separate Chain of Custody certification and applies the identity preservation, segregation and mass balance models of supply chain traceability to its products. The initiative is funded primarily by fees and services.

FAIRTRADE INTERNATIONAL

Founded in 1997, Fairtrade International is a member-based initiative operating within the food and agriculture sector across 120 countries. The initiative coordinates Fairtrade labelling at the international level. Fairtrade sets minimum pricing and premium levels as part of its commitment to poverty reduction for developing country producers.

The initiative operates business to consumer. A separate certification company, FLO-CERT, inspects producers and traders to ensure they comply with Fairtrade standards. Full re-assessment for Fairtrade's certificates is conducted every three years. Within this three-year period, yearly surveillance audits and random field checks are performed. All audits are conducted by third-party auditors. The three supply chain traceability models of identity preservation, segregation and mass balance models are applied to all Fairtrade products to ensure accountability of compliance claims in the marketplace. The initiative's primary source of revenue is from membership fees and grants.

FSC

Founded in 1993, the Forest Stewardship Council (FSC)[6] is a member-based initiative operating within the forestry sector across 102 countries. In recognition of the local geographical and political diversity associated with forestry systems, FSC manages a series of National Standards Development Groups that adapt FSC international standards to the local context by adding country-specific indicators, verifiers and guidance.

The initiative operates business to consumer,[7] developing standards and marketing the FSC label in order to ensure sustainable forestry practices among its members. FSC's certification validity period is every five years, during which time a minimum of one annual surveillance audit is conducted. All audits are performed by third-party auditors. FSC offers a separate Chain of Custody certification and applies identity preservation, segregation and mass balance models of supply chain traceability to all its products. The initiative is funded primarily by fees and services.[8]

6 For the purpose of this review, FSC references the FSC Group, which includes FSC AC with FSC IC, GD and Accreditation Services International.

7 Forest management standards are developed in consultation with members and other stakeholders to define requirements for sustainable forestry practices. Certification of forest management against these standards is conducted to ensure that forestry with the FSC certificate is practiced sustainably. Marketing of FSC is conducted by some FSC entities and stakeholders.

8 SSI correspondence with FSC.

Founded in 1972, the International Federation of Organic Agriculture Movements (IFOAM) is a member-based initiative operating in the food and agriculture sector across 116 countries. As an international umbrella organization, IFOAM sets standards and quality assurance systems for organic standards. Organic certification is typically determined by standards set at the national or regional level. Many different Organic standards may operate within a single country, which may or may not comply with IFOAM global standards. Moreover, local Organic standards are increasingly regulated by governments. IFOAM plays a special role in the organic sector as an association of standards, and the initiative unites organic stakeholders, advocates long-term social and ecological change, facilitates production and trade, assists organic development, and provides training.[9]

The initiative operates business to consumer,[10] developing standards to ensure sustainable agriculture practices among its members. IFOAM-compliant enterprises are required to undergo a full assessment every year for recertification. Third-party, accredited auditors conduct all audits. The identity preservation and segregation models of supply chain traceability are applied to IFOAM's food and agriculture products. The initiative's primary source of revenue is from fees and services.[11]

9 Throughout the systems section of this report we refer to Organic and IFOAM standards interchangeably. However, it is important to note that not all production considered Organic is actually compliant with IFOAM standards. IFOAM does, nevertheless, represent the leading global reference for defining Organic standards. Market data on Organic production and trade includes all recognized Organic production independent of whether or not the production complies with IFOAM criteria per se.

10 In addition to having a consumer-facing label, IFOAM also operates business to business (D. Gould, IFOAM, personal communication, December 2013).

11 For IFOAM, "fees and services" references "project income."

Founded in 2007, the Roundtable on Sustainable Biomaterials (RSB) is a global, member-based initiative operating in the energy sector across six countries. RSB is one of the few global commodity standards with specific performance requirements for greenhouse gas mitigation.

The initiative operates business to business, developing standards and marketing the RSB label to ensure sustainable biomaterial production. RSB units are certified case by case, with reassessment periods ranging from monthly for high-risk cases to two years for low-risk cases. Audits are conducted by third-party auditors. RSB offers a separate Chain of Custody certification and applies the identity preservation, segregation and mass balance models of supply chain traceability to its products. RSB's primary source of revenue is public and private grants.

Founded in 1999, the Programme for the Endorsement of Forest Certification Schemes (PEFC) is a member-based initiative operating in the forestry sector across 63 countries. PEFC membership consists of independent national standard-setting bodies as well as international stakeholder members. The initiative manages the PEFC Sustainability Benchmarks, which set baseline requirements for national standards initiatives to be endorsed by PEFC.

PEFC is an international umbrella organization that develops standards and provides independent assessment[12] and endorsement of national forest certification systems. The initiative operates business to consumer, developing standards and marketing the PEFC label to ensure sustainable forestry practices. PEFC Sustainable Forest Management certificates are valid for five years, with all audits conducted by third-party auditors. PEFC offers a separate Chain of Custody certification and applies the identity preservation, segregation and mass balance models of supply chain traceability to its products. The initiative is funded almost entirely by membership fees (PEFC, 2013).

12 PEFC independently assesses national standards for conformance with international requirements.

Founded in 2012, the ProTerra Foundation is a member-based, not-for-profit foundation.[13] The ProTerra Standard is applicable to any food or agricultural product, although it is currently used primarily for soy production and soy-derived consumer products. ProTerra is the first certification program in the food and feed commodities sector to respond to the demand for both non-GMO soy and improved sustainability.

The initiative operates business to consumer, developing standards and managing and maintaining quality control over certification. The validity period of ProTerra certificates is one year, with all audits conducted by third-party auditors. Identity preservation and the segregation models of supply chain traceability are applied to all ProTerra soy products to ensure accountability of compliance claims in the marketplace.

13 ProTerra certification was under Cert ID until the ProTerra Foundation was established in January 2012.

Founded in 2004, the Roundtable on Sustainable Palm Oil (RSPO) is a member-based initiative operating in the palm oil sector across 71 countries. The initiative aims to achieve mainstream market uptake of sustainable palm oil production and processing. To this end, the Task Force on Smallholders was initiated to promote smallholder participation in the RSPO.

The initiative operates business to consumer, developing standards and providing certification services to ensure sustainable palm oil production among its members. RSPO-compliant enterprises undergo annual surveillance audits during the five-year certification period. All audits are conducted by third-party, accredited auditors. RSPO offers a separate supply chain certification and applies all four models of supply chain traceability—identity preservation, segregation, mass balance, and book-and-claim—to its products. The initiative is funded primarily by certified sustainable palm oil trading fees.

Founded in 2006, the Round Table on Responsible Soy (RTRS) is a member-based initiative functioning as a multistakeholder platform that works toward achieving responsible soy value chains. The initiative develops and manages standards for responsible soy production and operates across 21 countries. The RTRS offers a generic set of principles and criteria explicitly designed to apply to genetically modified, conventional and organic production systems.

The initiative operates business to business. RTRS units are re-assessed for certification each year. All audits are conducted by third-party, accredited auditors. RTRS offers a separate Chain of Custody certification and applies the segregation and mass balance models of supply chain traceability to its products to ensure accountability of compliance claims in the marketplace. The initiative is funded primarily by private grants and membership fees.

Founded in 1987, the Rainforest Alliance/Sustainable Agriculture Network (SAN/RA) is a member-based initiative operating in the food and agriculture sector across 43 countries. The Rainforest Alliance and SAN represent a unique bi-party approach to standards development, conformity assessment and marketing. SAN is a coalition of independent, mostly Southern non-profit conservation organizations that promote the social and environmental sustainability of agricultural activities by developing standards and supporting technical assistance. SAN is the sole standard-setting body for Rainforest Alliance Certified agricultural products. The Rainforest Alliance manages labelling and marketing support of SAN-compliant products.

The initiative operates business to consumer, developing standards, providing certification and marketing the Rainforest Alliance label in order to ensure sustainable agricultural practices. SAN units are certified every three years. All audits are conducted by third-party auditors. SAN offers a separate Chain of Custody certification and applies the identity preservation, segregation and mass balance models of supply chain traceability to its products. The agricultural related work of Rainforest Alliance is funded primarily by membership fees[14] and public grants.

14 Included in membership fees are "certification fees" and "contributions and membership" (Rainforest Alliance, 2013).

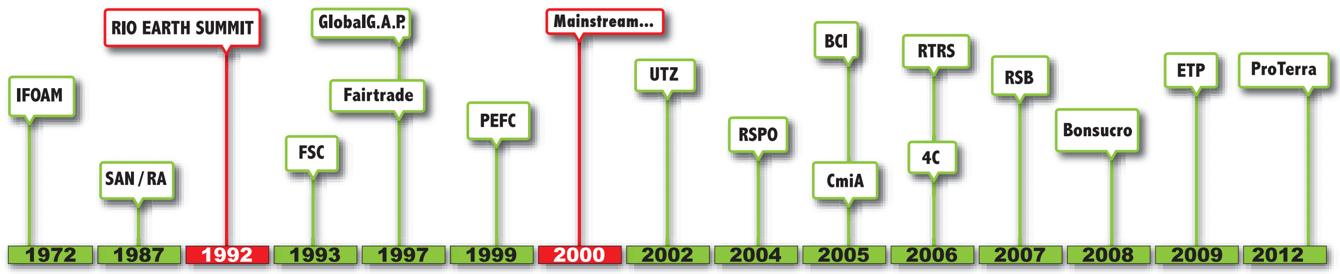
Founded in 2002, UTZ Certified is a multistakeholder initiative operating in the food and agriculture sector across 33 countries. Originally an idea of a Guatemalan coffee grower and a Dutch coffee roaster, UTZ Certified has grown into an independent, non-governmental, not-for-profit organization dedicated to creating a world where sustainable farming is the norm.

The initiative operates business to consumer, developing standards, providing certification and marketing the UTZ label through and with its partners, in order to ensure sustainable agricultural practices. All UTZ units are certified yearly, with all audits conducted by third-party auditors. UTZ also offers a separate Chain of Custody certification. The initiative applies the identity preservation and segregation models of supply chain traceability to all its products.[15] Membership fees constitute the primary source of revenue for UTZ.

15 UTZ also applies the system of mass balance to cocoa, but not to coffee, tea or rooibos. The initiative also provides traceability services for other sustainability initiatives (SSI direct communication with UTZ Certified).

2.2 HISTORICAL TRENDS

FIGURE 2.1 THE START DATES OF EACH OF THE 16 STANDARDS IN RELATION TO THE RIO EARTH SUMMIT.[16]



16 Note that while the ETP was officially founded in 1997, the ETP standard was not promulgated until 2009.

At the launch of Agenda 21 in 1992, only two of the sixteen sustainability standards included in this review had been established. Since then, the landscape has undergone significant change, with voluntary sustainability standards moving from an initial focus on providing a platform for product differentiation based on adoption of leading practices for sustainability, toward a focus on large-scale transition in mainstream supply, with sustainability standards setting baselines for "sustainable" practice.

Early standards initiatives such as IFOAM and Fairtrade, while not restricting eligibility to a portion of the market,[17] were largely inspired by movements regarded as alternatives to mainstream markets. The vast majority of newer initiatives focus directly on mainstream integration at the outset of the standards-development process, a feature that is having significant impacts on the way systems are being designed and implemented today. Notably, this trend represents a move away from that adopted by early eco-labels designed to provide market recognition to only best-in-class leaders, and is increasingly captured by an effort to ensure that minimum baseline social and environmental norms are upheld within a context of international trade.[18] Much of the data gathered for this report offer an evidence base for this storyline.

Figure 2.1 provides a visual representation of the growth of voluntary standards in commodities production and trade over the past two decades. The year 2000 roughly marks the beginning of the trend toward the development of initiatives explicitly targeting global mainstream markets.

17 Strictly speaking this is not entirely true, given that Fairtrade only sources from developing country producers.

18 The early vision of sustainability standards arguably owes its identity to the precedent of national eco-labels, which sought to allow consumers to identify products that excelled in promoting environmental sustainability. Under the eco-label model, voluntary standards were designed to allow consumers to push the bar of innovation toward environmental sustainability by choosing labelled products over their non-labelled counterparts. The logic of the eco-label, however, was designed on an understanding that the standards themselves would change on an ongoing basis to ensure that only the leaders in environmental management would receive the eco-label. As mainstream practices changed, the eco-label would adjust and select new leaders. The notion of 90 per cent market share for an eco-label would have been an oxymoron.

BOX 2.1 DEFINING THE GREEN ECONOMY: THE GROWING ROLE OF THE PRIVATE SECTOR

As a general rule, most voluntary systems today seek to involve a broad range of stakeholders somewhere in the standard-setting process. Notwithstanding this, different initiatives tend to be launched with different underlying philosophies, which the founders of the initiative typically define prior to the standard-setting process itself.

The past decade has seen the rise of greater involvement and leadership from the private sector in the development and implementation of voluntary sustainability standards. The oldest initiatives covered in this report (IFOAM, Rainforest Alliance and Fairtrade) were established principally as civil society movements seeking to exert influence on private sector activity. Over time, companies have become increasingly integrated into the standard-setting and implementation processes. Several of the standards covered in this report (UTZ Certified, 4C Association, GLOBALG.A.P. and ETP) were originally initiated through industry-led dialogue and cooperation.[19] More recently, however, a trend has appeared, loosely following the FSC model, toward use of clearly designated multistakeholder governance as a foundation for launching new standards initiatives (RSPO, RTRS and Bonsucro).

Regardless of their origins, all of the initiatives in this report currently operate as non-profit organizations, with most including some degree of multistakeholder representation in their implementation process.

19 Note the 4C Association was launched through a public-private partnership between the German Coffee Association and GIZ. A multistakeholder steering committee guided the 4C Association's initial standard-development process. UTZ Certified was initially launched in 1997 as a coffee standard emanating from a coffee project run by Ahold in Guatemala under the name UTZ Kapeh, or "Good Coffee." The organization became an independent non-profit in 2002.

TABLE 2.1 FOUNDING STAKEHOLDERS, BY INITIATIVE.

Initiative (from date of establishment)	Stakeholder groups that established the initiative			
	Civil society	Producers	Private sector	Public sector
IFOAM	✓			
SAN/RA	✓			
FSC	✓	✓	✓	
ETP			✓	
Fairtrade	✓			
GLOBALG.A.P.			✓	
PEFC		✓		
UTZ Certified		✓	✓	
RSPO	✓	✓	✓	
BCI	✓	✓	✓	
CmiA	✓	✓	✓	✓
4C Association			✓	✓
RTRS	✓	✓	✓	
RSB	✓	✓	✓	
Bonsucro	✓	✓	✓	
ProTerra	✓		✓	

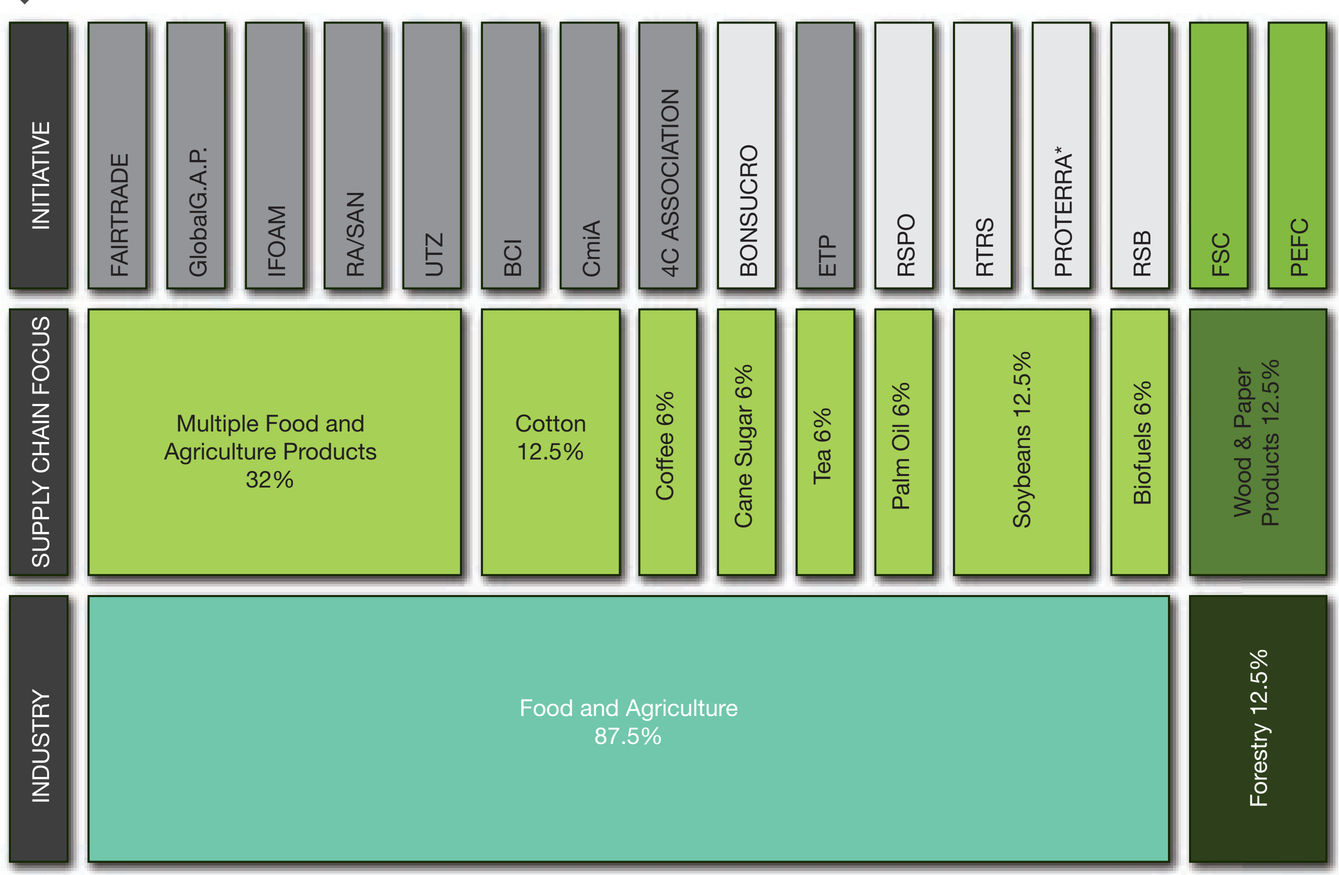
2.3 SETTING THE CONTEXT

The sustainability standards assessed in this review vary considerably in their organizational makeup and implementing processes. Given the high degree of diversity associated with voluntary standards, any interpretation of the various indicators covered in this report needs to be considered in light of the history, ambitions and scope of the initiative itself. Indeed, the philosophical and historical antecedents to any given initiative will often provide the basic logic and rationale for a given standard's characteristics and position in the marketplace (see Box 2.1). The following overview provides high-level information that aims to contextualize an understanding of the statistics reported elsewhere in this report.

2.3.1 Industry and Product Scope

Voluntary sustainability standards have the potential to improve environmental, social and economic performance for a wide array of industry, product and supply chain sectors. In some sectors, concerns related to social or environmental considerations at the farm or plantation level are the primary focus behind voluntary standard efforts (e.g., agriculture and food sector and forestry sector), whereas other sectors prioritize concerns related to worker health and safety (e.g., textiles and apparel). A characterization of industry and product coverage arguably represents the starting point for situating any given standard. This review covers 16 initiatives across 10 commodity sectors, 14 serving the agriculture sector (including biofuels) and two serving the forestry sector. Five of the initiatives covered are generic in form, setting standards according to an organization's mission and principles across a variety of commodity sectors. All 11 of the most recent initiatives are single sector and commodity specific, revealing a trend toward a deeper integration of standard-setting processes into existing industrial processes. See Figure 2.2; initiatives appearing in lighter grey also cover biofuels within the food and agriculture sector.

FIGURE 2.2 INDUSTRY COVERAGE ACROSS VOLUNTARY SUSTAINABILITY STANDARDS REVIEWED.



*The ProTerra standard is designed to be applicable to any sector of the agricultural and food industries, although at present it is used almost exclusively for soy. Application to sugar is in its early stages (J. Fagan, ProTerra Foundation, personal communication, December 2013).

2.3.2 Activity Scope

Standard setters can play a variety of different roles in the standard-setting and implementation process. A broader understanding of the different activities undertaken by a given organization provides an important backdrop to interpreting the functioning of the organization within the market.

In order to be included in the SSI Review, an initiative must, at a minimum, manage the development and implementation of a global standard. Of the 16 initiatives covered, all also apply some form of conformity assessment, with certification being the most common. Whether or not an organization takes on accreditation, certification and/or verification may turn on a variety of issues, ranging from cost and efficiency to ownership and credibility. The delegation of accreditation, certification and/or verification to third parties provides an increased degree of independence in the conformity assessment process, with independent accreditation representing the highest level of independence.[20]

The delegation of these processes to third parties may also provide efficiencies by allowing more specialized organizations to carry out these functions. However, the employment of independent organizations in conformity assessment may also mean: (1) A reduced degree of ownership of the conformity assessment process and/or (2) the reallocation of scarce revenues to third parties. Historically, organizations have tended to mature into increasingly independent conformity assessment processes as budgets and initiative complexity allow over time.[21]

Image: JBLM PAO / CC BY NC SA

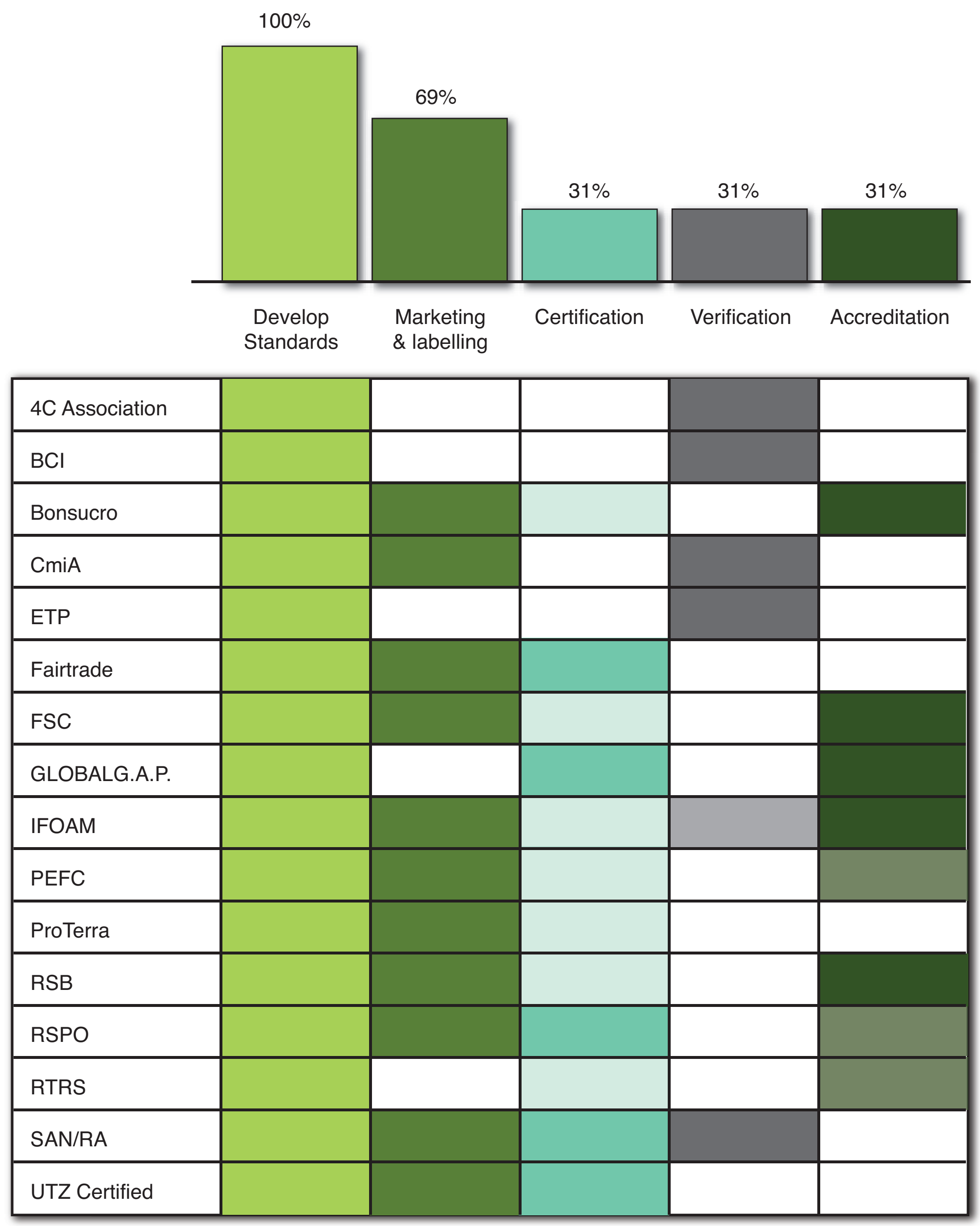
20 Note that even the highest level of independence does not entirely avoid conflict of interest issues. Independent conformity assessment bodies, like "internal" conformity assessment bodies, ultimately rely on successful conformity assessment processes for their ongoing revenues and therefore are exposed to a latent moral hazard problem.

21 For example, Fairtrade Labelling Organizations International initially conducted both certification and standard development processes but today has divided these functions up between Fairtrade International and FLO-CERT. Similarly, FSC originally performed its own accreditation but now runs accreditation through Accredited Services International.

Figure 2.3 shows the activities undertaken by each of the initiatives reviewed. All develop standards and all manage conformity assessment using either certification or verification. Some of the organizations reviewed also apply an accreditation model. Since both verification and accreditation can be combined with certification (potentially carried out by third parties), the adoption of one or another of these conformity assessment processes by the standard-setting body does not on its own determine the depth of the conformity assessment process associated with the standard system itself. In order to capture "system variances" that exist beyond the individual standard-setting bodies, we use lighter shading to underscore "affiliated activities"[22] that are associated with the standard system.

22 These "affiliated activities" are not included in the calculation that determines the overall percentage of types of main activities performed by the initiatives.

FIGURE 2.3 MAIN ACTIVITIES OF VOLUNTARY SUSTAINABILITY INITIATIVES.[23]



23 FSC, IFOAM, PEFC and ProTerra manage or oversee certification schemes but do not act as certification bodies. Accreditation Services International (ASI) provides accreditation for FSC, RSPO, and RSB certification bodies. IFOAM Global Organic System Accreditation accredits IFOAM-compliant certification bodies, which must then use standards or regulations recognized by the IFOAM Family of Standards. IFOAM also approves Participatory Guarantee Systems, which do their own form of verification. PEFC is considered a certification system, while also underscoring the certification process as a distinct activity in order to maintain impartiality. RSB also manages a certification system that is conducted and verified by a third party.

Approximately two-thirds of the initiatives reviewed also perform marketing and labelling activities, revealing the close link between voluntary standards and product marketing more generally. Marketing and labelling services help support member product branding (private good) while helping consumers and other stakeholders more efficiently identify and support sustainable practices (public good) (see Box 2.2).

Perhaps self-evidently, organizations that undertake a broader range of activities (and particularly those that manage certification systems) can be expected to have a greater range of tasks (and costs) associated with the day-to-day operations of the organization. This becomes a relevant point of analysis when considering the annual revenues of a given organization (see Section 2.3.5, Figure 2.8).

BOX 2.2 THE BUSINESS OF A GREEN ECONOMY: TWO MODELS

Two basic business models define the field of voluntary sustainability standards: the consumer-facing label and the business-to-business standard. Different business models, in turn, tend to be affiliated with different core activities.

Consumer-facing labels seek to inform consumers about production practices and are often linked with education and/or brand development.[24] In contrast, the business-to-business model emphasizes supply chain and risk management attributes through the standards implementation process.

Put another way, consumer-facing labels and corresponding market activities play a more direct role in building consumer demand for green products. Business-to-business initiatives tend to focus on building private sector demand, not by operating as differentiators in the market but by setting "rules of entry" to the market.

While the use of a label is more likely to promote intentional sustainable consumption at the level of the individual consumer, the business-to-business model eliminates reliance on individual consumer choice for ensuring that sustainable practices are implemented and therefore are more likely to achieve widespread uptake.[25]

Across the initiatives reviewed, roughly two-thirds apply a consumer-facing label, with the remaining one-third relying primarily on business-to-business implementation processes. Business-to-business models represent a newer phenomenon and may also be integrated within a labelling system.

These two distinct approaches represent two parallel pillars of a green economy, with each having its own merits depending on the market structure in a given case.

24 In order for the consumer-facing label to increase consumer awareness, the label needs to be publicly recognized and the message clearly understood. Moreover, it may be beneficial for claims associated with the label to be clarified at the outset, since it is difficult to achieve this after the fact (ISEAL, 2007). For further information, see ISO (2012).

25 To the extent that this is true, business-to-business initiatives may have the potential to affect trade flows more substantially than do consumer-facing initiatives. This may point toward a particular need to ensure alignment between business-to-business initiatives and the principles of non-discrimination as embodied in international trade law.

2.3.3 Geographic Scope

The geographic distribution of standard-compliant production depends on a number of factors. The first and most obvious set of factors relates to the conditions that determine the distribution of commodity production more generally, such as climatic, social, and economic conditions (and other factor endowments), domestic policies, internal infrastructure to support production and trade, and historical trade patterns.[26] A second important set of factors may be linked to perceptions of where sustainability issues are the greatest. For example, Fairtrade certification is only available for products sourced from developing countries. Similarly, CmiA's focus on developing-country cotton sources reflects a focus on building sustainability in less developed supply countries (see Figure 2.4).[27] A third set of factors relates to the ease or cost of implementing established standards across the supply base. In regions where adoption costs are lower, one can expect a deeper integration of standard-compliant production (see Box 4.1, Section 4).

26 For example, the absence of RSPO production in North America is linked to the absence of commercial palm oil generally in North America. Note that in order to be considered in the SSI Review, an initiative must be designed to draw supply from more than one source country.

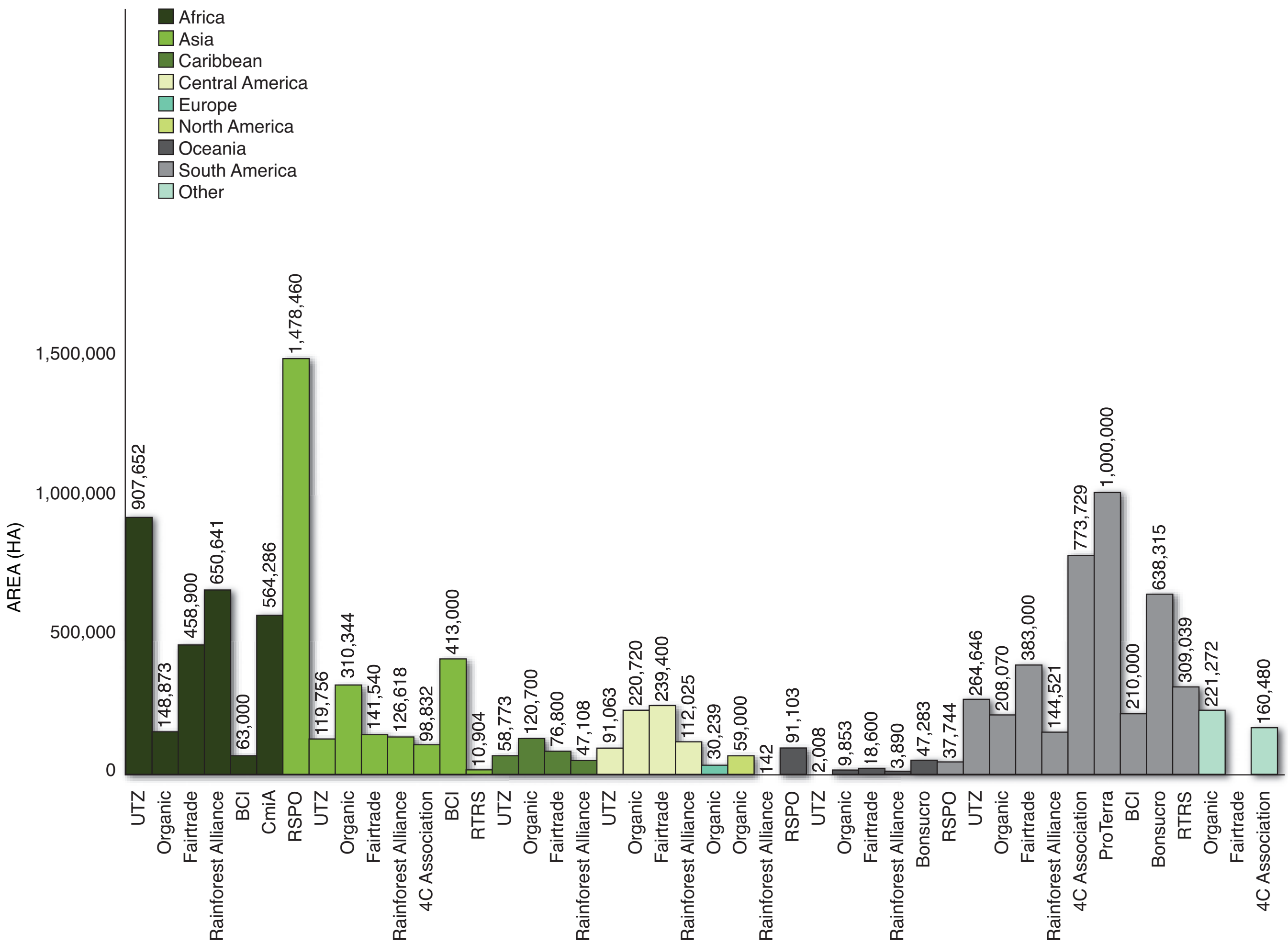
27 Note that the emphasis of these initiatives on developing countries is largely in accordance with a needs-based approach to sustainable development, as set forth by the Brundtland Commission and adopted by the Rio Earth Summit and UN Conference on Environment and Development process more generally.

Of the 16 initiatives reviewed, almost all cover services and production operations in South America and Asia. Africa follows, with 81 per cent of the initiatives operating in the region. The two areas showing the least amount of voluntary standard reach are Europe, at 56 per cent, and Central America and the Caribbean, at 50 per cent. FSC, GLOBALG.A.P., IFOAM and RSPO exhibit the highest global coverage of their operations, operating across all seven regions (see Figure 2.4).

While Figure 2.4 illustrates the regions in which each initiative is technically active, it does not effectively reveal the *degree* of activity (i.e., the prominence of the initiative) in any given region. Figure 2.5 shows the relative presence of each initiative based on the number of hectares certified by region. This graphic provides a more accurate indication of how each initiative, operating within its own target market, has developed its own unique footprint across the geographical landscape.

FIGURE 2.4 CURRENT GEOGRAPHIC SCOPE OF VERIFIED OR CERTIFIED OPERATIONS (SERVICES OR PRODUCTION).

FIGURE 2.5 TOTAL STANDARD-COMPLIANT HECTARES IN EACH CONTINENT ACROSS ALL COMMODITIES, AGGREGATED BY INITIATIVE, 2011/2012.



Data are from 2011 for Fairtrade and IFOAM,[28] and from 2012 for all other standards. "Unidentified" refers to unspecified standard-compliant regions. No disaggregated data across regions are available for Bonsucro, and no cotton data are available for IFOAM. 4C Association provides data for only Brazil, Colombia and Vietnam. Only partially disaggregated data are available for Fairtrade. No data are available for ETP, GLOBALG.A.P. and RSB.

28 IFOAM data in figure are referred to as "Organic."

One of the more noticeable features is that many initiatives reveal a distinctive presence in specific countries or regions, a presence often delinked from the actual global distribution of production. While the distribution of a given initiative's activities will depend to some degree on the different commodities it covers, much of the geographical concentration at the initiative level can also be traced to historical or strategic links between a given initiative and specific countries and regions.[29]

Some of the observable trends based on current hectarage data include:

- UTZ Certified has significant African supply.[30]
- 4C Association and Bonsucro have a focus on South American supply.
- RSPO leads significantly in Asian supply.
- IFOAM has a fairly even distribution of supply across regions.

The distribution of voluntary standard production is also often delinked from the distribution of conventional commodities. This is particularly the case for individual initiatives, which may have developed specific target markets or networks that imply a regional or even country-specific focus. Different external factors, such as national legislation, can often determine the ability and time necessary to implement these voluntary sustainability standards.

29 See also Section 4, Market Introduction, as well as the market performance sections for each commodity, for concentration and distribution of compliant supply.

30 UTZ supply is not focused mainly on Africa for all commodities. It is the case for cocoa, because of the market, but not for coffee (M. Papadopolou, UTZ Certified, personal communication, December 2013).

"WHILE IT IS OUR INTENTION…THAT SUCH INFORMATION SERVES A COMMON EFFORT OF CONTINUAL IMPROVEMENT AND INCREASED IMPACT OF SUCH INITIATIVES, OUR DATA ARE NOT, PER SE, INTENDED TO MEASURE OR DRAW CONCLUSIONS RELATED TO THE SPECIFIC IMPACTS OF INDIVIDUAL INITIATIVES."

2.3.4 Single-Sector or Multisector

One of the major trends observed over the past decade in the development of commodity standards is a general trend toward the development and adoption of sector-specific or single-sector initiatives. Just over two-thirds of the initiatives reviewed are single-sector initiatives. All of the single-sector initiatives are post-Rio, and of the 10 most recent voluntary standard initiatives on the market, nine are single sector.

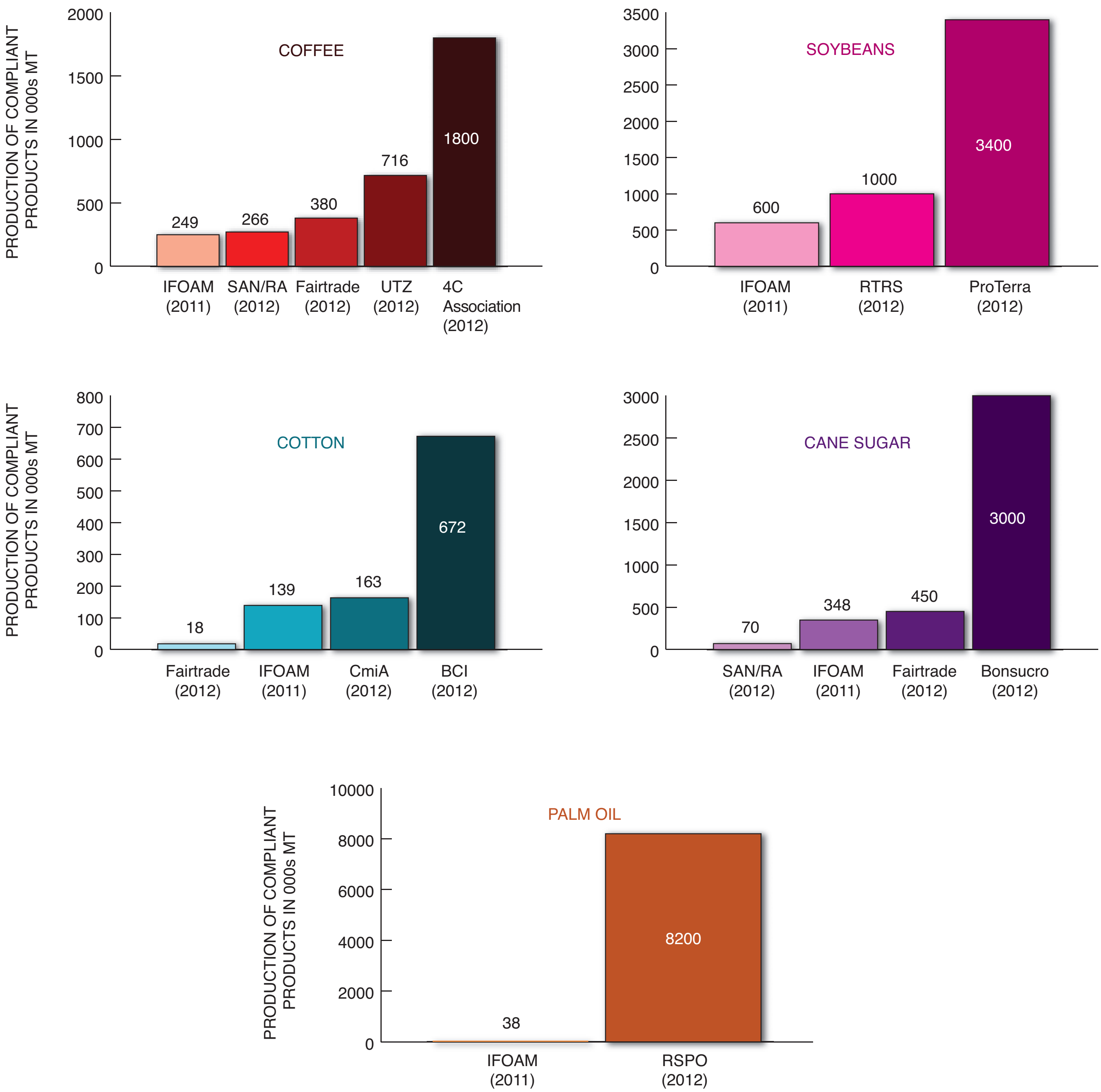
Single-sector initiatives are more likely to be deeply tailored to a specific commodity market, arguably allowing for more rapid penetration and uptake. Initiatives that operate in multiple sectors, on the other hand, may have the ability to build up broader consumer recognition of products and so may be more likely to engage in marketing and awareness-raising activities. Figure 2.6 provides a comparison of the production volumes of standard-compliant commodities, revealing a clear trend toward market leadership of single-sector initiatives in every sector where they are present (among the commodities reviewed in this report). There are many causes behind the rapid growth and prominence of single-sector initiatives, but a deeper integration of major mainstream players into the initiative development process is one of the constant features of such initiatives (see Box 2.1 and Table 2.1).

In every sector where a single-sector initiative is present, it has come to dominate the market in a short period of time. 4C Association led production in the coffee sector in 2012, with 1.8 million metric tons. This is more than double the volumes of the leading multisector initiative in the coffee sector (UTZ at 716,000 metric tons). ProTerra led production in the soy sector, with 3.4 million metric tons in 2012. This is almost six times that of the leading multisector initiative in the soy sector (IFOAM at 600,000 metric tons).[31] BCI led the cotton sector with 672,000 metric tons, almost five times that of IFOAM's organic cotton (139,000 metric tons in 2011). Bonsucro production volumes of cane sugar, at 3 million metric tons, were more than six times that of Fairtrade (450,000 metric tons in 2011). The difference in compliant palm oil production volumes between the single-sector and the multisector initiatives is staggering, ranging from 8.2 million metric tons for RSPO to 38,000 metric tons for IFOAM.

31 Latest data available for IFOAM-compliant production volumes is 2011.

Single-sector initiatives, although often newer, lead in standard-compliant production volumes across all of the sectors where they exist. Figure 2.6 is a clear indication of this trend.

FIGURE 2.6 SINGLE-SECTOR INITIATIVES LEAD IN PRODUCTION VOLUME.



The latest data available for IFOAM-compliant production volumes are from 2011. Market data is confidential for ETP, so we make no comparison between the single- and multisector initiatives in the tea sector.

2.3.5 Revenue and Annual Budget

Revenue generation is a fundamental aspect of every voluntary standard body. It goes without saying that everything a standard organization does depends on the resources it has at its disposal. With this in mind, revenue generation may be the single most challenging and important activity of voluntary standards, beyond setting the standards themselves. Most importantly, perhaps, constraints on revenues can operate as constraints on monitoring and enforcement, and thus on the very integrity of the initiative. The relatively young nature of the market for sustainability standards suggests that revenue models are often still largely under development. This in turn suggests that there are strong arguments for deepening our understanding of what works and what does not in terms of revenue generation for voluntary standards.

Different revenue-generation models potentially offer different opportunities for pursuing sustainable development objectives and revenue sustainability. While a voluntary sustainability standard's ability to draw revenue from recurring sources can be an indication of longer-term financial sustainability, a reliance on non-recurring sources may allow for more independence in the implementation of the initiative.

Organizations relying on grant funding, for example, arguably have greater flexibility in making principle-based decisions, but may also face greater insecurity in terms of longer-term revenue stability. Organizations reliant on recurring revenue sources, on the other hand, may have to be more practically inclined, following opportunity over principle in some cases, but may also face better prospects for long-term revenue stability. From a broader sustainability perspective, both elements are clear assets to an organization—independence of revenue sources has the potential to allow an organization to more accurately pursue public-good sustainability issues, while client-supported revenue sources can potentially help ensure that the services offered by the organization are relevant and useful to the market. Figure 2.7 shows the spectrum and potentially competing nature of these opportunities.

The degree to which service delivery and other recurring revenue sources such as membership fees account for annual revenues varies considerably among the initiatives reviewed. The *State of Sustainability Initiatives Review 2010* found that most of the initiatives accessed in the report relied on grants for 50 per cent or more of their annual revenues, suggesting that voluntary sustainability standards faced challenges with respect to financial stability. Interestingly, results from the initiatives surveyed for the current review paint a different picture, with 75 per cent of the initiatives relying on recurring revenue (membership fees or fees and services) for 50 per cent or more of their income (see Figure 2.8). This suggests that voluntary regulatory schemes, as a general trend, are moving toward more stable, market-oriented revenue models. This may be a reflection of the growing maturity of the sector or a reflection of the deeper integration of private sector players into the development and management of such initiatives.

This trend may face growing constraints in pursuing public good objectives that do not directly benefit service-paying members. Figure 2.8 shows RSB as an example of an initiative that relies on non-recurring revenue sources for over 80 per cent of its income. BCI, Fairtrade, and CmiA each share a relatively even distribution between recurring and non-recurring revenues. The remaining initiatives derive most of their revenues from recurring sources.

FIGURE 2.7 POTENTIAL IMPACTS OF DIFFERENT BUSINESS MODELS ON THE OPERATIONAL SUSTAINABILITY OF INITIATIVES.

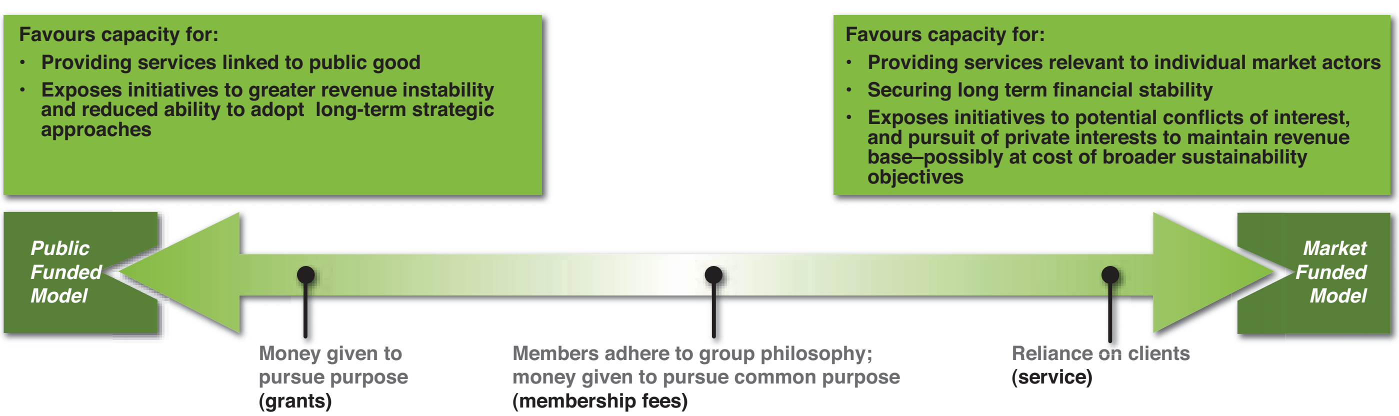
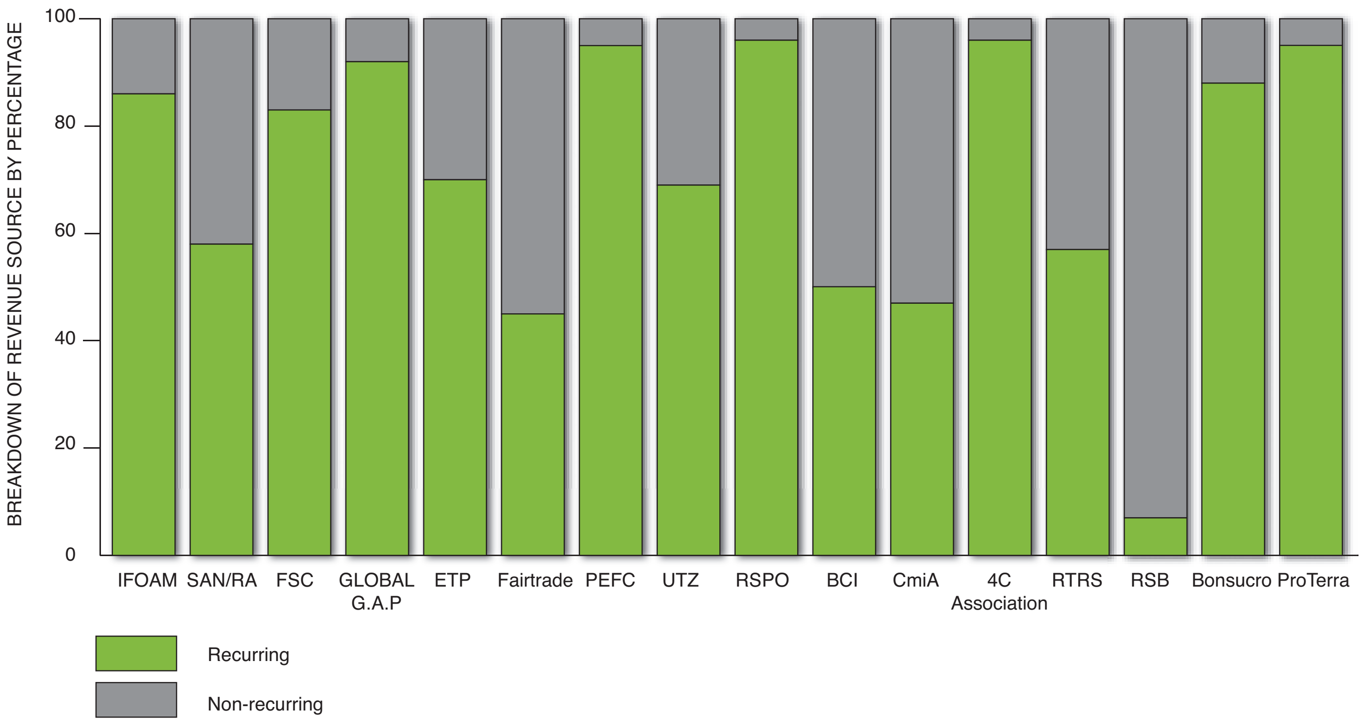


FIGURE 2.8 REVENUE SOURCES, BY INITIATIVE.[32]



Recurring revenue includes membership fees, and fees & services. Non-recurring revenue includes public and private grants and other sources of income.

An important consideration for all players along the supply chain will be the cost-benefit ratio provided by any given initiative. Higher costs associated with an initiative could be due to any of a number of factors, ranging from the number of commodities covered, to the types of activities undertaken (particularly whether the organization is directly involved in marketing, technical assistance or certification activities), to increased investment in market expansion, to higher overall transaction costs.

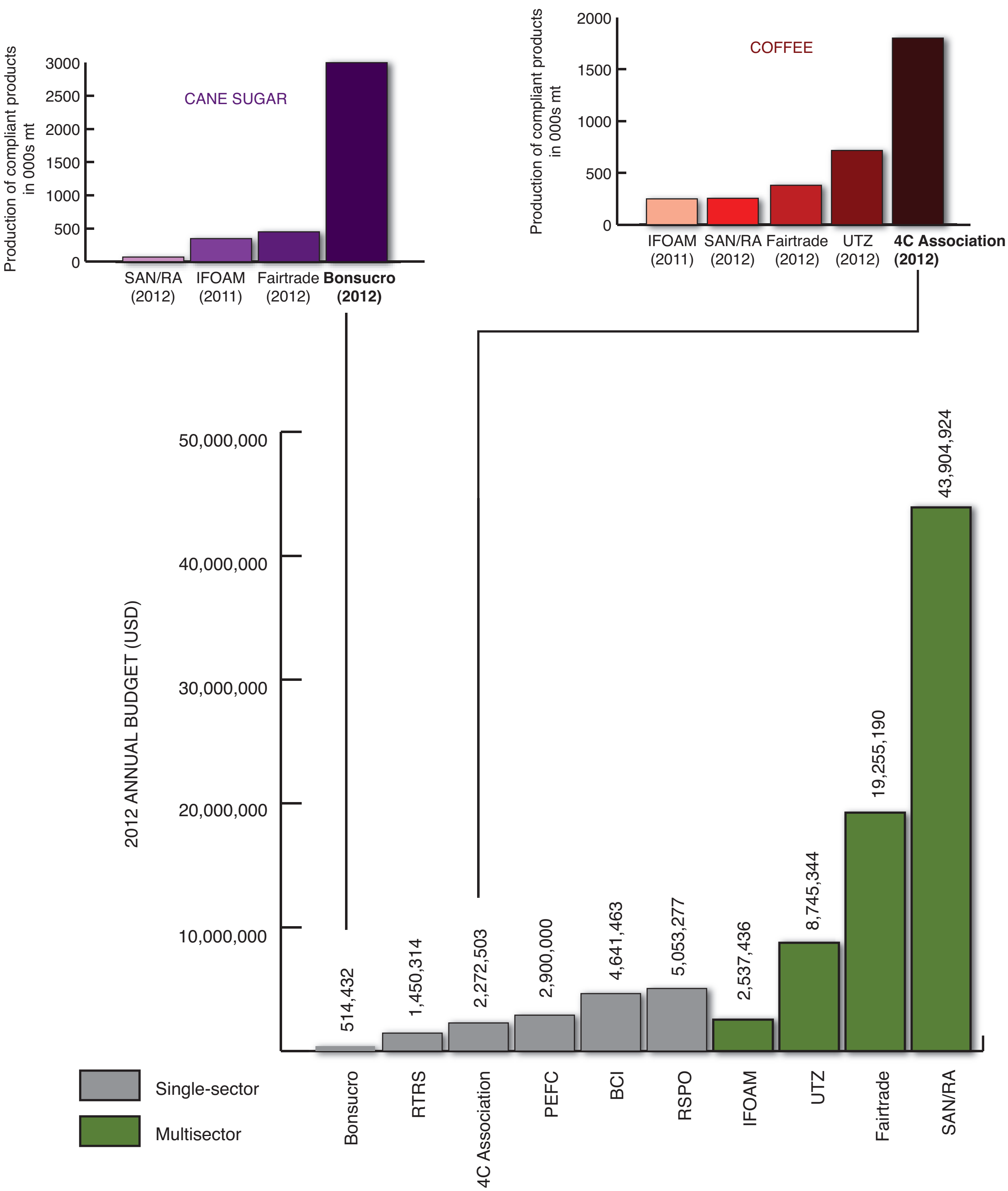
While it is impossible for us to make any determination on this matter in the context of this review, the cost-benefit analysis is arguably specific to each individual actor in the supply chain. For example, it is possible that a particular investment by a given initiative is likely to provide benefits disproportionately along the supply chain.[33] Accordingly, no single cost-benefit analysis is likely to apply to all stakeholders.

The 16 initiatives reviewed had annual budgets ranging from approximately US$500,000 to over US$40 million in 2012. We observe a general trend toward higher budgets for initiatives that cover more commodities (see Figure 2.9). Without knowing how much revenue an initiative allocates to each specific commodity, or the distribution of revenues to specific activities, it is impossible to draw any conclusions regarding cost-efficiency. Nonetheless, the revenue levels of different institutions do presumably point toward the overall capacity of specific organizations to catalyze change through their own direct actions or investments. On the other hand, the market leadership position of lower-revenue organizations such as 4C Association and Bonsucro reveals that budgets may have little to do with actual market share.

32 For SAN/RA, “membership fees” include “certification fees” and “contributions and membership”; fees and services include “special events” and “participation agreement” (Rainforest Alliance, 2012).

33 For example, an organization such as Fairtrade invests directly in producer capacity building, arguably offering an additional benefit to producers that may or may not be seen as value to other stakeholders further down the supply chain. Similarly, SAN/RA may invest in marketing activities that provide value to private sector partners but that may not be seen as providing value to producers.

FIGURE 2.9 ANNUAL BUDGETS: SINGLE SECTOR VERSUS MULTISECTOR, BY INITIATIVE.[34]



Sources: 4C Association: 4C Association, 2013a; BCI: BCI, 2013b; Fairtrade: Fairtrade, 2013; Bonsucro: estimate provided by Bonsucro; IFOAM, PEFC, RSPO, RTRS, SAN/RA and UTZ: ITC, 2013b.

34 An initiative's budget can include distribution of revenue to specific activities beyond the implementation of the scheme alone. For example, certification-related work is only one area of SAN/RA's work. Other work areas of revenue distribution are more closely related to what organizations like WWF or The Nature Conservancy do as conservation-focused NGOs, and are not related to the implementation of the scheme (A. de Freitas, SAN, personal communication, January 2014). See also Rainforest Alliance (2012). Similarly, Fairtrade manages an extensive program of producer support services.

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3 CRITERIA DEVELOPMENT, IMPLEMENTATION AND CONFORMITY ASSESSMENT

The processes related to criteria development, implementation and conformity assessment can significantly impact participatory governance, responsiveness to local needs and conditions, and the cost-effectiveness and overall integrity of an initiative. Overall we have seen a convergence toward the use of more localized standard-setting processes, as well as of third-party monitoring tools that minimize the potential for conflict of interest. More specifically, of the initiatives reviewed:

- 38 per cent offer distinct criteria for small-scale producers and producer groups; two offer distinct criteria in addition to group certification.
- 68 per cent offer group certification, revealing that group certification is increasingly being offered as a tool for enhancing accessibility for smaller producers while simultaneously reducing costs.
- 69 per cent provide nationally distinct standards, while 56 per cent report having localized indicators, suggesting a growing recognition of the importance of regional differences in pursuing broader sustainable development objectives.

While the identity of voluntary standards is largely defined by their criteria, their ultimate credibility is primarily dictated by their ability to implement and enforce those criteria. In this section, we consider four principles related to the development and implementation of sustainability criteria: subsidiarity, conformity assessment, traceability and continual improvement.

3.1 VOLUNTARY STANDARDS AND LOCAL INTERESTS: THE PRINCIPLE OF SUBSIDIARITY

The principle of subsidiarity suggests that centralized rule-making and implementing organizations should only perform those tasks that cannot be performed effectively at a more intermediate or local level.[1] This principle is closely linked with the idea of participatory governance, which posits that local interests and needs can best be represented through local participation, and it is considered the goal of sustainable development itself.[2] By ensuring that criteria-setting and implementation are customized to local contexts and capacities, voluntary standards can be responsive to the needs and interests of stakeholders in multiple nations and regions.

BOX 3.1 GROUNDING THE GREEN ECONOMY: THE PRINCIPLE OF SUBSIDIARITY

Standards have a role to play in translating global priorities to local conditions. The diversity of conditions (economy, geography, industrial and legal infrastructure, social rules, and safety nets) faced by agricultural producers around the world suggests that the equal application of identical standards may not always be effective for maximizing sustainable development outcomes or consistently linking sustainable consumption with sustainable production. Accurate mapping of standards to local contexts is an integral function of voluntary standards that seek to integrate sustainable development goods into the pricing mechanism. Implementing the principle of subsidiarity through the development of localized standards can help ensure that a standards system more accurately internalizes the costs of sustainable production and thereby more efficiently promotes the development of a green economy.

Within the field of sustainability standards, the appropriate degree of subsidiarity hinges on an assessment of trade-offs between costs and benefits. Additional costs associated with implementation of the principle of subsidiarity include the costs associated with developing and managing multiple standards, potential confusion among consumers and other users, and inequities created by different sets of standards.

On the one hand, development and adoption of multiple standards incurs additional transaction costs that consumers must eventually absorb. On the other hand, giving equal legitimacy to different criteria risks providing an unfair advantage to some stakeholders over others, thus generating the potential for market distortions and inconsistent compliance with globally defined criteria.

The SSI tracks voluntary standard application of the principle of subsidiarity through indicators measuring the development of regionally specific standards and indicators, and the use of local auditors in the verification process (see Table 3.1). Forestry standards and most multisector standards[3] show the greatest attention to the principle of subsidiarity, a reflection of their particularly diverse supply bases. In contrast, some newer, single-sector initiatives show less attention to the principle of subsidiarity, reflecting a possible trend toward the minimization of transaction costs across global supply.

TABLE 3.1 IMPLEMENTING THE PRINCIPLE OF SUBSIDIARITY: KEY INDICATORS.

	1972 IFOAM	1987 SAN/RA	1993 FSC	1997 GLOBALG.A.P.	1997 Fairtrade	1997 ETP	1999 PEFC	2002 UTZ	2004 RSPO	2005 BCI	2005 CmiA	2006 RTRS	2006 4C Association	2007 RSB	2008 Bonsucro	2012 ProTerra
Regional standard development	✓	✓	✓	✓	✓		✓	✓	✓			✓		✓	✓	
Localized indicator development		✓	✓	✓			✓	✓	✓			✓		✓		✓
Local auditors engaged in the verification process	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

1 See, for example, "Principle of Subsidiarity" of the Winnipeg Principles (IISD, 1994).

2 See Rio Declaration Principles 10 and 20–23 (United Nations, 1999).

3 There are exceptions to this observation: Fairtrade and IFOAM are the only two multisector initiatives showing coverage across two rather than all three of the SSI principle of subsidiarity indicators; RSB, RSPO and RTRS are single-sector initiatives (outside of the forestry sector) that illustrate full coverage of all SSI principle of subsidiarity indicators.

3.2 SMALLHOLDERS

One of the reasons commodities are considered critical stepping stones for development is the direct link commodity production can have with family livelihoods and incomes, particularly in the developing world. However, global commodity markets also have a tradition of leaving smallholders exposed to market volatility and livelihood insecurity.

One of the major sustainability challenges in commodity production therefore relates to enabling increased benefits to smallholder producers. Although definitions of smallholders vary by commodity and country,[4] smaller production units, as a rule, tend to face higher overall transaction costs, reduced marketing capacities, limited access to efficient production technologies and, correspondingly, reduced access to international markets.

To the extent that voluntary standards typically imply additional requirements and processes, they also have the potential to introduce new barriers to market entry, which may be particularly problematic for the smaller units of production. Although a multi-pronged strategy will typically be required to address these challenges,[5] one way of reducing these barriers is to allow for producers who are not otherwise organized into an official producer organization to undertake certification as a group. The design of standards systems tailored to the smallholder producer context also represents an important instrument for ensuring smallholder inclusion in global supply chains.

Table 3.2 shows how the different initiatives handle smallholder producers. Across the initiatives reviewed, the newer, single-sector initiatives (with FSC as the exception) tend to offer distinct standards for small-scale producers and producer groups. More mature, multisector initiatives typically target small-scale producer and producer groups with one all-encompassing standard. Alternatively, the differences between small-scale and large-scale producers within different commodity sectors can be a factor in determining whether or not a separate standard for smallholders is warranted. Other initiatives may make additional exceptions for smallholder producers, as in the case of Fairtrade, which further accommodates for smallholders by extending the certificate period from three years to six years for "small licensees" (FLO-CERT, 2013).

Group certification is offered by 11 of the 16 organizations reviewed and provides a means for reducing the auditing burden on both producers and standards bodies by setting requirements for internal management systems at the local level.[6] The ISEAL Common Requirements for the Certification of Producer Groups (ISEAL, 2008) provides a set of common criteria for ensuring consistency and credibility of auditing processes involving producer groups using internal management systems.

4 As noted by HLPE (2013), "There are a number of different definitions of 'smallholder agriculture' and each definition carries implications for the measurement of the number of smallholders. Definitions also guide our understanding of the investment needs of smallholders. A discussion on definitions is therefore neither trivial nor academic, but has real implications for policies and impacts on livelihoods." The report further notes, "The definition of 'smallholder agriculture' cannot be rigid or 'one size fits all': there are many variations in each specific context at the regional, national and local levels, and also over time as economies transform. Classifications of smallholder agriculture based only on farm size can be misleading. A smallholding is 'small' because resources are scarce, especially land, and using it to generate a level of income that helps fulfil basic needs and achieve a sustainable livelihood consequently require [sic] a high level of total factor productivity, requiring in turn a significant level of investment" (p. 10). See also International Finance Corporation (2013).

5 Some of these strategies could include technical assistance, price premiums, supportive policy, cost/benefit sharing schemes, organizational development and so on. See, for example, Potts (2007).

6 The potential for reduced transaction costs, combined with increased predictability and consistency among systems, provides the rationale for the ISEAL Common Requirements for Producer Groups (ISEAL, 2008).

TABLE 3.2 REQUIREMENTS FOR SMALLHOLDER PRODUCERS.

	1972 IFOAM	1987 SAN/RA	1993 FSC	1997 GLOBALG.A.P.	1997 Fairtrade	1997 ETP	1999 PEFC	2002 UTZ*	2004 RSPO	2005 BCI**	2005 CmiA	2006 RTRS	2006 4C Association	2007 RSB	2008 Bonsucro	2012 ProTerra
Separate standards for smallholders			✓					✓	✓		✓			✓		✓
Group certification	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓			

* UTZ standards for smallholders vary per commodity. For cocoa there are two separate documents—one code for estates and another for organized groups of smallholder producers. For tea and coffee there is currently only one document for both estates and smallholders, but the requirements for both differ.

**Although the BCI standard is the same for smallholders and large farms, the standard stipulates additional requirements for large farms. BCI offers group certification for "producer units." Each producer unit is made up of 3,500 smallholder farmers or 100 medium farms.

BOX 3.2 ENABLING THE GREEN ECONOMY: THE ROLE OF SMALLHOLDER SUPPORT SYSTEMS

The growing trend toward rapid adoption of sustainability standards across mainstream markets has necessarily meant targeting larger-scale suppliers to mainstream markets as a way of ensuring sufficient standard-compliant supply. In Section 4 we highlight a trend toward concentration of standard-compliant supply in select production zones with a more developed infrastructure for export and international trade.

As vehicles for stimulating investment in sustainable production, voluntary standards have an imperative to enable the widest possible access to markets, particularly among those most in need. As such, smallholders represent a particularly critical target for voluntary standards in specific agricultural markets with significant smallholder supply.[7] Within the agriculture sector as a whole, with an estimated 525 million small farms operating worldwide and approximately 404 million of those consisting of less than two hectares, promoting sustainable practices throughout the small-farm sector has the potential to play a significant role in contributing to food security, poverty reduction and reduced greenhouse gas emissions (UN Environment Program, ITC, & International Centre for Trade and Sustainable Development, 2012). However, smallholders commonly face systemic barriers to either the adoption of sustainable practices or entry into (international) sustainable markets, due to a lack of capacity or access to capital for investing in infrastructure. Therefore, linking technical assistance and finance to standards compliance that enables poorer smallholders to access markets offers important vehicles for ensuring the voluntary standards proactively enable uptake among those most in need, and in many cases, it may represent a prerequisite for such standards achieving their objectives in promoting a green economy. Some exemplary initiatives targeted at facilitating systemic investment into sustainable supply chains include:

- The Sustainable Commodity Assistance Network (SCAN), which operates as a global platform for building concerted multi-program, multi-commodity technical assistance aimed at promoting better access to sustainable markets for more marginalized producers (SCAN, 2013).
- The Finance Alliance for Sustainable Trade (FAST), which operates as an association of social lenders and other stakeholders seeking to enable access to finance for sustainable producers in the agriculture sector (FAST, 2013).
- The Sustainable Trade Initiative/Initiatief Duurzame Handel (IDH), which represents one of the largest public–private partnerships dedicated to enabling the implementation of sustainable supply chains. IDH offers matching funds to private investment aimed at implementing sustainable practice and can result in investment in infrastructure at the local level (IDH, n.d.-b).

7 In the coffee and cocoa sectors, for example, it is estimated that most producers are smallholders (Lewin, Giovannucci & Varangis, 2004; WCF, 2012a).

3.3 CONFORMITY ASSESSMENT

One of the hallmarks of contemporary sustainability standards is the application of third-party monitoring and enforcement processes. Increasingly sophisticated auditing and verification tools have allowed privately managed supply chains to make significant advances in terms of the credibility and transparency associated with market claims. In a context where consumers are also expecting market claims to be verified, a determination of the degree of conformity to a given initiative's criteria through an assessment of actual practices on the ground represents a critical and often defining instrument applied by voluntary standards. The 16 initiatives reviewed use a wide range of conformity processes; however, some notable observations include:

- All initiatives[8] report that a third party performs external audits. Among the initiatives reviewed, there is a wide range of audit combinations and frequencies.
- 75 per cent of the initiatives reviewed were either ISO 17065[9] compliant or apply an accreditation process, emphasizing credibility as a primary driver in the voluntary sustainability standard sector.
- 75 per cent of the initiatives require certification either on a yearly basis or in combination with annual surveillance audits, and random field checks if certification validity spans over two or more years.
- Verification, rather than certification, is the primary conformity indicator found in some newer initiatives, pointing to a possible trend toward lower-cost, mainstream market uptake.
- A separate Chain of Custody standard is managed by 62 per cent of the initiatives reviewed.
- 44 per cent of the initiatives reviewed currently have formal monitoring and evaluation systems that operate above and beyond the conformity assessment process. At the time of publication nearly half (seven) of the initiatives were in the process of working toward compliance with ISEAL's Impacts Code.[10]

According to International Organization for Standardization (ISO) guidelines EN/ISO/IEC 17000:2004 (ISO, 2004), the main distinction between conformity assessment approaches depends on the type of entities involved in "determining" and "attesting" to a given organization's compliance with the standard.

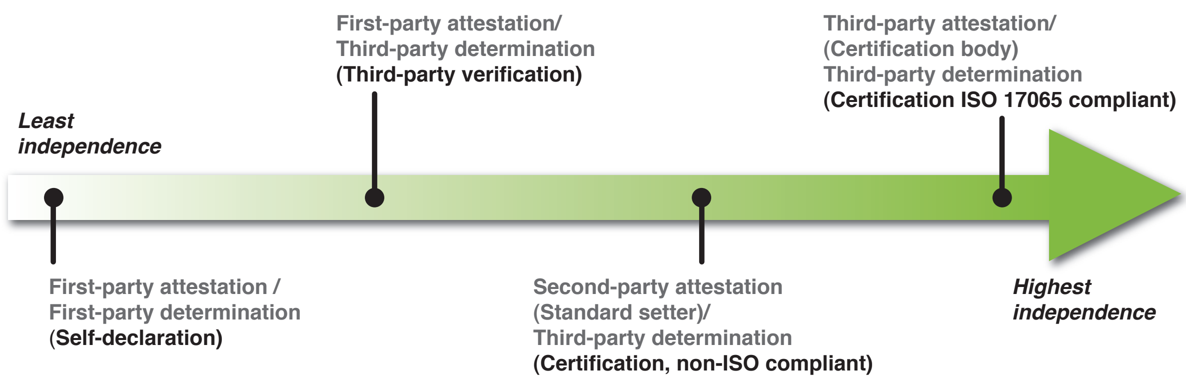
Figure 3.1 shows a continuum in the degree of separation between the manufacturer of a product and claims of conformity assessment. In *theory*, the higher the level of independence, the lower the risk that commercial interests can influence the nature of the claims made. Increased independence, however, may come at a higher cost, which must be absorbed by the supply chain in some form, and may even lead to greater reliance on specific industry players for revenue generation. This can negatively impact the overall competitiveness, and possibly even the credibility, of the system.

8 BCI also relies on recommendations from first- (self-assessment) and second-party audits.

9 ISO 17065 replaced ISO 65 in 2012 and sets quality and independence requirements for certification bodies. It offers an internationally recognized instrument for assessing the strength of the conformity assessment process. ISO 17065 (as with ISO 65) applies only to certification (Lazarte, 2012).

10 ISEAL's Impacts, Code specifies general requirements for the development and implementation of monitoring and evaluation programs by social and environmental standards systems (ISEAL, 2012b).

FIGURE 3.1 DEGREE OF INDEPENDENCE OF CONFORMITY ASSESSMENT PROCESSES (FROM MOST TO LEAST DEPENDENT).



Self-declaration consists of first-party determination and first-party attestation, which is to say that the producer of the product makes the claim that certain standards are being met. In an effort to substantiate claims, a producer may seek to have an independent third party verify (e.g., make a determination of compliance) that its claims are indeed based on true facts. Second-party attestation is similar to third-party verification, with the exception that rather than the producer making the claim of compliance (based on a third-party determination), the standard setter makes the actual claim of compliance. Third-party attestation refers to the case where a body independent of both the producer and the standard setter makes both the determination of compliance as well as the attestation of compliance. While both second-party attestation and third-party attestation are forms of certification, only third-party attestation is deemed sufficiently independent to qualify as ISO 17065 compliant.[11]

Table 3.3 shows the types of conformity assessment indicators used by the various initiatives. Certification remains the predominant form of conformity assessment across the initiatives reviewed; however, some newer initiatives (BCI, CmiA, 4C Association and ETP [ETP, 2011b]) are placing greater focus on verification and self-assessment as vehicles for allowing broader and more rapid entry into initiative supply chains. Verification-based processes can help improve access to sustainable markets while involving lower costs, but may also be subject to greater risk of non-compliance (see Box 3.3).

Another manner by which standard setters ensure the independence of the conformity assessment process is by having accredited inspectors carry out the certification process. Table 3.3 illustrates that the majority of initiatives (12) apply ISO 17065–compliant certification processes, with half of those initiatives further applying accreditation processes, all of which emphasize credibility concerns as drivers in the voluntary standards sector.

11 ISO 17065 replaced ISO 65 in 2012, and sets quality and independence requirements for certification bodies. It offers an internationally recognized instrument for assessing the strength of the conformity assessment process. ISO 17065 (as with ISO 65) applies only to certification (Lazarte, 2012).

TABLE 3.3 CONFORMITY ASSESSMENT INDICATORS.

	1972 IFOAM	1987 SAN/RA	1993 FSC	1997 GLOBALG.A.P.	1997 Fairtrade	1999 PEFC	2002 UTZ	2004 RSPO	2005 BCI	2005 CmiA	2006 RTRS	2006 4C Association**	2007 RSB	2008 Bonsucro	2009 ETP	2012 ProTerra
Verification									✓	✓		✓			✓	
Certification†	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓		✓
Accreditation‡	✓	✓	✓			✓		✓			✓			✓		
ISO 17065 or 17021 compliant	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓	✓		✓

*Sources: Data provided directly by the voluntary sustainability standards.
** 4C Association reports that all 4C verifiers must be ISO / IEC Guide 65 accredited (A. Bruestle, 4C Association, personal communication, December 2013).
† Procedure by which a third party gives written assurance that a product, process or service conforms to specified requirements (ISO/IEC Guide 2).
‡ ISO defines accreditation as "third party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks" (ISO/ IEC 17000:2004) (ITC, 2013a). For SAN, see SAN (2010a).
Although other initiatives use verification processes in addition to certification, for the purpose of this table verification is referenced only when used similarly to certification, whereby a third-party audit results in a licence.

BOX 3.3 GUARANTEEING THE GREEN ECONOMY: THE ROLE OF CONFORMITY ASSESSMENT AND PUBLIC POLICY

The value of standards in enabling a green economy is directly linked to the trust that they are able to build in the marketplace. Conformity assessment plays a critical role in ensuring that claims are accurate representations of practices on the ground and, as such, that the market can appropriately integrate specific practices into the pricing mechanism. Conformity assessment processes can even be regarded as tools for building the capacity of the market to "communicate" market information more accurately, thereby enabling more efficient market interaction (see Box 1.1).

One of the challenges voluntary standards face is the additional burden of integrating not only any costs associated with more sustainable production practices, but also the costs associated with bringing more credible and accurate information to the marketplace. One of the hallmarks of voluntary standards development over the past two decades has been the use of third-party monitoring and enforcement processes. However, different standards apply different conformity assessment systems, giving rise to different cost and (presumably) risk parameters. The process of verification is typically less costly than certification, often relying on some degree of self-assessment, and on existing documentation rather than on-site visits. Lower-cost conformity assessment may open the market to a wider range of producers and buyers, but may also lead to greater risk of error or reduced credibility on the marketplace.

Standards are thus faced with a delicate balancing act between ensuring sufficient depth of conformity assessment to protect the trust they rely upon and keeping costs to a minimum so that they can remain attractive options in the free market. Regardless, it is not entirely clear whether the market alone can determine the correct balance between risk and credibility: it is precisely the *inability* of the market to accurately transmit production information that establishes the need for standards in the first place. Standards and conformity assessment processes can help push the market toward greater transparency and efficiency, but they cannot be expected to correct for information-related market imperfections entirely on their own.

This context raises the question of whether, and to what degree, governments should be involved in setting rules for credible conformity assessment, or for financially supporting credible conformity assessment processes. Governments typically regulate claims in the marketplace through competition policy and affiliated regulations. Claims of organic certification are already subject to regulation across many markets, but such rules do not typically extend to broader sustainability initiatives. Recognition of the systemic role of standards in improving market efficiency provides an argument for the systemic support of credible conformity assessment processes among voluntary standards. (See Section 15 for an outline of some of the ways policy might be used to support more credible conformity assessment.)

BOX 3.4 THE DIVERSITY OF AUDITING SYSTEMS

Audits play a central role in most conformity assessment processes. Voluntary standards apply a diversity of audit types, depending on the risk parameters and practices being verified. The four most prominent audit types applied by sustainability standards are self-assessments, verification audits, certification audits and surveillance audits.

In self-assessments, producers assesses their own performance against specific criteria and are then required to submit the report to the standard-setting body. Self-assessments are often followed up by a verification audit.

Verification audits vary in their objectives and processes. They can sometimes be conducted in order to determine whether or not producers have reliable systems in place for monitoring and controlling their sustainability performance. Verification audits can also operate similarly to certification processes whereby a licence (rather than a certificate) is issued following a third-party audit (4C Association, BCI and ETP use verification audits in this manner). Verification audits further operate as a benchmarking process leading to certification, exemplified by ProTerra's processes.

Certification audits are conducted by a certification body gauging the producer's performance against specific criteria. A certificate confirms the producer's compliance. Typically, there are three types of certification: first-party, second-party, and third-party certification. First-party certification involves a single company or stakeholder group developing its own standards, analyzing its own performance and reporting on compliance. Second-party certification is when an industry, trade association or NGO develops a set of standards. It is a business-to-business arrangement, with internal auditors or external certifiers verifying and reporting on compliance usually with an interest in the product. Third-party certification is voluntary and uses an accredited external, independent certification body uninvolved in the standard setting process (FAO,2011a).

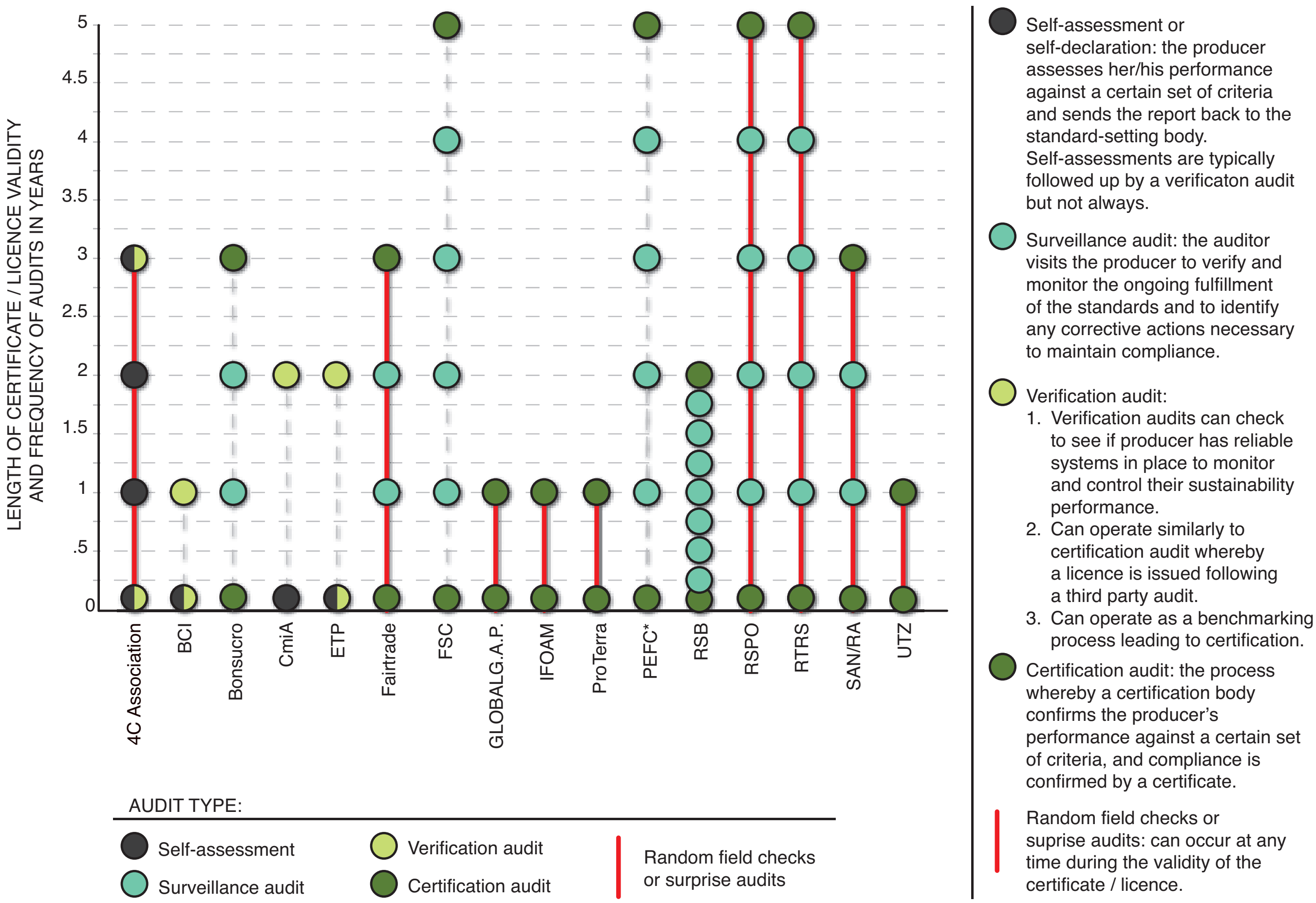
Surveillance audits typically occur between re-verification or recertification audits. These types of audits are conducted to verify and monitor the ongoing fulfillment of the standards as well as to identify any corrective actions necessary in order to maintain compliance.

Some voluntary sustainability initiatives further require producers to undergo random field checks or surprise audits that can occur at any time during the licence or certificate validity period. These checks further monitor ongoing compliance with the standard.

3.3.1 Audit Types and Frequency

Figure 3.2 shows the wide range of different audit combinations, which include certification, verification, surveillance, self-assessments, and random field checks or surprise audits, as well as the frequency of audits used by the initiatives covered in this review. Each set of coloured circles extends to varying lengths and indicates the duration in years of certificate or licence validity for each voluntary standard. The colours of each circle represent the type of audit conducted at that point during the validity period (e.g., green circles represent certification audits, yellow represent verification audits, and so on).

FIGURE 3.2 CONFORMITY ASSESSMENT PROCEDURES AND FREQUENCY.



*PEFC, 2007;
Although the certification validity period for PEFC is indicated here at five years, re-certification can also occur every three years depending on which ISO standard is used at the national level (T. Arndt, PEFC, personal communication, January 2014).

All 16 initiatives reviewed require, at a minimum, the application of audits conducted by an independent third party. The degree of cost and rigour of the conformity assessment process hinges on the validity period of the licence or certificate as well as the types and number of additional interim audits/checks performed throughout the licence/certificate validity period.[12] The initiatives reviewed perform a number of different types of audits during their compliance periods (see Box 3.4). Fifteen of the initiatives require an initial certification or verification[13] audit to enter into the "compliant" supply chain. Initiatives using certification processes perform, at a minimum, annual surveillance audits if certification validity extends past one year. Many conformity assessment procedures required by the voluntary standards reviewed are

12 The substantive scope of the audit process also plays a critical role in determining cost and rigor. For example, most audit procedures focus on audit processes related to crop production, but some (Rainforest Alliance, for example) will include all processes within the farm boundaries in their audits. Still others may include impact indicators as part of their audit process as a means of feeding the continual improvement cycle.

13 Verification processes can act either in place of or in parallel with certification processes. 4C Association, BCI, CmiA and ETP use verification processes in place of certification. ProTerra, for example, uses both verification and certification in its conformty assessment process.

adjusted according to the specifics of each case: the higher the risk assessed, the more frequent the audits.[14]

Among the 16 initiatives reviewed, nine apply random field checks or surprise audits during their certification periods. Some initiatives, such as Fairtrade, FSC, PEFC, RSPO and SAN,[15] also conduct random field checks on a case-by-case basis. Some voluntary standards also recognize other initiatives' assessments in their auditing processes. For example, if a producer holds a valid SAN/RA, UTZ or Fairtrade certificate, ETP requires no additional audit. BCI, on the other hand, is an initiative that also relies on recommendations from first- (self-assessment) and second-party audits. During each growing season, for example, BCI conducts second-party credibility checks through BCI country managers and implementing partners.

FSC, PEFC,[16] RSPO and RTRS all offer the longest certification validity, at five years, after which time the producer must apply for recertification. Four of the initiatives (GLOBALG.A.P., IFOAM,[17] ProTerra and UTZ) require recertification every year. The 4C Association,[18] BCI, CmiA and ETP's initial approvals are based on self-declaration, thereby decreasing the potential that heavy verification requirements could prevent access to markets for the most marginalized producer groups. All except CmiA require a follow-up verification audit after submission of the self-assessment (indicated by the half circles in Figure 3.2, which represent both self-assessment and verification).

14 For example, BCI licensing periods can range from one year to three or five years depending on performance. Similarly, RSB typically certifies case by case, using a risk-based approach to determine the frequency of their field audits. Depending on degree of risk, audits can occur as often as quarterly during RSB's two-year certification period, and in some very high-risk cases (Risk Class 6), audits can occur monthly. Although they are typically on a two-year cycle, the frequency of CmiA's self-declaration and verification audits can vary depending on the situation. ProTerra also determines the frequency of their verification audits case by case; however, if the start-up phase involves multiple years, the verification visits occur annually.

15 SAN/RA-accredited certification bodies annually select a group of operators to receive non-programmed (surprise) audits, selected primarily on risk and performance record.

16 The maximum period for re-assessment audit is five years for both forest management and Chain of Custody certifications (see PEFC, 2007 for forest management and PEFC, 2013 for CoC).

17 Annual assessments apply to members accredited against the IFOAM standards as well as all members of the IFOAM family of standards.

18 The 4C Association's verification period is three years; however, depending on the degree of risk, re-verification may be required annually.

3.3.2 Traceability

Traceability systems help ensure the integrity of claims made on the market by providing accountability between standard-compliant products produced and sold.[19] Four basic traceability systems are used in commodity production and trade for ensuring that claims about practices match actual marketing claims. They are:

Book and claim:[20] Where a certificate of sustainability is granted based on the application of sustainable practices and volume of product produced, but certification is completely decoupled from the product and is transferable on the market.

Mass balance: Where the amount of compliant product sourced and sold by each supply chain actor is tracked, but where the compliant product does not need to be sold with the certificate.

Segregation: Where compliant products are segregated at all stages of the supply chain, and only compliant products are sold as compliant products.

Identity preservation: Where the product is individually identified, physically separated, and tracked and documented at each stage of the supply chain.

A number of factors determine the appropriateness of one system over another; these include the market (mainstream or differentiated), the value proposition of the investor (unrestricted market access or direct trade linkages), and the product specifically (whether or not it is conducive to identity preservation). By reducing the degree of physical separation and the continuity of certificates being sold with the actual product, the potential for economies of scale and reduced transaction costs is maximized. Alternatively, the opportunities for creating differentiated (de-commodified) markets by maintaining direct links between products and producers is reduced through "non-identity" accounting-based traceability systems.

As voluntary standards move into the mainstream, there appears to be a modest trend toward increased use of lower-cost bulk traceability systems such as book and claim and mass balance, and a reduced use of identity preservation, as Table 3.4 demonstrates. Among the initiatives reviewed, we see newer initiatives using book and claim (RSPO and Bonsucro). Older initiatives tend to use all three models of identity preservation, segregation and mass balance, whereas some new initiatives seem to be moving toward applying fewer CoC models.

19 Traceability is closely related to the types of claims that can be made on a package. Typically, a given initiative will specify rules for labelling based on the Chain of Custody system used (as well as the percentages of standard-compliant inputs present). Although 4C Association, BCI, ETP, GLOBALG.A.P. and RTRS do not use on-package labelling, all have policies on content requirements for trading up the supply chain. All of the other standards reviewed have requirements for on-package labelling but apply different rules based on the specific products with which they work. Appendix IV provides specific information on these voluntary standard labelling policies.

20 Also referred to as "certificate trading."

TABLE 3.4 CHAIN OF CUSTODY INDICATORS.

	1972 IFOAM	1987 SAN/RA	1993 FSC	1997 GLOBALG.A.P.	1997 Fairtrade	1999 PEFC	2002 UTZ *†	2004 RSPO	2005 BCI ¶	2005 CmiA ‡	2006 RTRS	2006 4C Association §	2007 RSB	2008 Bonsucro	1997 ETP	2012 ProTerra
Separate CoC standard		✓	✓	✓		✓	✓	✓	✓		✓		✓	✓		
Identity preservation	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓			✓
Segregation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Mass balance		✓	✓	✓	✓*	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Book and claim								✓			✓			✓		

* The objective of mass balance is to ensure that Fairtrade producers have received the applicable Fairtrade Minimum Price and Fairtrade Premium, and it is applicable to cocoa, cane sugar, juice and tea operators with no physical traceability (the ability to follow a specific Fairtrade product all along the supply chain and through all stages of production and processing) (Fairtrade, 2011a).

¶ BCI only offers segregation up to ginner level (direct correspondence with BCI).

† UTZ applies the system of mass balance to cocoa but not to coffee, tea or rooibos.

‡ CmiA's application of identity preservation and segregation Chain of Custody models is optional (as noted by CmiA to SSI).

§ 4C Association applies identity preservation and segregation at the unit level, but not for shipping, roasting, manufacturing and so on. The model of mass balance is also applied; however, the licence/certificate must be passed on with the coffee up to final buyer level (SSI direct communication with 4C Association).

The application of Chain of Custody (CoC) traceability criteria provides additional assurances that compliant products are appropriately accounted for in the marketplace. As Table 3.4 reveals, 10 of the 16 voluntary standards reviewed adhere to a separate standard that defines the principles, criteria and indicators of the CoC.

The application of these CoC models can also vary across commodities (i.e., a single-standard system may apply different CoC models based on the commodity, as with Fairtrade and UTZ) as well as along different segments of the supply chain (i.e., a single standard may apply different CoC models to different stakeholders along the supply chain, as with 4C Association). Others, such as CmiA, still allow users to choose which form of CoC they want to use. The use of multiple CoC models provides standard setters with enhanced flexibility to meet the specific needs of potential clients and stakeholders. Within the market, however, each of these accounting systems is designed to produce one common result: for every amount of compliant product sold, an equal amount of compliant product is produced.

3.3.3 Continuous Improvement

Sustainable markets more generally, and voluntary sustainability standards in particular, are a young and highly dynamic field. Just as new initiatives are coming onto the market at a constant pace, so too are existing initiatives undergoing continual modification to more effectively achieve their objectives. The degree to which a given institution implements formal continuous improvement processes can provide an indication of the organization's ability to learn and adapt to market and field conditions, not to mention changing technology and the processes related to sustainable development more generally.

Arguably, one of the first steps in adopting a systemic approach to continual improvement is to understand a system's varying impacts over time and across regions. The application of a formal monitoring and evaluation system across an initiative's programs is an essential tool for achieving this objective. Both ISEAL, through its Impacts Code, and ISO, through its management standards, offer formal guidelines for monitoring program performance over time. The Committee on Sustainability Assessment (COSA), on the other hand, offers a unique database for allowing standard-setting bodies and other stakeholders to monitor and manage supply chain sustainability over time, as a basis for understanding areas where continual improvement might be needed or possible (see Box 3.5).

Seven of the initiatives[21]—BCI, Bonsucro, Fairtrade, FSC, PEFC, SAN/RA and UTZ—report having formal monitoring and evaluation systems (ITC, 2013b). However, an additional seven report that they are in the process of acquiring compliance with the ISEAL Impacts Code. PEFC continues to monitor ISEAL activities for potential benefits over and above the ISO/IAF structure the initiative is currently following.

21 At the time of publication, Bonsucro's monitoring and evaluation had just been formalized following ISEAL requirements (Fairtrade, 2011b; FSC, n.d.-a; UTZ, 2012). PEFC's formal monitoring and evaluation system is in the form of mandatory standards revisions on a five-year basis (T. Arndt, PEFC, personal communication, December 2014).

Voluntary standards systems commonly require the adoption of continual improvement measures across their production units. Standard-setting bodies are now beginning to apply similar approaches to the management of the standards systems themselves—and they are increasingly supported by a growing set of global tools to do so.

ISEAL Impacts Code

The ISEAL Impacts Code provides general requirements for the development and implementation of monitoring and evaluation programs by social and environmental standards systems. The code requires that the standards systems:

- Identify and engage relevant stakeholders.
- Define the intended change resulting from their activities.
- Monitor their activities in an ongoing process using systematic collection of data through specified indicators.
- Routinely evaluate their activities through the analysis of their collected data in order to assess the impacts of their standards.
- Implement continuous learning and improvement mechanisms to improve the standard system as well as to inform strategic planning.

Through these processes, the ISEAL Impacts Code provides a framework for the standards system to refine its theory of how change is expected to happen in order to more closely meet the desired impact.

For more information see http://www.isealalliance.org/sites/default/files/P041_ISEAL_Impacts_Codev1.0.pdf.

ISO Management System Standards

Some standards included in the ISO family of metastandards are management system standards. These standards provide a model to follow when setting up and operating a management system (a set of procedures an organization requires in order to meet its objectives).

All ISO management system standards are based on the principle of continual improvement. An organization or company assesses its current situation, sets objectives and develops policy. From there, it takes action to meet those objectives, and then results are measured. The resulting information allows for the effectiveness of policies and actions to be continually reviewed and improved.

Although one may typically think of ISO management standards as applicable to the manufacture of physical goods, they have direct applicability to the body of standard setters as well. The adoption and integration of ISO management standards by voluntary standards could provide a strong platform for implementing continual improvement over time.

Examples of ISO management standards are ISO 50001 Energy Management, the ISO 14000 family—Environmental Management—and the ISO 9000 family—Quality Management.

For more information see http://www.iso.org/iso/home/standards/management-standards.htm.

COSA

The Committee on Sustainability Assessment is a collaborative initiative born out of the UNCTAD/IISD Sustainable Commodity Initiative that aims to provide a global framework for the impact assessment and continual improvement of voluntary standards and other supply chain initiatives. COSA was established to address the multiplying challenges facing standards-setting bodies, private sector actors and policy-makers in managing the various supply chain approaches available to them toward the most effective outcomes possible.

COSA has evolved well over a hundred useful indicators to measure sustainability at the economic, social and environmental dimensions and helps organizations to work with as few as five to streamline their efforts. The advantage of the COSA system is that it can be used for simple, low-cost performance monitoring that is useful on an everyday basis in a supply chain or project. This can also be linked directly to more robust (scientifically credible) impact assessment using the same approach.

To date, the COSA system has been applied in the cocoa and coffee sectors across nearly 20,000 farms, amassing more than 15 million data points. It currently represents the most extensive set of data available to the public on the impacts of supply chain sustainability initiatives in the agricultural sector. For more information, visit http://thecosa.org.

3.4 GOVERNANCE SYSTEMS

Capacity for self-determination is not only a human right, but a cornerstone of sustainable development (IISD, 1994; United Nations, n.d.; UN Sustainable Development, 1992). The literature on global value chain analysis reveals both the challenge and the importance of governance as a basis for securing prosperity among the poorest of the poor (see, e.g., Gereffi, 1994; Manning, Boons, von Hagen & Reinecke, 2012; Raikes, Jensen & Ponte, 2000). One of the compelling features of voluntary standards over time has been their ability to step outside of the box of traditional state and institutional lines of decision making, allowing for the creation of novel governance regimes that reach across supply chains and national jurisdictions. The stakeholder-focused approach to standards governance has allowed standards to achieve new levels of participatory governance, often reaching from the smallest units of production to major multinationals, but is also challenged with the prospect of ensuring inclusiveness, transparency, equity and due process at the global level. Our review of existing practice reveals that:

69 per cent of the initiatives have external stakeholders involved in decision making in the standard-setting process.

94 per cent are member-based organizations; however, some initiatives' membership consists of select NGOs[22] or national initiatives.[23]

Stakeholder representation is diverse. Industry and the private sector are a dominant force at the board level in 56 per cent of the initiatives surveyed. NGOs and civil society are the dominant force in 25 per cent of the initiatives. Producers are a dominant force in the board level governance of only 6 per cent of the initiatives, but do hold an equal or near-equal share of representation across 31 per cent of the initiatives.

Voluntary sustainability standards are opening supply chain decision making to developing country stakeholders, with significant developing country representation at the board level; nevertheless, developed country stakeholders continue to constitute the majority of board members among the initiatives surveyed.

Voluntary standards are becoming more inclusive with their processes for developing country stakeholders, with most of the initiatives surveyed providing complaints processes in languages other than English, and 100 per cent accepting complaints and disputes through more informal means (up from 40 per cent in the *SSI Review 2010*).

22 SAN's membership consists primarily of southern NGOs and civil society organizations.

23 PEFC restricts membership to national forest certification systems and international stakeholder members; however, PEFC notes that accepting nationally based organizations would violate the subsidiarity principle and put PEFC in competition with its own members (SSI correspondence with PEFC).

BOX 3.6 DEMOCRATIZING THE GREEN ECONOMY: THE MEMBERSHIP MODEL AS A BASIS FOR PARTICIPATORY GOVERNANCE

The membership model is the dominant form of governance used among the voluntary standards surveyed. Membership eligibility and the powers associated with membership can have significant implications for how the initiative is governed. The most direct form of member integration and ownership occurs when members have full voting and decision-making powers through the annual general meeting and board elections. All of the member-based organizations covered in our review report having some degree of voting members and thus operate as democratically run organizations. Moreover, all of the initiatives surveyed allow for international membership, thereby providing a sort of supra-jurisdictional democracy. One of the achievements of voluntary standards has been their ability to provide meaningful representation to core constituencies (supply chain stakeholders) across national jurisdictions.

However, it is clear that any given organization cannot plausibly offer "direct" representation to all of the stakeholders in a given supply chain, nor can organizations owe "equal" representation to all possible stakeholders. Finally, ensuring an adequate level of openness in governance without sacrificing efficiency and relevance in the market represents a fundamental challenge for voluntary standards. Although larger and more open membership models maximize participatory governance, this may not be feasible for an organization with limited resources for managing an international membership. The costs associated with bringing international members to meetings to take part in strategic decisions can multiply rapidly. Moreover, the additional transaction costs associated with international, member-based governance can lead to reduced flexibility and efficiency in operating in the market.

The distribution of membership fees can also have significant impacts on stakeholder representation and voice. All of the initiatives surveyed charge some sort of fees to their members. While membership fees are often a critical element in maintaining financial sustainability, there is a general trend toward keeping membership fees for lower-income members (typically producers and non-governmental organizations [NGOs]) at a lower rate in order to allow for broader membership from these stakeholder groups. However well-intentioned (and necessary) such efforts may be, organizations that rely significantly on membership fees for their revenues may be required to orient decision making toward those members that are most important in terms of revenue generation in order to maintain financial viability (see Figure 2.9, Section 2.3.5).

3.4.1 Executive Decision Making

The internal management structure of a sustainability standard plays a role similar to the executive powers in public government. The day-to-day implementation of the sustainability initiative stems from executive decision making and includes matters of general management, market development, training, transaction processing, and monitoring and enforcement of compliance. The highest management authority in most member-based organizations typically rests with the general assembly, but for practical matters, the board of directors is usually the highest level of executive management for "hands-on" decision making. A board of directors or similar entity[24] governs all 16 of the initiatives covered in this report. However, governance structures do indeed vary among the different voluntary sustainability initiatives.[25]

24 Paralleling the operations of the board of directors is the council of the 4C Association and the executive team for UTZ Certified. Note that in the case of PEFC, the General Assembly functions as a board typically does in other organizations.

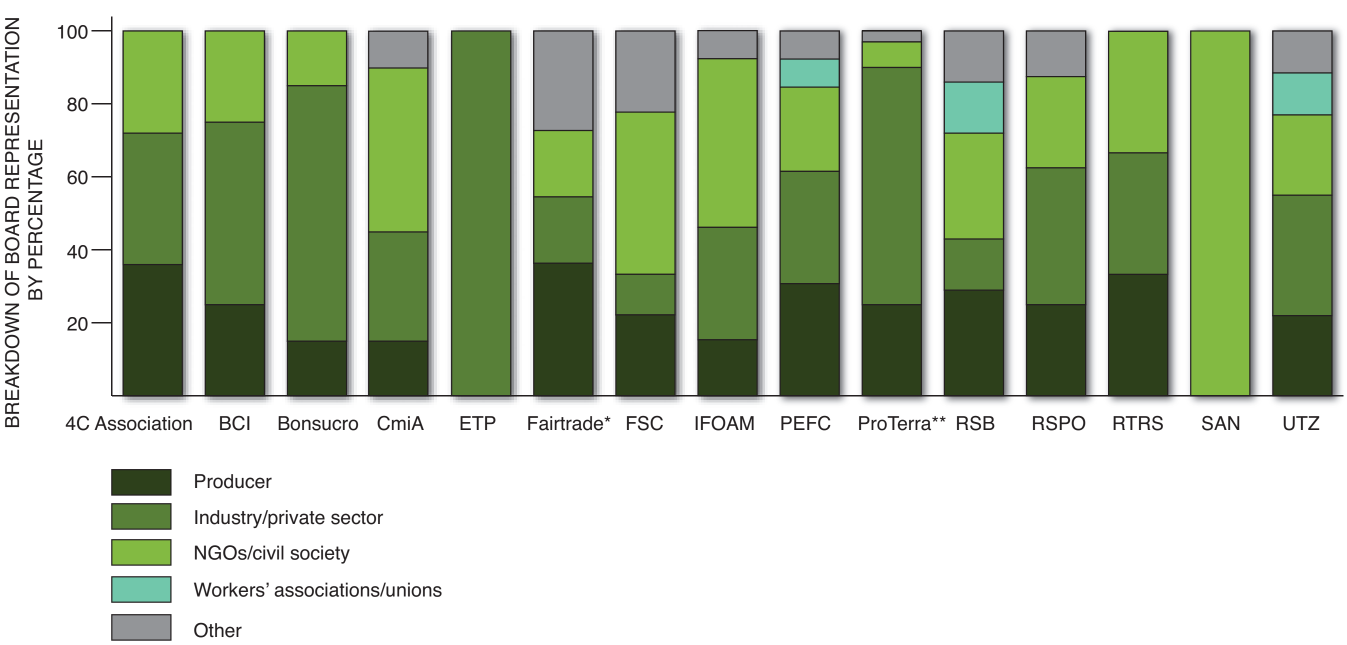
25 For example, UTZ's supervisory board holds the highest management authority, similar to a General Assembly. PEFC is different in that its General Assembly makes almost all decisions, and therefore holds face-to-face general assemblies on a yearly basis, as well as multiple general assembly postal ballots annually (as noted in SSI correspondence with PEFC).

Board representation provides an indication of potential ownership, buy-in and participation of stakeholder groups in the day-to-day management of an organization. In the context of a global economy, where consumer and private sector demand in the developed world often drive supply chain decision making, one of the key challenges for participatory governance has been to find mechanisms for empowering stakeholders upstream in global supply chains to participate in downstream supply chain management decisions.

With this in mind, Figure 3.3 shows the current distribution of stakeholder roles in the supply chain across the initiatives reviewed in this report. The categories of "producer," "industry/private sector," "NGOs and civil society," "workers' associations and unions," and "other" have been used to provide a *general picture* of the distribution of stakeholders on an initiative's board. It is important to note that the categories are not entirely exclusive of each other, with many variations among them. Producer representatives may also have interests in industry or NGOs, for example.[26]

26 An organization's structure can further complicate these categories. For example, "foundations" differ from "associations" in that in foundations, individual board members can represent different organizations, which themselves can include multistakeholder constituencies. ProTerra exemplifies this distinction.

FIGURE 3.3 BOARD REPRESENTATION BY STAKEHOLDER ROLE IN SUPPLY CHAIN.[27]



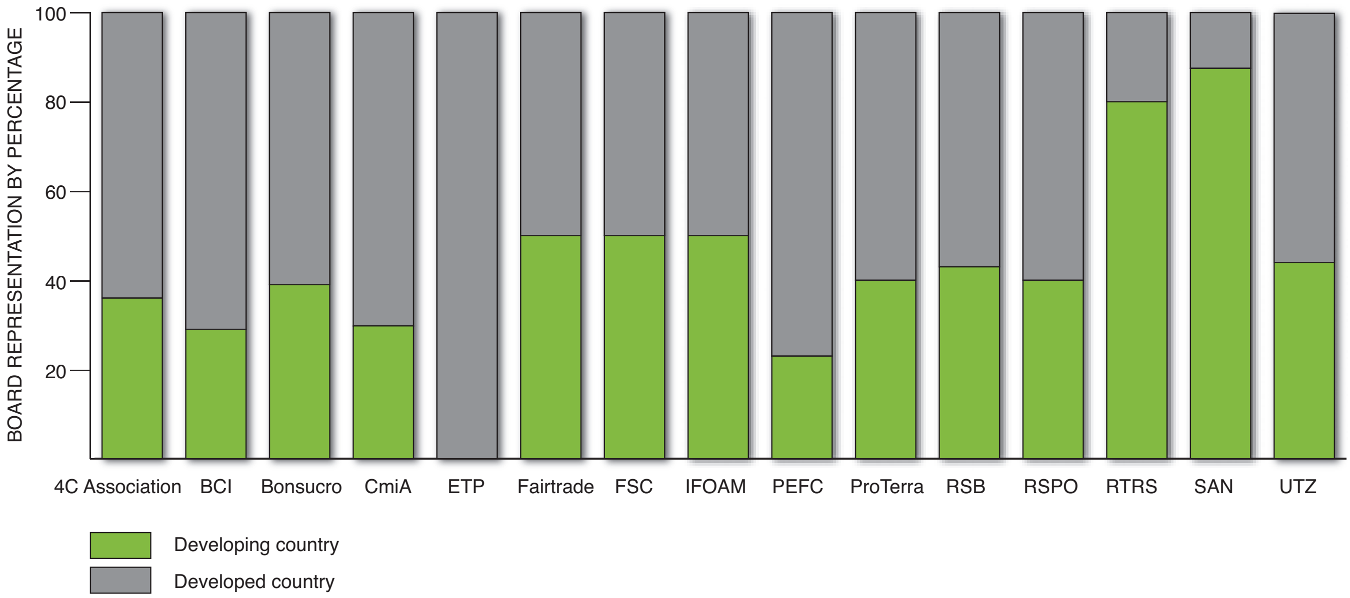
*36 per cent of Fairtrade's board is made up of market-facing organizations that can include private sector groups or NGOs working to build Fairtrade markets. For the purpose of this graph this category was split between industry/private sector and NGOs/civil society.
**ProTerra's breakdown is the average of the total of ABRANGE, ARGE Gentechnik Frei, and VLOG member associations' stakeholder representation.

27 No data available for GLOBALG.A.P.

Figure 3.3 shows that overall, industry and the private sector continue to play a prominent role in over half the initiatives reviewed. Five of the initiatives show that NGOs and civil society representatives have a prominent or equal presence on the board, with Rainforest Alliance's agricultural standard-setting board for the SAN/RA certification system (SAN) standing out as consisting entirely of NGO representatives.[28] 4C Association, Fairtrade, PEFC, RSB and RTRS show the largest presence of producer representation on their boards.

Voluntary sustainability standards are offering an increasingly important place for developing country stakeholders in supply chain decision making. Developed country stakeholders do, however, continue to maintain majority representation for almost all of the systems reviewed (see Figure 3.4). The Rainforest Alliance standard-setting board (SAN) and RTRS represent the exceptions, with 87.5 per cent and 69 per cent, respectively, of their board members representing developing countries.[29]

FIGURE 3.4 BOARD REPRESENTATION BY GEOGRAPHICAL LOCATION (DEVELOPING/DEVELOPED COUNTRIES)[30].



BCI: As defined by IMF (2012) and the World Bank (2012). FSC's ratio changes annually: of 9 board members, 4 or 5 are from North or South. From 2014, FSC's Board will consist of 12 members (4 per chamber) with equal North/South representation (SSI correspondence with FSC; see FSC, n.d.-b).
GLOBALG.A.P.: information unavailable.
SAN: See SAN (2010b).
ProTerra: The ProTerra Certification Program is still filling out its governance structure. See ProTerra (2013) for the membership of each of the three organizations represented on the board of governors. For Figure 3.3, ProTerra's constituencies were aggregated and then averaged.

28 For the purposes of this review, we consider representation on SAN, the standard-setting body affiliated with Rainforest Alliance and responsible for setting and implementing Rainforest Alliance agriculture standards. Rainforest Alliance itself has an independent board with a different makeup altogether consisting of 22 members representing a wide range of industry sectors including food supply chains, the financial sector, dispute resolution, and the legal sector, as well as NGOs (Rainforest Alliance, 2013c).

29 12.5 per cent of the Rainforest Alliance's board comes from the United States.

30 Information is provided by voluntary standards directly unless otherwise indicated. No data available for GLOBALG.A.P.

3.4.2 Legislative Decision Making

Opening the rule-making process to all stakeholders that may be held accountable to such rules presents sustainability initiatives with the potential to mirror democratic institutions. However, at both a practical and political level, initiatives face several challenges in opening their rule-making processes to stakeholders at the international level.

On a practical level, cost increases exponentially with the number of stakeholders included. Moreover, heavily multistakeholder decision-making procedures could lead to reduced efficiencies in an initiative's ability to adjust to market conditions quickly—one of the attractive features associated with private initiatives.

At the political level, it is unclear whether equal voice for all stakeholders in the legislative process is appropriate, particularly when rules apply only to a specific segment of the supply chain. Perhaps more importantly, however, each initiative has a distinct mission or markets that they target within the broader pursuit of sustainable development, and these variables distinguish stakeholders and their associated level of decision-making authority. Therefore, while sustainable development is a concept that must speak at some level to the needs of *all* stakeholders, individual initiatives are often designed with the needs of specific stakeholders in mind.

While it is not possible, based on available data, to determine the precise makeup of stakeholder participation in the legislative process of each initiative, the SSI measures the degree to which a given standard includes external (i.e., non-member) stakeholders in their rule-making processes. Table 3.5 illustrates that the majority of the initiatives reviewed (12 out of 16) engage stakeholders significantly in the standard-setting process.[31]

31 ProTerra has a stakeholder council and opens its standard up for public consultation on a yearly basis (ProTerra, 2012).

TABLE 3.5 EXTERNAL PARTICIPATION IN RULE-MAKING PROCESSES FOR VOLUNTARY STANDARDS.[32]

	4C Association	BCI	Bonsucro	CmiA	ETP	Fairtrade	FSC	GLOBALG.A.P.	IFOAM	PEFC	PROTERRA	RSB	RSPO	RTRS	SAN/RA	UTZ †
Stakeholder participation on boards and committees		✓		✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Stakeholder consultation in standard-setting processes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Stakeholder decision making in standard-setting processes		✓		✓		✓	✓		✓	✓	✓	✓	✓	✓	✓	✓

† Participation of stakeholders: The Standards Committee and Product Advisory Committees provide the fora for stakeholders along the value chain, from producers to buyers to be involved and influence the operations of UTZ Certified (UTZ, 2013).

32 Some information extracted from ITC Standards Map (ITC, 2013b) and also provided directly from standards bodies.

3.4.3 Judicial Decision Making

Adjudication is intended to deal with disputes between stakeholders during the standard implementation process. Since systems are presumably designed to minimize such disputes in the first place, the development and management of adjudication processes may be regarded as a sort of secondary activity for standard-setting bodies more focused on monitoring and enforcement processes. Nevertheless, a sound dispute resolution process is key to ensuring that due process supports decision making, and it therefore provides an important pillar in ensuring the credibility and strength of the overall conformity assessment and governance process of any initiative. As noted in Table 3.6, most of the initiatives reviewed have publicly available policies and procedures on dispute settlement. Only a small minority (25 per cent) report having independent dispute settlement bodies, signalling an ongoing risk for perceived conflict of interest in dispute processes throughout the industry more generally.

While most standards provide publicly available policies on dispute settlement processes, only 31 per cent provide an independent dispute settlement body. Ten of the 16 initiatives permit both local and informal complaints, indicating a specific effort toward making dispute resolution accessible to marginalized groups across the standards reviewed.[33] Given the costs associated with formally independent bodies, there may be particular hope for more creative dispute settlement bodies and processes, such as the RSPO dispute settlement facility (see Box 3.7).

33 At the time of this report, Fairtrade was in the process of implementing procedures for workers to launch complaints through informal means.

TABLE 3.6 DISPUTE SETTLEMENT INDEX FOR VOLUNTARY SUSTAINABILITY STANDARDS REVIEWED IN THIS REPORT.[34]

	4C Association	BCI	Bonsucro	CmiA	ETP	Fairtrade	FSC	IFOAM	PEFC	ProTerra	RSB	RSPO	RTRS	SAN/RA	UTZ
Existence of independent dispute settlement body	✓						✓	✓	✓						✓
Public access to policies and procedures for complaints	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Complaints and dispute resolution procedures available in languages other than English §	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓‡	
Ability to launch complaints at the local level	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Complaints accepted through informal means		✓			✓		✓	✓	✓	✓	✓		✓	✓	✓

‡ Rainforest Alliance, 2013a.
§ It is perhaps worth noting here that there are various levels of disputes concerning different issues such as certification decisions and standard setting. These complaints occur at both the national and international level. At PEFC, for example, the availability of different languages with respect to disputes is distinguished between international activities (English), endorsement decisions (English), PEFC members (local languages as well as English for international) and certification decisions (local language).
GLOBALG.A.P.: Information unavailable.

34 Some information extracted from ITC Standards Map (ITC, 2013b) and also provided directly from the standards bodies.

BOX 3.7 MEDIATING THE GREEN ECONOMY: MANAGING DISPUTES AND THE RSPO DISPUTE SETTLEMENT FACILITY

Standards set principles and rules for sustainable production and practices, and in so doing, they establish the parameters of a green economy. However, disputes over the interpretation and application of standards systems inevitably arise. Part of ensuring the sustainability of voluntary standards systems entails the implementation of due process through appropriate dispute settlement procedures.

Because disputes can arise between any set of parties in the supply chain, including the standard-setting body itself, it is important that objectivity (both perceived and actual) in the application of the core principles of due process is preserved. The establishment of an independent dispute resolution body represents one of the ways of ensuring the independence of dispute resolution more generally (in the same way that courts are designed to be independent of government in most democracies). However, within the context of supply chain processes that must be funded by market actors, independent institutions may be too costly or time-consuming to implement.

With this in mind, the RSPO's dispute settlement facility represents a creative effort to provide for principles of fairness and due process while keeping cost and bureaucracy to a minimum by focusing on supporting mediation as a first step in the dispute resolution process. Although not formally independent, the RSPO dispute resolution facility allows parties a place to formally resolve disputes based on a process of mutual consent and negotiation. If the parties fail to reach agreement, they have the option of using the more formal and legalistic RSPO Complaints System, which takes precedence in such cases. By providing mediation services, the RSPO is able to eliminate the need for most cases to ever go through its complaints system.

3.4.4 Public Disclosure

In order to play an effective role in the governance of sustainability initiatives, stakeholders must have sufficient information about the characteristics, processes and impacts of those initiatives. Public disclosure of systems and financial data therefore represents an important tool for enabling effective participatory governance. At the same time, the geographic, cultural and linguistic diversity of the stakeholder base can make effective communication with stakeholders extremely time and resource intensive for international organizations.

The SSI's Public Disclosure Index is based on seven parameters and provides a high-level measure of the degree to which key information is available online for different initiatives. Although 50 per cent of the initiatives reviewed provide online access to 75 per cent or more of the information included in the SSI Public Disclosure Index, pointing to a general effort toward ensuring easy access to decision and management processes, it is nevertheless notable that only half of the standards reviewed provided online access to independently audited financial statements. This is a rather surprising result given the stated public objectives maintained by virtually all of the initiatives reviewed and the corresponding importance of revenue streams in determining overall capacity and activities along the supply chain.

Public disclosure is a value closely aligned with standard-setting processes, as is exemplified by the high degree of documentation made available to the public online by the standards reviewed (see Table 3.7). Meeting minutes and records as well as audited financial statements are the notable exceptions, and therefore represent important opportunities for improving public engagement in the development and implementation of standard-setting processes.

TABLE 3.7 AVAILABILITY OF DOCUMENTS AND DECISIONS ONLINE.[35]

Type of information	Information detail	4C Association	BCI	Bonsucro	CmiA	ETP	Fairtrade	FSC	GLOBALG.A.P.	IFOAM	PEFC	ProTerra	RSB	RSPO	RTRS	SAN/RA	UTZ
Decision makers	List of board members	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	List of committee members	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Decisions	List of compliant enterprises	✓					✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
	Certification decisions			✓			✓	✓	✓		✓	✓	✓	✓	✓		
Documents	Committee meeting minutes and records		✓						✓					✓	✓		
	Standard-setting and review procedures	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Independently audited full financial statements	✓					✓	✓		✓	✓	✓			✓	✓	
	Annual report	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓ǂ	✓

35 Some information extracted from ITC Standards Map (ITC, 2013b) and some provided directly from the standards bodies.

ǂ SSI data: Rainforest Alliance, 2011 (independently audited full financial statements); Rainforest Alliance, 2012 (financial summary in annual report, policies and procedures for complaints).

4C: The list of committee members is in reference to technical committee members and Mediation Board members (4C Association, 2013c; 2013e). See 4C Association (2013a) for list of compliant enterprises.

BCI: Although BCI makes complaints and dispute resolutions available online, the initiative has not received any official complaints since its inauguration (SSI correspondence with BCI).

Fairtrade: Fairtrade's website provides an annual statistical report with aggregated figures for complaints, appeals and allegations, as well as for certification decisions.

FSC: All ca. 1300 FM/CoC certification decisions are publicly online (including CARs/follow-up) (SSI direct communication with FSC).

RSB: RSB (2011a).

RTRS: RTRS "committee members" refers to the Task Force Brazil and the Pesticides' Use Working Group (SSI correspondence with RTRS).

SAN/RA: The list of the International Standards Committee is available online (A. de Freitas, SAN/RA, personal communication, December 2013).

UTZ: UTZ makes lists of some committee members available online, but not members of all committees. UTZ will begin publishing independently audited full financial statements online in 2014 (SSI correspondence with UTZ Certified).

3.5 SSI CONTENT AND CRITERIA COVERAGE

The rules or criteria associated with a given standard represent the core identity of the initiative. Notwithstanding the consensus on the broad definition of sustainable development (Brundtland Report [United Nations, 1987] and Agenda 21, Rio Declaration [UN Sustainable Development, 1992]) significant diversity of opinion remains as to how sustainable development is best implemented in any given case.

All voluntary standards, to one degree or another, seek to leverage market forces as a vehicle for promoting sustainable development objectives. An initiative's criteria can be seen as defining the organization's "brand identity" and so forms the basis of its market approach. This backdrop explains the wide diversity of standards initiatives as well as the continued (and growing) multiplicity of initiatives within and among sectors.

Although the initiatives reviewed vary in their specific areas of focus and the commodity sectors in which they operate, some general trends can be observed:

- On average, older multisector initiatives show broader and deeper social, environmental and economic content and criteria coverage than do newer, single-sector initiatives.
- Indicators that have achieved the greatest degree of consensus, such as labour rights and occupational health and safety standards that fall within the framework of the International Labour Organization convention, tend to illustrate more robust coverage than those that are more difficult to determine.
- Single-sector initiatives reveal significantly higher coverage of community involvement issues than do multisector initiatives; conversely, multisector initiatives show significantly higher coverage of gender and human rights issues than do single-sector initiatives.
- Environmental issues related to management and reduction of energy use and greenhouse gas emissions reveal the most opportunity for further development across all voluntary standards reviewed.

Generally, there are two types of standards with respect to content and criteria coverage: process-based standards and performance-based standards. A performance-based standard sets requirements for actual outcomes to be achieved rather than requirements for practices. A process-based standard sets requirements for practices that must be undertaken, but not for actual outcomes that must be achieved. These types of standards focus on compliance or progress with recommended or required "best" practices, rather than on the results of those practices, and they do not set criteria for the performance of the management system. That said, however, it is difficult to draw a clear distinction between the two types of standards, since many process-based standards also contain performance-based requirements.[36]

The vast majority of the initiatives reviewed in this report use process-based standards. The predominance of process-based standards across the agriculture and forestry sectors reflects the potential variability of outcomes that might be considered sustainable depending on the local conditions where production occurs. Sustainable development may most accurately be defined by the adoption of sustainable management practices rather than by the attainment of any specific fixed outcome. There are, of course, exceptions to this general observation, where specific activities or outcomes are deemed as de facto unsustainable, if not by all stakeholders (as in the case of forced labour), then at least by a group of stakeholders (such as in the use of genetically modified organisms, or GMOs).

The adoption of process-based approaches, however, is also subject to its own challenges, notably in relation to the consistency of impact or results found across diverse scenarios of standards application. While localized standard-setting or adaptation processes can help reduce this uncertainty, ongoing monitoring or impact assessments are likely to be essential elements in maintaining the meaningfulness of process-based standards over the longer term.

Regardless of whether a standards system is performance based, process based or a mix of the two, criteria alone, although an *indication* of expected outcomes, will never be sufficient for assessing the achievement of specific impacts.[37] The relationship between criteria and actual outcomes is almost always complex, and implementation of any given criteria can lead to unexpected results. Weak implementation or enforcement mechanisms, for example, can leave the best-designed criteria short on desired outcomes.

It is therefore critical to note that our review of the content and criteria across initiatives can only shed light on the orientation of a given initiative and does not suffice as a proxy for actual impacts.

Moreover, this is all the more the case given that the SSI's indicator analysis is limited to criteria explicitly contained in the standard's *global* documents, and not those implemented at either the regional level or referenced through national law. A number of initiatives in this review do incorporate systems for identifying and enforcing criteria at the local and national level that go beyond those specified at the global level.[38] Similarly, some initiatives may reference compliance with national law in lieu of specifying requirements, with the understanding that such legal requirements are part and parcel of the standard itself.[39] Our content and criteria analysis only considers specific criteria within a given standard, and does not take into account the referential inclusion of regulatory instruments.

36 Bonsucro, FSC and PEFC all contain a higher-than-average number of performance-based requirements.

37 The Sustainable Commodity Initiative's COSA initiative offers one example of an initiative expressly designed to address the question of the field-level sustainability impacts of voluntary sustainability standards. The level of data available on impacts at present is insufficient to report in a systemic manner. However, the SSI does envision reporting on impacts once a more systemic and reliable information base is available.

38 For example, FSC, GLOBALG.A.P., PEFC, and RSB are affiliated with or manage a complex set of national and regional standards.

39 Note that this applies specifically to PEFC, where reference to compliance with North American legislation covers many of the basic social and environmental indicators in the SSI set.

3.5.1 Methodology

The SSI's content and criteria indicators and indices represent an attempt to capture the most pressing issues related to supply chain sustainability across commodities, production systems and production regions. Most importantly, they are designed to capture what matters most to global stakeholders with respect to the sustainability performance and orientation of voluntary initiatives.[40] However, it is important to note that working from a limited set of indicators, the actual applicability or appropriateness of a given SSI index will vary depending on the specific commodity sector or standard in question, for example, the lack of genetic modification in the palm industry.[41] In an effort to distinguish between different types of requirements and enable a sense of criteria coverage and depth, we have adopted a point scale based on the degree and speed with which full compliance is required by a given initiative (see Figure 3.5).

40 The full set of SSI indicators, including the content and criteria indices, were developed with the oversight of the advisory panel to the 2010 *SSI Review*. These indicators were subsequently integrated directly into the ITC T4SD standards map database and represent the backbone of the ITC's global framework for tracking standards-related data and information (ITC, 2013b).

41 With this in mind, the SSI is committed to reviewing and revising its indicator set over time through ongoing collaboration with standard-setting bodies and other stakeholders.

FIGURE 3.5 DEGREE OF COVERAGE METHODOLOGY.

Degree of Coverage	Requirement	Rating
Critical	Must be met as a precondition to participate in the standard (at the time of the first audit).	5
Short term	Must be adhered to over the certification process in the short term (up to one year after the first audit).	4
Medium term	Must be adhered to over the certification process in the medium term (1–3 years).	3
Long term	Must be adhered to over the certification process in the long term (3–5 years).	2
Recommendation	Criteria exist but are not binding (no timeline).	1
Not covered	No requirements.	0

Once each criterion is converted into the five-level sustainability rating system, results are aggregated accordingly on a scale of 0 to 100 per cent. Three separate analyses are applied to interpret results and overall trends:[42]

- **Global indices analysis** examines criteria coverage according to various indices. The primary focus of this analysis is to identify the overall coverage according to the core sustainability indices along each social, environmental and economic sustainability dimension.
- **Single-sector versus multisector analysis** compares content and criteria coverage of single-sector commodity initiatives with that of multisector commodity initiatives across the 16 standards surveyed. The focus of this analysis is to determine if the extent of coverage across the social, environmental and economic SSI indices varies between single-sector and multisector initiatives. Since multisector initiatives tend to be older, and have therefore had more time to develop their standards, it is interesting to investigate this comparison as well as the possible explanations of these findings.
- **Indicator-specific analysis** examines criteria coverage according to the individual indicators that make up the indices. The primary focus of this analysis is to identify the disparities evident in disaggregated data that may not be fully reflected in an overall aggregate index analysis. This analysis helps provide an understanding of which criteria are most common and which are the least developed across the initiatives and sectors examined.

It is important to note that the SSI's indicator analysis is a comparison tool for evaluating where standards lie on the continuum of social, environmental and economic content and criteria coverage. The analysis is not intended to delineate "good" versus "bad" performance. While we recognize that there will be a natural tendency to regard more complete coverage as "better," this may not necessarily be the case. To the extent that more stringent criteria also represent a higher bar for producers to cross, increased competiveness may decrease the accessibility of sustainable markets to those most in need, thereby restricting the ability of such initiatives to promote poverty reduction objectives among the most marginalized producers. As our review of the market trends reveals (see Section 4), this remains a major concern for initiatives moving forward.

42 Note we also provide a commodity-by-commodity breakdown of SSI index coverage in Appendices V, VI and VII.

3.5.2 The SSI Criteria

The SSI social criteria provide a high-level overview of the degree to which each voluntary sustainability initiative addresses key issues related to social sustainability at the levels of community, household and workplace. These indicators place great emphasis on UN and International Labour Organization (ILO) human and labour rights documents. See Appendix I for an explanation of each social index and accompanying indicators. Figure 3.6 presents the social indicators and index categories selected.

The SSI core environmental criteria cover a series of key environmental sustainability factors at the site of production or extraction to underscore the significance of this stage in commodity production. See Appendix I for an explanation of each environmental index and accompanying indicators. The SSI environmental indices and their indicators record the degree of compliance specified by a standard with respect to the categories shown in Figure 3.7.

The SSI core economic criteria record the degree of compliance specified by a standard with respect to the categories shown in Figure 3.8 (see Appendix I for an explanation of each economic index and accompanying indicators).

FIGURE 3.6 SSI SOCIAL INDICES AND INDICATORS.

Criteria dimension	Index category	Indicators
SOCIAL	Human rights	1. Education 2. Medical care 3. Housing and sanitary facilities
	Labour rights	4. Equal remuneration 5. Freedom of association 6. Collective bargaining 7. Non-discrimination 8. Worst forms of child labour 9. Forced labour 10. Minimum age
	Gender	11. Gender in governance 12. Women's labour rights 13. Women's health and safety
	Health and safety	14. Safety at work 15. Healthy work conditions 16. Access to safe drinking water at work 17. Access to sanitary facilities at work 18. Access to medical assistance at work 19. Access to training
	Employment conditions	20. Treatment of contract workers 21. Transparency of employment practices 22. Written contracts for employees 23. Timely payment of wages 24. Maximum number of working hours
	Employment benefits	25. Paid leave (sick/maternity and/or paternity) 26. Pension and security benefits
	Community involvement	27. Community consultation 28. Local hiring
	Humane treatment of animals	29. Humane treatment of animals

FIGURE 3.7 SSI ENVIRONMENTAL INDICES AND INDICATORS.

Criteria dimension	Index category	Indicators
Environmental	Soil	1. Soil conversion (erosion prevention) 2. Soil quality maintenance
	Biodiversity	3. Habitat set-asides 4. Flora densities/diversity 5. Prohibition of conversion of high conservation value land
	GMO prohibition	6. Prohibition of genetically modified organisms
	Waste	7. Waste disposal 8. Waste management 9. Pollution
	Water	10. Water practices in scarcity (dependencies) 11. Water use in management plan 12. Water reduction criteria 13. Wastewater disposal
	Energy	14. Energy-use and management 15. Energy reduction
	Greenhouse gas	16. Greenhouse gas accounting 17. Greenhouse gas reductions 18. Soil carbon sequestration
	Synthetic inputs	19. Integrated pest management 20. Enforcement of a prohibited list 21. Complete prohibition of synthetics

FIGURE 3.8 SSI ECONOMIC INDICES AND INDICATORS.

Criteria dimension	Index category	Indicators
Economic	Economic	1. Minimum wage 2. Living wage 3. Premiums 4. Written contracts between buyers and sellers 5. Product quality requirements

3.6 SSI INDICES ANALYSIS

3.6.1 Social Indices Analysis

Figure 3.9 illustrates the total average coverage for each SSI social index. Below it, Table 3.8 disaggregates the results to illustrate the coverage of criteria by each of the standards reviewed. The indices are presented from the highest degree of coverage to the lowest.

FIGURE 3.9 AVERAGE COVERAGE OF SSI SOCIAL INDICES AMONG ALL 16 VOLUNTARY SUSTAINABILITY INITIATIVES.[43]

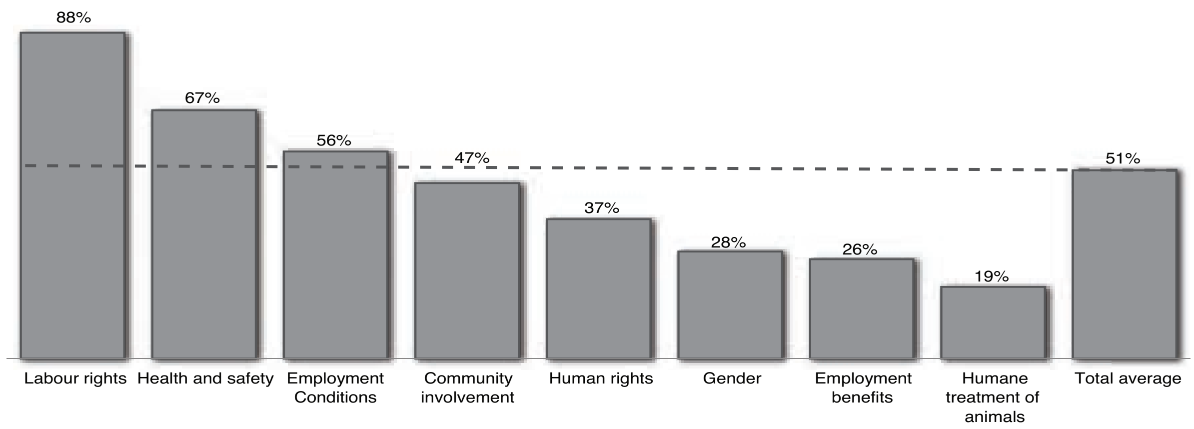


TABLE 3.8 AVERAGE COVERAGE OF SSI SOCIAL INDICES FOR EACH VOLUNTARY SUSTAINABILITY INITIATIVE.

	Labour rights	Health and safety	Employment conditions	Community involvement	Human rights	Gender	Employment benefits	Humane treatment of animals	Total average
SAN/RA	100%	80%	80%	90%	80%	53%	90%	100%	84%
RTRS	100%	80%	92%	80%	67%	67%	50%	NA	76%
RSB	100%	83%	80%	100%	100%	67%	0%	NA	76%
Fairtrade	91%	100%	100%	0%	67%	73%	80%	NA	73%
ProTerra	83%	50%	76%	90%	27%	0%	80%	NA	58%
UTZ	100%	93%	84%	0%	93%	33%	0%	NA	58%
IFOAM	86%	53%	80%	0%	20%	67%	0%	100%	51%
RSPO	97%	87%	36%	90%	0%	7%	40%	NA	51%
ETP	89%	87%	44%	0%	20%	40%	60%	NA	48%
GLOBALG.A.P.	20%	100%	20%	0%	33%	20%	20%	100%	39%
FSC	100%	50%	0%	100%	0%	0%	0%	NA	36%
PEFC	100%	50%	0%	100%	0%	0%	0%	NA	36%
4C Association	83%	37%	40%	0%	47%	27%	0%	NA	33%
CmiA	60%	30%	48%	50%	40%	0%	0%	NA	33%
Bonsucro	100%	40%	32%	50%	0%	0%	0%	NA	32%
BCI	94%	47%	76%	0%	0%	0%	0%	NA	31%

Note: the criterion humane treatment of animals is only applicable to three of the 16 standards; therefore, all other standards list "NA" for "not applicable."

43 Social criteria coverage only reflects specific matches with the SSI indicators and should not be understood to suggest a given initiative's entire treatment on a specific sustainability topic.

The labour rights index earns the highest coverage across all social indices, with 14 of the initiatives illustrating higher than 80 per cent coverage, and seven initiatives reporting 100 per cent coverage. This result is a reflection of the broad international consensus regarding acceptable labour practices as specified under the ILO core conventions, which form the basis of this index.

The initiative revealing the least coverage on labour rights is GLOBALG.A.P., a fact explained in part by its substantial reliance on local labour laws and enforcement systems for meeting major social sustainability objectives.[44]

Overall, SAN/RA, RTRS and RSB show the highest average coverage across the SSI social indices. Seven of the initiatives surveyed register less than 40 per cent coverage across the group of social indices. In some cases, this is explained by a strict focus on the most important and globally agreed social norms. In other cases, references to national law allow initiatives to integrate more culturally specific requirements without making such requirements explicit in the global standard.[45] National standard interpretations result in more applicable standards among varying country contexts, in recognition that, as in most everything, one size does not fit all.

Coverage of the human rights index is relatively low among initiatives. RSB, UTZ and SAN/RA reveal the most coverage of this criterion, with RSB as the only initiative illustrating 100 per cent coverage. Five of the initiatives reviewed report no coverage at all for this index. Human rights, as a general rule, depend on broader cultural and geopolitical factors that are not directly controlled by the supply chain. The relatively low coverage among the initiatives arguably points to a lack of consensus on how far into the community supply chain responsibilities extend.

Similarly, little emphasis overall is placed on the gender and employment benefit indices. More than half of the initiatives (nine) reveal no requirements related to the SSI employment benefit index in their standards. The gender index also illustrates significantly lower than average coverage across the initiatives reviewed, with six of the initiatives reporting no SSI gender criteria requirements. However, SAN/RA, Fairtrade and ProTerra illustrate much higher-than-average coverage for the employment benefits index; likewise, Fairtrade, RSB, RTRS and IFOAM show higher-than-average coverage for the gender index, pointing to the potential for advancement in these indices.

Social sustainability is a core pillar of a green economy. The scope of criteria coverage observed among existing initiatives reflects an inherent tension in the ability of supply chain actors to promote social sustainability. While there is clear consensus that standards can and should play a role in protecting negative rights related to employment itself, the role of standards and their ability to proactively influence broader access to community-level or positive rights reveals less agreement among the different initiatives.

It is worth pointing out, however, that even where standards do not explicitly require the protection of certain positive or community rights, the broader economic benefits or access to technical assistance enabled by participation in a voluntary sustainability standard might nevertheless be expected to have important impacts on the provision of these rights. These potential impacts are not, of course, adequately captured by our criteria analysis.

3.6.2 Environmental Indices Analysis

More than half (11) of the initiatives have an average SSI environmental coverage of 50 per cent or more, with IFOAM and SAN/RA reporting higher than 70 per cent average coverage. All of the seven initiatives with lower than average coverage across the environmental criteria are newer initiatives that were established after the year 2000—signalling a trend toward lower coverage among more recent initiatives. Table 3.9 depicts the average score across all SSI environmental indices based on the initiatives (and corresponding criteria) in existence at a given point in time, showing a clear trend toward reduced overall coverage over time.[46] The downward trend in coverage is inversely proportional to average hectarage certified per initiative over time,[47] pointing to an apparent trade-off between market share and the depth of criteria coverage. Moreover, all but one of the initiatives with less than 50 per cent average coverage are single-sector initiatives (see single-sector versus multisector analysis below). Importantly, these trends parallel the growing trend toward mainstream uptake across initiatives, and point to a broader issue related to the balance between market actors and the standard-setting process itself (see Figure 3.11).

44 For example, the initiative has designed a social standards extension to GLOBALG.A.P. certification called GRASP (GLOBALG.A.P. Risk Assessment on Social Practice). Where national legal requirements for employment conditions are more stringent, local legislation overrides GRASP. However, if national legislation is either non-existent or less stringent, GRASP provides the minimum compliance criteria for good social management. GRASP's social criteria covers factors such as number of working hours as well as minimum wage and age, and therefore covers indicators across SSI's social and economic criteria.

45 Although local or regional standards typically must always adhere to the bottom line established by global standards, regional standards can go beyond the global minimum requirements; both PEFC and FSC, for example, often provide more stringent regional standards for social sustainability in developing country applications. The *SSI Review 2014* was not able to reflect the diversity exhibited by many different regional versions and therefore does not always fully represent the extent of actual criteria applied on the ground.

46 Of the 16 initiatives reviewed, 9 were established after 2000. 78 per cent of these (seven of the nine) report having less than 55 per cent coverage across the SSI environmental criteria. In contrast, none of the initiatives established before 2000 reported less than 55 per cent average coverage.

47 For initiatives where data are available.

Figure 3.10 illustrates the total average coverage for each SSI environmental index. Below it, Table 3.9 disaggregates the results to illustrate the coverage of criteria by each standard. The indices are presented from highest degree of coverage to lowest.

Figure 3.10 shows that the highest coverage among the initiatives reviewed along the environmental spectrum is found in the soil index, with 7 of the 16 initiatives reporting 100 per cent coverage. One possible explanation of this is the intimate link between soil quality and productivity for virtually all agricultural commodities. In this sense, soil protection and maintenance—more so perhaps than many other environmental practices—are more directly linked to the private interests of farmers and manufacturers themselves. Indeed, the other categories of waste, synthetic inputs and water, which score "above average" for their coverage across all initiatives, arguably bear a similarly direct link with productivity.

FIGURE 3.10 AVERAGE COVERAGE OF SSI ENVIRONMENTAL INDICES AMONG ALL 16 VOLUNTARY SUSTAINABILITY INITIATIVES.[48]

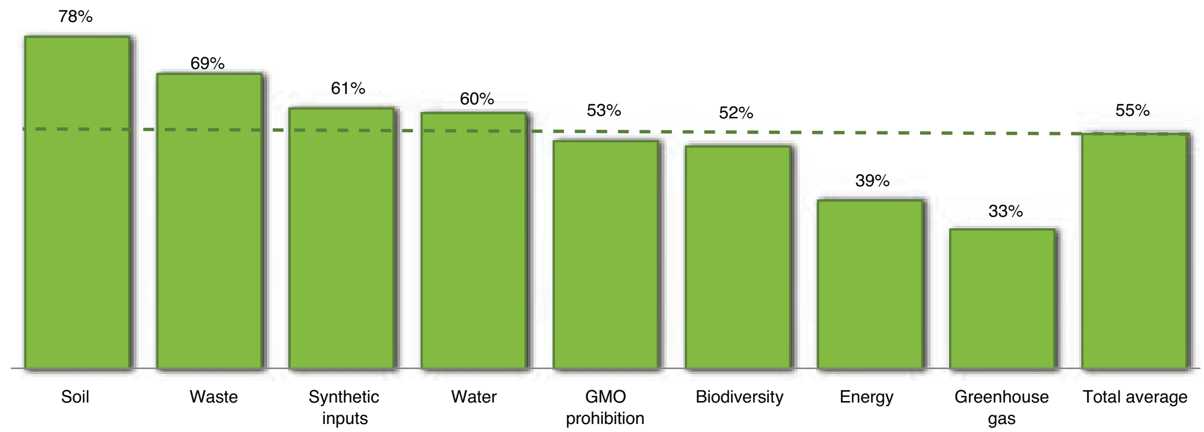


TABLE 3.9 AVERAGE COVERAGE OF SSI ENVIRONMENTAL INDICES FOR EACH VOLUNTARY SUSTAINABILITY INITIATIVE.

	Soil	Waste	Synthetic inputs	Water	GMO prohibition	Biodiversity	Energy	Greenhouse gas	Total average
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
SAN/RA	80%	60%	60%	70%	100%	93%	80%	47%	74%
ProTerra	90%	87%	67%	80%	100%	27%	40%	67%	70%
RSB	100%	100%	40%	85%	0%	67%	50%	100%	68%
PEFC	100%	67%	67%	75%	100%	100%	0%	0%	64%
ETP	100%	100%	67%	100%	0%	33%	100%	7%	63%
FSC	100%	100%	67%	25%	100%	100%	0%	0%	61%
Fairtrade	60%	53%	53%	50%	100%	60%	60%	47%	60%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
RTRS	100%	100%	60%	45%	0%	67%	0%	60%	54%
RSPO	40%	87%	60%	30%	NA	33%	40%	67%	51%
UTZ	80%	33%	60%	95%	0%	13%	60%	0%	43%
Bonsucro	90%	53%	0%	20%	0%	33%	40%	60%	37%
4C Association	20%	27%	47%	30%	100%	13%	40%	0%	35%
CmiA	30%	20%	67%	15%	100%	0%	0%	0%	29%
BCI	60%	20%	100%	25%	0%	20%	0%	0%	28%

Note: There is no genetic modification in the palm oil sector; therefore, RSPO lists "NA" (not applicable) for the GMO prohibition index.

48 Environmental criteria coverage only reflects specific matches with the SSI indicators and should not be understood to suggest a given initiative's entire treatment on a specific sustainability topic.

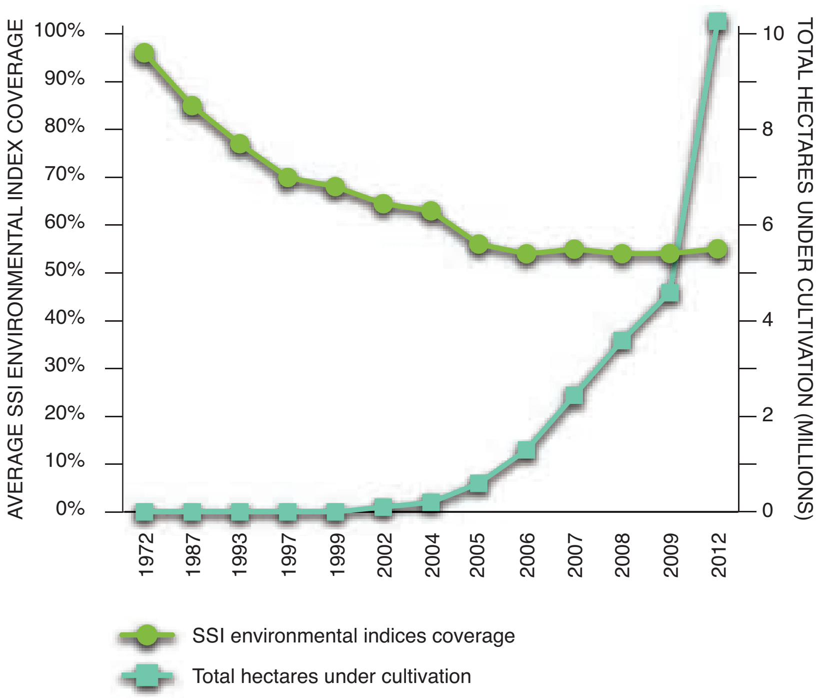
Other noteworthy observations revealed by our analysis include:

- Notwithstanding the global recognition of climate change and greenhouse gas emissions as a major sustainability issue, particularly for the agricultural and forestry sectors, only six of the standards reveal higher than average coverage of the SSI greenhouse gas index, with seven requiring no compliance at all. RSB is the only initiative demonstrating 100 per cent coverage of all three SSI greenhouse gas indicators. [49]

49 Note that the SSI greenhouse gas index measures explicit criteria related to greenhouse gas reduction. Other sustainable agriculture practices (such as soil maintenance and the proper management of synthetics) may have equally or more important implications for actual greenhouse gas emissions depending on the production system of concern.

- Although the energy index has the second-lowest average coverage across initiatives, three initiatives, ETP, IFOAM and SAN/RA, illustrate significantly higher than average coverage of this SSI index, with ETP and IFOAM requiring 100 per cent compliance.
- Exactly half of the initiatives surveyed include a prohibition on GMOs, reflecting the controversial nature of genetic modification in popular society and among scientists.
- The SSI's biodiversity index shows diverse coverage across the initiatives; however, half of the initiatives still report significantly lower than average coverage, with all but one having a single-sector focus.

FIGURE 3.11 AVERAGE ENVIRONMENTAL INDEX COVERAGE BY YEAR COMPARED WITH TOTAL NUMBER OF HECTARES CERTIFIED OVER TIME.[50]



Sources: Average environmental indices coverage: ITC, 2013b; Total hectares under cultivation: Bonsucro, 2013d; A. Bruestle, 4C Association, personal communication, February 6, 2013; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; S. Johnston, BCI, personal communication, December 2, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; Nestlé Nespresso Corporate Communications, personal communication, September 26, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; The Textile Exchange, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013; B. Zeehandelaar & F. Cativiela, RTRS, personal communication, February 28, 2013.

50 Years indicated represent date of establishment of each initiative (see Figure 2.1). Although established in 1997, ETP launched its own standard called the ETP Global Standard in 2009, which included key environmental provisions. For the purpose of this graph, ETP begins in 2009 rather than 1997. SSI environmental coverage over time was calculated by taking the average coverage across each standard that was active each year between 1972-2012 (see Table 3.9). Standard-compliant area harvested from 2008 to 2012 was calculated by totalling all area harvested data collected across the standards and commodities covered in this review. For preceding years, area harvested estimates were based on reported production volumes and yield data collected from the SSI (Potts et al., 2010) and FAO (2013).

BOX 3.8 SELLING THE GREEN ECONOMY: THE MARKET FOR RULE-MAKING

From a green economy perspective, the declining trend in average coverage of environmental criteria may point to growing market pressure to define sustainability for voluntary standards. As increasingly powerful actors become active participants in the development and implementation of voluntary sustainability standards, it is possible that these actors are placing growing pressure on initiatives to define reduced levels of coverage in order to accommodate their supply chains. Even the most democratic processes may be influenced either explicitly or implicitly by the potential for market interest, which may in turn lead standard setters to seek reduced criteria coverage.

Whether or not this is actually the case cannot be determined from these data, but it does point to an inherent tension faced by voluntary standards that, on the one hand, seek a principled basis for ensuring the application of sustainable practices, but on the other hand, rely on the buy-in and ownership of the very organizations they attempt to regulate. This potential conflict of interest also points to a role for public authorities in monitoring and regulating voluntary claims associated with sustainability.

BOX 3.9 REGULATING THE GREEN ECONOMY: THE CASE OF GMOS

The potential impact of GMOs on the environment and human health has proven to be one of the more controversial issues in society today. Differing perspectives on the appropriate role of GMOs has similarly divided stakeholders in the development of voluntary standards as well. Our review of 16 leading standards in the agriculture and forestry sectors reflects this division rather clearly, with exactly half the standards permitting the use of GMOs and the remaining seven standards prohibiting them.[51]

In some sectors, such as cotton, the use of GMOs has enabled substantial reductions in the total use of pesticides (ISAAA, 2012). However, the promise of more efficient pesticide use has been challenged lately through the increasing use of herbicides, as well as the emergence of herbicide-resistant weeds, associated with GMO production (Benbrook, 2009).

An increasingly important issue for standards seeking to provide the market with non-GMO products, however, is the decreasing availability of non-GMO seed in sectors where GMO production has become the predominant form of production (e.g., cotton and soybeans) (see Sections 9 and 12.). The growing challenge facing non-GMO standards in securing their supply base comes as a direct result of the interconnected nature of the environment and all agricultural systems within it.[52] Fundamentally, the GMO experience points to one way in which different production systems (even different standards) may impact the ability of other production systems (e.g., other standards systems) to achieve their desired objectives.

Where sustainability is a contested concept, governments will have a role in ensuring that stakeholders have the freedom to pursue their competing visions of sustainable development. The GMO case reveals a clear example where the free implementation of voluntary standards is unlikely to be a sufficient tool for managing competing visions of sustainable production. To the extent that GMO production has the capacity to prevent others from accessing non-GMO production, government may have to establish regulations and programs to protect non-GMO seed stock and production at both the domestic and international levels.

51 There is no genetic modification in the palm oil industry; therefore, RSPO is not included in this comparison.

52 More recently there have been reports of premiums being offered for non-GMO products as a means to ensure the continued availability of non-GMO seeds. For example, the Brazilian Association of Non-GMO Grain Producers (ABRANGE) has explicitly linked premiums with non-GMO production (Personal communication, John Fagan, ProTerra, January 2014).

Figure 3.12 illustrates the total average coverage for each SSI economic index. Below it, Table 3.10 disaggregates the results in order to illustrate the coverage of criteria by each of the voluntary sustainability standards reviewed. The initiatives are listed from the highest degree of coverage to the lowest.

FIGURE 3.12 AVERAGE COVERAGE OF SSI ECONOMIC INDICES AMONG ALL 16 VOLUNTARY SUSTAINABILITY STANDARDS.[53]

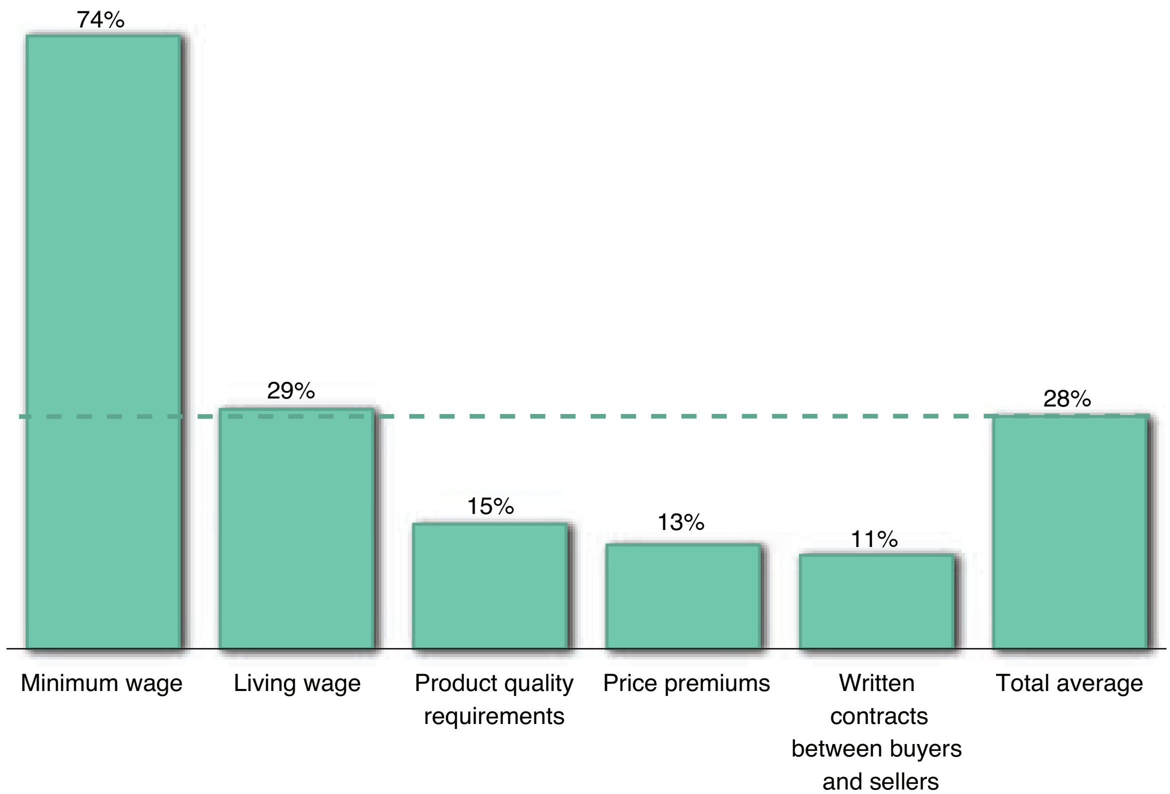


TABLE 3.10 AVERAGE COVERAGE OF SSI ECONOMIC INDICES FOR EACH VOLUNTARY SUSTAINABILITY STANDARD.

	Minimum wage	Living wage	Product quality requirements	Price premiums	Written contracts between buyers and sellers	Total average
Fairtrade	100%	40%	0%	100%	100%	68%
IFOAM	100%	100%	100%	0%	0%	60%
RSPO	100%	100%	0%	0%	80%	56%
UTZ	100%	0%	0%	100%	0%	40%
ETP	100%	100%	0%	0%	0%	40%
RTRS	100%	100%	0%	0%	0%	40%
Bonsucro	100%	0%	80%	0%	0%	36%
CmiA	60%	0%	60%	0%	0%	24%
ProTerra	100%	0%	0%	0%	0%	20%
RSB	100%	0%	0%	0%	0%	20%
SAN/RA	100%	0%	0%	0%	0%	20%
BCI	60%	0%	0%	0%	0%	12%
4C Association	40%	0%	0%	0%	0%	8%
GLOBALG.A.P.	20%	20%	0%	0%	0%	8%
FSC	0%	0%	0%	0%	0%	0%
PEFC	0%	0%	0%	0%	0%	0%

53 Economic criteria coverage only reflects specific matches with the SSI indicators and should not be understood to suggest a given initiative's entire treatment on a specific sustainability topic.

3.6.3 Economic Indices Analysis

Overall, economic criteria display the lowest degree of coverage across the three pillars of sustainability. Virtually all initiatives would say that this is not a reflection of a lack of concern for the economic sustainability of producers, but rather is due to a widely held belief that economic sustainability is fundamentally founded on free market interaction. For those holding this view, the absence of economic criteria might be considered an indicator of an initiative's commitment to promoting long-term economic sustainability.[54]

Having said that, it is also widely recognized that inherent disparities in market authority and bargaining power are commonplace in commodity supply chains and that, as a result, explicit criteria can be a tool for assisting more equitable free-market interaction. The SSI's economic indices attempt to capture recognized pressure points where criteria may have additional effects on normal market interactions.

The most common economic criteria used among the standards surveyed are those related to the enforcement of national minimum wage requirements, with 10 of the 16 reporting 100 per cent coverage on this index. The high degree of coverage in the minimum wage category is, as with ILO core labour standards in our social criteria analysis, an area where there is clear international consensus on the importance of this criterion as a basic component of supply chain sustainability.[55]

The living wage index reveals the second-highest coverage across the initiatives reviewed; however, coverage drops dramatically from that of minimum wage. IFOAM, RSPO, ETP and RTRS all show 100 per cent coverage of this indicator. All other initiatives require no coverage of living wage in their standards, except for Fairtrade and GLOBALG.A.P., at 40 per cent and 20 per cent, respectively. Although there is no generally accepted definition or agreed methodology for calculating a "living wage," the term is usually premised on "meeting the basic needs essential to an acceptable standard of living" and is generally estimated to be considerably higher than minimum wage in many developing countries (Anker, 2011).

54 It is also worth noting that in a context where multiple and major commercial actors are part of the rule-making process, national anti-trust legislation may prevent the discussion of and agreement on certain economic parameters (such as pricing) (see Potts, 2004).

55 As noted above, even standards without explicit minimum wage requirements typically incorporate such requirements by requiring compliance with domestic regulations as part of the standard.

Other highlights emanating from the review of economic criteria include:

- Fairtrade is the only initiative with criteria covering all aspects related to contractual transparency between buyers and sellers. Although RSPO reports high coverage, the remaining initiatives have no criteria covered by the SSI's "written contracts between buyers and sellers" index.
- Price premiums illustrate the second-lowest average coverage across all 16 voluntary sustainability initiatives, with only Fairtrade and UTZ covering this index, although the requirements specified vary considerably. The minimum pricing specified by Fairtrade is based on product type and location, while UTZ allows for negotiation of the final premium between buyer and seller. Although not considered a premium per se, CmiA presents the producer with the potential of eventually receiving a dividend, but only after a certain level of sales has been achieved (International Finance Corporation, 2013).
- Stipulations of product quality also demonstrate low coverage among voluntary sustainability initiatives, with only IFOAM (100 per cent), Bonsucro (80 per cent) and CmiA (60 per cent) requiring compliance with these SSI indices.

As a general rule, newer baseline standards do not specify criteria covered in the SSI economic indices much beyond criteria related to minimum wages. In the absence of such requirements, a considerable weight is placed on the ability of standards to deliver real and meaningful economic impacts. To date, however, there are very little data on the economic impacts associated with the adoption of voluntary sustainability standards more generally, let alone the newest among them (Blackman & Naranjo, 2010; ITC, 2012). This represents a major area where ongoing, science-based objective and comparable research is needed. Moreover, in light of the reliance on the ability of standards to bring "economic success" through indirect means, it is also imperative that initiatives build feedback loops through continual improvement systems that can help ensure that economic benefits are delivered as part of the adoption package.

BOX 3.10 THE ECONOMICS OF THE GREEN ECONOMY: THE ROLE OF STANDARDS IN SETTING ECONOMIC CRITERIA

The economic benefits that voluntary sustainability standards can bring to compliant producers are one of the major purported benefits of these standards. While Fairtrade is unusual among voluntary sustainability standards in its effort to ensure such benefits by explicitly building them into the requirements of its standard, all standards are premised on their ability to influence markets in a manner that, among other things, offers greater benefits to producers in the supply chain.

One of the reasons voluntary sustainability standards have resisted including explicit economic criteria is an underlying understanding that voluntary standards should work through markets, rather than dictating markets directly. Indeed, many economists would argue that formally establishing economic requirements could largely be a futile endeavour, on the expectation that the market would correspondingly make adjustments to counterbalance any such requirements.

Regardless of one's perspective on the role of standards in setting the terms of specific economic outcomes, an argument, in line with the debate over sustainability standards more generally, can be made concerning the relevance of building tools or criteria that enhance market transparency. Providing producers with regular and real-time access to accurate market information and clear contractual terms is a key building block not only for enabling producers to negotiate sustainable livelihoods, but also for ensuring a stable supply base for buyers.

3.7 SINGLE-SECTOR VERSUS MULTISECTOR INITIATIVE ANALYSIS

3.7.1 Social Indices

Figure 3.13 compares the coverage of SSI social indices across the single-sector and multisector initiatives reviewed. Below it, Table 3.11 shows the disaggregated results in order to show the coverage by each voluntary sustainability initiative within these categories.

FIGURE 3.13 AVERAGE COVERAGE OF SSI SOCIAL INDICES ACROSS SINGLE-SECTOR AND MULTISECTOR INITIATIVES.

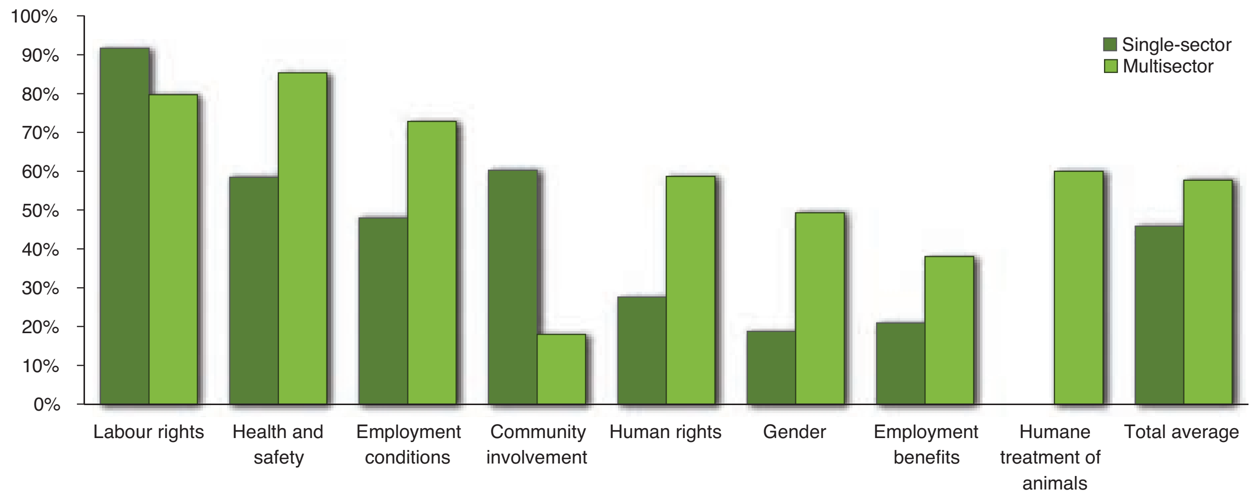


TABLE 3.11 AVERAGE COVERAGE OF SSI SOCIAL INDICES BY SINGLE-SECTOR AND MULTISECTOR INITIATIVES.

	Labour rights	Health and safety	Employment conditions	Community involvement	Human rights	Gender	Employment benefits	Humane treatment of animals	Total average
Single-sector	91%	58%	48%	60%	27%	19%	21%	NA	40%
RTRS	100%	80%	92%	80%	67%	67%	50%	NA	76%
RSB	100%	83%	80%	100%	100%	67%	0%	NA	76%
ProTerra	83%	50%	76%	90%	27%	0%	80%	NA	58%
RSPO	97%	87%	36%	90%	0%	7%	40%	NA	51%
ETP	89%	87%	44%	0%	20%	40%	60%	NA	48%
FSC	100%	50%	0%	100%	0%	0%	0%	NA	36%
PEFC	100%	50%	0%	100%	0%	0%	0%	NA	36%
4C Association	83%	37%	40%	0%	47%	27%	0%	NA	33%
CmiA	60%	30%	48%	50%	40%	0%	0%	NA	33%
Bonsucro	100%	40%	32%	50%	0%	0%	0%	NA	32%
BCI	94%	47%	76%	0%	0%	0%	0%	NA	31%
Multisector	79%	85%	73%	18%	59%	49%	38%	60%	61%
SAN/RA	100%	80%	80%	90%	80%	53%	90%	100%	84%
Fairtrade	91%	100%	100%	0%	67%	73%	80%	NA	73%
UTZ	100%	93%	84%	0%	93%	33%	0%	NA	58%
IFOAM	86%	53%	80%	0%	20%	67%	0%	100%	51%
GLOBALG.A.P.	20%	100%	20%	0%	33%	20%	20%	100%	39%

BOX 3.11 NURTURING THE GREEN ECONOMY: GENDER EQUALITY AND A GREEN ECONOMY

The relatively low level of coverage on the gender index is one of the most striking features of the coverage of social indicators. Close to half of the initiatives have no criteria that are considered in the SSI gender index. Although revealing significantly higher coverage than the single-sector initiatives, multisector standards still report below average (51 per cent) coverage, at 49 per cent.

Considerable evidence suggests that women are critical resources and change agents for sustainable development. For example, some research suggests that investment in girls' education can yield significant economic returns, possibly yielding higher returns than any other development spending (Goodman, 2013). Other research suggests that women are typically more inclined toward sustainable consumption in both developed and less developed countries than men, and are therefore fundamental in transforming household consumption practices (MacEachern, 2013). Finally, increasing economic autonomy among women has been linked to improved household sustainability (Fernandez, 2010).

The SSI gender indicators measure requirements related to the "positive rights" of women. Requirements related to the promotion of women in management positions, as well as the explicit recognition of gender-specific labour and health-and-safety rights, can play a role in ensuring that women are welcomed into the workforce on a more equitable basis, allowing for greater autonomy and voice in both economic and household decision making. The particular promise of such rights in promoting sustainable development objectives suggests a potential role for deepening gender-related commitments across standard-setting bodies more generally.

On average, multisector initiatives require more stringent compliance across the SSI social criteria than do single-sector initiatives (61 per cent and 46 per cent, respectively).

These results may have many possible explanations, although one of the more noticeable characteristics of most of the sector-specific initiatives is their explicit objective of enabling uptake of sustainable practices into mainstream markets. In many cases mainstream concerns may be hard-wired into the design and implementation of a given initiative through the inclusion of mainstream players on key committees and boards. In such cases, one can expect a high priority to be placed on cost-effectiveness and efficiency, perhaps explaining the trend toward lower requirement levels. Ensuring access to mainstream markets also increases the primacy of preventing supply disruptions, which may also drive content and criteria coverage downward in an effort to maximize access to standard-compliant markets. This can be a particularly important concern in markets where significant supply comes from smallholder production, such as in coffee, cotton and tea.

3.7.2 Environmental Indices

Aside from issues related to waste and greenhouse gas, the multisector initiatives demonstrate broader criteria coverage requirements across all remaining SSI environmental indices.[56] With respect to the SSI waste and greenhouse gas indices, both sectors reveal equal to almost equal coverage, with the greenhouse gas index revealing the fewest coverage requirements across both sectors.

The largest disparity is revealed when comparing the water and energy indices, where initiatives that cover multiple commodities demonstrate significantly more stringent requirements for compliance on some or all of these indicators.

As noted in Section 2.3.4 (Figure 2.6), single-sector initiatives are rapidly taking dominant positions in mainstream markets. Reduced coverage of environmental criteria may provide part of the explanation as to how and why single-sector initiatives have managed to take major market shares over a short period of time.[57]

56 It should be noted, however, that a number of single-sector initiatives illustrate comparable average environmental coverage with multisector initiatives, specifically ProTerra, RSB, ETP, FSC and PEFC.

57 It would be simplistic to regard the rapid expansion of single-sector initiatives as the sole result of reduced criteria coverage. Other major factors driving the rapid growth of single-sector initiatives include early buy-in and ownership of major supply chain actors as well as low-cost implementation systems.

Figure 3.14 illustrates the coverage of SSI environmental indices across the single-sector and multisector initiatives reviewed. Below it, Table 3.12 shows disaggregated results to show the coverage by each voluntary sustainability initiative within these categories.

FIGURE 3.14 AVERAGE COVERAGE OF SSI ENVIRONMENTAL INDICES ACROSS SINGLE-SECTOR AND MULTISECTOR INITIATIVES.

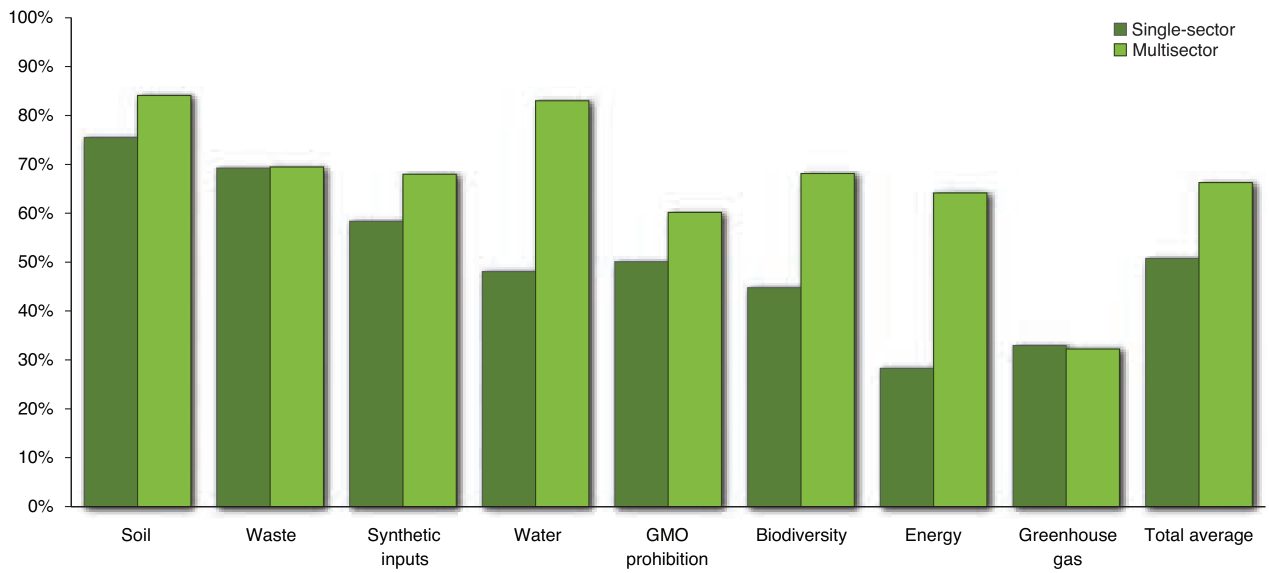


TABLE 3.12 AVERAGE COVERAGE OF SSI ENVIRONMENTAL INDICES BY SINGLE-SECTOR AND MULTISECTOR INITIATIVES.

	Soil	Waste	Synthetic inputs	Water	GMO prohibition	Biodiversity	Energy	Greenhouse gas	Total average
Single-sector	75%	69%	58%	48%	50%	45%	28%	33%	51%
ProTerra	90%	87%	67%	80%	100%	27%	40%	67%	70%
RSB	100%	100%	40%	85%	0%	67%	50%	100%	68%
PEFC	100%	67%	67%	75%	100%	100%	0%	0%	64%
ETP	100%	100%	67%	100%	0%	33%	100%	7%	63%
FSC	100%	100%	67%	25%	100%	100%	0%	0%	61%
RTRS	100%	100%	60%	45%	0%	67%	0%	60%	54%
RSPO	40%	87%	60%	30%	NA	33%	40%	67%	51%
Bonsucro	90%	53%	0%	20%	0%	33%	40%	60%	37%
4C Association	20%	27%	47%	30%	100%	13%	40%	0%	35%
CmiA	30%	20%	67%	15%	100%	0%	0%	0%	29%
BCI	60%	20%	100%	25%	0%	20%	0%	0%	28%
Multisector	84%	69%	68%	83%	60%	68%	64%	32%	66%
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
SAN/RA	80%	60%	60%	70%	100%	93%	80%	47%	74%
Fairtrade	60%	53%	53%	50%	100%	60%	60%	47%	60%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
UTZ	80%	33%	60%	95%	0%	13%	60%	0%	43%

Figure 3.15 illustrates the coverage of SSI economic indices across the single-sector and multisector initiatives reviewed. Below it, Table 3.13 shows disaggregated results to show the coverage by each voluntary sustainability standard within these categories.

FIGURE 3.15 AVERAGE COVERAGE OF ECONOMIC INDICES ACROSS SINGLE-SECTOR AND MULTISECTOR INITIATIVES.

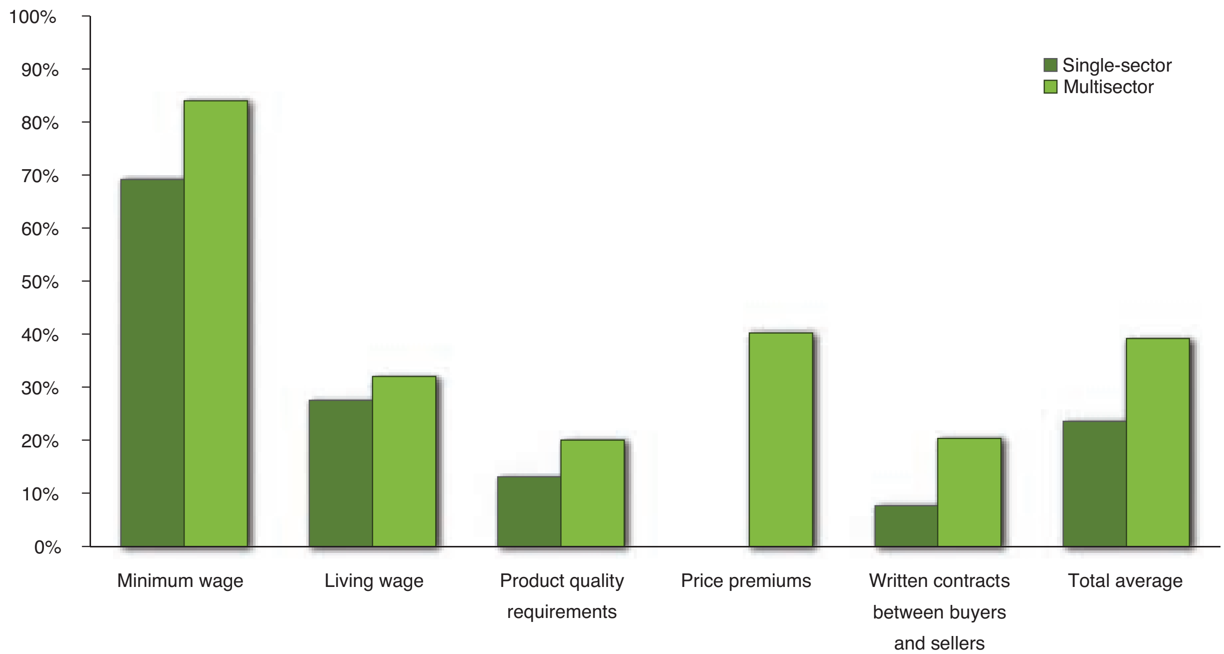


TABLE 3.13 AVERAGE COVERAGE OF SSI ECONOMIC INDICES BY SINGLE-SECTOR AND MULTISECTOR INITIATIVES.

	Minimum wage	Living wage	Product quality requirements	Price premium	Written contracts between buyers and sellers	Total average
Single-sector	69%	27%	13%	0%	7%	23%
RSPO	100%	100%	0%	0%	80%	56%
ETP	100%	100%	0%	0%	0%	40%
RTRS	100%	100%	0%	0%	0%	40%
Bonsucro	100%	0%	80%	0%	0%	36%
CmiA	60%	0%	60%	0%	0%	24%
RSB	100%	0%	0%	0%	0%	20%
ProTerra	100%	0%	0%	0%	0%	20%
BCI	60%	0%	0%	0%	0%	12%
4C Association	40%	0%	0%	0%	0%	8%
FSC	0%	0%	0%	0%	0%	0%
PEFC	0%	0%	0%	0%	0%	0%
Multisector	84%	32%	20%	40%	20%	39%
Fairtrade	100%	40%	0%	100%	100%	68%
IFOAM	100%	100%	100%	0%	0%	60%
UTZ	100%	0%	0%	100%	0%	40%
SAN/RA	100%	0%	0%	0%	0%	20%
GLOBALG.A.P.	20%	20%	0%	0%	0%	8%

3.7.3 Economic Indices

Multisector initiatives also show more stringent requirements across the SSI economic indices. Overall, however, economic indicators are sparse among the majority of initiatives, whether single or multisector. For example, multisector and single-sector initiatives, on average, report 20 per cent average or less coverage of the SSI written contracts between buyers and sellers index, a reflection of a general absence of criteria. Similarly, both types of initiatives display relatively low and comparable coverage along the product quality index.

The one exception to this general explanation relates to the minimum wage index, which reveals higher than average coverage across both single- and multisector initiatives, due to the near-universal inclusion of minimum wage requirements among all initiatives.[58] Multisector initiatives also report modestly broader coverage across the living wage index

Price premiums occur as a requirement found only in the multisector initiatives reviewed, and even then, only two of the initiatives require compliance. As single-sector initiatives move toward mainstream market uptake, premiums could become less essential and be replaced with other incentives deemed more valuable over the long term, such as access to training. BCI, for example, explicitly avoids premiums to enable the scheme to enter mainstream markets (International Finance Corporation, 2013).

58 Although standards can go beyond the global minimum requirements, the SSI Review 2014 was not able to reflect the diversity of economic coverage exhibited by many different regional versions in the forestry sector.

3.8 INDICATOR ANALYSIS

The following analysis provides a snapshot of the overall coverage of specific indicators across the 16 initiatives reviewed. On the one hand, this analysis provides an understanding of which issues are driving the agenda in agroforestry and commodity supply chain initiatives. On the other hand, the indicator analysis provides an indicator-specific tool for benchmarking coverage among initiatives. Finally, identification of indicators with low coverage may point to areas that are either less relevant to supply chain sustainability or that, for one reason or another, merit further attention to enable broader coverage in the future.

3.8.1 Social Indicator Analysis

Table 3.14 shows the list of SSI social indicators, from the highest coverage to the lowest coverage among the initiatives reviewed.

TABLE 3.14 SSI SOCIAL INDICATORS, FROM HIGHEST TO LOWEST COVERAGE ACROSS 16 VOLUNTARY SUSTAINABILITY STANDARDS REVIEWED.

Index	Indicator	Indicator Score	# of VSSs that scored 100%
Labour rights	Freedom of association	95%	15
Labour rights	Forced labour	94%	14
Labour rights	Minimum age	93%	14
Health and safety	Healthy work conditions	91%	12
Labour rights	Non-discrimination	89%	14
Labour rights	Worst forms of child labour	89%	14
Labour rights	Collective bargaining	88%	12
Health and safety	Access to training	73%	7
Health and safety	Safety at work	71%	8
Health and safety	Access to safe drinking water at work	69%	8
Labour rights	Equal remuneration	68%	9
Employment conditions	Treatment of contract workers	61%	4
Employment conditions	Written contracts for employees	56%	4
Community involvement	Community consultation	55%	8
Employment conditions	Maximum number of working hours	54%	6
Employment conditions	Timely payment of wages	54%	5
Employment conditions	Tranparency of employment practices	53%	7
Health and safety	Access to sanitary facilities at work	50%	5
Health and safety	Access to medical assistance/insurance at work	46%	5
Human rights	Housing and sanitary facilities	41%	4
Human rights	Medical care	41%	4
Community involvement	Local hiring	39%	3
Gender	Women's labour rights	35%	4
Gender	Women's health & safety	30%	3
Human rights	Education	29%	2
Employment benefits	Leave days (incl. maternity/paternity leave)	29%	2
Employment benefits	Pensions and security benefits	24%	2
Gender	Gender in governance	20%	2
Humane treatment of animals	Humane treatment of animals	19%	3

ILO core convention requirements (freedom of association, abolition of forced labour, minimum age, no discrimination, worst forms of child labour and collective bargaining) are explicitly written into the organizational documents of most initiatives. This is a reflection of the near-universal consensus, both among nations and the public more generally, on the unacceptability of violations on such core labour issues. The average coverage of these indicators for all standards reviewed scored among the highest of all 29 social indicators.

The UN Declaration of Human Rights incorporates the health and well-being of the individual and the family, specifically the provision of access to education, medical care, housing and sanitary facilities. However, the housing and sanitary facilities, medical care and education indicators all reveal lower than 50 per cent coverage among all standards reviewed. The relatively lower coverage of these indicators is arguably explained by perceptions that access to these rights is not strictly determined by, or the responsibility of, international supply chains alone.

Gender indicators of women's health and safety and women's labour rights are on par with the above noted low human rights coverage. Second only to humane treatment of animals,[59] gender governance receives the lowest coverage of all SSI social indicators among the 16 standards reviewed.

59 Humane treatment of animals is only applicable to three of the 16 initiatives reviewed.

3.8.2 Environmental Indicator Analysis

Table 3.15 shows the list of SSI environmental indicators, from the highest coverage to the lowest among all voluntary sustainability standards reviewed.

The 16 standards converge strongly on coverage of the indicator requiring enforcement of a prohibited list of synthetic inputs, with an overall coverage of 88 per cent. The second synthetic inputs indicator, integrated pest management, drops 20 per cent in coverage among the voluntary sustainability standards reviewed. The third indicator, complete prohibition of synthetics, reveals the lowest coverage among all indicators, at 18 per cent.

The three indicators that make up the greenhouse gas index—greenhouse gas reductions, greenhouse gas accounting and soil carbon sequestration—rank among the lowest of all 21 environmental indicators. Given the global consensus on both the importance of climate change and the role of agriculture and forestry as sources of greenhouse gas emissions, this represents an area for significant development among the voluntary standards reviewed.

Some biodiversity (flora densities/diversity and habitat set-asides) and energy (energy reduction) indicators also reveal markedly low coverage among the standards reviewed.

TABLE 3.15 SSI ENVIRONMENTAL INDICATORS, FROM HIGHEST TO LOWEST COVERAGE ACROSS 16 VOLUNTARY SUSTAINABILITY STANDARDS REVIEWED.

Index	Indicator	Indicator Score	# of VSSs that scored 100%
Synthetic inputs	Enforcement of a prohibited list	88%	15
Soil	Soil conversion (erosion prevention)	78%	7
Water	Water use in management plan	76%	9
Waste	Waste management	75%	10
Soil	Soil quality maintenance	69%	9
Waste	Waste disposal	69%	8
Synthetic inputs	Integrated pest management	67%	7
Biodiversity	Prohibition of conversion of high conservation value land	61%	10
Waste	Pollution	51%	7
GMO prohibition	Prohibition of genetically modified organisms	50%	8
Water	Water practices in scarcity (dependencies)	48%	7
Energy	Energy-use and management	48%	3
Water	Water reduction criteria	46%	4
Water	Wastewater disposal	46%	6
Biodiversity	Flora densities/diversity	44%	6
Biodiversity	Habitat set-asides	42%	5
Greenhouse gas	Greenhouse gas reductions	40%	4
Greenhouse gas	Greenhouse gas accounting	31%	4
Energy	Energy reduction	26%	2
Greenhouse gas	Soil carbon sequestration	21%	2
Synthetic inputs	Complete prohibition of synthetics	18%	3

TABLE 3.16 SSI ECONOMIC INDICATORS, FROM HIGHEST TO LOWEST COVERAGE ACROSS 16 VOLUNTARY SUSTAINABILITY STANDARDS REVIEWED.

Indicator	Indicator Score	# of VSSs that scored 100%
Minimum wage	74%	10
Living wage	29%	4
Product quality requirements	15%	1
Price premiums	13%	2
Written contracts between buyers and sellers	11%	1

3.8.3 Economic Indicator Analysis

Table 3.16 shows the list of SSI economic indicators, from the highest coverage to the lowest among all voluntary sustainability standards reviewed.

Minimum wage is the only indicator within the economic index that illustrates a higher than 50 per cent coverage across initiatives. Specification of the requirement to pay living wages (above and beyond minimum wage) drops significantly at 29 per cent coverage. Written contracts between buyers and sellers shows only 11 per cent coverage among the standards reviewed, with only one initiative requiring 100 per cent compliance with this indicator.

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4 GLOBAL MARKET OVERVIEW

Voluntary sustainability standards have grown and evolved rapidly over the last decade in terms of production and geographic scope. A variety of new global, national and local initiatives have emerged to offer consumers a broader range of sustainable consumption options. Although this is a positive phenomenon, effectively navigating the sustainability standards and initiatives landscape to determine the reliability of sustainability claims and the supply of standard-compliant commodities has become a significant challenge for consumers.

Tracking the market performance of standard-compliant commodities is imperative to determine the portion of overall commodity markets that can be considered to be in accordance with sustainable development objectives. An understanding of trends in sustainable markets can provide strategic information for a range of public and private entities looking to promote the greening of their own supply chains, or the greening of supply chains more generally across the market.[1] Reliable data on standard-compliant markets effectively represent one essential key to the efficient and strategic use of such markets in meeting broader public objectives of implementing sustainable development through sustainable consumption and production.

The data collected for this report are capable of telling a multitude of stories depending on the specific commodity or audience. Hidden behind production volumes and growth rates are a wide array of commodity and context-specific conditions ranging from smallholder cocoa producers in Côte d'Ivoire, to vast fields of soy in Brazil, to tea plantations in Kenya. There can be no doubt that the most relevant and granular analysis of market trends is best performed at the commodity-specific level. In the ensuing sections of this report we attempt to provide the beginnings of such an analysis through our commodity-specific overview of the development and current state of play of sustainability standards.

Notwithstanding the diversity and distinctiveness across individual commodity markets revealed in the individual commodity sections, a number of cross-cutting trends can be observed. These trends, as potential signposts of the "structural" trends associated with the adoption of sustainable production practices, provide an invaluable perspective for strategic planning in sustainable supply chains more generally.

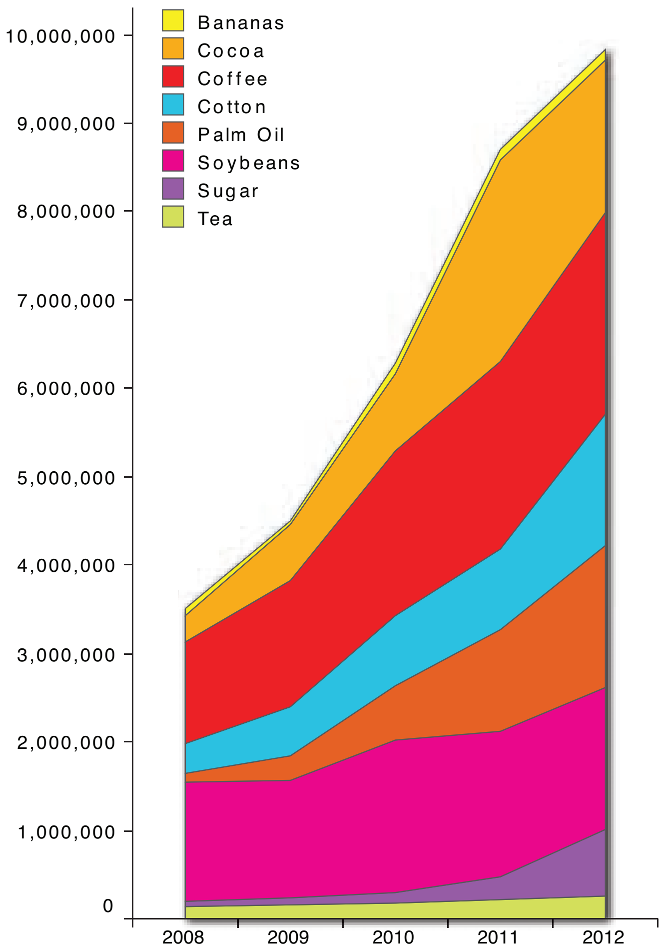
One of the most obvious trends emerging from our analysis of the different commodities is continued and persistent growth in the adoption of standard-compliant practices at production (see Figure 4.1). With global commodity production growth rates averaging on the order of 0 to 3 per cent per annum, the markets for standard-compliant products are substantially outpacing growth in production more generally.[2] Average annual growth of production across eight sectors with corresponding data between 2008 and 2012 was 11 per cent.[3] These growth rates, however, clearly symbolize young markets undergoing early, rapid growth and, as such, can be expected to have a limited lifespan. Nevertheless, given the size of commodity markets more generally, and the overall room for growth, one can expect above-average growth rates for at least the next decade in most of the commodity sectors reviewed in this report. The forestry sector, for example, which represents one of the most mature markets for standard-compliant production (with certification available since the mid-1990s), displays a relatively low CAGR of 6 per cent but is still well above the growth rate of conventional forest production (0 per cent for 2012).

1 For instance, the availability and distribution of sustainable supply will be an essential feature of any procurement officer seeking to secure long-term sustainable supply for a given supply chain. In a similar manner, commodity producers will have a deep interest in understanding demand trends across different initiatives as well as current distribution of supply to determine what market potential might exist for their standard-compliant production. Policy makers and initiative developers, on the other hand, will want to know where markets are most developed and where opportunities for further expansion are most likely to deliver long-term sustainability impacts. More generally, consumers wanting to understand which voluntary sustainability standard they would like to support may wish to include overall performance in the international market as part of their decision-making process.

2 Palm oil and soybeans are the exception to this general rule, where conventional commodity production is also undergoing rapid growth due to changing consumer demographics across Brazil, Russia, India and China.

3 Data for biofuels production levels were not available and are not included in this figure.

FIGURE 4.1 GROWTH OF STANDARD-COMPLIANT PRODUCTION (2008–2012, HECTARES COMPLIANT).



Standard-compliant production is growing rapidly across all sectors. A notable trend over the last several years has been the adoption of select voluntary standards systems by major mainstream players, giving rise to dramatic growth across several markets.

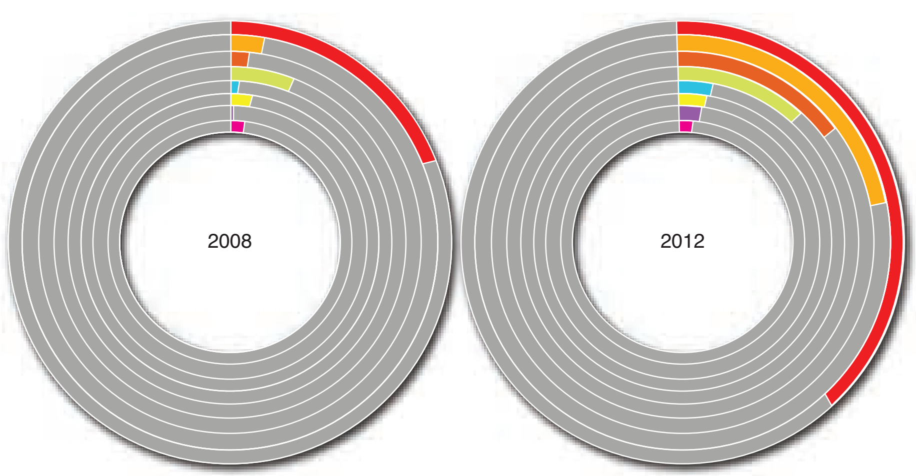
While markets for sustainable products have been defined by rapid growth since their emergence over two decades ago, growth over the last five years has expanded far beyond the niche markets of the early 1980s, 1990s and early 2000s. While previous growth in sustainable markets could be said to have been led by "pioneering" or "leading" consumers and companies, current growth is being led by a more pervasive adoption of standard-compliant production across mainstream channels.[4] As such, we have seen growth over the last several years being driven by one or more initiatives explicitly targeting mainstream supply chains, with these mainstream-oriented initiatives typically reporting CAGR of 50 per cent or higher.[5] Moreover, as noted in Section 2.3.4, there has been a trend toward the development of sector-specific, mainstream-oriented initiatives in order to enable this rapid transition toward sustainable supply. The rapid deployment of these mainstream-oriented initiatives has played a major role in driving widespread integration of standard-compliant supply within mainstream channels (see Figure 2.6).

The market share of standard-compliant production as a percentage of global production has been growing consistently and significantly over the past half-decade. In 2008 standard-compliant production accounted for no more than 9 per cent of global production in any given commodity market. By 2012, at least

4 An increasing number of mainstream food manufacturers, for example, have made public commitments to source either all or significant portions of their supply from verified sustainable sources. This has in turn driven a rapid adoption of standard-compliant production across many sectors.

5 For example, UTZ has a reported CAGR of 363 per cent (cocoa), Better Cotton Initiative (BCI) has a CAGR of 343 per cent (cotton), Roundtable on Sustainable Palm Oil has a reported CAGR of 90 per cent (palm oil), and Rainforest Alliance has a reported CAGR of 61 per cent (Tea).

FIGURE 4.2 SUSTAINABLE MARKETS: COMPLIANT PRODUCTION AS A PERCENTAGE OF GLOBAL PRODUCTION FOR 2008 AND 2012.



Commodity	2008	2012
Coffee	15%	40%
Cocoa	3%	22%
Palm Oil	2%	15%
Tea	6%	12%
Cotton	1%	3%
Bananas	2%	3%
Sugar	<1%	3%
Soy Beans	2%	2%

four commodities had surpassed the 10 per cent mark, with coffee and cocoa leading the way with 40 and 22 per cent of global supply reported compliant with one or another voluntary sustainability standard, respectively.

The trend toward mainstream adoption is, in turn, giving rise to unprecedented market shares for standard-compliant production. As noted in Figure 4.2, the palm oil, cocoa and coffee markets stand out with 15, 22 and 40 per cent of global production as standard compliant in 2012, respectively. The average market share for standard-compliant production across the nine reporting commodity sectors was an unprecedented 12 per cent in 2012. Based on these statistics alone, one could easily conclude that compliance with an internationally recognized sustainability standard is increasingly becoming the "price of entry" on international markets. While this may largely be true, a definite lag between supply and demand exists across all of the sectors reviewed. Typically, only a portion of overall standard-compliant product is actually "sold as" standard compliant—with the remainder instead entering the market as conventional production. In fact, on average, we found that the two most important sectors in terms of standard-compliant production market share (coffee and cocoa) had only 35 per cent and 33 per cent of total production actually sold as compliant, respectively. Across all commodities an average 44 per cent of standard-compliant production was sold as standard compliant on the market. Moreover, in addition to representing a recurrent theme across commodities, oversupply also appears to be a consistent condition in sustainable markets over time, with similar data being reported over the last decade.[6]

Although standard-compliant production represents a significant portion of global production, sales represent a considerably smaller portion of the global market, pointing toward significant growth opportunities for the demand of standard-compliant products (see Figure 4.3).

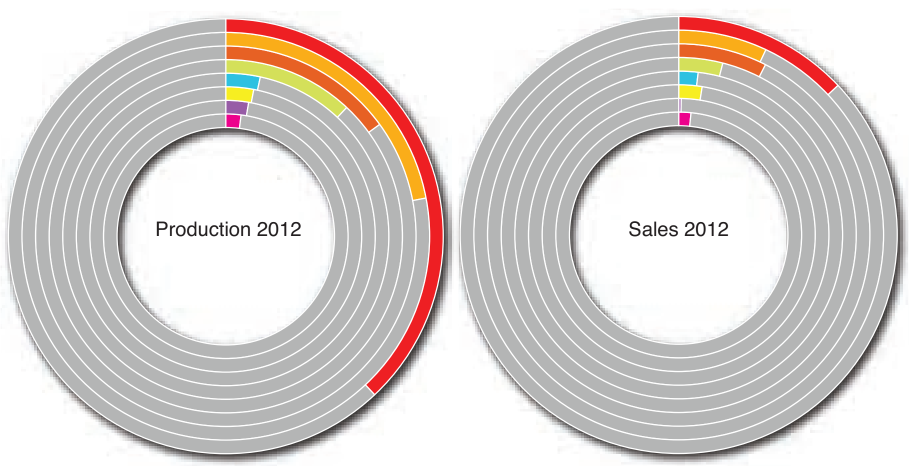
There are several possible explanations for this trend. The first, and certainly the most important, relates to logistics. Typically, any given unit of production will supply multiple markets. Faced with an explicit demand for standard-compliant production from only one of those buyers, a producer may decide to convert its entire production to be in compliance with a given sustainability standard. In such cases, the supply of standard-compliant product will clearly outpace the demand. Similarly, many of the sustainability standards and affiliated supporting institutions often face a hurdle in moving to mainstream markets whereby proven supply is a prerequisite to the generation of demand. With this in mind, most initiatives will engage in building the supply base as a strategy for enabling further market growth.

With these explanations in mind, the relatively persistent condition of oversupply can be regarded as an artefact of specific characteristics of commodity markets undergoing a transformation toward compliance with voluntary sustainability standards. Moreover, the current state of supply suggests, at a minimum, that the voluntary sustainability standard sector is well positioned for continued rapid growth into mainstream markets for the foreseeable future.

Nevertheless, persistent oversupply can have pernicious effects as well. Indeed, oversupply on conventional markets has been one of the most persistent and challenging "sustainability" issues facing commodity markets more generally over the past century, giving rise to a host of international commodity agreements and corresponding supply management schemes. Mismatches between supply and demand are largely associated with boom and bust price cycles that, particularly in the context of rural producers living in poverty, can have significant impacts on livelihoods and efforts to promote poverty reduction. Within the context of standard-compliant markets, a general lack of systematic data on standard-compliant pricing, combined with the still minority share of standard-compliant

6 Where initiatives have existed for a decade or more, they have shown a generally consistent trend toward oversupply. Fairtrade coffee, as one example, has typically sold between 25 and 35 per cent of compliant production as Fairtrade (see Potts et al., 2010).

FIGURE 4.3 SUSTAINABLE MARKETS: STANDARD-COMPLIANT PRODUCTION VERSUS STANDARD-COMPLIANT SALES FOR 2012.



Commodity	Production	Sales
Coffee	40%	12%
Cocoa	22%	7%
Palm Oil	15%	8%
Tea	12%	4%
Cotton	3%	2%
Bananas	3%	3%
Sugar	3%	<1%
Soybeans	2%	1%

production within broader commodity markets, makes it difficult to ascertain the potential impacts, if any, of current oversupply on prices and premiums for standard-compliant products. Nevertheless, it is clear that as standard-compliant markets stabilize over time, the relationship between supply and demand can be expected to play an important role in determining prices and will, as a result, become an increasingly important element of the strategic management of sustainable markets as they grow.

As a general rule, sustainability standards applicable to commodities have focused on developing and implementing sustainable practices at production. While some initiatives, such as UTZ and Fairtrade, have also sought to address specific issues related to the "trading" of commodities, even these efforts have typically remained focused on requirements or systems development at the "micro" or supply chain level. This focus, of course, speaks to some of the most prominent challenges facing sustainability within commodity sectors. Nevertheless, as the number and use of sustainability standards has grown in importance, there has been a corresponding fear that such instruments, although technically voluntary, might operate as barriers to trade or tools for protectionist interests.[7] One of the deep sustainability questions underlying the development of standard-compliant markets, then, relates to the potential impact the transition to sustainable markets might be having on trade patterns. Although our data are still only partial in this regard, given considerable gaps on the consumption side of the supply chain, data on the distribution of supply do indicate a strong and recurrent trend toward a concentration of supply across more developed supply regions.

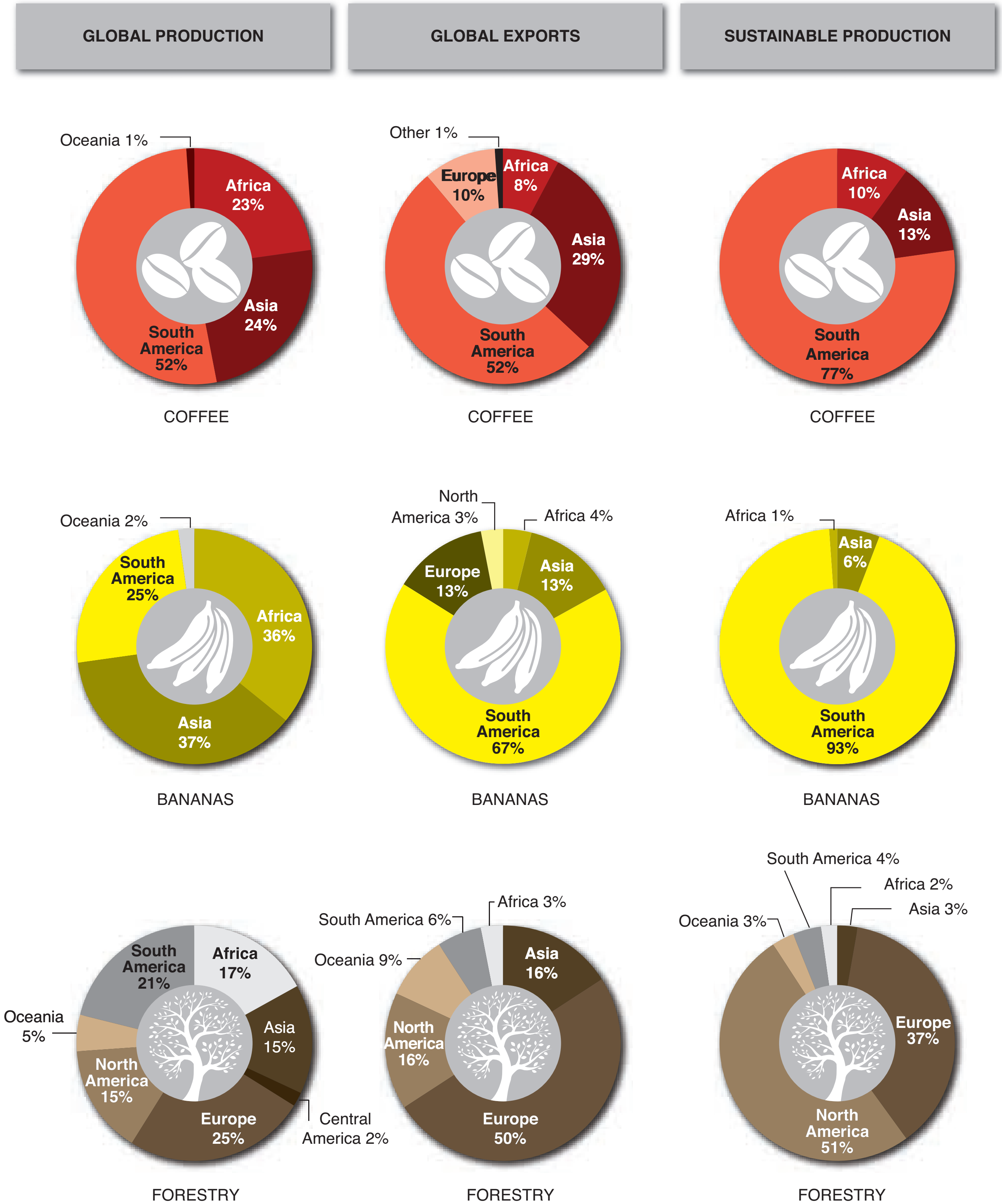
Figure 4.4 provides a visual representation of how supply distribution transitions as one moves from conventional production to production for export markets and finally to production for sustainable markets across three representative commodity sectors (coffee, bananas and forestry). In each case we see a clear trend as one moves toward production for sustainable markets to an increasing concentration of supply across regions with more developed trade and economic capacity. Although it is not possible to determine any specific relationships of causality based on our data, it is clear that more developed regions are disproportionately building access to sustainable markets. This may be more about initiatives and markets selecting for the "lowest hanging fruit," or the least costly products. To the extent that this indeed offers an explanation for current distributional trends, it points toward a deep and significant challenge facing voluntary sustainability standards more generally (see Box 4.1). At the very least, it is clear that all voluntary sustainability standards need to pay attention not only to the distribution of their supply base, but also to the intentional management of supply in a manner that corresponds to the priorities of sustainable development, which will likely require significant investment in terms of technical assistance and capacity building.

This touches on a recurrent theme throughout this report, namely, the limitations of market forces alone in resolving the sustainability challenges facing global supply chains, and the need for corresponding investment by public institutions and/or regulations to help ensure that voluntary actions bring about the desired sustainability outcomes.

7 This fear has taken its most evident form within the SPS Committee of the World Trade Organization. In 2007 the SPS Committee began consultations with members to better understand different positions and experiences with respect to private voluntary standards. The consultation process resulted in a number of soft commitments by members to facilitate better information exchange on private standards (see World Trade Organization, 2011).

FIGURE 4.4 GLOBAL VERSUS SUSTAINABLE DISTRIBUTION OF SUPPLY (SELECT COMMODITIES, HECTARES AND METRIC TONS, 2011/2012).

Global production of commodities is relatively evenly distributed among producing regions across the three sectors pictured below. A concentration of supply from more developed regions is observed for export markets. The concentration of supply across more developed regions is accentuated for sustainable markets.



BOX 4.1 THE SUSTAINABILITY STANDARDS PARADOX

Building from the generally accepted Brundtland "needs-based" definition of sustainable development,[8] there is an inherent imperative for sustainability systems, whether voluntary or otherwise, to ensure that the needs of those "most in need" (i.e., the poor) are given a certain primacy within the process. Markets themselves, however, tend not to care much about the equitable distribution of benefits, much less about whether the poorest segments of the economy receive any particular benefits from economic activity. The reliance of voluntary sustainability standards on market forces for the delivery of such benefits therefore places such initiatives in a difficult position with respect to promoting poverty reduction among those most in need since those are likely to be the most difficult (i.e., costly) to bring into compliance with a given standard. The absorption of additional costs within any given voluntary sustainability standard supply base can be expected to result in higher cost supply and correspondingly reduced market share. As market-based initiatives, some may even interpret the resulting reductions in market share as signalling "reduced impact" or "reduced success" of a given initiative.

Using an economist's terminology, one could say that the poor lack "factor endowments" for entering into sustainable supply chains, and so it is that voluntary sustainability standards run into a paradox. On the one hand, the objective of such systems is to provide assurances that those most in need have access to new markets. On the other hand, the reliance of such initiatives on market forces leaves the distribution of supply (and benefits) to those that can provide compliant goods at the lowest cost, which is to say, those who, being more well-off, have already absorbed the substantial portion of the cost of transitioning to sustainable practices and livelihoods. The resulting outcome is that voluntary sustainability standards are more likely to gain traction in regions and markets where they are needed least.

8 The complete Brundtland definition reads: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two concepts: 1. the concept of 'needs,' in particular the essential need of the world's poor, to which overriding priority should be given; and 2. the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs"(World Commission on Environment & Development, 1987).

4.1 MARKET DATA PRESENTATION READER ROADMAP

Despite the importance of various stakeholders having access to market information on voluntary sustainability initiatives, providing a clear picture of market performance and trends remains a formidable task, since market data on sustainability standards remains largely incomplete and anecdotal. There are many reasons for this, ranging from the relatively novel use of voluntary sustainability standards as market differentiators, to the wide number of voluntary initiatives currently in place, to the lack of clarity on the relationship between product characteristics and production practices.[9] Structurally, the absence of harmonized system codes for differentiating between the import and export of sustainable versus conventional products based on compliance with recognized voluntary sustainability standards renders it nearly impossible to gather trade data through more traditional data channels and with any consistency across national contexts.[10]

The SSI is working toward remedying the situation by providing coherent market data to inform a wide range of audiences as to the current condition and evolution of sustainable markets for selected commodities. Underpinning this effort is the need for reliable and timely market data that can be used to analyze key market trends. To this end, the SSI team has worked closely with standard setters to collect and report on their market data along consistent and comparable formats. As a starting point for this process, the SSI, working with ISEAL Alliance, the ITC and the Research Institute of Organic Agriculture/Forschungsinstitut für biologischen Landbau, has distilled a set of 39 market data indicators for measuring and monitoring market performance cross voluntary standards (see Appendix II: Market Indicators). Working with the ITC, the SSI team has contributed to developing a market data entry tool that will enable voluntary sustainability standards to enter market data into a central database. With time, this process will lead to more efficient market data collection on standard-compliant commodities, enabling better analysis.

9 One of the long-standing challenges facing "sustainable products" more generally on the marketplace is the inability of consumers or other supply chain actors to clearly link sustainable practices to products through an observation of the physical characteristics of a given product. The advent of increasingly sophisticated monitoring and auditing systems (by voluntary standards systems) has improved the situation considerably, but the market (and public authorities) have still demonstrated a degree of reluctance in accepting non-product production and processing methods, such as sustainable practices, as a basis for classifying or distinguishing between products (see Potts, 2008).

10 The Organic sector, which represents the one exception to this rule by having its own harmonized coding system, has yet to receive widespread acceptance across trade data reporting systems and therefore also remains reliant on piecemeal data gathered from private sources. If real data (production and exports) were not available for Organic, the production and sales were estimated on the basis of the area data, using assumptions on yields and on production sold on Organics.

TABLE 4.1 INDICATORS USED FOR THE MARKET DATA COLLECTION AND CONSISTENTLY COLLECTED ACROSS ALL VOLUNTARY SUSTAINABILITY STANDARDS.

MARKET DATA INDICATORS	INDICATOR DESCRIPTION
Production volume ("production")	Production volume that is VSS-compliant, even if not sold as compliant at the first point of sale.
Production volume sold ("sales")	Volume of VSS-compliant product that is sold as compliant at the first point of sale (e.g. from cooperative to trader).
Production market share - volume	VSS-compliant production volume as a percentage of country and global production volume.
Area fully converted ("area harvested")	Total hectarage of land on which VSS-compliant product is produced; this refers to area actually being cultivated, not total farm area.
Multiple Certification - Production	Percentage of VSS-compliant production that is compliant under more than one VSS; if an actual measurement is not available, an estimate will be accepted so long as it is specified as an estimate.
Reported Premiums	Estimated additional dollar value per volume paid for VSS-compliant product at farm gate and strictly on account of certification (i.e. not for physical quality differences).
Private sector commitment to sustainable sourcing	Percentage of purchases that companies commit to source as VSS-compliant, and date by which commitment will be fulfilled.

Due to constraints on the collection of data across its various data partners, this 2014 *SSI Review* reports on eight market indicators relatively consistently across all the voluntary sustainability initiatives covered in the 10 commodity sectors studied. Table 4.1 lists a suite of seven indicators that were used to guide the collection of the market data and highlights the indicators for which information was successfully and consistently collected.

All the market data on standard-compliant commodities presented in this report were obtained either directly from voluntary sustainability standards themselves or indirectly through existing published reports and other secondary literature.

The market data are presented in each commodity section as maps, charts and tables. The process and assumptions made to present the market data are presented below. The following general assumptions were made throughout the commodity market data sections.

Data collected and reported as a crop year as opposed to a calendar year was relabelled as the latter year. For instance, data reported at 2011/2012 was labelled as 2012[11] in the report to allow for data handling consistency. Since there are inconsistencies across the voluntary sustainability standards in terms of how they report on their market data, this assumption was necessary to allow for comparisons between the initiatives.

Standard-compliant commodities are often compliant across multiple standards. To minimize the potential for double counting production volumes and sales, multiple certification must be taken into account. The aggregated market data presented in the report for all commodity sectors assumes a 50 per cent overlap between the absolute minimum and maximum plausible compliant production for each commodity examined based on available data. The largest producing voluntary sustainability standard in each country aggregated across all producing countries in the commodity sector represents the absolute minimum production, while the aggregate production of all standards operating in the sector across all producing countries represents the absolute maximum production. In this way, we assume that the actual production lies at the midpoint between 0 to 100 per cent of plausible overlapping compliant production within the sector based on available country data. This approach is considered to provide a generally consistent estimate of sustainable production, as UTZ muti-certification data reports a 43 per cent overlap with Fairtrade and/or Rainforest Alliance for coffee and a 44 per cent overlap with Fairtrade and/or Rainforest Alliance for cocoa.

Consider this following example for standard-compliant cotton, assuming it is produced in two countries under Fairtrade, Organic, Better Cotton Initiative (BCI) and Cotton made in Africa (CmiA). In India, 10 metric tons are BCI compliant, 20 metric tons are CmiA compliant, 30 metric tons are Organic compliant, and none are Fairtrade compliant. In Pakistan, 50 metric tons are BCI compliant, 20 metric tons are CmiA compliant, 5 metric tons are Organic compliant, and 5 metric tons are Fairtrade compliant. The maximum plausible compliant production in India is 60 metric tons, while the maximum plausible compliant production in Pakistan is 80 metric tons, for a maximum total plausible compliant production of 140 metric tons. The minimum amount of compliant production in India is 30 metric tons (assuming both BCI and CmiA production are all multiple-certified with Organic), and the minimum amount of compliant production in Pakistan is 50 metric tons (assuming CmiA, Organic and Fairtrade compliant production are all multiple-certified with BCI), assuming that all production is multiple-certified. The total plausible minimum aggregate production is therefore 80 metric tons. The average of the minimum and maximum plausible compliant production is 110 metric tons.

The majority of the sustainable market data originated directly from the voluntary sustainability initiatives, with the exception of Fairtrade, ProTerra and Bonsucro, whose data came from existing publications (see citations in text). Due to the use of secondary data for Fairtrade, "area fully converted" is reported as total area certified as opposed to area cultivated. Area certified is larger than cultivated area but generally serves as a good proxy for the indicator. Data were also collected from commodity body sources such as the International Coffee Organization, the International Cocoa Organization and the World Agricultural Supply and Demand reports.

11 The only exception is UTZ Certified 2012 production data, which is from the 2012/13 crop year, as it ends in March (Q1) 2013.

4.2 REFERENCES

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5 BANANA MARKET

Bananas are the world's most popular fruit and one of the world's most important staple foods, along with rice, wheat and maize. In 2011, 107 million metric tons of bananas were produced in more than 130 countries on 0.1 per cent of the world's agricultural area,[1] for a total trade value of US$9 billion (Food and Agriculture Organization of the United Nations (FAO), 2013) and a retail value of approximately US$25 billion. Bananas have a high rate of domestic consumption, with only about 17 per cent of bananas exported to foreign markets annually. About two-thirds of bananas are exported from Latin America, with about the same amount destined for Europe or the United States (2011 data, FAO, 2013; see Table 5.1).

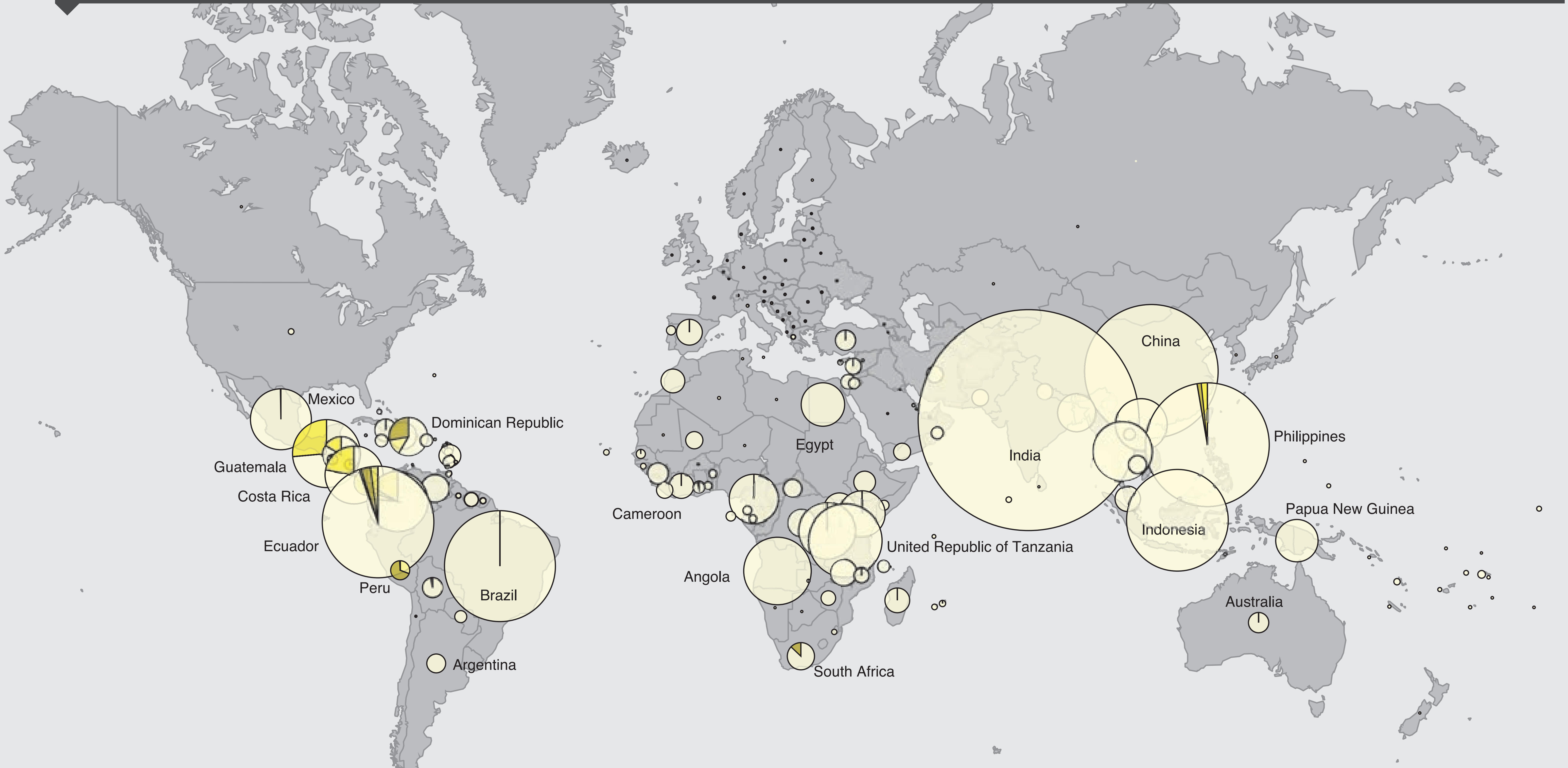
The banana market is characterized by heavy horizontal and vertical integration within the value chain and a low-cost and highly competitive export market focused in Latin America. Bananas are typically grown on plantations, and certain viruses, pests and fungi have spread in epidemic proportions over the last few decades, allegedly a result of decreased immunity created by monoculture practices (Mlot, 2004). Increased susceptibility has rendered banana plantations increasingly dependent on agrochemicals, which has led to concerns regarding worker health and safety.[2] It is in the context of these sustainability concerns that voluntary sustainability standards, including Fairtrade, Organic and Rainforest Alliance, have emerged over the past few decades. In total, 3 per cent of global banana production and 14 per cent of exports were standard-compliant in 2012[3] (see Figure 5.1, Conventional versus standard-compliant banana production, 2011/2012.). About three-quarters of standard-compliant bananas are cultivated in five countries: Guatemala, Colombia, Costa Rica, Ecuador and the Dominican Republic. See Figure 5.2 for a breakdown of standard-compliant production in these countries.

1 2011 agricultural land data: 4,911,622,000 hectares.

2 In turn, the extensive use of agrochemicals has given rise to the emergence of pest strains that are resistant to pesticides. The main fungal disease, black sigatoka, has been able to mutate and develop resistance to fungicides, posing a problem to plantation managers seeking to reduce agrochemical use (Liu, 2009).

3 Adjusted for multiple certification, using 2011 data for Organic bananas.

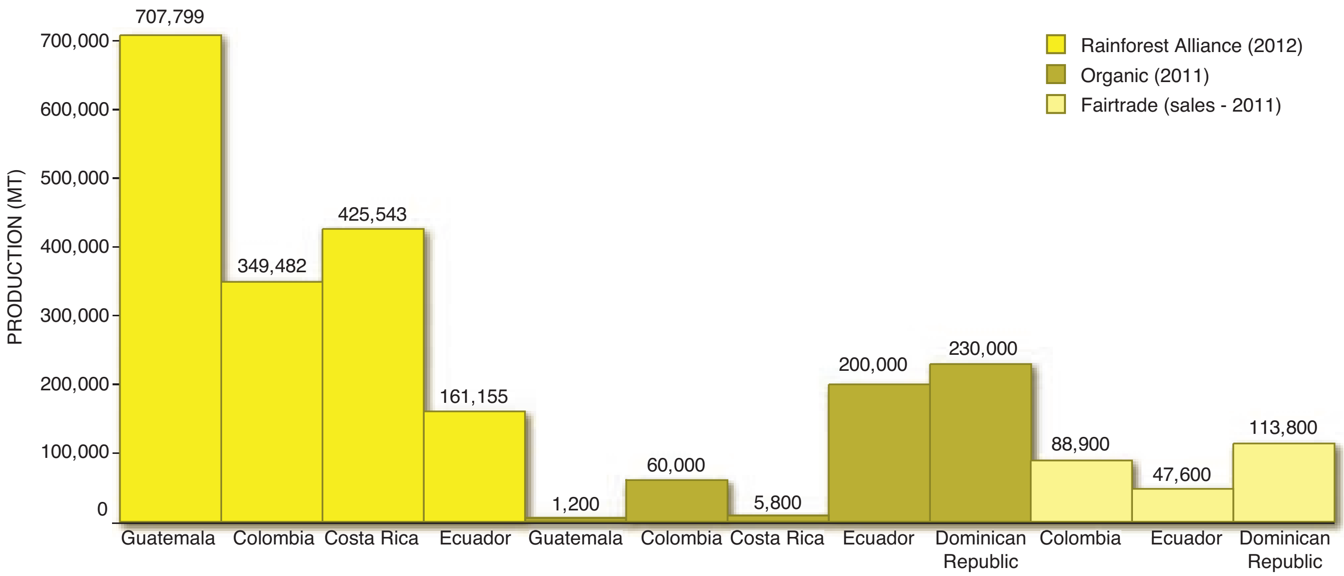
FIGURE 5.1 CONVENTIONAL VERSUS STANDARD-COMPLIANT BANANA PRODUCTION, 2011/2012.



Circle size represents total production volumes, and coloured slices represent volumes of standard-compliant banana production. In several of the Latin American countries, compliant production accounts for about one-fifth of total domestic production. India and China are the largest producers of bananas by volume, while Guatemala and Colombia are the largest producers of standard-compliant bananas. In Guatemala, most compliant production is Rainforest Alliance certified, whereas most compliant production in the Dominican Republic is Fairtrade or Organic certified.

Sources: Fairtrade Labelling Organizations (FLO), 2012; FAO, 2012, 2013; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; IISD, H. Willer, Research Institute of Organic Agriculture/ Forschungsinstitut für biologischen Landbau (FiBL), personal communication, August 26, 2013.

FIGURE 5.2 LEADING PRODUCERS OF STANDARD-COMPLIANT BANANAS BY INITIATIVE, 2011/2012.



Sources: FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 5.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR BANANA PRODUCTION AND TRADE.

KEY STATISTICS

Top 5 producers (2011) (61% of global)	India (28%), China (10%), Philippines (9%), Ecuador (7%), Brazil (7%)
Top 5 producers of standard-compliant bananas (2012) (71% of global)	Guatemala (21%), Colombia (15%), Costa Rica (13%), Ecuador (12%), Dominican Republic (10%)
Top 5 exporters (2011) (70% of global)	Ecuador (31%), Philippines (11%), Costa Rica (10%), Colombia (10%), Guatemala (8%)
Top 5 importers (2011) (49% of global)	United States (22%), Belgium (7%), Russia (7%), Germany (7%), Japan (6%)
Total production (2011)	107.1 million metric tons
Total exports (2011)	18.7 million metric tons (17% of production)
Total export value (2011)	US$9 billion
Total area under cultivation (2011)	5.3 million hectares (0.11% of agricultural area – compare to 25 million hectares for sugar cane, 163 million hectares for rice, 217 million hectares for wheat)
Total number of workers employed by the banana sector*	380,000 workers in Ecuador alone, which accounts for 7.3% of global production volume*
Major international voluntary sustainability standards	Fairtrade, Organic, Rainforest Alliance
Standard-compliant production (2011/2012)**	3.3 million metric tons (3% of production)
Standard-compliant sales (2011/2012)**	2.7 million metric tons (82% of standard-compliant production, 2.5% of global production, 14% of exports)
Key sustainability issues	Maintaining biodiversity, pest management, worker health and safety, poverty

* Extrapolated, the total amount of people employed by the banana sector would be approximately 6.9 million. Banana production in Ecuador has increased by roughly one-third from 2002 (year of estimate) to 2011, from 5,611,440 to 7,427,780 (FAO, 2013).
**Using 2012 Fairtrade and Rainforest Alliance data, 2011 Organic data and an adjustment to account for multiple certification.
Sources: Top 5 producers, exporters, importers, global production, global exports, global area harvested: FAO, 2013; Total number of workers (2002 estimate): Arias, Dankers, Liu, & Pilkauskas, 2003; Standard-compliant production and standard-compliant sales (2011 Organic data, 2012 Fairtrade and Rainforest Alliance data): FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

5.1 MARKET REVIEW

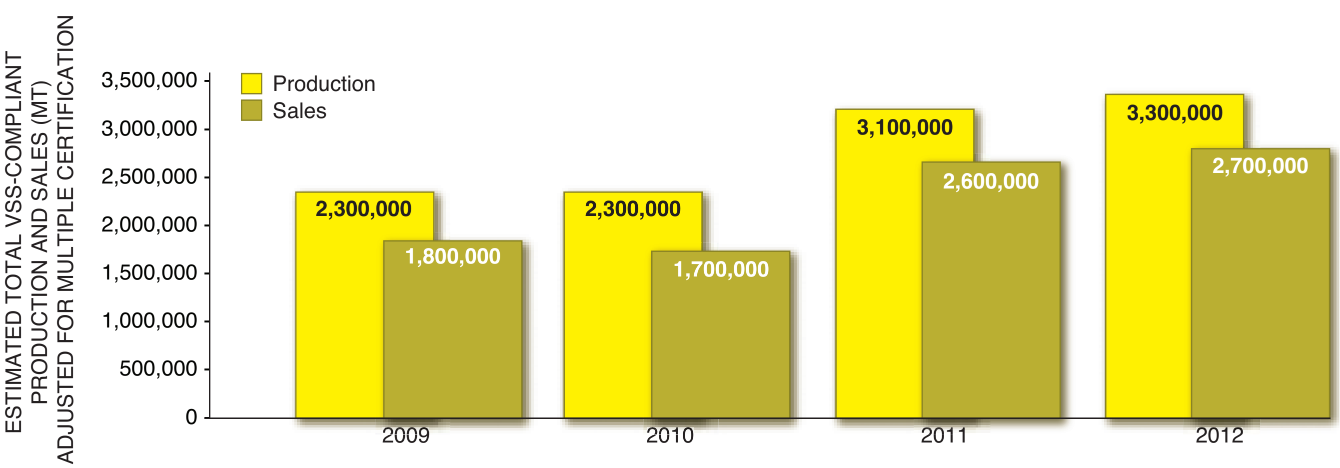
Market reach
Approximately 3.3 million metric tons of bananas were standard-compliant in 2012, equivalent to 3 per cent of global production[21] (see Figure 5.3). Sales of compliant production accounted for 14 per cent of global exports during the same year.

Growth
Standard-compliant banana production grew 12 per cent per annum from 2009 to 2012.

Regional importance
The most important producers of compliant volumes were Guatemala (21 per cent), Colombia (15 per cent) and Costa Rica (13 per cent), comprising just under half of total compliant volumes.

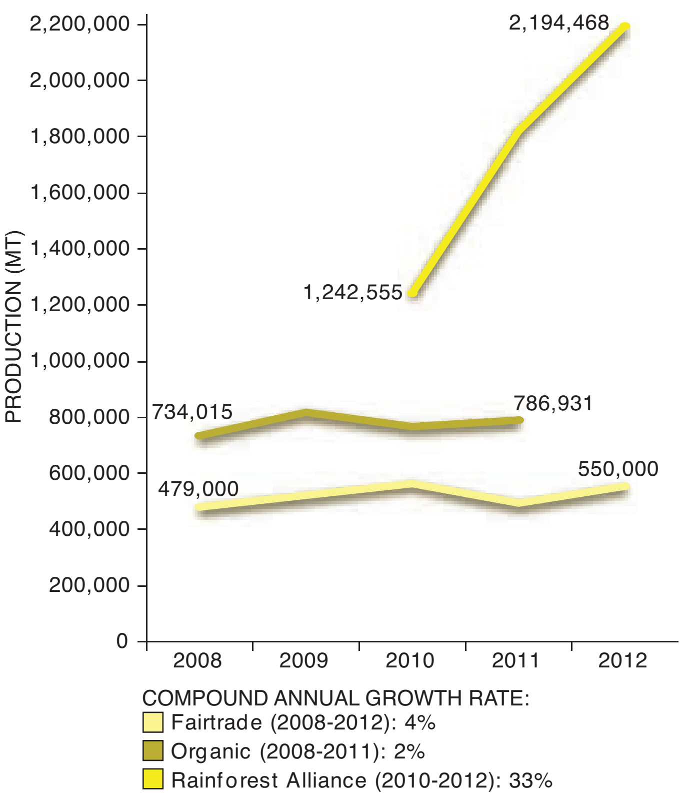
Pricing and premiums
Price premiums in the banana sector have reached up to 75 per cent over the past several years. Highest premiums were reported for Organic bananas, and lowest premiums were reported for Rainforest Alliance bananas.

FIGURE 5.3 GROWTH IN STANDARD-COMPLIANT BANANA PRODUCTION AND SALES, 2009–2012.



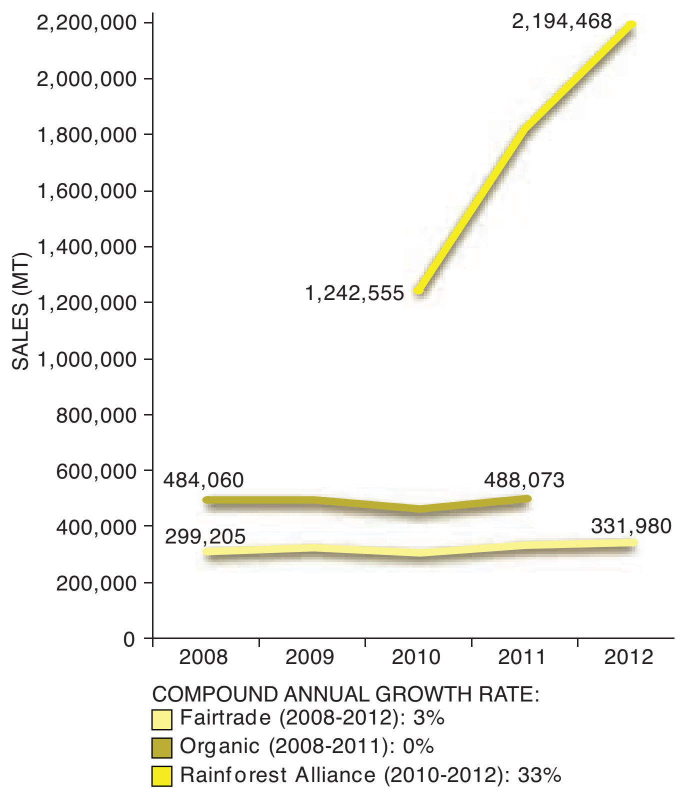
Sources: FLO, 2011, 2012; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 5.4 FAIRTRADE, RAINFOREST ALLIANCE AND ORGANIC BANANA PRODUCTION, 2008–2012.



Sources: FLO, 2011, 2012; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 5.5 FAIRTRADE, RAINFOREST ALLIANCE AND ORGANIC BANANA SALES, TIME SERIES, 2008–2012.



Sources: FLO, 2011, 2012; C. Guinea, Rainforest Alliance, personal communication, Febreuary 18, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

5.2 MARKET DEVELOPMENT

In 2012, 3.2 million metric tons, or 3 per cent of all bananas, were produced in compliance with an international voluntary sustainability standard. Growth in standard-compliant banana production and sales has been especially strong over recent years (see Figure 5.4 and Figure 5.5), but the market's current conduciveness to voluntary sustainability standards is rooted in the beginning of mass banana production for international export markets. Both North America and Europe established deep commercial interests in banana production throughout the early 1900s, sometimes by leveraging political influence as a vehicle for promoting commercial objectives. High levels of concentration within the sector, combined with high levels of dependency on banana production for revenues among producing countries and workers, resulted in the growth of large-scale plantations with reportedly poor working and environmental conditions.[4] The role of banana companies in banana producing countries had been openly criticized since at least the 1930s,[5] but it wasn't until the 1980s and 1992 that civil society campaigns and alternative trading organizations declared more fervently that the highly competitive and low-cost production of bananas from many Latin American countries was fuelling a "race to the bottom" (FAO, 2005)—with production being forced to move from family-run farming systems largely in the Caribbean to large-scale plantations with poor working conditions throughout Latin America.[6] These campaigns, along with broader media attention resulting from the "Banana War,"[7] began to fuel the use of alternative trade channels to improve the conditions of banana workers.

By 1998, there was "a widespread recognition amongst [....] governments, companies, scientists and civil society organizations involved in the sector that the social and environmental conditions prevailing in the industry at the time were unacceptable" (FAO, 2005), a sentiment that gave rise to the first International Banana Charter.[8] Although the Charter initially failed to gain the support of industry, it did provide a reference point for changing corporate attitudes that proceeded over the ensuing decade. It also set the stage for the second International Banana Conference in 2005 and the subsequent establishment of the World Banana Forum as the first permanent platform for dialogue and collaboration among all actors along the international banana supply chain. This increased dialogue and critical thinking about the sustainability challenges in the banana sector, combined with growing pressure and opportunity for international collaboration, set the stage for wider industry adoption of voluntary sustainability standards within the banana trade.

While production and sales of standard-compliant bananas have grown heavily in the wake of the Banana Charter and the establishment of the World Banana Forum, the Rainforest Alliance and Fairtrade had both been active in the banana market prior to this, in the early 1990s. In 1990, the Rainforest Alliance, with its partners in the Sustainable Agriculture Network, followed the model used by the forestry sector and organized a two-year-long series of meetings between banana farmers, NGOs, government agencies, community leaders and industry representatives in order to establish economically viable solutions for sustainable banana production and trade. Around the same time, the first Fairtrade banana standards were developed and certified under the Max Havelaar label, and Fairtrade certified bananas were first imported into the European Union in 1996 (Fairtrade Foundation, 2009).

The banana export market is characterized by deep horizontal and vertical integration, and several voluntary sustainability standards have leveraged this in growing the production and trade of their standard-compliant bananas. The UN Conference on Trade and Development (2011) estimates that the top five banana companies (Chiquita, Dole, Del Monte, Fyffes and Noboa) account for more than 70 per cent of the global export market for bananas. These companies serve functions ranging from production to processing to trading of bananas (Liu, 2009), and their decisions related to production and trading practices effectively determine many sustainability outcomes associated with banana production for export markets.

The major example of this in the banana sector is Rainforest Alliance's work with the major brand Chiquita in the early 1990s, which resulted in the banana sector becoming one of the first to experience mainstream adoption of voluntary sustainability standards. As early as 1992, Chiquita began applying the Sustainable Agriculture Network's social and economic standards on two of its farms in Costa Rica. Within a decade, all of Chiquita's own banana plantations were Rainforest Alliance certified. By 2008, a full 87 per cent of total banana volumes sold by Chiquita were Rainforest Alliance certified (including those sourced from non-Chiquita farms) (Chiquita Brands International Inc., 2008).

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4 This trend was more prevalent in Latin America than in Africa and the Caribbean (Banana Link, 2009; Coats, Feral, Fischer, Nielsen & Smith, 2006).

5 Smedley Butler, a former Marine Corp, openly criticized the banana industry for its role in propagating and benefiting from war tactics in Central America (Butler, 1935).

6 By 1996, the challenges facing banana production were sufficiently widespread to give rise to the establishment of Banana Link, an organization dedicated solely to improving the livelihoods of banana producers and communities. Banana Link subsequently became an important voice for civil society and banana workers more generally within the context of international efforts to improve conditions for banana producers.

7 The Banana War consisted of a series of trade disputes between the European Union and Latin American banana producing countries related to the application of tariffs for non–African, Caribbean and Pacific bananas in the European Union (not to be confused with the "banana wars" during the Spanish-American war).

8 The International Banana Charter was negotiated within the context of the First International Banana Conference in 1998 (Institute for Agriculture and Trade Policy, 1999).

Major corporate actor Dole uses a variety of standards, including Rainforest Alliance, Fairtrade and Organic.[9] Today, Dole and its partners have signed agreements with national Fairtrade initiatives in Austria, Belgium, France, Germany, the Netherlands, Sweden, the United Kingdom and the United States for the distribution of Fairtrade bananas from Colombia, Dominican Republic, Ecuador and Peru.[10] Meanwhile, Dole reports that 100 per cent of its Peruvian operations are certified Organic.[11]

Del Monte reports having implemented ISO 14001 standards for its banana operations in Costa Rica and Guatemala, while Fyffes has become the largest importer of Fairtrade bananas in the European Union and a major player in marketing Organic bananas as well (Fyffes, 2012).

Through the combination of the commitments made by these and other banana companies, the transition to standard-compliant production continued at a modest pace of 9 per cent per annum between 2008 and 2012. We estimate that 3 per cent of global production was compliant with a voluntary sustainability standard by 2012 and that sales of standard-compliant product accounted for 14 per cent of global exports (see Table 5.2).[12]

9 Dole's ISO 14001 management system allegedly includes all of the requirements set by Rainforest Alliance standards, and the company encourages many of its banana farms in Costa Rica and banana plantations in Ecuador and Honduras to become Rainforest Alliance certified. In 2003, the company signed a memorandum of understanding with Fairtrade for the distribution of Organic and Fairtrade bananas from Peru and the Dominican Republic in Europe. Dole's first Rainforest Alliance certification was attained in Costa Rica in 2007.

10 Dole was invited to become a member of Fairtrade's Product Advisory Council for bananas in 2010 and achieved its first Fairtrade certification of a Dole-owned farm in 2012. Dole also claims to embrace the principles of integrated pest management at its primary production facilities in order to offer Organic products (Dole, 2011).

11 Note that despite Dole's adoption of a variety of voluntary sustainability standards across its production base, as late as 2005 a number of civil society organizations based in the European Union remained critical of the company's practices at production (see Banana Link, 2009; Coats et al., 2006).

12 Not all sales are exported. Sales refer to certified bananas that were sold as such (not as "conventional" bananas) at the first level of organization at which certification occurs (at the plantation level, for example). In the banana sector, however, most bananas sold as certified are destined for export markets, so sales divided by exports can give an idea of the total export market that is certified.

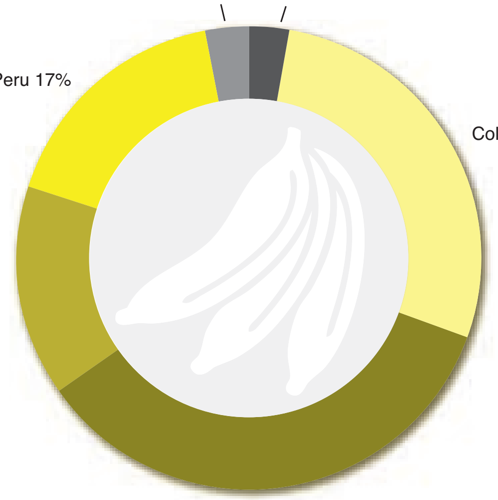
5.3 MARKET PERFORMANCE

Fairtrade International

Fairtrade certified bananas account for approximately 0.5 per cent of global banana production, with 550,000 metric tons of production certified in 2012 on 28 thousand hectares, up 4 per cent per annum from 2008. In 2011, two-thirds of Fairtrade production was sold as Fairtrade certified, representing 2 per cent of the total world banana trade. Both sales and production have grown relatively consistently from 2008 to 2011 (see Figure 5.7 and Table 5.4), with the exception of a dip in production in 2011 due in part to the effect of Hurricane Thomas in the Windward Islands (St-Vincent, St-Lucia, Dominica, Grenada and Martinique) (FLO, 2012). Fairtrade expects its certified banana sales volumes will grow about 10 per cent in 2013 and reach a level of 400,000 metric tons in 2014 (M. Blaser, Fairtrade, personal communication, September 13, 2013).

Almost all (94 per cent) of Fairtrade banana sales occurred in four countries: Colombia, the Dominican Republic, Ecuador and Peru (see Table 5.3). The Windward Islands accounted for only 3 per cent of Fairtrade banana sales but exported 90 per cent Fairtrade bananas, and bananas account for 20 per cent or more of the domestic economy (Fairtrade Foundation, 2012). Also notable is that Fairtrade has increased production capacity in Africa to 600,000 metric tons in 2013 (in itself more than doubling total 2011 production capacity from all regions), from virtually nothing in 2011 (M. Blaser, Fairtrade, personal communication, September 13, 2013).

FIGURE 5.6 FAIRTRADE BANANA SALES BY COUNTRY, 2011.



Source: FLO, 2012.

TABLE 5.2 IMPORTANCE OF VOLUNTARY SUSTAINABILITY STANDARD (VSS) BANANA PRODUCTION AND SALES RELATIVE TO THE GLOBAL MARKET.

	VSS production (mt)	VSS production market share of global production (%)	VSS production market share of global exports (%)	VSS sales (mt)	VSS sales market share of global production (%)	VSS sales market share of global exports (%)
Fairtrade (2012)	550,000	1%	3%	331,980	0%	2%
Organic (2011)	786,931	1%	4%	488,073	0%	3%
Rainforest Alliance (2012)	2,194,468	2%	12%	2,194,468	2%	12%
Global VSS production / sales (mt) (%) (adjusted for multiple certification)	3,300,000	3%	18%	2,700,000	3%	14%

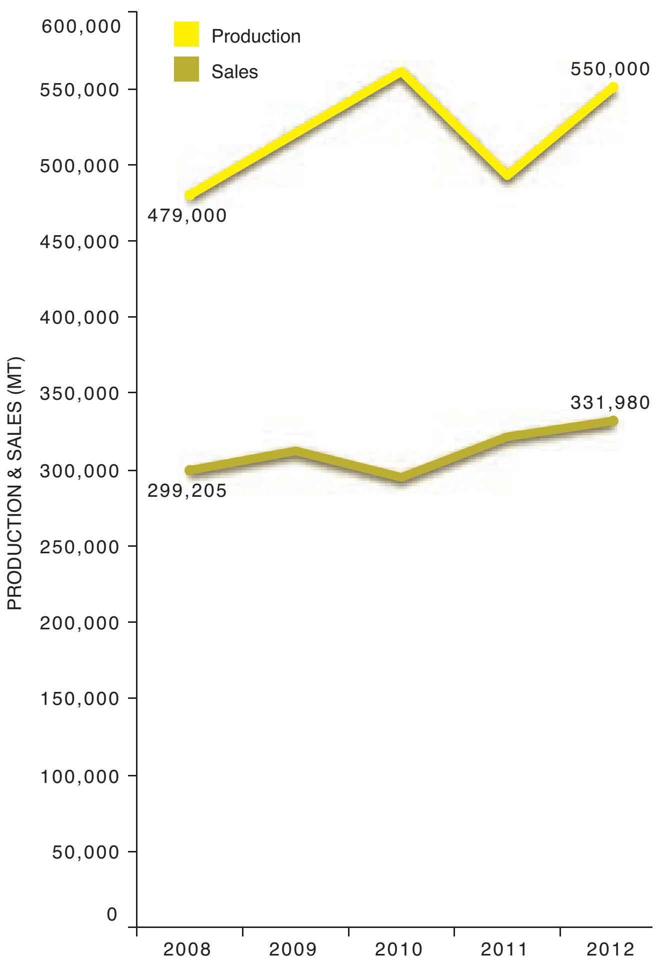
Sources: FLO, 2012; FAO, 2013; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 5.3 FAIRTRADE BANANA SALES AND AREA HARVESTED, 2011.

	Sales (mt)	Area Harvested (ha)
Colombia	88,900	3,330
Dominican Republic	113,800	7,660
Peru	54,200	4,080
Ecuador	47,600	6,100
Windward Islands	8,400	5,500
Total	**321,300**	**27,950**

Source: FLO, 2012.

FIGURE 5.7 FAIRTRADE BANANA PRODUCTION AND SALES GROWTH, 2008–2012.



Source: FLO, 2012.

TABLE 5.4 FAIRTRADE BANANA SALES AND PRODUCTION, 2008–2012.

	Sales (mt)	Production (mt)
2008	299,205	479,000
2009	311,465	-
2010	294,447	561,100
2011	321,300	491,800
2012	331,980	550,000

Source: FLO, 2012.

Rainforest Alliance

Rainforest Alliance is by far the dominant provider of certified bananas to the global market, due principally to its unique partnership with Chiquita. Although Rainforest Alliance has been certifying bananas since the 1990s, the organization is still experiencing rapid growth, with an annual growth rate of 33 per cent over the last three years, reaching 2.2 million metric tons of certified banana production by 2012 (see Figure 5.9 and Table 5.6), on 77,205 hectares.[13] As of 2012, we estimate that sales of Rainforest Alliance bananas accounted for approximately 12 per cent of global banana exports (and 2 per cent of global banana production).[14]

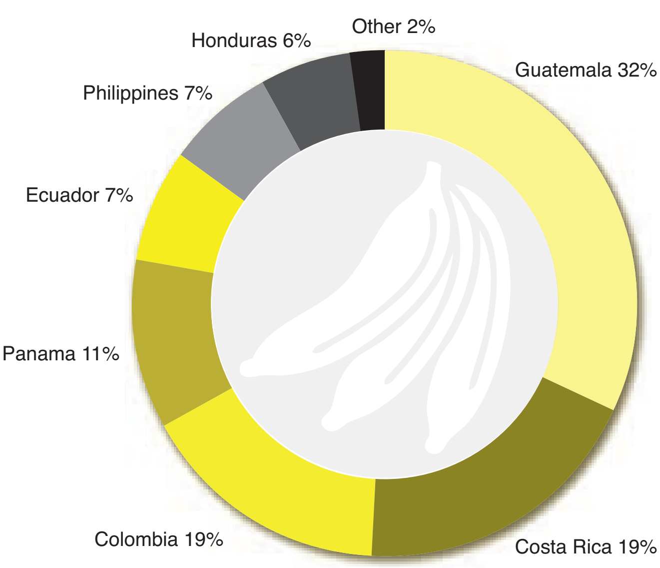
13 This is roughly three times larger than the total area under Fairtrade banana certification.

14 Note that this is significantly less than the claims on the Rainforest Alliance website, which advertises that the organization certifies 15 per cent of global exports. It is also short of its proclaimed target of certifying 20 per cent of global exports by 2012 (Rainforest Alliance, n.d.).

The long-standing collaboration with Chiquita has also made bananas one of the most important commodities (in terms of volume certified) for Rainforest Alliance's programs. All of Chiquita's plantations in Latin America are Rainforest Alliance certified. Moreover, the plantations of the Favorita Fruit Company, the third-largest banana exporter in Ecuador and a key Chiquita supplier, are 100 per cent Rainforest Alliance certified. According to Chiquita, the company traded almost 2 million metric tons of Rainforest Alliance bananas worldwide in 2006, accounting for 88 per cent of Chiquita's imports from Latin America and more than 90 per cent of Rainforest Alliance certified bananas during the same year (Byers, Giovannucci, & Liu, 2008).

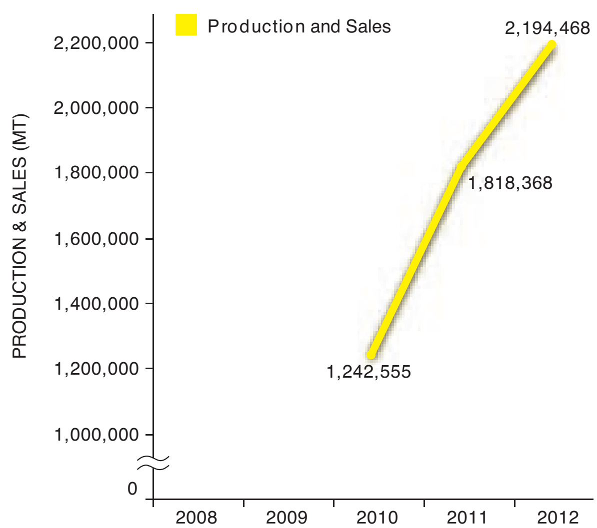
Geographically, the largest suppliers of Rainforest Alliance bananas are in Central America, with Guatemala (32 per cent), Costa Rica (19 per cent) and Colombia (19 per cent) accounting for 70 per cent of global Rainforest Alliance banana supply (see Table 5.5). The same three countries account for a mere 28 per cent of global exports, and there remains plenty of opportunity for growth in other major exporting countries such as Ecuador and the Philippines, each of which accounted for 7 per cent of Rainforest Alliance exports in 2012.

FIGURE 5.8 RAINFOREST ALLIANCE BANANA PRODUCTION BY COUNTRY, 2012.



Source: C. Guinea, Rainforest Alliance, personal communication, February 18, 2013.

FIGURE 5.9 RAINFOREST ALLIANCE BANANA PRODUCTION (AND SALES[15]) GROWTH, 2010–2012.



Source: C. Guinea, Rainforest Alliance, personal communication, February 18, 2013.

15 Virtually all Rainforest Alliance certified bananas are sold as certified due to direct integration within the Chiquita supply chain.

TABLE 5.5 RAINFOREST ALLIANCE BANANA PRODUCTION AND AREA HARVESTED BY COUNTRY, 2012.

	Production (mt)	Area harvested (ha)
Colombia	349,482	17,982
Costa Rica	425,543	21,951
Ecuador	161,155	4,160
Guadeloupe	2,771	220
Guatemala	707,799	14,059
Honduras	122,672	8,553
Nicaragua	29,740	634
Panama	247,633	5,999
Peru	1,718	38
Philippines	145,955	3,644
Total	**2,194,468**	**77,240**

Source: C. Guinea, Rainforest Alliance, personal communication, February 18, 2013.

TABLE 5.6 RAINFOREST ALLIANCE BANANA PRODUCTION AND AREA HARVESTED, 2008–2012.

	Production (mt)	Area harvested (ha)
2008	-	70,742
2009	-	96,343
2010	1,242,555	52,973
2011	1,818,368	55,145
2012	2,194,468	77,240

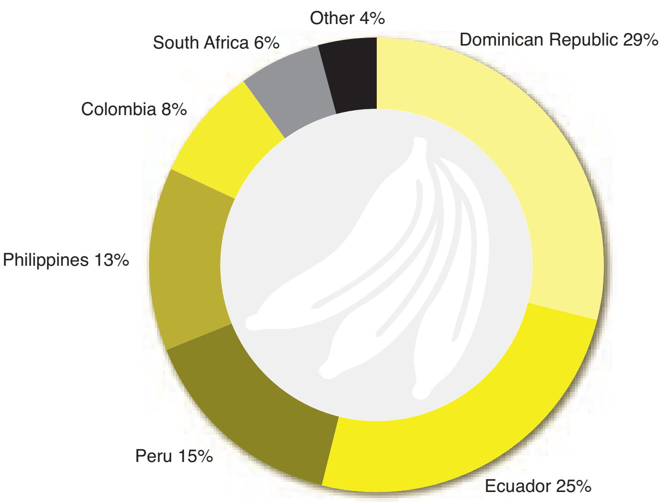
Source: C. Guinea, Rainforest Alliance, personal communication, February 18, 2013.

International Federation of Organic Agriculture Movements (IFOAM, or "Organic")

Organic bananas have been on the market for more than two decades, but growth has been especially strong since the early 2000s, albeit tapering more recently. The growth in Organic banana production and sales slowed to under 2 per cent per annum from 2008 to 2012 (see Figure 5.11 and Table 5.8). As of 2011, more than 780,000 metric tons of Organic bananas were produced, accounting for 1 per cent of global production. During the same year, 488,000 metric tons of bananas were sold as Organic, accounting for 3 per cent of global exports.

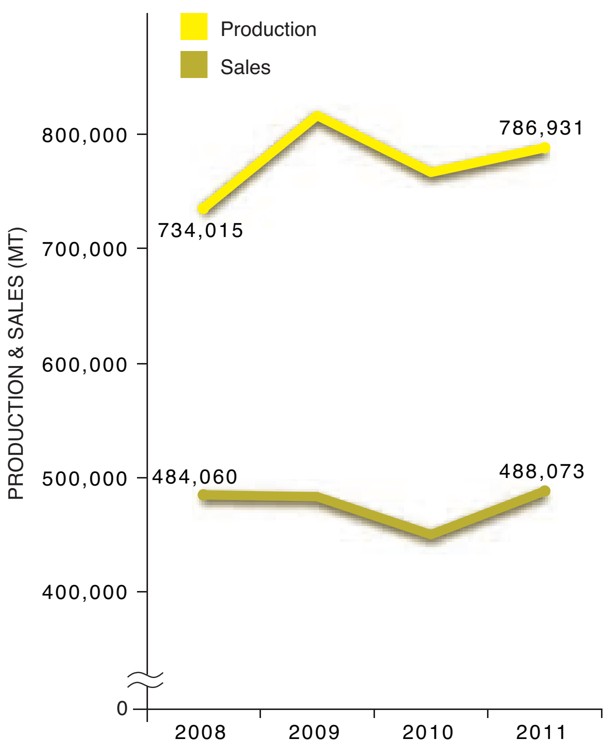
Organic certified bananas are grown throughout the world, with a particular concentration in Asia and Latin America. The Dominican Republic (29 per cent), Ecuador (25 per cent) and Peru (15 per cent) account for almost three-quarters of global Organic banana production (see Figure 5.10 and Table 5.7). While four of the top five producers of Organic bananas (Ecuador, Peru, the Philippines and Colombia) control similar levels of market share relative to their banana exports, the Dominican Republic stands out as the most important source of Organic bananas, despite its being a relatively small player on the international export market. Guatemala, on the other hand, which serves as a major exporter of bananas, has a relatively low presence of Organic banana production. Organic banana production has remained relatively stable over the period under analysis, averaging around an estimated 0.8 million metric tons, even though a major increase was noted from 2008 to 2009.

FIGURE 5.10 ORGANIC BANANA PRODUCTION BY COUNTRY, 2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 5.11 ORGANIC BANANA PRODUCTION AND SALES GROWTH, 2008–2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 5.7 ORGANIC BANANA PRODUCTION AND AREA HARVESTED BY COUNTRY, 2011.

	Production (mt)	Area Harvested (ha)
Australia	50	3
Bolivia (Plurinational State of)	6,000	250
Burundi	250	50
Cameroon	10	1
Colombia	60,000	1,750
Costa Rica	5,800	--
Cuba	30	3
Cyprus	5	0
Dominican Republic	230,000	18,000
Ecuador	200,000	10,500
El Salvador	3,400	200
France	400	10
Ghana	2,500	100
Grenada	10	5
Guatemala	1,200	30
Kenya	50	5
Lebanon	30	1
Madagascar	40	5
Mauritius	30	2
Mexico	6,200	200
Mozambique	156	40
Peru	120,000	5,000
Philippines	100,000	5,000
Senegal	300	10
South Africa	50,000	1,700
Spain	0	65
Turkey	470	10
Total	**786,931**	**42,939**

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 5.8 ORGANIC BANANA PRODUCTION, SALES AND AREA HARVESTED, 2008–2011.

	Production (mt)	Sales (mt)	Area Harvested (ha)
2008	734,015	484,060	40,628
2009	815,350	482,559	43,280
2010	766,453	449,868	39,852
2011	786,931	488,073	42,939

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

5.4 SUPPLY

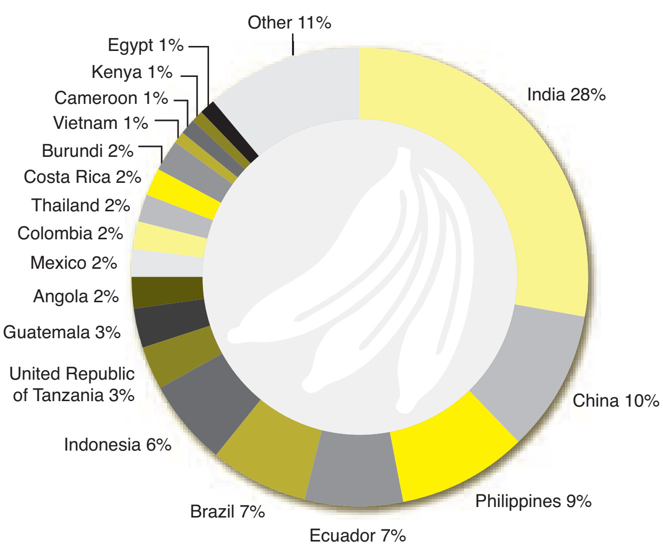
We estimate that as of 2012, more than 3.3 million metric tons of banana production were standard-compliant. Standard-compliant banana supply is concentrated almost entirely in countries with significant production for export markets. India, China, Brazil, Indonesia, Tanzania and Angola, for example, represent 56 per cent of global production for banana cultivation around the world and 48 per cent of total land area, but none of the voluntary sustainability standards are present in these countries. Conversely, the countries where sustainability standards do have a presence represent less than one-third of global production (see Figure 5.12, Figure 5.13, and Figure 5.15). While standard-compliant supply comes from more than 30 countries, more than 90 per cent of this comes from just eight countries in Latin America and the Caribbean. This overall context points toward the limited role of voluntary sustainability standards across the majority of banana production around the globe.

Standard-compliant markets are only slightly more concentrated than conventional markets in regards to countries of production, with 71 per cent of total standard-compliant supply coming from the top five producing countries (as opposed to the 70 per cent of global exports coming from top five exporters). While the top five banana exporters globally are also some of the top producers of standard-compliant bananas, Guatemala stands out as having excelled disproportionately in making the transition to compliant production, accounting for 24 per cent of global standard-compliant supply in 2012 (Guatemala accounted for 10 per cent of global exports during the same year). Other countries that have created dominant positions in production of standard-compliant bananas, such as Panama and the Dominican Republic, have done so notwithstanding their relatively minor importance in terms of global banana production and/or exports. More than 20 per cent of all exports from Guatemala, the Dominican Republic, Colombia and Costa Rica could be supplied with standard-compliant bananas,[16] giving these countries the highest rates of standard-compliant sales as a percentage of total banana exports (see Table 5.9).

Figure 5.14 and Figure 5.16 illustrate the distribution of standard-compliant production over different countries and continents. Standard-compliant banana production is heavily concentrated in a handful of Latin American countries. Seventy per cent of Rainforest Alliance's total supply comes from Guatemala, Costa Rica and Colombia, while virtually all Fairtrade bananas are sourced from Colombia, Ecuador, the Dominican Republic and Peru.

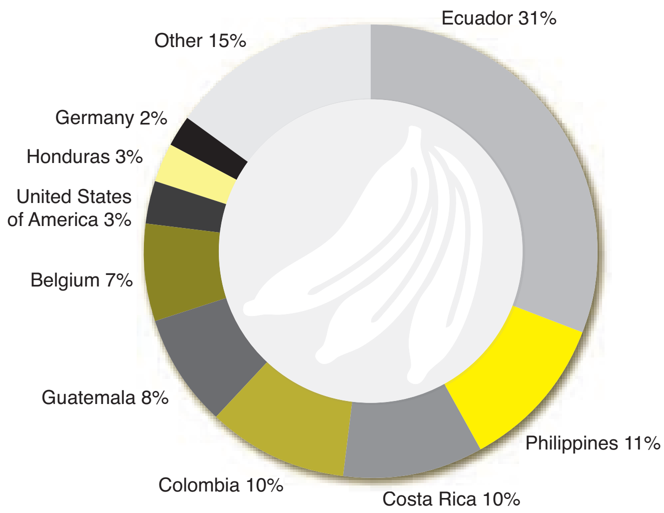
16 Not all sales are exported. Sales refer to certified bananas that were sold as such (not as "conventional" bananas) at the first level of organization at which certification occurs (at the plantation level, for example). In the banana sector, however, most bananas sold as certified are destined for export markets, so sales divided by exports can give an idea of the total export market that is certified.

FIGURE 5.12 TOTAL (STANDARD-COMPLIANT AND CONVENTIONAL) BANANA PRODUCTION BREAKDOWN BY COUNTRY, 2011.



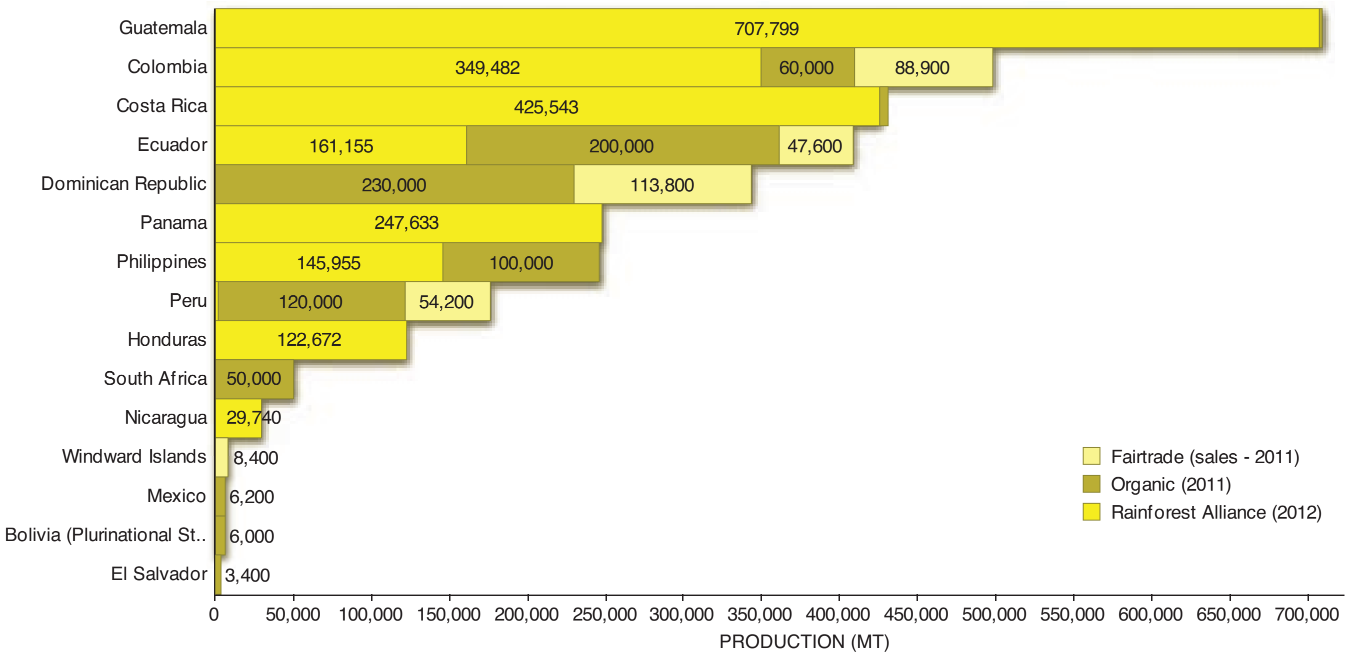
Source: FAO, 2013.

FIGURE 5.13 TOTAL (STANDARD-COMPLIANT AND CONVENTIONAL) BANANA EXPORT BREAKDOWN BY COUNTRY, 2011.



Source: FAO, 2013.

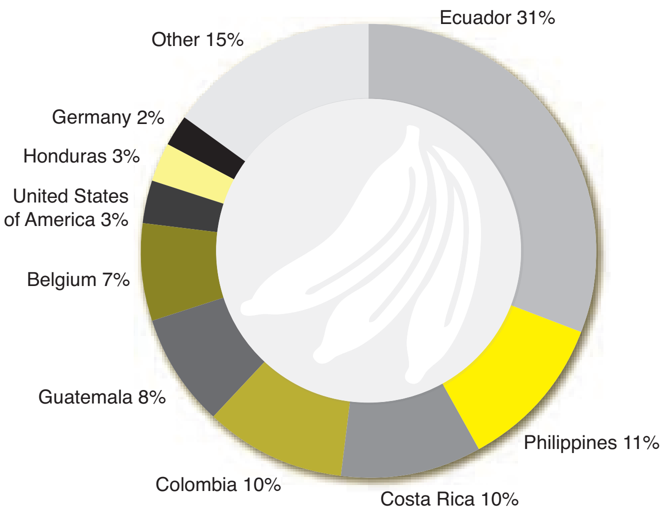
FIGURE 5.15 FIFTEEN LARGEST PRODUCERS OF STANDARD-COMPLIANT BANANAS, 2011/2012.



Where space permits, data points are visible.

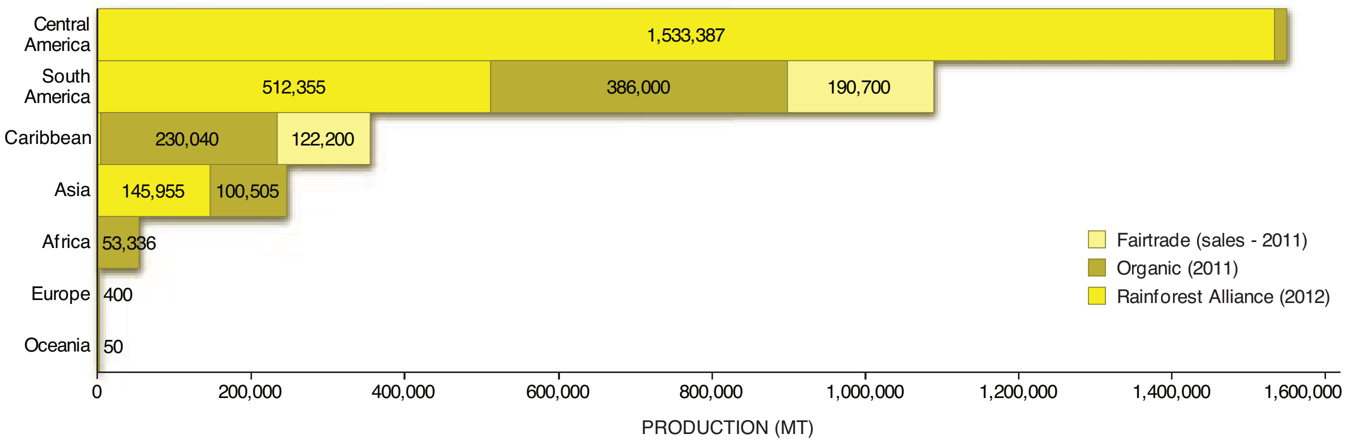
Sources: FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 5.14 STANDARD-COMPLIANT BANANA PRODUCTION BY COUNTRY, 2011/2012.



Sources: FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 5.16 STANDARD-COMPLIANT BANANA PRODUCTION BY CONTINENT, 2011/2012.



Where space permits, data points are visible.

Sources: FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, February 18, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 5.9 STANDARD-COMPLIANT PRODUCTION AS A PERCENTAGE OF TOTAL NATIONAL PRODUCTION FOR THE 20 LARGEST BANANA PRODUCERS, 2011/2012.

	Fairtrade (sales / production - 2011)	Organic (2011)	Rainforest Alliance (2012)	Adjusted aggregate*
India	-	-	-	-
China	-	-	-	-
Philippines	-	1.1%	1.6%	2.1%
Ecuador	0.6%	2.7%	2.2%	4.1%
Brazil	-	-	-	-
Indonesia	-	-	-	-
United Republic of Tanzania	-	-	-	-
Guatemala	-	-	26.4%	26.4%
Angola	-	-	-	-
Mexico	-	0.3%	-	0.3%
Colombia	4.2%	2.8%	16.4%	19.8%
Thailand	-	-	-	-
Costa Rica	-	0.3%	22.0%	22.1%
Burundi	-	-	-	-
Vietnam	-	-	-	-
Cameroon	-	-	-	-
Kenya	-	-	-	-
Egypt	-	-	-	-
Papua New Guinea	-	-	-	-
Dominican Republic	13.7%	27.7%	-	34.6%

Dashes represent negligible or no standard-compliant production relative to national production. They may also reflect an absence of data.
*All figures in the aggregate column are downward adjusted to account for estimated multiple certification.

Sources: FLO, 2012; FAO, 2013; C. Guinea, Rainforest Alliance, personal communication, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

5.5 PRICING AND PREMIUMS

Because bananas are a seasonal fresh fruit, their prices are highly volatile, increasing and decreasing depending on the period of the growing season, and premiums for standard-compliant bananas have been reported at 75 per cent or more depending on the standard and country of origin. The relatively tight supply/demand ratio for compliant bananas and commitments by major purchasers should provide support for all market-driven premiums.

Fairtrade is the only standard that fixes price premiums. By October 2013, the Fairtrade social premium was US$1 per box, and minimum prices were between US$6.05 per box (Panama) and US$12.20 per box (Caribbean, excluding the Dominican Republic and Windward Islands) (Fairtrade International, 2013b). The Fairtrade social premium represents 17 per cent and 8 per cent of the above-mentioned minimum prices, respectively. In October 2013, Fairtrade raised its minimum prices for bananas, but conventional banana prices have been rising in recent years and remained higher than Fairtrade minimum prices in some regions; for example, Central American export prices were around US$11 (producer's port) per box in October 2013 (IndexMundi, 2013a), which is about US$3 higher than Fairtrade minimums set during the same month. Fairtrade estimates that US$18 million of its premiums have been transferred on the specific premium accounts of producer organizations in 2012 alone, which corresponds with 327,000 metric tons sold at US$1 per box (about the same as the 332,000 metric tons reported sold).

Like Fairtrade minimum prices, premiums for Organic bananas vary not only by country of production, but also by country of consumption. European markets are reportedly willing to pay more for Organic bananas than their American counterparts are (Fresh Plaza, 2012), which may be explained in part by the more developed market for double-certified Fairtrade/Organic bananas in the European market. Fairtrade minimum prices for double-certified Fairtrade/Organic bananas ranged from US$8 per box (Peru) to US$13 per box (Caribbean, excluding the Dominican Republic and Windward Islands) in 2013 (Fairtrade International, 2013b). As a reference, Organic bananas imported into the United States from Colombia in November 2013 hovered around US$20 per box (U.S. Department of Agriculture, 2013b). Like Fairtrade conventional bananas, double-certified Fairtrade/Organic bananas received a fixed social premium of US$1 per box, equivalent to 13 per cent and 8 per cent of the above-mentioned minimum prices, respectively. Double-certified Fairtrade/Organic minimum prices range from about 30 to 40 per cent above Fairtrade minimum prices, which is in line with a separate study's observed prices for Organic bananas relative to conventional bananas from 2007 to 2010 (see Box 5.1, The relationship between voluntary sustainability initiative compliance, price distribution and price volatility). The study estimated that farm gate prices for non–Fairtrade/Organic bananas averaged 38 per cent over conventional banana prices between 2007 and 2010, with Organic prices displaying modestly improved stability over conventional bananas (see Figure 5.16) (Evans & Gordon, 2011). However, Organic premiums can be even higher where niche buyers and markets are considered, such as in one report of 75 per cent premiums for Organic bananas in the Philippines (Business World Online, 2013).

Lastly, Rainforest Alliance certified bananas can sell at prices varying from market price to 30 per cent over market price (Banana Link, 2009). In 2011, Dole, the largest trader of bananas, announced that it would start selling Rainforest Alliance certified bananas from Costa Rica, Honduras and Guatemala, which may be supportive of premiums in those areas. As observed in Figure 5.17 Average monthly wholesale prices for Organic and conventional bananas (New York market, 2007–2010 [US$/box])., between 2007 and 2010 conventional bananas on the New York market were observed to fluctuate over a range of approximately US$12 per box, whereas Organic bananas fluctuated over a range of approximately US$7 per box.

BOX 5.1 THE RELATIONSHIP BETWEEN VOLUNTARY SUSTAINABILITY INITIATIVE COMPLIANCE, PRICE DISTRIBUTION AND PRICE VOLATILITY

One of the drivers behind concerns for sustainability in many tropical commodities relates to the historic associations between commodity production and poverty. Building increased price stability and equity along the supply chain has been one of the flagship principles of the Fairtrade sector and remains a core pillar of sustainable development in agriculture more generally. While standard-compliant bananas are associated with price premiums, those premiums do not necessarily indicate better revenues[17] or even a more equitable sharing of retail prices. There is, however, some evidence that voluntary standards may have a positive impact on price volatility.

Estimated price distribution along value chain to New York market. shows the distribution of revenue over the banana supply chain for Fairtrade, Organic and conventional bananas (using bananas produced in the Dominican Republic for the New York market for a case study), suggesting that Organic producers may earn a lower percentage (17 per cent) of the retail price than their conventional counterparts (21 per cent). Estimates for Fairtrade/Organic bananas, although better than Organic alone, at 22 per cent, provide only a marginal improvement over conventional bananas.

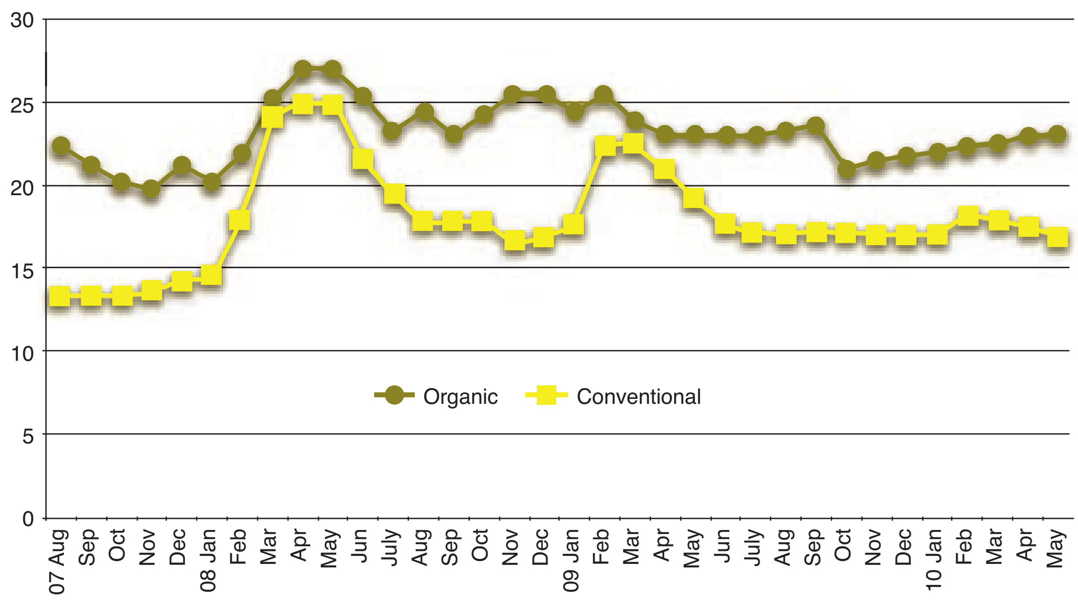
17 Of course, prices only represent one variable in a general analysis of revenue (along with yield, quality and market access) and therefore cannot be considered indicative of overall sustainability at production. For a more detailed analysis and coverage of the role of pricing within the context of household level revenues in standard-compliant commodity production, see Giovannucci et al. (2008).

TABLE 5.10 ESTIMATED PRICE DISTRIBUTION ALONG VALUE CHAIN TO NEW YORK MARKET.

	Fairtrade/Organic				Organic				Conventional			
	Cost ($/box)	Price ($/box)	Price ($/kg)	% Final price	Cost ($/box)	Price ($/box)	Price ($/kg)	% Final price	Cost ($/box)	Price ($/box)	Price ($/kg)	% Final price
Producer's price (farm gate)		8.75	0.48	22%		5.50	0.30	17%		4.00	0.22	21%
Plus exporter's cost and margin	3.55			9%	2.50			8%	1.00			5%
Exporter's price (FOB Port Dominican Republic)		12.30	0.68	31%		8.00	0.44	25%		5.00	0.28	26%
Plus ocean freight, ancilliary & insurance charges to NY	6.00			15%	6.00			19%	5.00			26%
Importer's price		18.30	1.01	46%		14.00	0.77	44%		10.00	0.55	51%
Plus ripening and distribution costs & margin	6.00			15%	6.00			19%	5.50			28%
Wholesale price		24.30	1.34	61%		20.00	1.10	63%		15.50	0.86	79%
Plus retailers cost and margin	15.50			39%	11.50			37%	4.00			21%
Retail price		39.80	2.20			31.50	1.74			19.50	1.08	

Source: Evans & Gordon, 2011.

FIGURE 5.17 AVERAGE MONTHLY WHOLESALE PRICES FOR ORGANIC AND CONVENTIONAL BANANAS (NEW YORK MARKET, 2007–2010 [US$/BOX]).



Source: Evans & Gordon, 2011.

5.6 CHALLENGES AND OPPORTUNITIES

Standard-compliant banana production grew over 12 per cent per annum between 2009 and 2012, reaching 3.3 million metric tons in 2012. Although all of the voluntary standards operative in the banana sector have distinct and relatively well developed markets, Rainforest Alliance, the current market leader, remains the most likely to lead the expansion of standard-compliant production and sales in the coming years. As such, voluntary sustainability standard market growth in the banana sector will largely depend upon Rainforest Alliance's ability to expand its adoption beyond Chiquita to other major players. The recent commitments by Dole, among others, to begin the transition to Rainforest Alliance certification suggest that Rainforest Alliance is poised to continue its current growth trends. As such, we expect the annual growth rate of standard-compliant production to continue at above 10 per cent annum, reaching 7 per cent of global production by 2020.

The most important opportunities for expansion of global banana markets at present reside within major exporting countries such as the Philippines, Ecuador, Brazil and Mexico. Although standard-compliant bananas account for less than 25 per cent of domestic production across all of the major exporting countries, significant opportunities exist throughout these countries more generally.

A broader challenge within the sector is the development of domestic markets. With more than 80 per cent of the banana market going to domestic consumption, voluntary sustainability standards will need to find ways into domestic markets if they are to exert transformational change at production. India, China, Thailand, Tanzania and Indonesia account for nearly half of the world's production and consumption, with virtually no presence of voluntary sustainability standards. With the banana trade market growing at about 2.5 per cent per annum since the turn of the century, however (from 2000 to 2011 [FAO, 2013]), there have been increasing opportunities for these countries to participate in export markets.

A long-standing challenge facing banana certification has been the cost of transitioning to compliance for producers, particularly among the thousands of smallholder banana farmers across the Caribbean and Africa. In recognition of this, national standards are emerging in key producing countries like Uganda (The State House of Uganda, n.d.) as a means for internalizing and localizing the costs associated with certification (UN Conference on Trade and Development, 2012a). In other countries like Australia and Costa Rica, regulations and programs have been put in place to improve the sustainability of the banana sector by modifying production systems and protecting the plant system and the environment in the process (Banana Industry Advisory Committee, 2012). Meanwhile, other countries such as India have started to promote the development of export markets and may thus be expected to become more active in supplying the voluntary sustainability standard market in the coming years (Agritrade, 2013).

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6 BIOFUELS MARKET

Liquid biofuels have been in use ever since Rudolf Diesel ran his engine on peanut oil at the World's Fair in Paris in 1900. Due to concerns related to greenhouse gas emissions from fossil fuels, worries over national energy security and various socioeconomic concerns, biofuels regained popularity toward the end of the twentieth century. Bioethanol and biodiesel gained prominence during the 1970 oil crisis as an alternative to fossil fuels for use in transportation in Brazil. For the rest of the world, however, biofuels are a phenomenon of the last 10 to 12 years, as the European Union, the United States and many other markets started subsidizing biofuels partly in a quest to compensate farmers for the phasing out of conventional agricultural subsidies under World Trade Organization pressure and partly to help reduce greenhouse gas emissions.

Many governments around the world have now implemented ambitious targets and policies to promote biofuels. For example, the European Union has endorsed a mandatory target of a 20 per cent share of all energy from renewable sources in overall energy consumption by 2020 and a mandatory 10 per cent target (a recent plenary vote in the European Parliament yielded an agreement to cap the contribution of first-generation biofuels at 6 per cent, as discussed later in this report) to be achieved by all member states for the share of biofuels in the transport sector by 2020. As a result, the world production of ethanol and biofuels doubled between 2005 and 2012.

The global aggregate production of bioethanol and biodiesel averaged 124,141 million litres per year from 2010 to 2012 (Organisation for Economic Co-operation and Development (OECD) & Food and Agriculture Organization of the United Nations (FAO), 2013). Sugar and cereal crops such as maize, sugar cane, sugar beet, cassava, wheat and sorghum are important feedstocks for ethanol production, while oilseed crops such as rapeseed (canola), soy, palm oil and jatropha are important for biodiesel. Due to the wide variety of feedstocks that may be made into biofuels, many countries around the world can participate in the biofuels market. However, despite the initial enthusiasm related to the promises of an alternative source of energy that could replace fossil fuels, significant problems with producing biofuels at a large scale have begun to emerge as the industry develops. Many observers have claimed that biofuels may not reduce greenhouse gas emissions as much as originally anticipated and that they may compete with food production and, subsequently, affect food security and food prices (EurActiv.com, 2012; Fonseca et al., 2010; Hamelinck, 2013; Laborde, 2011). Important environmental consequences of

TABLE 6.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR BIOFUEL PRODUCTION AND TRADE, 2010–2012.

KEY STATISTICS

Top 5 producers of ethanol and biodiesel (87% of total) (2010–2012)	United States (42%), Brazil (23%), European Union (14%), China (7%), India (2%)
Top 5 consumers (88% of global) (2010–2012)	United States (40%), Brazil (21%), European Union (18%), China (7%), India (2%)
Major international voluntary sustainability standards	Bonsucro, ISCC, RSB, RSPO, RTRS
Global production of ethanol and biodiesel (2010–2012)	124,141 million litres
Standard-compliant production (2012)	ISCC: 2,266 certified operations; RSB: 7 certified operations, RSPO: 8,180,000 metric tons of palm oil; RTRS: 960,000 metric tons of soybeans; Bonsucro: 2.2 million litres of ethanol
Key sustainability issues	Food security, climate change, maintaining biodiversity

Sources: Top 5 producers, top 5 consumers, global production: OECD & FAO, 2013; standard-compliant production: Bonsucro, 2013d; Freire, 2013; ISCC, 2013; RSB, 2011; S. Yaacob, RSPO, personal communication, April 15, 2013.

biofuels expansion also include the loss of biodiversity, land use change impacts, and the depletion of rainforest and scarce water resources. Some of these issues can be addressed by promoting the use of feedstocks compliant with voluntary sustainability initiatives in biofuel production.

The main voluntary standards covering biofuels for specific crops are the Roundtable on Sustainable Palm Oil (RSPO), the Round Table on Responsible Soy (RTRS) and Bonsucro. The Roundtable on Sustainable Biomaterials (RSB, formerly the Roundtable on Sustainable Biofuels), along with the International Sustainability and Carbon Certification (ISCC), address various feedstocks for the sustainable production of biomass and biofuels. Both are in relatively early stages of development; ISCC just recently became an independent organization of the German Federal Ministry of Food, Agriculture and Consumer Protection via the Agency for Renewable Resources in 2012, while the RSB launched its global certification system in 2011 and has since then issued seven certificates. ISCC, by contrast, has issued over 4,000 certificates, with over 2,000 active by December 2013.

6.1 MARKET REVIEW

Market reach
The European Union is currently the only market that promotes the use of voluntary sustainability standards like ISCC, RSB, RSPO, RTRS and Bonsucro for the sustainability assessment of feedstocks.

Growth
Biodiesel and bioethanol production and consumption are expected to grow about 60 to 70 per cent by 2022.

Regional importance
The United States, the European Union and Brazil consume about three-fourths of the world's biodiesel and bioethanol.

Pricing and premiums
Premiums for standard-compliant palm oil and soy ranged from 0.3 to 6 per cent over the past several years.

6.2 MARKET DEVELOPMENT

Concerns over the negative effects of biofuel production intensified in the food crisis of 2007 and 2008 when the cost of food imports increased dramatically, rising 29 per cent above the record prices attained the previous year. This was due to the rising prices of imported cereals and vegetable oil, two commodity groups that are important inputs in biofuel production. Because these feed ingredients were more expensive, the price of meat and dairy products also shot up and freight rates increased, affecting the price of all imported commodities and putting pressure on the ability of countries to cover their import bills. When high food prices are coupled with high fuel prices, the economic prosperity and food security of low-income countries is threatened, as many countries are highly dependent on imports of petroleum products and major cereals for domestic consumption (FAO, 2008).

Similar controversies have emerged concerning the impacts of biofuel policies on greenhouse gas emissions, compared to fossil fuels. A recently leaked document from the European Commission shows that the carbon footprint of biodiesels made from palm oil, soybeans and rapeseed is only marginally smaller than that of oil made from tar sands (Carrington, 2012). According to this document, these biofuels present a higher volume of greenhouse gas emissions than crude oil (EurActiv.com, 2012). Concerns over indirect land use change, food security and greenhouse gas emissions related to the expansion of crops such as palm oil, soybeans, corn and sugar cane for biofuels have also received considerable attention from organizations like WWF (2013b), Greenpeace ("Greenpeace: EU's biofuels plan," 2012) and ActionAid (n.d.).

In response to these concerns, a European Commission proposal published in late 2012 sought to limit land conversion for biofuel production and improve the climate benefits of biofuels used in the European Union (European Commission, 2012d). The proposal aims to reduce indirect land use change by limiting the amount of first-generation biofuels that can be counted toward the renewable energy target, by revising this target from 10 per cent to 5 per cent. The European Union has recently taken concrete steps toward this goal, beginning with a plenary vote in September 2013 for a cap on first-generation biofuels in its Renewable Energy Directive, or EU-RED (for the Directive, see European Parliament and Council, 2009). The vote resulted in a narrowly decided agreement to limit the contribution of first-generation biofuels, reducing the target of transport fuel via renewable sources from 10 per cent to 6 per cent.

In addressing sustainability concerns, the European Commission currently also requires that, in order to receive government support or count toward the mandatory national renewable energy targets, biofuels used in the European Union need to comply with sustainability criteria, which aim to prevent the loss of biodiversity and high carbon emissions from the production of raw materials for biofuels. To this end, the European Commission requires that the sustainability of biofuels be checked by member states or through voluntary sustainability standards. The EU-RED has recognized 14 voluntary sustainability standards (see Box 6.1) since July 19, 2011, which apply directly to EU-27 member states. These standards include ISCC-EU, Bonsucro EU, the RTRS EU-RED, the RSB EU-RED and the RSPO-RED, all of which are covered in this review. These schemes are being recognized on the basis that they comply with the sustainability criteria under Directives 2009/28/EC and 2009/30/EC of the European Parliament and the Council (European Commission, 2013a).

Two main factors can be expected to drive voluntary sustainability standard (ISCC, RSB, RSPO, RTRS and Bonsucro) certified feedstock volumes in the future. The first is the demand for biofuels driven by policy initiatives that promote the use of fuels from renewable sources for transportation. The other is the importance that is placed on ensuring that the feedstock being used to produce this biofuel is sustainable in terms of the social, environmental and economic effects stemming from its production. The European Union, the United States and Brazil are the three largest biofuel-consuming countries and are expected to represent 83 per cent of total bioethanol and 74 per cent of total biodiesel consumed by 2022 (OECD & FAO, 2013). Therefore, policy drivers in these countries are particularly important.

The expanded Renewable Fuel Standard (RFS2) in the United States, along with EU-RED, is expected to contribute to the continued expansion of biofuels globally, with world production reaching 168 billion litres of bioethanol and 41 billion litres of biodiesel by 2022. Based on these predictions, the global production of bioethanol and biodiesel will increase 70 per cent by 2022, compared to the average from 2010 to 2012, and 12 per cent of coarse grains, 29

BOX 6.1 RECOGNIZED VOLUNTARY SCHEMES UNDER EU-RED

Since July 19, 2011 the European Commission has recognized voluntary schemes that apply directly in 27 EU member states. Schemes include:

- **ISCC-EU** (International Sustainability and Carbon Certification): Multi-feedstock
- **Bonsucro EU**: Sugar cane
- **RTRS EU-RED** (Round Table on Responsible Soy EU-RED): Soy
- **RSB EU-RED** (Roundtable on Sustainable Biofuels EU-RED): Multi-feedstock
- **2BSvs** (Biomass Biofuels voluntary scheme): Multi-feedstock
- **RBSA** (Abengoa RED Bioenergy Sustainability Assurance): Multi-feedstock
- **Greenergy** (Greenergy Brazilian Bioethanol verification program): Sugar cane
- **Ensus** voluntary scheme under RED for Ensus bioethanol production: Wheat
- **Red Tractor** (Red Tractor Farm Assurance Combinable Crops & Sugar Beet Scheme): Multi-feedstock
- **SQC** (Scottish Quality Farm Assured Combinable Crops scheme): Winter wheat, maize, oilseed rape
- **Red Cert**: Multi-feedstock
- **NTA 8080**: Multi-feedstock
- **RSPO-RED** (Roundtable on Sustainable Palm Oil RED): Palm oil
- **Biograce greenhouse gas calculation tool**: Multi-feedstock

Sources: European Commission, 2013a; also see GOV.UK (n.d.).

per cent of sugar cane and 15 per cent of vegetable oil produced annually by 2022 will be required as feedstock for biofuel production (OECD & FAO, 2013); however, the European Union is currently the only jurisdiction requiring the consideration of compliance with recognized voluntary standards to ensure the sustainability of biofuel feedstocks.

Taking the conservative assumption that the European Union caps the contribution of first-generation biofuels at 5 per cent, the European market would still increase its consumption of ethanol by about 70 to 75 per cent between 2012 and 2022, while biodiesel consumption would increase about 45 per cent (OECD & FAO, 2013). Assuming that biofuel feedstocks maintain the same share of total feedstock use for biofuel production as they did in 2010 (van de Staaij, van den Bos, Toop, Alberici, & Yildiz, 2012; see Table 6.1 and Table 6.3), by 2022 about 3 million metric tons of soybeans, 1.3 million metric tons of palm oil and 500,000 metric tons of cane sugar would be needed to supply the European Union's biofuel consumption needs. In comparison, RTRS soybean volumes measured 960,000 metric tons in 2012, while RSPO palm oil measured 8.18 million metric tons and Bonsucro cane sugar measured 2.96 million metric tons. A number of studies commissioned by the European Commission suggest that some crops, such as palm oil, soybeans and rapeseed, could be even more environmentally polluting than crude oil in terms of greenhouse gas emissions after accounting for indirect land use change. Such studies could lead to significant shifts away from these feedstocks toward other less polluting crops like sugar beet and sugar cane (Carrington, 2012; EurActiv.com, 2012).

An additional factor that will affect the production and consumption of biofuels is the progress in developing advanced second- and third- generation biofuels produced from lignocellulosic biomass, waste material and other non-food feedstock. Most projections, however, forecast a limited production of second-generation biofuels. Companies like DuPont and BP Global (BP, formerly known as British Petroleum) are currently developing these types of biofuels. BP uses the ISCC scheme for its British wheat ethanol joint venture, Vivergo; the company also claims to play an active role in the promotion of developing sustainability standards across the industry (BP Alternative Energy, 2013).[1] DuPont is currently investing in a biofuel production plant that can produce up to 27.5 million gallons of bioethanol from corn stover feedstock (DuPont, 2012).

1 A senior executive of BP, James Primrose, as of 2013 is also the chairman of Bonsucro (Bonsucro, 2013c).

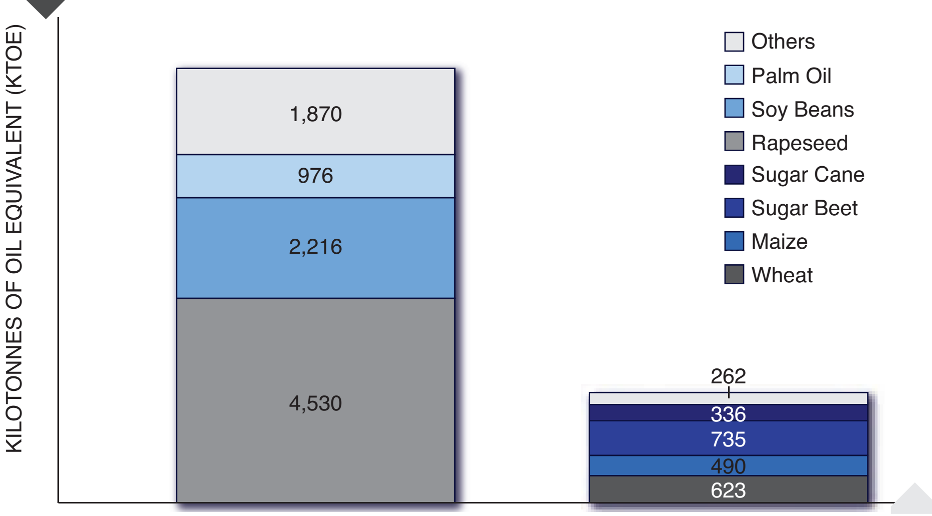
6.3 MARKET PERFORMANCE

The seven key biofuel crops in the European Union are rapeseed, soybeans, palm oil, wheat, maize, sugar beet and sugar cane. The most important feedstock for biodiesel is rapeseed originating from the European Union, followed by soy from Argentina, palm oil from Indonesia and Malaysia, and rapeseed from Canada and Ukraine (see Figure 6.1 and Table 6.2) (van de Staaij et al., 2012). For EU-produced bioethanol, most of the wheat, maize and sugar beet feedstocks originate from the European Union, while sugar cane mostly originates from Brazil (see Figure 6.1 and Table 6.3) and maize is imported from the United States (van de Staaij et al., 2012). In the European Union, biodiesel accounts for approximately 70 per cent of all renewable energy used for transportation; the rest is largely composed of bioethanol, with about 5 per cent considered "other liquid biofuels."

Biodiesel consumption in the European Union increased 78.5 per cent between 2007 and 2012 to reach 13.8 million litres in 2012, while bioethanol increased 146 per cent during the same time period to reach 5.8 million litres (Flach, Bendz & Lieberz, 2012). The European Union is the largest producer and user of biodiesel and is expected to produce 45 per cent, and consume 51 per cent, of total world biodiesel production volumes by 2022 (OECD & FAO, 2013). According to Oil World data, the EU biofuels industry has increased its use of palm oil as biodiesel feedstock by 365 per cent from 2006 to 2012, from 0.4 million metric tons to 1.9 million metric tons per year (Gerasimchuk & Koh, 2012). In contrast, the European Union is expected to produce only 7 per cent, and consume 10 per cent, of total world production of bioethanol by 2022, while the United States is expected to account for about 50 per cent of global production and consumption and Brazil is expected to account for about 25 per cent of bioethanol production and consumption.

The voluntary sustainability standards reviewed in this section are ISCC, RSB, RSPO, RTRS and Bonsucro. ISCC and RSB can, in theory, certify all biofuel crops, while the other voluntary sustainability standards specialize in a single crop, as follows: RSPO certifies sustainable palm oil, RTRS certifies sustainable soy, and Bonsucro certifies sustainable sugar cane. In 2010, palm oil feedstock accounted for 976,000 metric tons, or 10 per cent, of the total consumption volume of biodiesel in the European Union, while soybeans accounted for 2.3 million metric tons, or 23 per cent. Sugar cane accounted for 336,000 metric tons, or 14 per cent of the total consumption volume of bioethanol (please note that more information can be found on the market performance of these individual initiatives in the sugar, palm oil and soybean sections of this report).

FIGURE 6.1 EU BIODIESEL AND BIOETHANOL CONSUMPTION BY FEEDSTOCK, 2010.



Source: van de Staaij et al., 2012.

"IN THE EUROPEAN UNION, BIODIESEL ACCOUNTS FOR APPROXIMATELY 70 PER CENT OF ALL RENEWABLE ENERGY USED FOR TRANSPORTATION."

TABLE 6.2 EU BIODIESEL CONSUMPTION DIFFERENTIATED BY FEEDSTOCK AND MAIN FEEDSTOCK REGIONS, 2009–2010.

Crop	2009 (1,000 mt)		2010 (1,000 mt)	
Rapeseed	European Union	3,763	European Union	3,878
	Ukraine	265	Ukraine	251
	Canada	177	Canada	212
	Australia	137	Russia	80
	Other	194	Other	109
	Total	**4,536**	**Total**	**4,530**
Soybeans	European Union	92	European Union	86
	Argentina	744	Argentina	1,191
	Brazil	670	Brazil	416
	United States	278	United States	221
	Other	115	Other	302
	Total	**1,899**	**Total**	**2,216**
Palm oil	European Union	43	European Union	4
	Indonesia	561	Indonesia	774
	Malaysia	159	Malaysia	189
	Côte d'Ivoire	8	Thailand	7
	Other	4	Other	3
	Total	**775**	**Total**	**976**
Others	**All**	**1,881**	**All**	**1,870**

Source: van de Staaij et al., 2012.

International Sustainability and Carbon Certification (ISCC)

ISCC is a holistic biomass standard that has an emphasis on greenhouse gas emissions. It is distinct from the other voluntary sustainability standards covered in this section in that it was fully financed by a government agency (German Federal Ministry of Food, Agriculture and Consumer Protection via the Agency for Renewable Resources, or FNR) until 2012, when it became an independently operating organization (ISCC, n.d.-a). ISCC was one of the first organizations to have its standard approved under EU-RED in 2011 and is an important source of sustainable biofuels to the European market, with over 2,000 valid certificates issued by December 2013 (ISCC, 2013). The ISCC Chain of Custody recognizes all other EU-RED approved systems (including Bonsucro, RSB, RTRS and RSPO) (SCS Global Services, n.d.), and membership fees to the standard have been observed at a fraction of those of other sustainable biofuel standards (e.g., Bonsucro, RSB and RTRS) (Pacini & Assunção, 2011). Although no numbers are published by ISCC regarding total volumes of biofuels produced under the standard, estimates for double certification with ISCC among other standards are high, perhaps not surprising given the standard's recognition of other Chain of Custody channels. For instance, one industry expert reported that in 2012, 1.5 million metric tons to 2.0 million metric tons of palm oil had been certified under both ISCC and RSPO and sold as ISCC certified (J. Kees Vis, Unilever, personal communication, December 13, 2013).

TABLE 6.3 EU BIOETHANOL CONSUMPTION DIFFERENTIATED BY FEEDSTOCK AND MAIN FEEDSTOCK REGIONS, 2009–2010.

Crop	2009 (1,000 mt)		2010 (1,000 mt)	
Wheat	European Union	840	European Union	581
	Ukraine	10	Switzerland	25
	Canada	3	Ukraine	6
	United States	1	Mozambique	4
	Other	2	Other	8
	Total	**856**	**Total**	**623**
Maize	European Union	326	European Union	344
	United States	19	United States	122
	Ukraine	5	Brazil	8
	Serbia	4	Ukraine	7
	Other	2	Other	9
	Total	**356**	**Total**	**490**
Sugar beet	European Union	447	European Union	733
	Other	1	Other	2
	Total	**448**	**Total**	**735**
Sugar cane	European Union	64	European Union	0
	Brazil	269	Brazil	234
	Guatemala	33	Peru	26
	Pakistan	20	Bolivia	20
	Other	98	Other	56
	Total	**484**	**Total**	**336**
Others	**All**	**100**	**All**	**262**

Source: van de Staaij et al., 2012.

TABLE 6.4 RSB CERTIFICATES, 2012.

Participating operator name	Country	Operator type	Feedstock type	Biofuel type
Shoalhaven Starches Pty Ltd (Manildra Group of Companies)	Australia	Biofuel producer	Waste starch from wheat processing	Ethanol
Maple Biocombustibles S.R.L.	Peru	Biofuel producer	Sugar cane	Ethanol
Global Clean Energy	Mexico	Feedstock producer	Jatropha curcas	Biodiesel
Dynamic Fuels LLC	United States	Biofuel producer	Wastes, animal by-products, greases and vegetable oils	Renewable diesel/ biojet mix
Piedmont Biofuels Industrial, LLC	United States	Biofuel producer	Used cooking oil	Biodiesel
Addax Bioenergy Sierra Leone (SL) Limited	Sierra Leone	Feedstock producer	Sugar cane	Ethanol
SkyNRG	The Netherlands	Biofuel producer	Used cooking oil and other feedstocks	Supply chain and logistics for biokerosene/jet fuel

Source: RSB Services, 2011.

Roundtable on Sustainable Biomaterials (RSB)[2]

The RSB certification system was launched in March 2011 as a set of comprehensive sustainability criteria that allows eligible producers to show buyers and regulators that their products have been obtained without harming the environment or violating human rights. The RSB was originally launched as a partnership between the WWF, British Petroleum, Shell Oil, the Brazilian Sugarcane Industry Association, Petrobras and Bunge, among other organizations, to develop a series of principles and criteria for sustainable biofuels.

Since this time, the RSB has issued seven certificates across six countries (see Table 6.4), covering six biofuel producers and one feedstock producer. These seven certified operators use feedstocks such as wheat starch, sugar cane, jatropha, used cooking oil, wastes, greases and animal by-products (RSB Services, 2011). No data on the volumes of stocks produced or sold was available at the time of writing. In April 2013, the RSB changed its scope to include biomass used in all bio-based products.

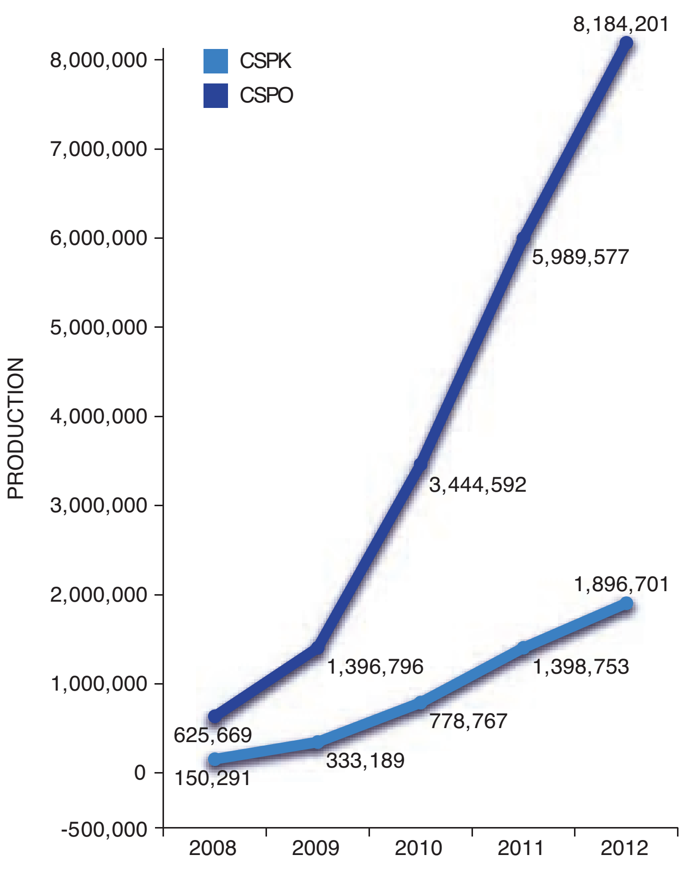
2 Formerly the Roundtable on Sustainable Biofuels.

Roundtable on Sustainable Palm Oil (RSPO)

RSPO-compliant palm oil has grown at 1,200 per cent over the last four years to cover 15 per cent of global production in 2012. Most of this certified production is sourced from Indonesia and Malaysia, but countries such as Papua New Guinea and Brazil also represent important suppliers for RSPO-compliant palm oil.

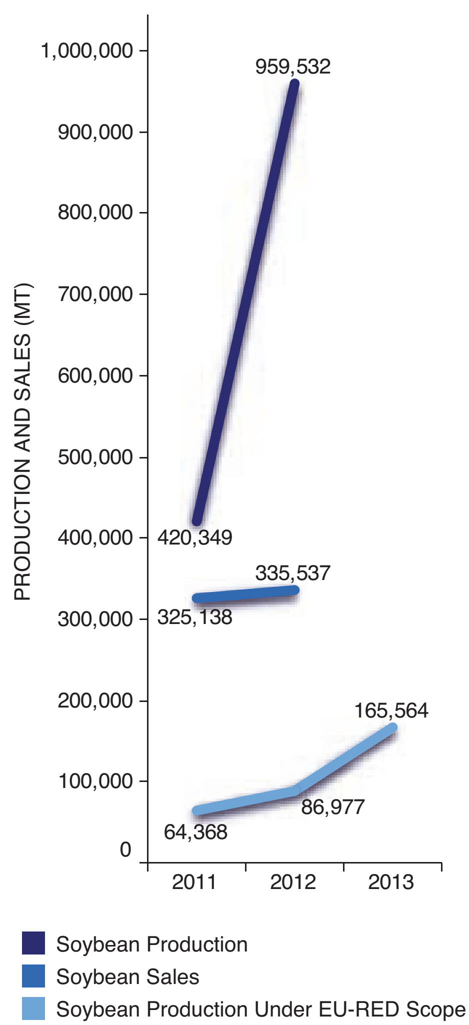
The RSPO Reduction Emissions Directive (RSPO RED) for biofuels supply into the European Union includes additional production and supply chain criteria, such as not allowing palm oil from plantations established after 2008 and only allowing segregated or mass-balance chains of custody and not book and claim. RSPO RED was approved by the European Commission in November 2012, and Neste Oil received the first RSPO RED supply chain certificate for its biofuels supply into the European Union in November 2013 (RSPO, 2012d, 2013). As of 2012, none of the production of RSPO-compliant palm oil (Figure 6.2) was imported under EU-RED, but represents an important potential supply base to the 1.9 million metric tons of palm oil used as biodiesel feedstock in the European Union in 2012 (up from 0.4 million metric tons in 2006) (Gerasimchuk & Koh, 2013). Certified palm oil under RSPO (not necessarily RSPO RED, however) represents over four times the feedstock used for biodiesel production in the European Union.

FIGURE 6.2 RSPO, CERTIFIED SUSTAINABLE PALM OIL AND CERTIFIED SUSTAINABLE PALM KERNEL PRODUCTION, 2008–2012.



Source: S. Yaacob, RSPO, personal communication, April 15, 2013.

FIGURE 6.3 RTRS SOYBEAN PRODUCTION (TOTAL AND UNDER EU-RED SCOPE) AND SALES, 2011–2012.



Source: B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

Round Table on Responsible Soy (RTRS)

RTRS production volumes more than doubled from 2011 to 2012, from 420,000 metric tons to 960,000 metric tons, accounting for 0.4 per cent of global soy production by 2012 (see Figure 6.3). Over 2011 and 2012, sales remained stable—around 330,000 metric tons, accounting for 0.1 per cent of global production.

The RTRS EU-RED scheme was approved by the European Commission in July 2011 (RTRS, 2011) and includes additional criteria such as greenhouse gas reduction and carbon saving. Of the 960,000 metric tons of soybeans produced under the RTRS standard in 2012, about 90,000 were certified under the RTRS EU-RED scope in 2012 (9 per cent of total certified production), and 166,000 metric tons in 2013 (17 per cent of 2012 volumes).[3] All RTRS EU-RED production occurred in Argentina (J. Frojan, RTRS, personal communication, September 27, 2013), the world's largest biodiesel exporter. In 2010, there were about 2.5 million metric tons of soybeans consumed for biodiesel imports into the European Union, of which the supply of 2013 RTRS EU-RED certified soybeans accounted for about 7 per cent.[4]

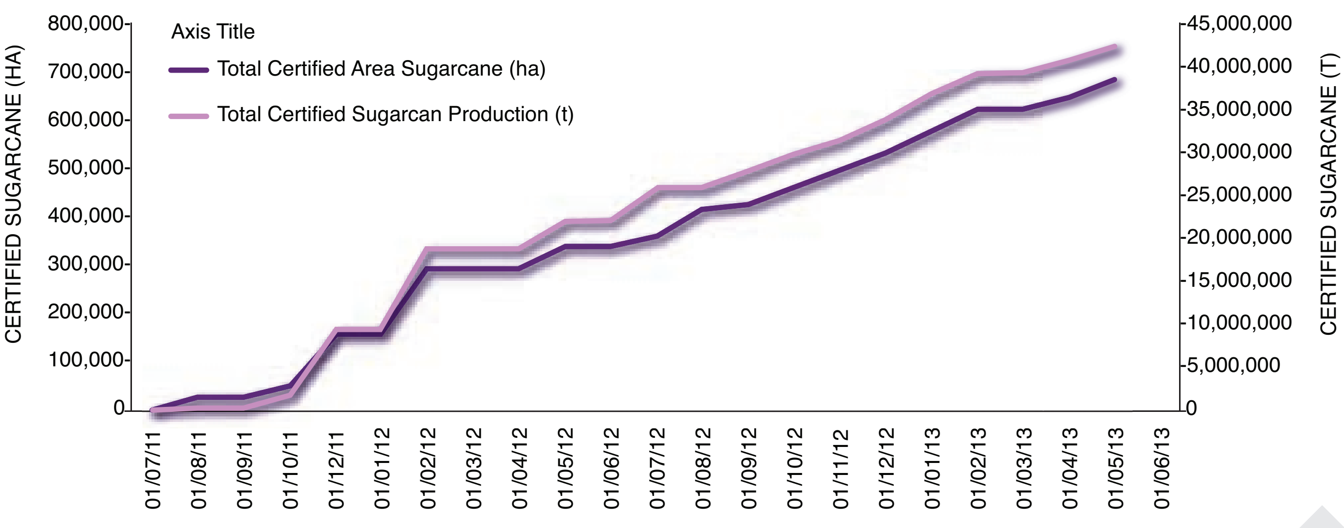
Bonsucro

Bonsucro certified sugar cane has grown from nothing in early 2011 to over 700,000 hectares of sugar cane area by mid-2013 (see Figure 6.4), or 2.9 per cent of global sugar cane surface. From this certified area, 3 million metric tons of cane sugar and 2.2 million litres of ethanol were produced.

Bonsucro EU is a standard specifically developed for certification of sugar cane ethanol to be placed on the European market and includes additional criteria regarding, among other things, the conservation of areas that provide ecosystem services in critical situations (e.g., watershed protection) and the restoration of degraded land (Bonsucro, 2013b). The standard was approved by the European Commission in July 2011 (Bonsucro, 2013b). In 2013 there was enough Bonsucro-compliant supply (not necessarily Bonsucro EU supply, however), to cover EU sugar cane feedstock used for bioethanol about 86 times (45.7 million metric tons of Bonsucro-compliant sugar cane versus 534,000 metric tons used by the European Union for bioethanol feedstock in 2010) (Bonsucro, 2013d; van de Staaij et al., 2012).

3 At the time of personal communication with J. Frojan.
4 2010 volumes of soybeans consumed for EU biodiesel (van de Staaij et al., 2013).

FIGURE 6.4 BONSUCRO SUGAR CANE PRODUCTION, AREA AND VOLUME, 2011–2012.



Source: Bonsucro, 2013d.

6.4 PRICING AND PREMIUMS

From the certificate holder to the first buyer, biofuel feedstock premiums were reported at between 0 and 1 per cent (RSPO book and claim) to nearly 6 per cent (RSPO segregated). Although RSPO doesn't formally publish pricing data, some pricing data are available from RSPO's Chain of Custody services, eTrace (a service provided by UTZ), as well as from the RSPO's official broker for the trade (book and claim) of sustainable palm oil certificates, GreenPalm.[5] GreenPalm book and claim premiums range from US$0 to $10 per metric ton, while RSPO mass balance premiums vary between US$10 and $25 per metric ton and RSPO segregated premiums vary between US$15 and $50 per metric ton (WWF, 2012). UTZ Certified is the organization that manages RSPO's mass balance and segregated systems. Based on a 2012 to 2013 average price of $990 per metric ton, the premiums can be expressed in percentage terms as follows: between 0 and 1.0 per cent for GreenPalm book and claim premiums, between 1.0 and 2.5 per cent for RSPO mass balance premiums, and between 1.5 and 5.0 per cent for RSPO Segregated premiums.[6]

5 GreenPalm allows RSPO-certified growers to convert their certified oil into GreenPalm certificates, which are then put up for bids on the GreenPalm market. Product manufacturers who use palm oil or palm-based derivatives in their products then place offers for these certificates. These certificate purchases allow manufacturers to offset their actual use of conventional palm oil with the equivalent amount of certificates and thus be able to claim that their company or products support the production of RSPO CSPO (GreenPalm, n.d.). The full value of each certificate is then sent back to the RSPO producer, who can then reinvest this premium to help tackle the environmental and social issues created by the production of palm oil.

6 UTZ Certified provides the IT platform of traceability to the RSPO relating to physical trades.

A recent KPMG (2013) report suggests that a realistic and conservative premium for RTRS soy would be around US$1.5 per metric ton of certified soybeans (or 0.3 per cent[7]). For certified soy meal, the report suggests that the premiums paid are closer to US$3 to $4 per metric ton (or 0.7 to 0.9 per cent[8]), with higher premiums for certified soy oil, as refiners in the European Union receive a tax rebate when using soy oil to produce biodiesel. This study showed that for producers larger than 2,500 hectares that are able to sell their full crop as RTRS certified, the average payback period for becoming RTRS certified is as little as three years in countries like Argentina and Brazil but ranges up to 4.6 years for medium-sized producers far from certification.

More generally, one industry expert has estimated that premiums fall within the range of €1.50 to €5 per metric ton (0.5 to 1.5 per cent[9]) for RTRS (G. Van der Bijl, Solidaridad, personal communication, 2013). Of course, premiums are not the only incentive for certified biofuel (or biofuel feedstock) production, including expanded market access (especially to the European Union), improved agricultural practices resulting in environmental and yield benefits (both present and future), and improved safety measures.

7 Percentages calculated based on Chicago Soybean Meal Futures price of US$490 per metric ton in September 2013.

8 Percentages calculated based on Chicago Soybean Meal Futures price of US$490 per metric ton in September 2013.

9 To calculate percentage premium, these figures were converted to U.S. dollars using the EUR/USD exchange rate of 1.38 on October 29, 2013.

6.5 CHALLENGES AND OPPORTUNITIES

Biofuels sustainability will be crucial to ensuring that the expansion of the biofuels sector does not lead to adverse social and environmental effects. Public policies will be the main drivers behind the sector's development over the next decade and will affect both the amount of biofuels that are produced and consumed and the sustainability intensity of the feedstocks that are being used to produce these biofuels. With the recent evidence suggesting that many of the biofuel feedstocks are less sustainable than initially thought, the biofuels policy landscape is currently undergoing a transformation, and the coming years will tell how these sustainability concerns will impact the sector. One of the key challenges facing voluntary sustainability initiatives in particular will be the degree to which they can play a role in ensuring that their systems address or compensate for some of the larger macro issues related to biofuel sustainability—such as land transformation, relative greenhouse gas emissions and food security. Regardless of these challenges, the current policy environment is sufficiently well rooted such that one can expect significant continued growth within the voluntary sustainability standard biofuels sector in the coming years.

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7 COCOA MARKET

Cocoa (*Theobroma*[1] *cacao*) is harvested primarily for its purplish beans, which are used to create cocoa liquor, butter and powder, the primary ingredients in chocolate. The origins of the crop are rooted in the Americas, where the Mayans and Aztecs consumed the beans in the form of xocolatl, a cold chili pepper–flavoured cocoa drink. Today, however, most of the world's cocoa is produced in Africa (72 per cent in 2012), specifically in Côte d'Ivoire and Ghana, which alone account for 58 per cent of global production. Cocoa is unique in that it remains a major agricultural commodity produced almost entirely by smallholders.[2] Cocoa is harvested by 5 to 6 million cocoa farmers worldwide, and between 90 and 95 per cent of the production is from smallholders on 3 hectares of land or less (World Cocoa Foundation (WCF), 2012) (see Table 7.1).

In 2012, 4.1 million metric tons of cocoa beans were produced in more than 50 countries on 0.2 per cent of the world's agricultural land, for a total export value of US$8.4 billion (Food and Agriculture Organization of the United Nations (FAO), 2013). This is a small fraction of the total value of the chocolate market, estimated at more than US$83 billion.[3] Due to the concentration of large cocoa buyers and in some cases taxation and fixed low payments to farmers by national cocoa marketing bodies or other intermediaries, farmers may receive as little as 40 per cent of the world market price (Ryan, 2011). In addition to poverty, however, child and forced labour, deforestation, pesticide use and biodiversity maintenance are all important sustainability issues facing the sector. Major sustainability standards active in the sector include Organic, Fairtrade, UTZ Certified and Rainforest Alliance. Together, these standards certified an estimated 22 per cent of the world's cocoa production in 2012 (see Figure 7.1),[4] of which about one-third was sold as compliant (accounting for 10 per cent of global exports). Côte d'Ivoire, Ghana and the Dominican Republic supply the vast majority of the world's cocoa compliant with a voluntary sustainability standard. Figure 7.2 breaks this down by voluntary sustainability standard.

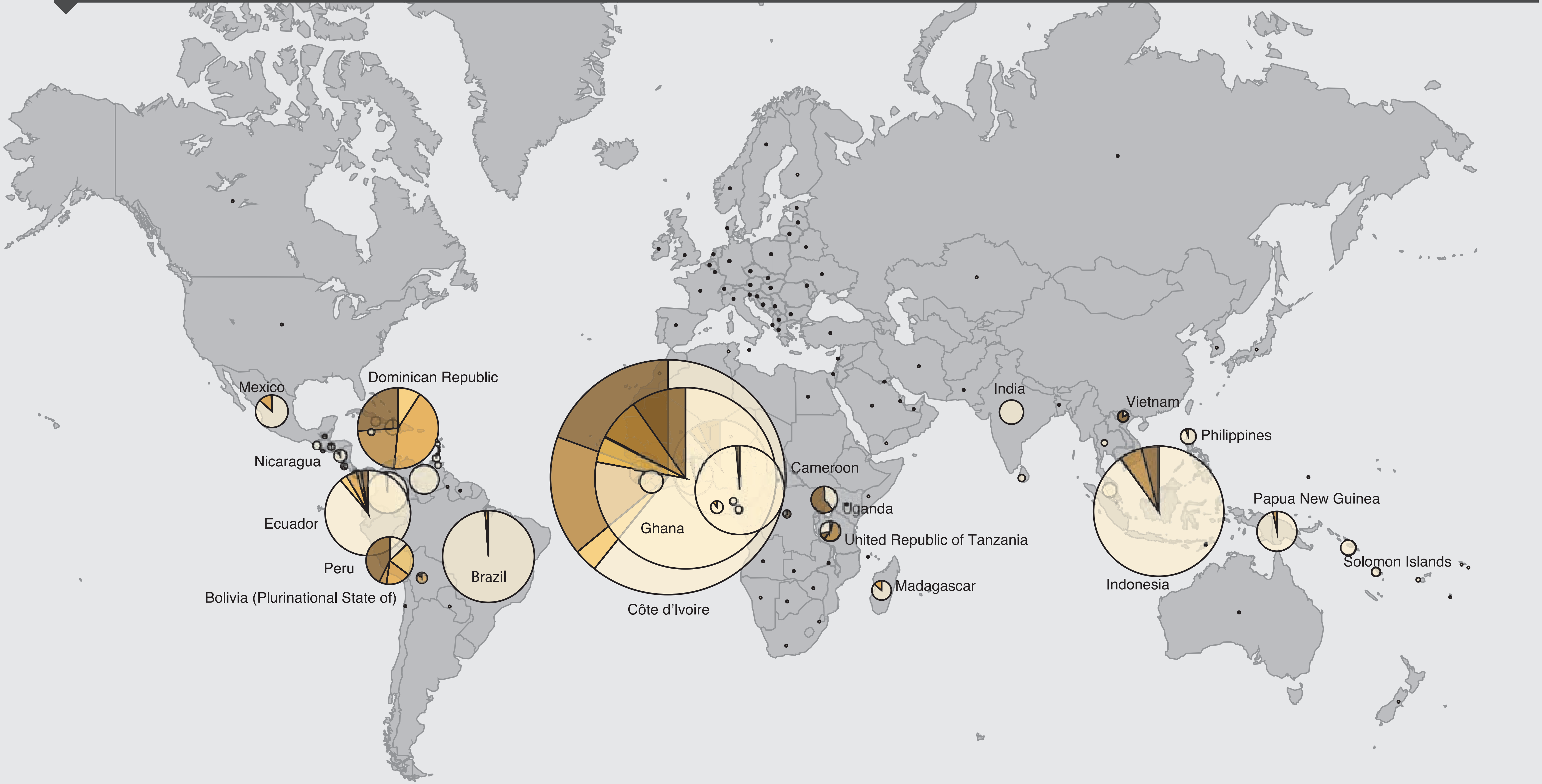
1 From Greek: "food of the gods."

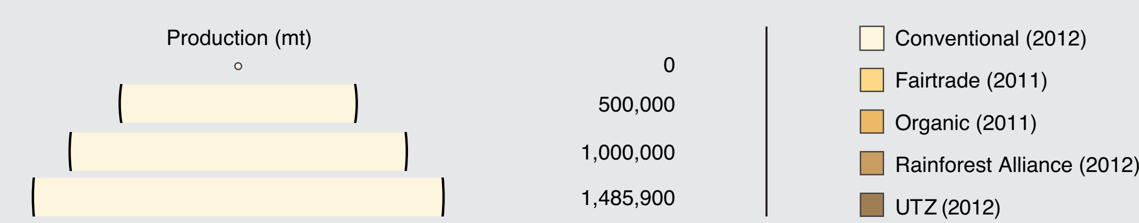
2 According to one industry expert cocoa is one of the few crops that is cheaper to grow in smallholder rather than plantation systems (Ryan, 2011).

3 As a general rule, the total value of the global chocolate market is approximately 10 times that of the value of the cocoa market itself. For example, the value of the chocolate market was estimated at US$75 billion (figure cited by Paul Davis, Federation of Cocoa Commerce Dinner, May 2009 [Ryan, 2011]) in 2008 at a time when cocoa bean exports were worth US$7.6 billion. The total value of the global chocolate market was estimated at US$83 billion in 2010 and is forecasted to grow to US$98.3 billion by 2016 (MarketsandMarkets, 2013).

4 This figure is adjusted for multiple certification. Globally, the minimum amount of certified production, assuming 100 per cent overlap in every country, is about 14 per cent. To make the multiple certification adjustment, there is an assumed 50 per cent overlap in each country, which roughly falls in line with available data. Forty-four per cent of UTZ Certified cocoa was double-certified as Rainforest Alliance or Fairtrade in 2012 (UTZ, 2013c).

FIGURE 7.1 CONVENTIONAL VERSUS STANDARD-COMPLIANT COCOA PRODUCTION, 2011/2012.





Circle size represents total production volumes, and coloured slices represent volumes of standard-compliant cocoa production. Cocoa compliant with a voluntary sustainability standard represents a significant share of supply, at 22 per cent. Côte d'Ivoire, Ghana and the Dominican Republic are the largest producers of standard-compliant cocoa, while Côte D'Ivoire, Ghana and Indonesia are the largest producers of cocoa globally. In the major producing countries of West Africa, nearly all compliant production comes from Rainforest Alliance and UTZ (red and purple, respectively), driven in part by private sector commitments of major confectioners Mars, Ferrero and Hershey's. Sources: Fairtrade Labelling Organizations (FLO), 2012; International Cocoa Organization (ICCO), 2013b; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, Research Institute of Organic Agriculture/Forschungsinstitut für biologischen Landbau (FiBL), personal communication, August 26, 2013.

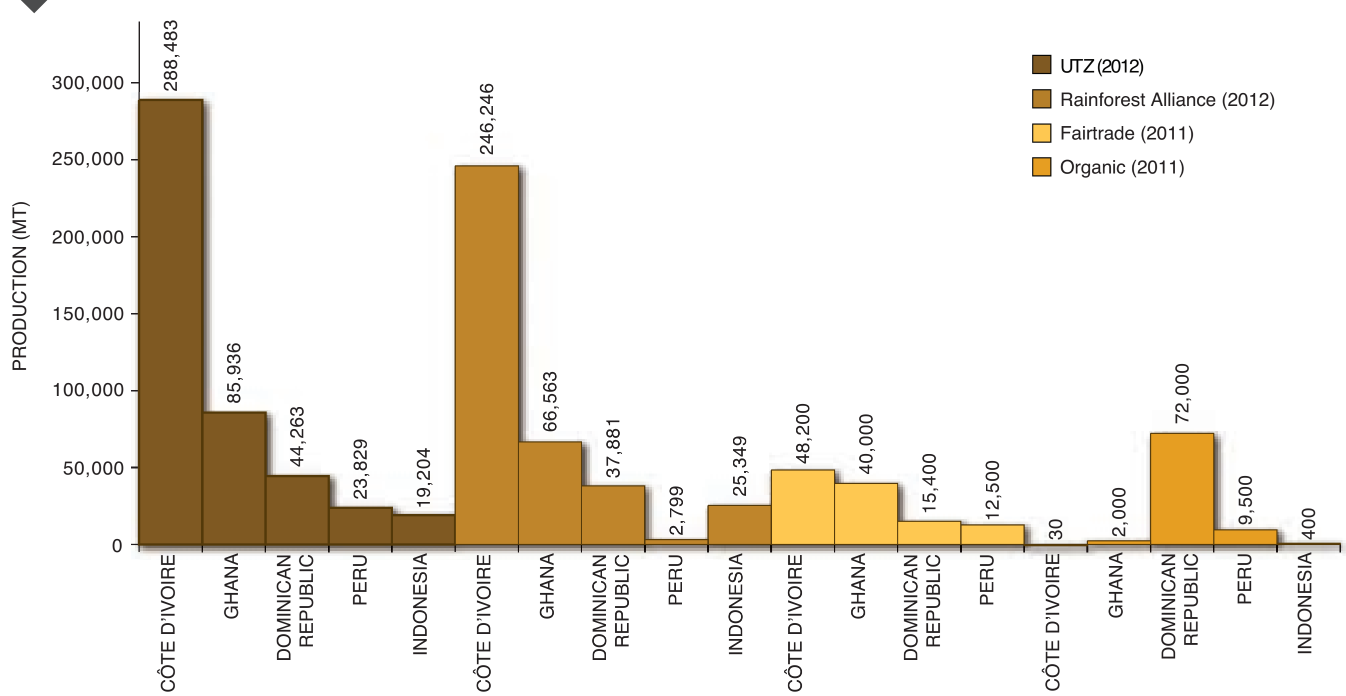
TABLE 7.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR COCOA PRODUCTION AND TRADE.

KEY STATISTICS

Top 5 producers (80% of global) (2012)	Côte d'Ivoire (36%), Ghana (22%), Indonesia (11%), Nigeria (6%), Brazil (5%)
Top 5 exporters (73% of global) (2012)	Côte d'Ivoire (37%), Indonesia (19%), Ghana (7%), Nigeria (5%), Cameroon (5%)
Top 5 standard-compliant producers (89% of global) (2011 and 2012)	Côte d'Ivoire (50%), Ghana (17%), Dominican Republic (15%), Peru (4%), Indonesia (4%)
Top 5 importers (63% of global) (2012)	Netherlands (21%), USA (14%), Malaysia (11%), Germany (11%), Belgium (7%)
Global production (2012)	4.1 million metric tons
Global exports (2012)	3.1 million metric tons (76% of production)
Trade value (2012)	US$8.4 billion
Major international voluntary sustainability standards	Fairtrade, Organic, Rainforest Alliance, UTZ Certified
Global area harvested (2011)	10 million hectares (0.2% of agricultural land)
Total number of farmers involved in cocoa production (2012)	5–6 million; 2 million in Côte d'Ivoire, Ghana, Cameroon and Nigeria
Standard-compliant production (2011 and 2012)	899,000 metric tons (22% of production)
Standard-compliant sales (2011 and 2012)	300,000 metric tons (33% of compliant production, 7% of total production, 10% of exports)
Key sustainability issues	Poverty, deforestation, biodiversity

Sources: Top 5 producers, global production: ICCO, 2013b; Top 5 exporters, trade value, top 5 importers, global exports: International Trade Centre, 2013c; Top 5 standard-compliant producers, 2011 data for Fairtrade and Organic, 2012 data for Rainforest Alliance and UTZ: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; Global area harvested: FAO, 2012a; Total farmers involved in cocoa production: Ryan, 2011; WCF, 2012; Standard-compliant production and sales, 2011 data for Fairtrade and Organic, 2012 data for Rainforest Alliance and UTZ: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 7.2 LEADING PRODUCERS OF STANDARD-COMPLIANT COCOA BY INITIATIVE, 2011/2012.



Sources: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

7.1 MARKET REVIEW

Market reach
Approximately 899,000 metric tons of cocoa production were standard-compliant in 2012 (see Figure 1.3), equivalent to 22 per cent of global production. Sales of compliant cocoa accounted for 10 per cent of exports.

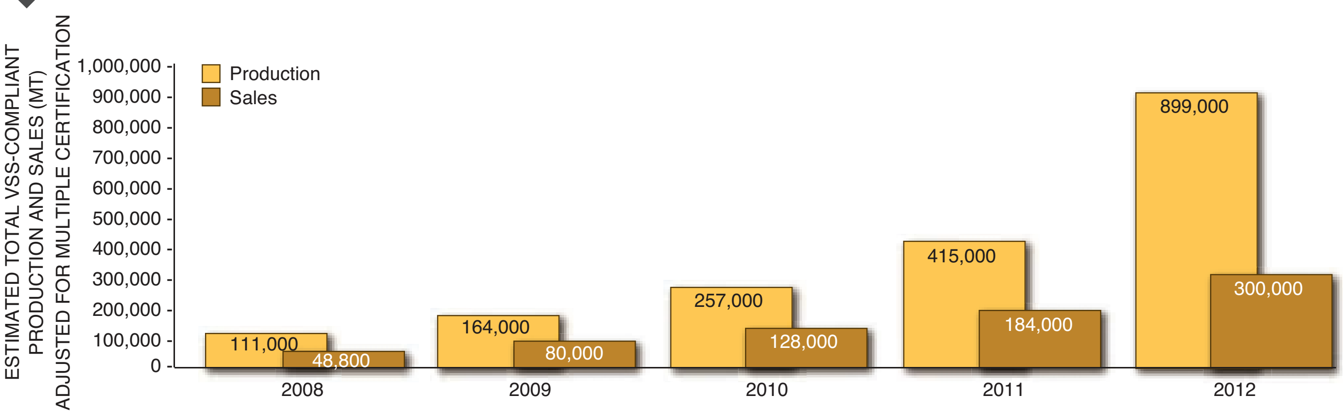
Growth
Standard-compliant cocoa production grew 69 per cent per annum from 2008 to 2012.

Regional importance
The most important producers of standard-compliant cocoa in 2012 were Côte d'Ivoire (accounting for 50 per cent), Ghana (17 per cent) and the Dominican Republic (15 per cent).

Pricing and premiums
Premiums for standard-compliant cocoa ranged from 5 per cent to 18 per cent or more in recent years, at the first point of sale. Highest premiums were observed for Organic cocoa. Lowest premiums were observed for UTZ cocoa.

Sources: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

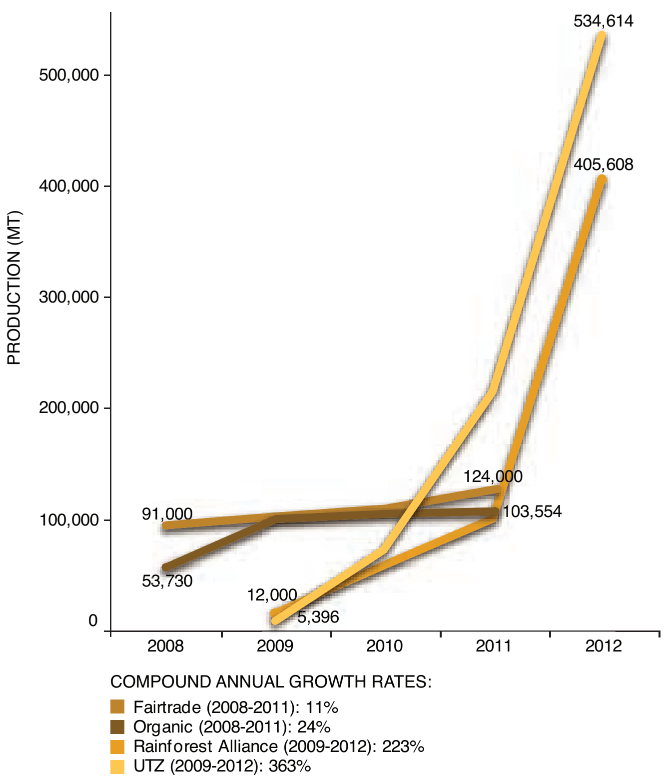
FIGURE 7.3 GROWTH IN STANDARD-COMPLIANT COCOA PRODUCTION AND SALES, 2008–2012.



Sources: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

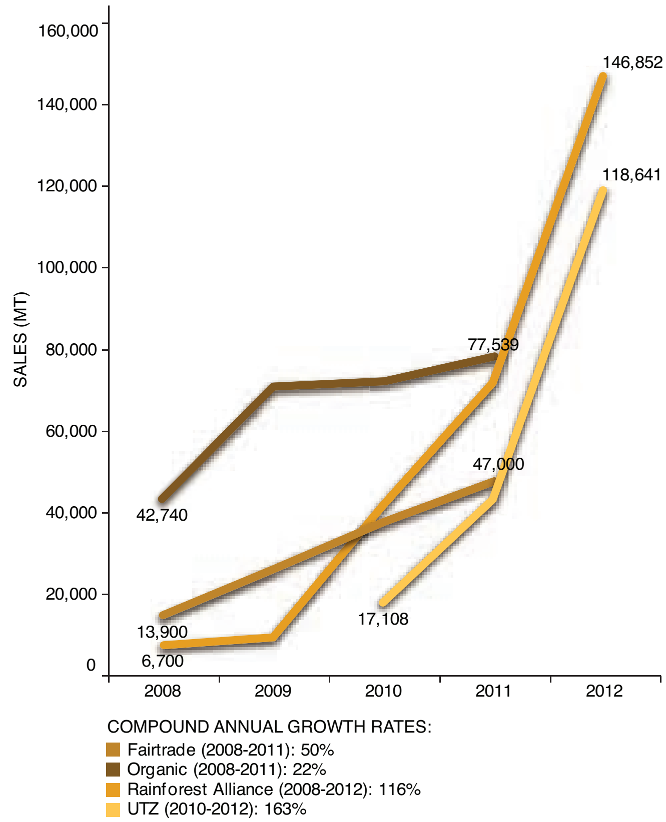
FIGURE 7.4 FAIRTRADE, ORGANIC, RAINFOREST ALLIANCE AND UTZ CERTIFIED COCOA PRODUCTION, 2008–2012.

Rainforest Alliance volumes grew heavily from 2011 to 2012, in part due to commitments and partnerships with major confectioners (S. Fadika, Rainforest Alliance, personal communication, May 5, 2013). UTZ has likewise been a part of several private sector commitments in recent years and has experienced similar growth in compliant production.



Sources: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 7.5 FAIRTRADE, ORGANIC, RAINFOREST ALLIANCE AND UTZ CERTIFIED COCOA SALES, 2008–2012.



Sources: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

7.2 MARKET DEVELOPMENT

In 2012, 22 per cent (899,000 metric tons) of the world's cocoa was produced in compliance with a global sustainability standard (adjusting for multiple certification), with one-third of compliant production actually *sold as* compliant (see Figure 7.3 and Table 7.2).[5] While certified "sustainable" cocoa has existed since the late 1980s under Organic certification schemes, it remained a niche product until the late 1990s, when reports by UNICEF and others revealed the widespread use of forced labour in African cocoa production (U.S. Department of State, 2011).[6] The attention brought to the issue through these revelations was largely responsible for the establishment of the WCF in 2000,[7] the Harkin–Engel Protocol in 2001,[8] and the International Cocoa Initiative (ICI) in 2002.[9]

While neither the ICI nor the WCF has developed its own voluntary standard, the overall momentum behind the child labour issue partially explains the rapid growth of the industry over the past decade, which has also been manifested through a series of commitments by major cocoa manufacturers to source certified cocoa from existing sustainability standards. Notably, Hershey's, Ferrero and Mars, who alone account for 45 per cent of the global confectioners market, have committed to sourcing 100 per cent of their supply sustainably by 2020 (see Halliday, 2009; Nieburg, 2012a, 2012b).

These commitments, some of the biggest in any sustainable agriculture market, have occurred in the context of a market with two major socially unsustainable issues: child and forced labour. There is ongoing debate and research regarding the extent to which some of the child labour on cocoa farms can provide relatively improved living conditions for certain children coming from especially impoverished conditions, but the fundamental problem facing sustainability within the sector, and a cause of much of this child or slave labour, is extreme poverty. In many cases, cocoa producing regions are already poor rural areas of the global South, but poverty can be exacerbated by several forces acting against producers, including:

- A small number of very large downstream processers (Cargill, ADM and Barry Callebaut account for 41 per cent of global processing [Ryan, 2011]) and confectioners (Mars, Molendéz International, Nestlé, Hershey's and Ferrero accounted for 89 per cent of the confectioner's market in 2012 [ICCO, 2013a]; see Figure 7.6) limiting the number of distinct market opportunities for producers.
- Low levels of value-added processing occurring within producer organizations and/or countries.
- Domestic marketing boards at times extracting a significant portion of the international price to pursue their own activities (which may or may not positively impact producers).[10]

While sustainability standards can help ensure that there is no child labour occurring on certified farms through monitoring, auditing and certification programs, they can also play a number of other important roles in the promotion of sustainability within the cocoa sector:

- One factor that severely limits producer bargaining power throughout the cocoa supply chain relates to the systemic absence of producer organization (Ryan, 2011). Sustainability standards promote producer consolidation and in themselves may offer a form of producer representation in the marketplace. In some cases, compliance with voluntary sustainability standards can help enable access to technical assistance linked to sustainability programs.
- Sustainability standards may help optimize fertilizer and pesticide use, which can be beneficial to producers who are not yet optimizing their yields. Disease and pest management are major factors influencing the cocoa sector (ICCO, 2013c), and can have massive impacts on yields. Yields in West Africa, for example, can be as low as one-tenth of what experts say producers should be able to achieve (e.g., 0.13 metric tons per hectare versus 1.3 metric tons per hectare) (Ryan, 2011).
- Certain buyers may pay premiums, and compliance with a voluntary sustainability initiative may help producers expand to new markets through increased differentiation.

Cocoa certification can be traced back to the Fairtrade and Organic certification systems. The first Organic chocolate was marketed in 1989 (Pay, 2009), around which time fairly traded cocoa began arriving on the market through third world shops in the European Union. The first chocolate bar was certified Fairtrade

5 The remaining 67 per cent would be sold as conventional due either to a lack of buyers or to logistical reasons. Note that the only other commodity market with a higher percentage of total production compliant with one or another global sustainability standard is the coffee sector, with an estimated 40 per cent of global production compliant with a voluntary sustainability standard.

6 The report asserted, "15,000 Malian children work on Ivoirian cocoa and coffee plantations. Many are under 12 years-of-age, sold into indentured servitude for $140 (100,000 FCFA), and work 12-hour days for $135 to $189 (95,000 to 125,000 FCFA) per year" (Sec 6.f).

7 WCF was established to promote broad-based sustainability in the cocoa supply chain through the use of public-private partnerships (see WCF, 2013b).

8 The Country Reports on Human Rights Practices for 2000, Côte d'Ivoire (U.S. Department of State, 2001) provoked a convening of industry with government representatives and the eventual signing of the Protocol for the Growing and Processing of Cocoa Beans and their Derivative Products in a Manner that Complies with ILO Convention 182 concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour" (which came to be known as the Harkin–Engel Protocol). The Harkin–Engel Protocol included, among other things, binding commitments by industry to form an independent organization to address child and forced labour issues within the industry, as well as the implementation of global standards to prevent such practices in their supply chains.

9 With the explicit mandate to facilitate cooperation toward the elimination of the worst forms of child labour (ICI, 2010).

10 Côte d'Ivoire has now semi-liberalized its market, although producers face many of the same issues as before. One article from the Financial Times cited 40 per cent of the international price of Ivorian cocoa goes to bureaucrats (Blas, 2010). Ryan (2011) reports that in 2011 in Ghana, farmers received 50 per cent of the world market price.

in 1994, while 1998 saw the first Rainforest Alliance certified cocoa. Each of the standards sought to address specific issues related to sustainability in the sector[11] and, as such, generally served niche markets until the establishment of the WCF, Harkin–Engel Protocol and the ICI in the early 2000s. UTZ Certified cocoa, on the other hand, fueled by growing interest from mainstream industry, first became available in 2009 (J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013). Prior to 2009, the majority of standard-compliant cocoa was produced in Latin America (primarily the Dominican Republic, Peru and Mexico) (Potts et al., 2010).

Since 2009, the supply of standard-compliant cocoa has not only grown significantly, but has also transitioned from Latin America to West Africa (primarily Côte D'Ivoire and Ghana). In 2009, Latin American countries accounted for 48 per cent of total compliant production. By 2012, Latin America accounted for less than 25 per cent of standard-compliant production. Over the same period West Africa's cocoa production grew from 3 to 72 per cent of total compliant cocoa supply.[12]

Production volumes certified under UTZ and Rainforest Alliance have shown the most growth since the 2009 season, with volumes growing at average annual rates of 363 per cent and 223 per cent, respectively (see Figure 7.4). These standards also currently certify a significant proportion of their beans from Côte d'Ivoire and Ghana (70 per cent for UTZ certified and 77 per cent for Rainforest Alliance in 2012). Seventy-one per cent of Fairtrade certified production also came from these two countries in 2012. Organic is the only certification that continues to source the majority of its production from Latin America, with 70 per cent of Organic production coming from the Dominican Republic, and Peru (9 per cent), Ecuador (8 per cent) and Mexico (3 per cent) rounding out 90 per cent in 2011.

Between 2011 and 2012 sales of compliant cocoa grew from 373,000 metric tons to 843,000 metric tons, or by 126 per cent over the year, a reflection of the beginning of implementation of several sustainable sourcing partnerships. Sales of compliant production were similar across voluntary sustainability standards in the 2011 and 2012 seasons, at between 47,000 metric tons (Fairtrade) and 146,000 metric tons (Rainforest Alliance) (see Figure 7.5). This is in contrast with production, which varied more widely during the same time period, ranging from an estimated 103,000 metric tons (Organic) to 535,000 metric tons (UTZ). Notwithstanding the rapid growth in both production and sales, the percentage of total compliant production being sold as compliant (i.e., market demand as a percentage of production) has actually declined since 2010, moving from 49 to 33 per cent of total production in 2012, perhaps not surprisingly as industry ramps up production in expectation of further demand in coming years.

Moving forward, the sector will likely grow and continue to be heavily influenced by private sector sourcing commitments and corresponding partnerships with voluntary sustainability standards. Mars, Ferrero and Hershey's have each committed to sourcing 100 per cent sustainable cocoa by 2020, and represent approximately 38 per cent of the global confectioner's market (in terms of dollar sales). Other key companies within the supply chain, including Nestlé and Cargill, have also launched sustainable sourcing initiatives, albeit without making public commitments on volumes. UTZ forecasts that it will sell 375,000 metric tons of certified cocoa in 2015, which alone would nearly double the size of the market in 2012 (300,000 metric tons sold as compliant under all voluntary sustainability standards in 2012, of which 119,000 metric tons were compliant under UTZ). Organic area under conversion (a three-year process) is also large, at 220,000 hectares; this puts projected three-year growth in Organic production at around 110,000 metric tons, or 3 per cent of global production.[13]

Although production is currently outpacing demand, it is expected that sales will begin to close the gap on sustainable production as low-hanging opportunities for certification become increasingly scarce. In particular, it remains unclear how sustainable sourcing might affect more intensive full-sun harvesting practices applied for much of the bulk forastero cocoa, which constitutes the predominant input into many mainstream confectioners and may require more significant investments for transition to sustainable production (Bryce, 2012; Ruf, 2011).

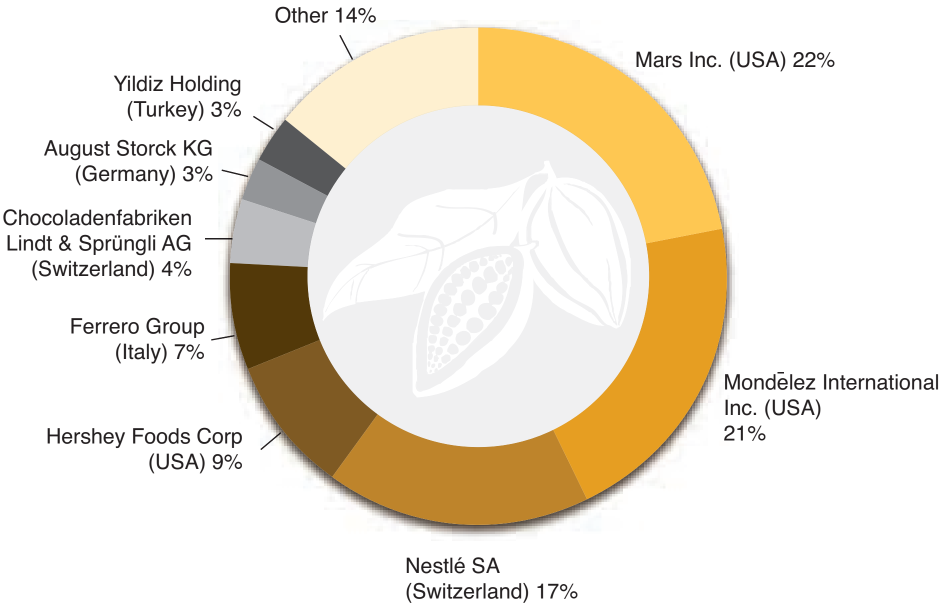
11 Roughly speaking, this could be captured by the following descriptions: Organic: soil and farm health, biodiversity, closed nutrient cycles, preventive measures against pest and diseases, no chemical inputs like fertilizers and pesticides; Fairtrade: poverty reduction; Rainforest Alliance: environmental protection. Today, each of these initiatives has developed a considerably wider scope. See Section 2.1 and Section3.5.

12 Notwithstanding the change in relative distribution of production, the total volume of standard-compliant cocoa produced in Latin America has continued to grow, from about 50,000 metric tons in 2009 to 192,000 metric tons in 2012 (adjusting for multiple certification). It should be noted that due to the disease propensity of African full-sun varietals, it can be difficult to cultivate African cocoa under Organic certification, which is why almost all Organic production continues to be sourced from Latin America (Ryan, 2011). Moreover, Latin America's comparative advantage in the production of fine and aromatic cocoa (especially criollo-related varietals) has traditionally given it preferred access to specialty niche cocoa markets. It is estimated, for example, that Ecuador supplies over 50 per cent of the fine and aromatic cocoa market (Ramírez, 2011).

13 Organic production per area harvested was in the range of 0.4 metric tons to 0.6 metric tons per hectare from 2008 to 2011.

FIGURE 7.6 TOP GLOBAL CONFECTIONERY COMPANIES THAT MANUFACTURE SOME FORM OF CHOCOLATE, BY NET CONFECTIONERY SALES VALUE, 2012.

Although high concentration in the chocolate sector has historically been associated with reduced bargaining power among producers (Ryan, 2011), it also points toward the opportunity for substantial adoption of sustainable practices through a limited number of sourcing commitments.



Source: ICCO, 2013a.

7.3 MARKET PERFORMANCE

TABLE 7.2 IMPORTANCE OF VOLUNTARY SUSTAINABILITY STANDARD (VSS) COCOA PRODUCTION AND SALES RELATIVE TO THE GLOBAL MARKET.

	VSS production (mt)	VSS production market share of global production (%)	VSS production market share of global exports (%)	VSS sales (mt)	VSS sales market share of global production (%)	VSS sales market share of global exports (%)
Fairtrade	124,000	3%	4%	47,000	1%	2%
Organic	103,554	3%	3%	77,539	2%	3%
Rainforest Alliance	405,608	10%	13%	146,852	4%	5%
UTZ Certified	534,614	13%	17%	118,641	3%	4%
Global VSS production / sales (mt)(%) *adjusted for multiple certification	899,000	22%	29%	300,000	7%	10%

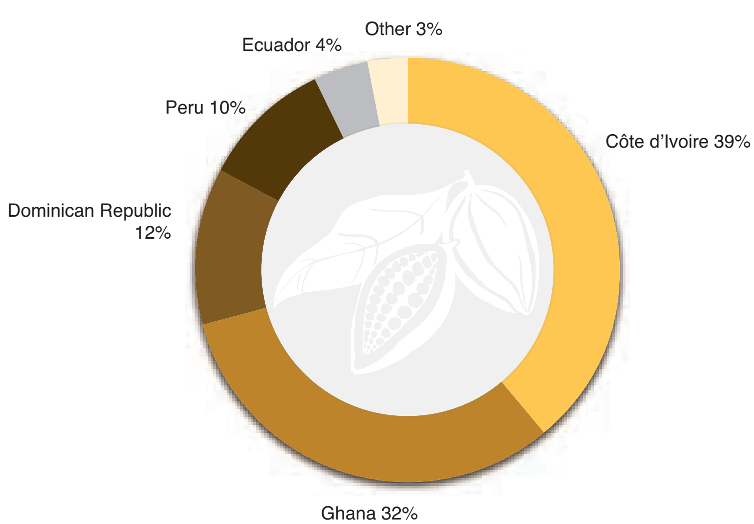
Fairtrade International

In 2011, Fairtrade production accounted for 2.8 per cent of global production, with 124,000 metric tons certified, up 36 per cent from 91,000 metric tons in 2008 (see Figure 7.8 and Table 7.4). Fairtrade reports that despite armed conflict in Côte d'Ivoire in 2011, the amount of producers certified there continues to increase and that Côte d'Ivoire recently surpassed Ghana as the largest producer of Fairtrade cocoa (FLO, 2012). The majority of Fairtrade production is concentrated in Côte d'Ivoire, Ghana, the Dominican Republic, Ecuador and Peru, with only a marginal amount (2 per cent) being produced elsewhere (see Figure 7.7).

As it does with other commodities, Fairtrade also offers double-certified Fairtrade/Organic supply. The top three producers of double-certified Fairtrade/Organic cocoa are all in Latin America, with the Dominican Republic, Peru and Ecuador accounting for about 25,000 metric tons of double-certified production. This is in accordance with Latin America's historical dominance of Organic production as well as the region's tendency to produce for specialty markets.

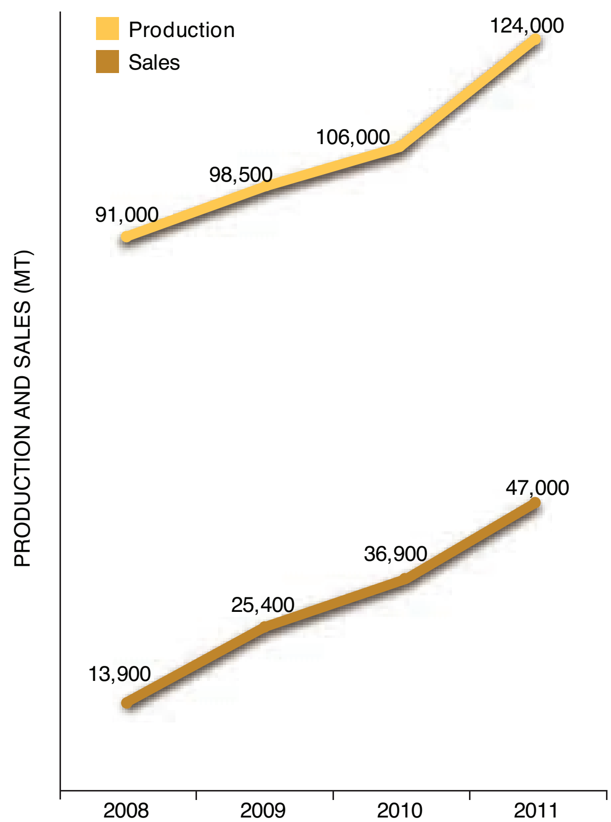
Both production and sales of Fairtrade cocoa have been growing at a relatively steady rate over the last three years, at 11 per cent and 50 per cent per annum from 2008 to 2011, respectively (see Table 7.3 for breakdown by country). Although Fairtrade cocoa sales have traditionally been far below actual production levels (averaging 15 per cent of total production in 2008), this gap has closed considerably over the past several years. Sales of Fairtrade certified cocoa were at 47,000 metric tons in 2011, up from 37,000 metric tons in 2010 (27 per cent over the year) and corresponded to about 38 per cent of certified production, which puts Fairtrade sales, as a percentage of production, slightly above the sector average of 33 per cent. Volumes of Fairtrade certified sales are expected to continue their rapid growth pattern, particularly in light of public commitments by Cadbury and Hershey's to source Fairtrade cocoa in the coming years, which will likely lead to reductions in the gap between supply and demand in the coming decade.

FIGURE 7.7 FAIRTRADE COCOA PRODUCTION BY COUNTRY, 2011.



Sources : FLO, 2011b, 2012.

FIGURE 7.8 FAIRTRADE COCOA PRODUCTION AND SALES, 2008–2011.



Sources : FLO, 2011b, 2012.

TABLE 7.3 FAIRTRADE COCOA PRODUCTION AND SALES BY COUNTRY, 2011.

	Production (mt)	Sales (mt)
Côte d'Ivoire	48,200	12,500
Dominican Republic	15,400	11,300
Ecuador	5,300	No Data
Ghana	40,000	21,800
Peru	12,500	No Data
Other	2,600	1,400
Total	**124,000**	**47,000**

Source: FLO, 2012.

TABLE 7.4 FAIRTRADE COCOA AREA HARVESTED, PRODUCTION AND SALES, 2008–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2008	115,000	91,000	13,900
2009	144,350*	98,500*	25,400*
2010	173,700	106,000	36,900
2011	215,000	124,000	47,000

*Data for 2009 were interpolated from 2008 and 2010 data.
Sources: FLO, 2011b, 2012.

International Federation of Organic Agriculture Movements (IFOAM, or "Organic")

Organic cocoa production accounted for about 2.5 per cent of the world's cocoa production in 2011, with 104,000 metric tons certified. Production is heavily concentrated in the Dominican Republic, Ecuador, Peru and Mexico[14] (see Figure 7.9 and Table 7.5). About 75 per cent of all production, or 77,000 metric tons of cocoa, was sold as certified during the same year, which is well above the average of 33 per cent across all standards involved in the cocoa sector.

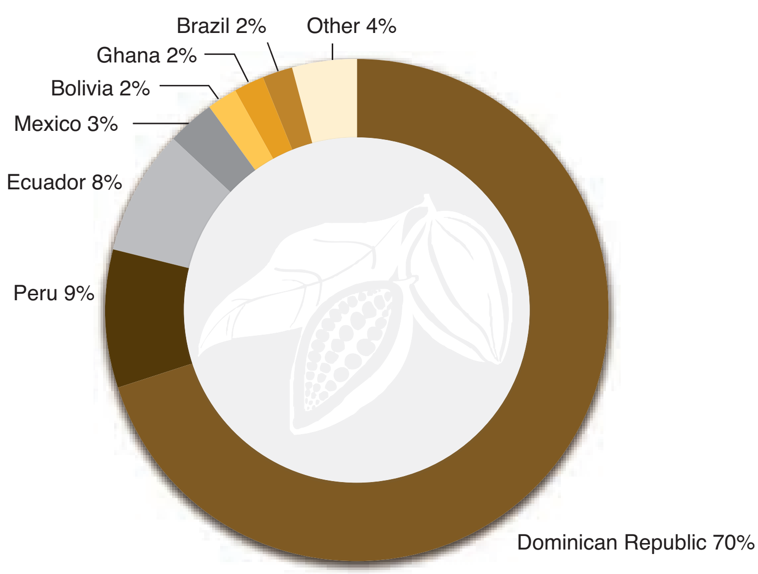
Organic cocoa production volumes have almost doubled since 2008 (see Figure 7.10 and Table 7.6), with 60 per cent of the growth coming from the Dominican Republic. Demand for Organic cocoa continues to grow, particularly within markets for fine aroma cocoa.

In light of the strict restrictions on inputs imposed by Organic certification, not all producers can be expected to benefit from the adoption of Organic practices equally—even in a context where markets are willing to pay a premium and are continuing to grow. The conversion to Organic, in addition to requiring the payment of certification-related fees, also requires an extended period of production with Organic restrictions but without access to Organic markets.[15] Similarly, full-sun varietals grown in Africa may be less amenable to Organic production practices due to their susceptibility to pests. These constraints may eventually place an upper boundary on the supply of Organic cocoa, but not in the foreseeable future.

14 There are several explanations for the strong presence of Organic cocoa production in Latin America, including the traditional use of agroforestry production systems in the region, the production of cocoa for specialty markets and the existence of more direct supply chains in the region.

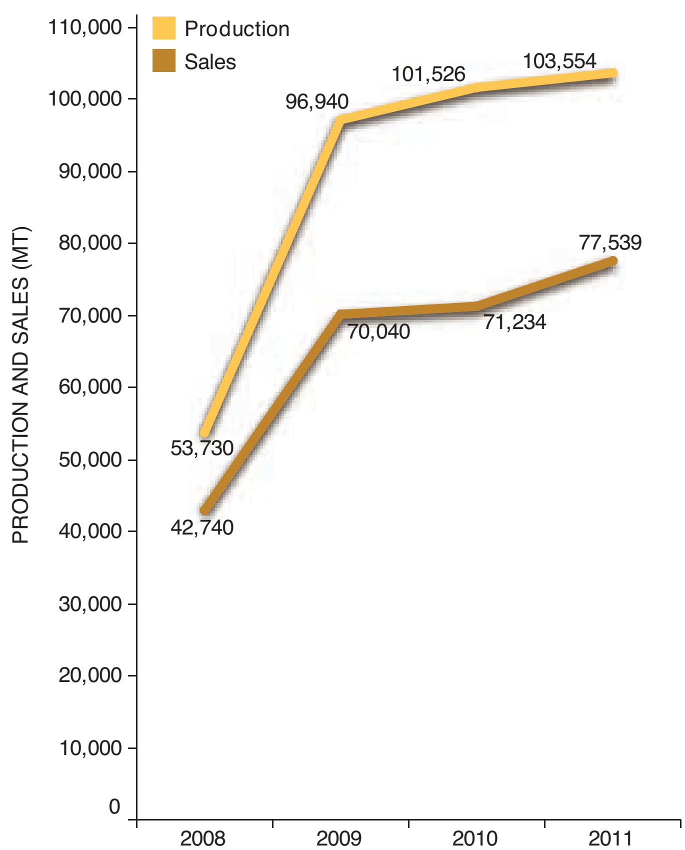
15 Organic conversion typically takes three years, which is longer than the typical conversion period under other labels.

FIGURE 7.9 ORGANIC COCOA PRODUCTION BY COUNTRY, 2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 7.10 ORGANIC COCOA PRODUCTION AND SALES, 2008–2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 7.5 ORGANIC COCOA AREA HARVESTED, PRODUCTION BY COUNTRY, 2011.

	Area harvested (ha)	Production (mt)	Sales (mt)
Belize	700	100	40
Bolivia (Plurinational State of)	4,900	2,300	983
Brazil	7,100	1,800	1,500
Colombia	150	40	35
Costa Rica	250	150	100
Côte d'Ivoire	50	30	30
Dominican Republic	94,000	72,000	50,000
Ecuador	20,000	7,800	5,400
El Salvador	100	70	50
Ghana	6,700	2,000	1,400
Grenada	60	20	15
Haiti	70	20	20
Honduras	700	24	17
Indonesia	1,200	400	300
Madagascar	1,900	1,100	800
Mexico	13,000	3,200	2,200
Nicaragua	1,400	300	200
Nigeria	4,300	900	700
Panama	No data	No data	350
Peru	12,000	9,500	9,500
Sao Tome and Principe	3,800	300	200
Togo	1,000	500	200
Uganda	No data	No data	2,800
United Republic of Tanzania	3,500	1,000	700
Total	**176,880**	**103,554**	**77,539**

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 7.6 ORGANIC COCOA AREA HARVESTED, PRODUCTION AND SALES, 2008–2011.

	Area Harvested (ha)	Production (mt)	Sales (mt)
2008	128,720	53,730	42,740
2009	197,130	96,940	70,040
2010	202,887	101,526	71,234
2011	176,880	103,554	77,539

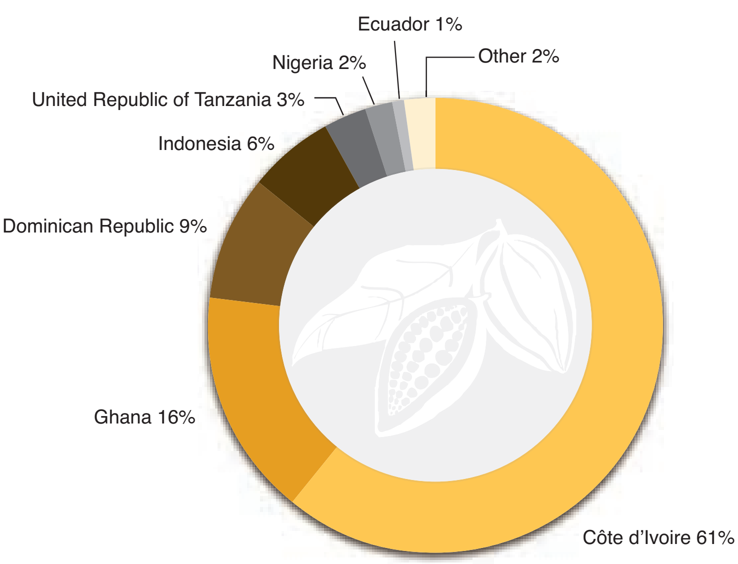
Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

Rainforest Alliance

Rainforest Alliance cocoa production accounted for about 9 per cent of global cocoa production, with 406,000 metric tons certified in 2012. Production was concentrated in Côte D'Ivoire (accounting for over 50 per cent of production), Tanzania, the Dominican Republic and Indonesia (see Figure 7.11 and Table 7.7). Rainforest Alliance's recent growth has been driven by commitments from major manufacturers that source much of their product from Africa, resulting in large increases in production certified in Africa since 2009. Hershey's, for instance, currently sources all cocoa for its Bliss and Dagoba chocolate products from Rainforest Alliance (Ramírez, 2011).

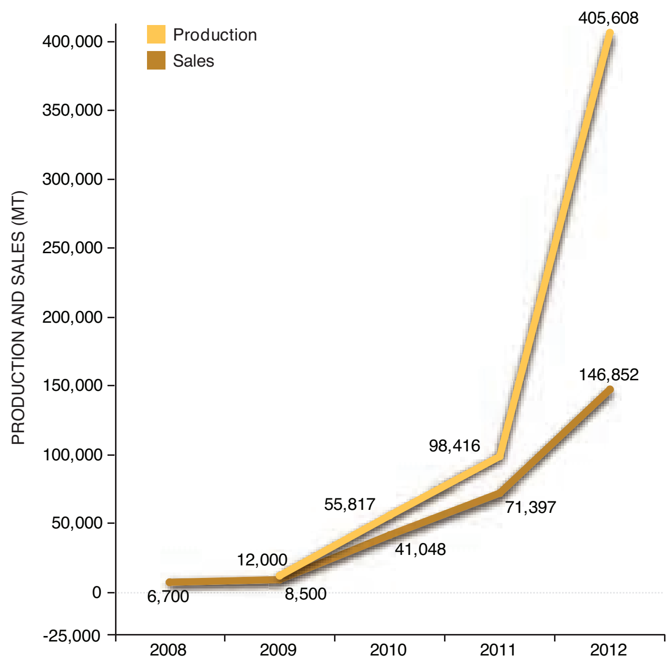
Production of Rainforest Alliance cocoa skyrocketed to 406,000 metric tons in 2012 from 12,000 metric tons in 2009, which corresponds to an average annual growth rate of 223 per cent (see Figure 7.12 and Table 7.8). Much of this increase in production came from growth in Côte D'Ivoire, where Rainforest Alliance production increased by over 200,000 metric tons from 2010 to 2012. Rainforest Alliance reported selling 36 per cent of its production as certified in 2012, down from 73 per cent the year prior, and due in large part to anticipated demand from major confectioners leading up to 2020. This is still slightly above the sector average of 33 per cent.

FIGURE 7.11 RAINFOREST ALLIANCE COCOA BY COUNTRY, 2012.



Source: E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013.

FIGURE 7.12 RAINFOREST ALLIANCE COCOA PRODUCTION AND SALES, 2008–2012.



Source: E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013.

TABLE 7.7 AREA HARVESTED AND PRODUCTION OF RAINFOREST ALLIANCE COCOA BY COUNTRY, 2012.

	Area harvested (ha)	Production (mt)
Côte d'Ivoire	409,052	246,246
United Republic of Tanzania	10,992	11,898
Dominican Republic	46,441	37,881
Indonesia	26,814	25,349
Nigeria	18,100	7,892
Peru	3,089	2,799
Ghana	11,654	66,563
Ecuador	5,393	3,223
Brazil	1,074	878
Colombia	277	194
Costa Rica	110	143
Papua New Guinea	2,372	1,295
Philippines	419	300
Togo	1,750	945
Total	**537,537**	**405,608**

Source: E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013.

TABLE 7.8 AREA HARVESTED, PRODUCTION AND SALES OF RAINFOREST ALLIANCE COCOA, 2009–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2009	36,703	12,000	8,500
2010	116,972	55,817	41,048
2011	154,075	98,416	71,397
2012	537,537	405,608	146,852

Source: E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013.

UTZ Certified

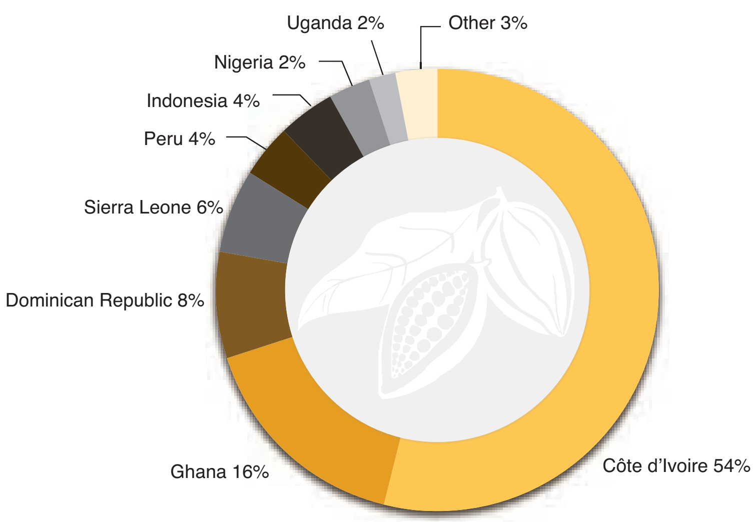
UTZ certified cocoa production accounted for about 13 per cent of global production in 2012, at 535,000 metric tons. Like Rainforest Alliance, UTZ certified cocoa production was highly concentrated in mainstream producing countries including Côte D'Ivoire and Ghana, which accounted for 70 per cent of UTZ's certified cocoa production in 2012 (see Figure 7.13 and Table 7.9).

UTZ certified cocoa production grew from 5,000 metric tons certified in 2009 to over 500,000 metric tons certified in 2012, representing an almost 100-fold increase, or average annual growth rate of 362 per cent over the four-year period (see Figure 7.14 and Table 7.10). Sales of UTZ certified cocoa, although also experiencing rapid growth, have grown, in terms of absolute volumes, by an amount similar to other standards (120,000 metric tons in 2011 and 2012) and accounted for 22 per cent of available production, which is well below the 32 per cent ratio of sales to production for the sector.

UTZ projects that in 2015 it will sell 375,000 metric tons of cocoa. This is also equivalent to about 9 per cent of the total cocoa produced in 2012.[16] Aside from expecting further growth in Côte d'Ivoire and Ghana, the initiative projects that there will also be growth in Indonesia, Nigeria, Ecuador and Peru (J. Rijkenberg, personal communication, December 23, 2013).

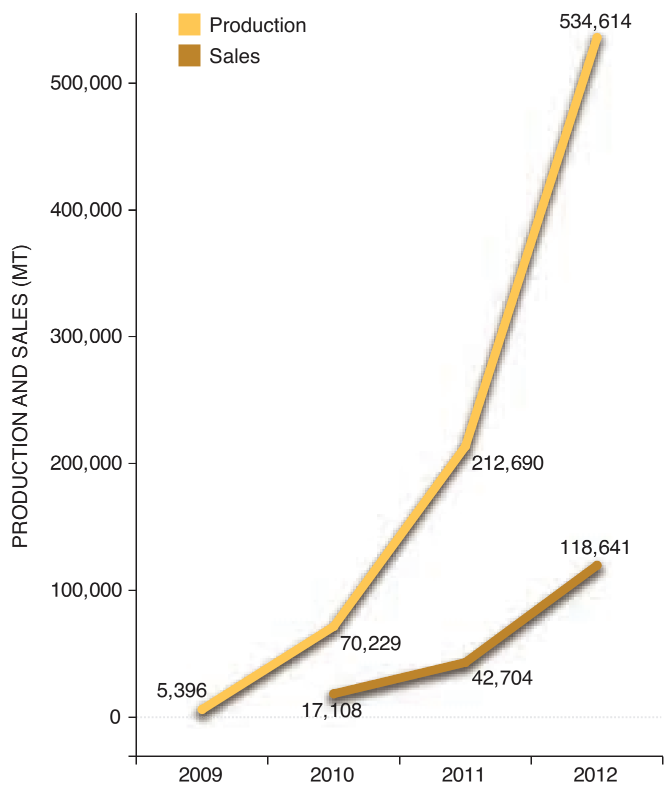
16 The 375,000 metric ton estimate is the average of UTZ's proposed range of 343,000 metric tons to 403,000 metric tons.

FIGURE 7.13 UTZ CERTIFIED COCOA PRODUCTION BY COUNTRY, 2012.



Source: J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013.

FIGURE 7.14 UTZ CERTIFIED COCOA PRODUCTION AND SALES, 2009–2012.



Source: J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013.

TABLE 7.9 AREA HARVESTED, PRODUCTION AND SALES OF UTZ CERTIFIED COCOA BY COUNTRY, 2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
Côte d'Ivoire	442,666	288,483	60,399
Ghana	127,108	85,936	15,995
Dominican Republic	58,578	44,263	7,987
Uganda	9,439	9,750	1,687
Peru	24,050	23,829	11,138
Sierra Leone	157,114	31,073	2,421
Nigeria	35,488	18,039	3,449
Indonesia	19,256	19,204	9,108
Democratic Republic of the Congo	12,830	2,258	1,596
Vietnam	1,911	1,626	1,031
Ecuador	5,024	4,841	2,331
United Republic of Tanzania	No data	2,402	1,323
Cameroon	4,735	2,799	176
Mexico	600	112	No data
Total	**898,799**	**534,614**	**118,641**

Source: J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013.

TABLE 7.10 AREA HARVESTED, PRODUCTION AND SALES OF UTZ CERTIFIED COCOA, 2009–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2009	11,261	5,396	No data
2010	122,431	70,229	17,109
2011	233,600	212,690	42,704
2012	898,800	534,614	118,641

Source: J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013.

7.4 SUPPLY

From 2008 to 2012, there was a clear trend of shifting the concentration of sustainable cocoa production from Latin America to Africa. While over 75 per cent of Rainforest Alliance's cocoa production came from the Dominican Republic, Peru and Brazil in 2009, by 2012 Latin American countries accounted for a mere 11 per cent of Rainforest Alliance production.[17] The recent expansion of African-based production has also been reinforced by the massive growth of UTZ certified production, which is almost entirely based in Africa. Organic, on the other hand, represents the exception to this trend, with the majority of its production still based in Latin America due to its comparative advantage in fine aromatic cocoa. Commitments from the private sector seeking to certify mainstream supply are one of the key drivers fueling the expansion of certified production on the African continent.

Table 7.11 shows the intensity of sustainable production, or percentage of total national production that is produced in compliance with one or more major international standard. In Côte d'Ivoire and Ghana, the two largest cocoa producers globally, 29 per cent and 16 per cent of production was compliant in 2012, respectively. Notably, 8 per cent of Ecuador's production was compliant in 2012, owing in large part to the country's dominance in the production of beans for the fine aromatic cocoa market.[18]

The Dominican Republic is notable as having the highest sustainability intensity, with effectively 100 per cent of its production standard compliant, due to its production being almost entirely certified Organic. Sierra Leone and Uganda also have strikingly high portions of their total production certified, 100 per cent and 61 per cent of total production being UTZ certified in those countries, respectively. Peru, another major producer, had 17 per cent of its production compliant and certified with Organic standards in 2012.

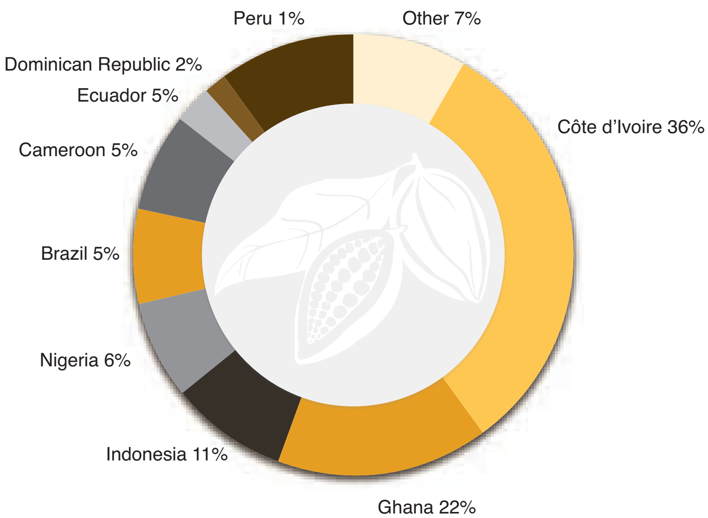
17 It should be noted that Rainforest Alliance cocoa production was quite small in 2009, so this move into Africa and Asia has been more of an expansion than a shift.

18 Ecuador accounted for over 50 per cent of the fine aromatic cocoa market in 2011 (Finance Alliance for Sustainable Trade, 2012).

Globally, the cocoa market is highly concentrated, with 69 per cent of total production coming from three countries: Côte d'Ivoire (36 per cent), Ghana (22 per cent) and Indonesia (11 per cent) (see Figure 7.15). The standard-compliant cocoa market represents a still higher rate of concentration, with 81 per cent of global compliant production coming from three countries: Côte d'Ivoire (50 per cent), Ghana (17 per cent) and the Dominican Republic (15 per cent) (see Figure 7.16, Figure 7.17 and Figure 7.18). Both Côte d'Ivoire's dominance in the supply for sustainable cocoa and the Dominican Republic's near-total transition to compliant cocoa production signal the differentiated opportunities facing producing countries through the growth of sustainable markets and the potential for such markets to enable a shift in global supply.

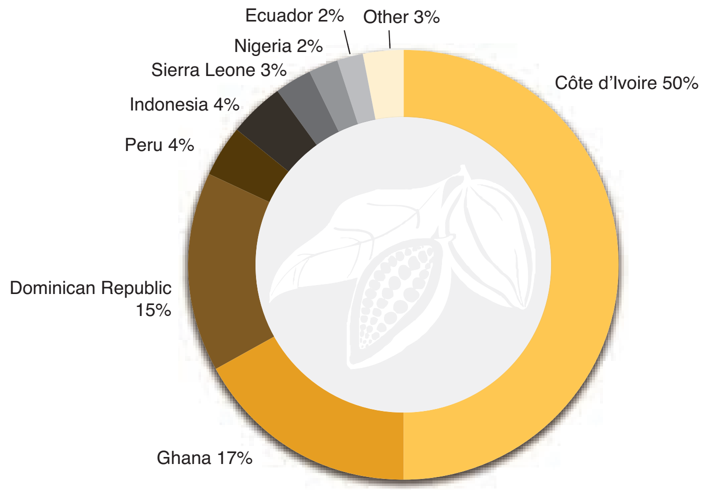
While we cannot, at this time, predict the longer-term impacts of standard-compliant markets on trade flows or access to international markets, it is clear that the new parameters for trade being established by sustainable markets are opening new opportunities for some producing countries. Given the early stage of development of the sector, it may be that the current concentration of compliant supply is merely a reflection of a phased-in approach and the search for low-hanging fruit. It remains to be seen whether any of the current trends produce first-mover advantages that stick over the longer term.

FIGURE 7.15 GLOBAL COCOA PRODUCTION BY COUNTRY, 2012.



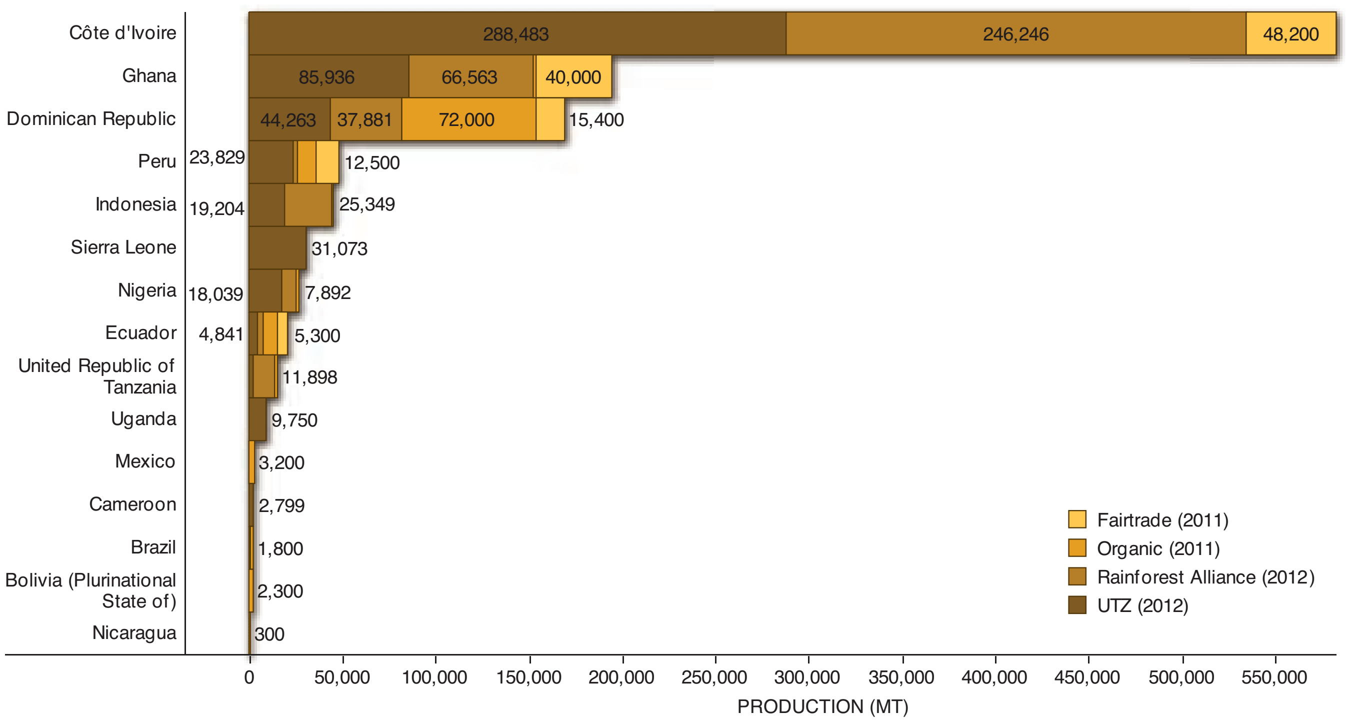
Source: ICCO, 2013b.

FIGURE 7.16 STANDARD-COMPLIANT COCOA PRODUCTION BY COUNTRY, 2011 (FAIRTRADE, ORGANIC), 2012 (RAINFOREST ALLIANCE, UTZ CERTIFIED).



Sources: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

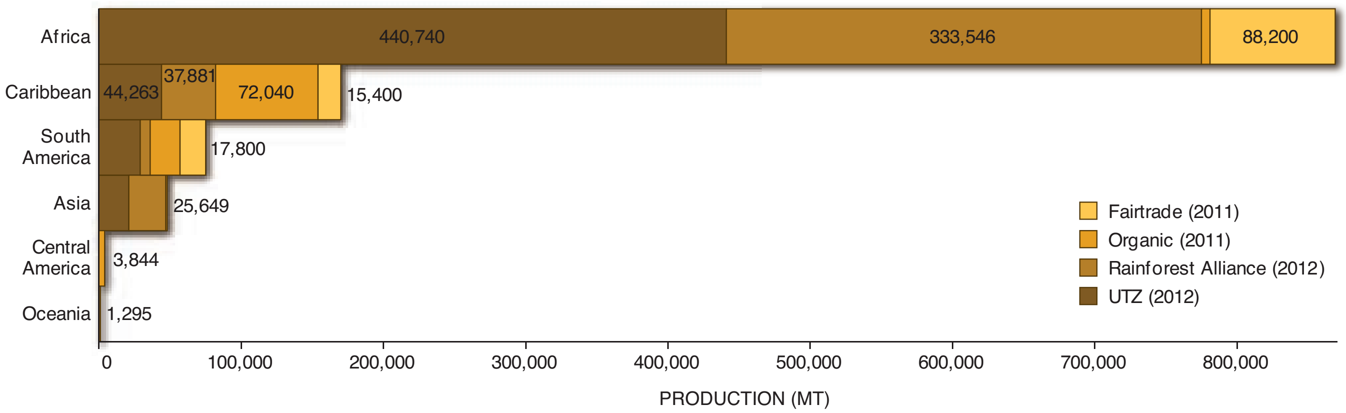
FIGURE 7.17 TOP PRODUCING COUNTRIES OF STANDARD-COMPLIANT COCOA BY VOLUNTARY SUSTAINABILITY STANDARD, 2011/2012.



Where space permits, data points are visible.

Sources: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 7.18 TOP PRODUCING CONTINENTS OF STANDARD-COMPLIANT COCOA BY VOLUNTARY SUSTAINABILITY STANDARD, 2011/2012.



Where space permits, data points are visible.

Sources: FLO, 2012; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 7.11 STANDARD-COMPLIANT PRODUCTION AS A PERCENTAGE OF TOTAL NATIONAL PRODUCTION FOR THE 20 LARGEST COCOA PRODUCERS, 2011/2012.

Dashes represent negligible or no standard-compliant production relative to national production. They may also reflect an absence of data.

	Fairtrade (2011) (%)	Organic (2011) (%)	Rainforest Alliance (2012) (%)	UTZ (2012) (%)	Adjusted aggregate*
Côte d'Ivoire	3.2%	-	16.6%	19.4%	29.3%
Ghana	4.5%	0.2%	7.6%	9.8%	15.9%
Indonesia	-	0.1%	5.6%	4.3%	7.8%
Nigeria	-	0.4%	3.4%	7.7%	9.5%
Brazil	-	0.8%	0.4%	-	1.0%
Cameroon	-	-	-	1.4%	1.4%
Ecuador	2.8%	4.1%	1.7%	2.5%	7.6%
Dominican Republic	21.3%	99.7%	52.5%	61.3%	10.0%
Peru	22.4%	17.0%	5.0%	42.7%	64.9%
Colombia	-	0.1%	0.5%	-	0.5%
Papua New Guinea	-	-	3.3%	-	3.3%
Togo	-	1.4%	2.7%	-	3.5%
Mexico	-	12.8%	-	0.4%	13.0%
Venezuela (Bolivarian Republic of)	-	-	-	-	-
Uganda	-	-	-	60.9%	60.9%
India	-	-	-	-	-
Sierra Leone	-	-	-	10.0%	10.0%
Guinea	-	-	-	-	-
Liberia	-	-	-	-	-
United Republic of Tanzania	-	11.1%	100.0%	26.7%	10.0%

*All figures in the aggregate column are downward adjusted for multiple certification, using the median between the minimum and maximum values (100 per cent and 0 per cent multiple certification levels, respectively).
Sources: FLO, 2012; ICCO, 2013b; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; E. Servat & S. Fadika, Rainforest Alliance, personal communication, March 13, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

7.5 PRICING AND PREMIUMS

Over the past several years, premiums for standard-compliant cocoa have been reported as ranging from around 5 per cent for UTZ certified cocoa to 18 per cent or more for Organic cocoa. In the two largest cocoa producing countries, Côte d'Ivoire and Ghana, premiums for all standards with the exception of Organic have been remarkably similar (between 6 per cent and 9 per cent) (KPMG, 2012), suggesting the existence of a "sustainability premium" perhaps without significant differentiation between the standards.

The Fairtrade standard requires payment of both a fixed price of US$2,000 per metric ton and a premium of US$200 per metric ton. In light of the tightening of supply over the past decade, international prices have exceeded the Fairtrade minimum since mid-2007,[19] although the Fairtrade premium is considerable, at 7 per cent over international prices in 2012.[20]

UTZ itself reported a weighted average premium for cocoa production in 2012 of US$143 per metric ton, with premiums ranging from between US$91 (Nigeria, 4 per cent of market prices[21]) and US$271 (Indonesia, 11 per cent of market prices) per metric ton. Reported premiums in Côte D'Ivoire averaged US$140 per metric ton (6 per cent of market prices) and premiums in Ghana averaged US$200 per metric ton during the same year (8 per cent of market prices) (UTZ, 2013c).

Another study published in October 2012 reported premiums for UTZ, Rainforest Alliance and Fairtrade cocoa. The results of the study on premiums for compliant cocoa can be found in Table 7.12. The study was conducted independently of UTZ's own survey of premiums (J. Rijkenberg, UTZ, personal communication, December 12, 2013).

19 Nominal and real prices for cocoa have been on the rise recently, largely due to concerns over future supplies as producers abandon their farms, yields drop due to disease or pests, and trees and producers age. Production dropped by 5 per cent year over year from 2011 to 2012 and is expected to drop another 2 per cent from 2012 to 2013, and the reinvestment in production systems with money attained from price premiums or through other means will be vital in assuring a cocoa supply that can meet demand moving forward (ICCO, 2013a).

20 Using an average 2012 price of US$3,000 per metric ton. In 2011, Fairtrade premiums reached US$10.6 million, and the organization reports that this money is being increasingly reinvested in production activities such as investing in or replacing old trees. In light of the uncertainty of supply, the positive association between Fairtrade certification and farm reinvestment could be regarded as a critical element in securing sustainable supply (see FLO, 2012).

21 All percentage premiums are calculated based on international prices (cost, insurance and freight at U.S. and European ports, U.S. dollars per metric ton [IndexMundi, 2013c]). However, because the average weighted premiums as reported by UTZ (2013c) are agreed upon between the first buyer and certificate holder (e.g., from a cooperative to an exporter, both domestic companies), this premium is not always the same as the premiums charged to international buyers.

TABLE 7.12 REPORTED PREMIUMS FOR STANDARD-COMPLIANT COCOA, GHANA AND CÔTE D'IVOIRE.

The cocoa market has been characterized by a tightening of supply and demand over the past half a decade, leading to reduced overall premium levels and reduced differentials between premiums. Recent figures put premiums at between 6 per cent and 9 per cent across all certification initiatives, pointing toward the limited room for premiums in the current market.

	Premium		Premium	
	Ghana (USD)	Ghana (%)	Côte d'Ivoire (USD)	Côte d'Ivoire (%)
Rainforest Alliance	150	6.8	200	9.1
UTZ Certified	152.4	6.8	140	6.4
Fairtrade	200	9.1	200	9.1

Source: KPMG, 2012.

Although Organic markets have been growing, premiums have declined as the global price for cocoa has increased. The ICCO reports recent Organic premiums as ranging from US$100 to US$300 per metric ton—equivalent to between 3 and 10 per cent based on 2012 prices (ICCO, 2013a). This is down considerably from premiums on the order of 13 to 18 per cent reported as recently as 2005 (ICCO, 2006). Although the minimum price for Fairtrade/Organic certified cocoa benefits from a US$300 premium over the minimum price for Fairtrade cocoa,[22] high prices on the international cocoa market have similarly eliminated the applicability of Fairtrade minimum pricing rules in recent years, with only the required US$200 social premium (equivalent to 7 per cent based on 2012 average prices) over international market prices being required.

Although efforts to increase global cocoa supply are under way, it is expected that supply will remain tight for the coming years, suggesting relatively high premiums for cocoa more generally but relatively low premiums for standard-compliant cocoa in particular (Taylor, 2013).

22 Fairtrade sets the minimum price for double-certified cocoa beans at US$2,300 per metric ton.

7.6 CHALLENGES AND OPPORTUNITIES

Over the past five years sustainable cocoa supply has grown an average of 69 per cent per annum, reaching 899,000 metric tons in 2012, which represents an eight-fold increase in absolute volume. Given deep concerns about the security of supply, we expect investment in sustainable cocoa production systems to continue at a rapid pace in the coming years with total standard-compliant production reaching a minimum of 1.5 million metric tons by 2020, equivalent to 37 per cent of global production, or 48 per cent of global exports.[23]

From a broader sustainability perspective, the cocoa sector faces two convergent and widely recognized challenges. On the one hand, the productive base has faced systemic poverty over a period of many decades fuelling, among other things, the historical use of unacceptable labour practices. On the other hand, the cocoa supply base has fallen into disrepair, threatening overall global supply. Voluntary standards offer promise in addressing both of these major challenges, which explains to a large degree the significant commitments to standard-compliant production by many of the most important confectioners over the past several years.

While standard-compliant production largely emerged in the shade-grown production systems of Latin America (notably Organic production), Fairtrade, Rainforest Alliance and UTZ cocoa have rapidly expanded into mainstream markets, drawing from the full-sun production systems of Côte d'Ivoire, Ghana and Indonesia. This development shows promise for the continued growth and relevance of voluntary standards to the issues facing the sector. The fact that cocoa purchases are dominated by the countries in the global North with a long history of promoting sustainability standards (notably the Netherlands in the specific case of cocoa) also points toward the continued growth prospects for standard-compliant cocoa moving forward.

23 Note that this estimate is based on the full implementation of existing commitments to sustainable sourcing within the chocolate sector. It does not take into consideration forthcoming commitments to sustainable production and thus is considered a conservative estimate.

Moreover, with cocoa supplies tight and overall prices relatively high, the current context represents a rare opportunity for guiding increased investment within the sector toward more sustainable practices. Indeed, current market conditions suggest that the market is increasingly able to absorb the costs of transitioning to sustainable practices. Notwithstanding this potential, there is still a significant gap between existing production levels of standard-compliant cocoa and actual sales, or the explicit implementation of commitments to the purchase of sustainable cocoa. It is possible that confectioners, faced with high prices on the international market, may not feel the pressure to pay for the additional costs associated with certification per se, which could leave the voluntary sustainability standard market in jeopardy. A permanent state of oversupply on this market is unlikely to be sustainable in its own right. Special attention to, and monitoring of, the formal implementation of public commitments is therefore warranted.

Another important challenge voluntary sustainability standards face in the cocoa sector relates to the speed with which growth and uptake has evolved, particularly across the African supply base. Production conditions within the African continent face significant challenges, and ensuring that sustainable practices being claimed are actually being applied is a task of monumental proportions related not merely to the development of the requisite monitoring infrastructure within the standards systems themselves, but to the development of the needed support institutions on the ground as well. The repercussions of deep and long-standing poverty in many cocoa producing regions involve a wider community of factors than mere supply chain relations, and thus securing supply chain sustainability will require working along other channels as well. Attention to and investment in broader landscape and community development will therefore almost certainly be a prerequisite for the successful implementation of voluntary sustainability standard growth over the longer term and signals the importance of investment beyond the commercial transactions associated with standard-compliant cocoa production alone.

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8 COFFEE MARKET

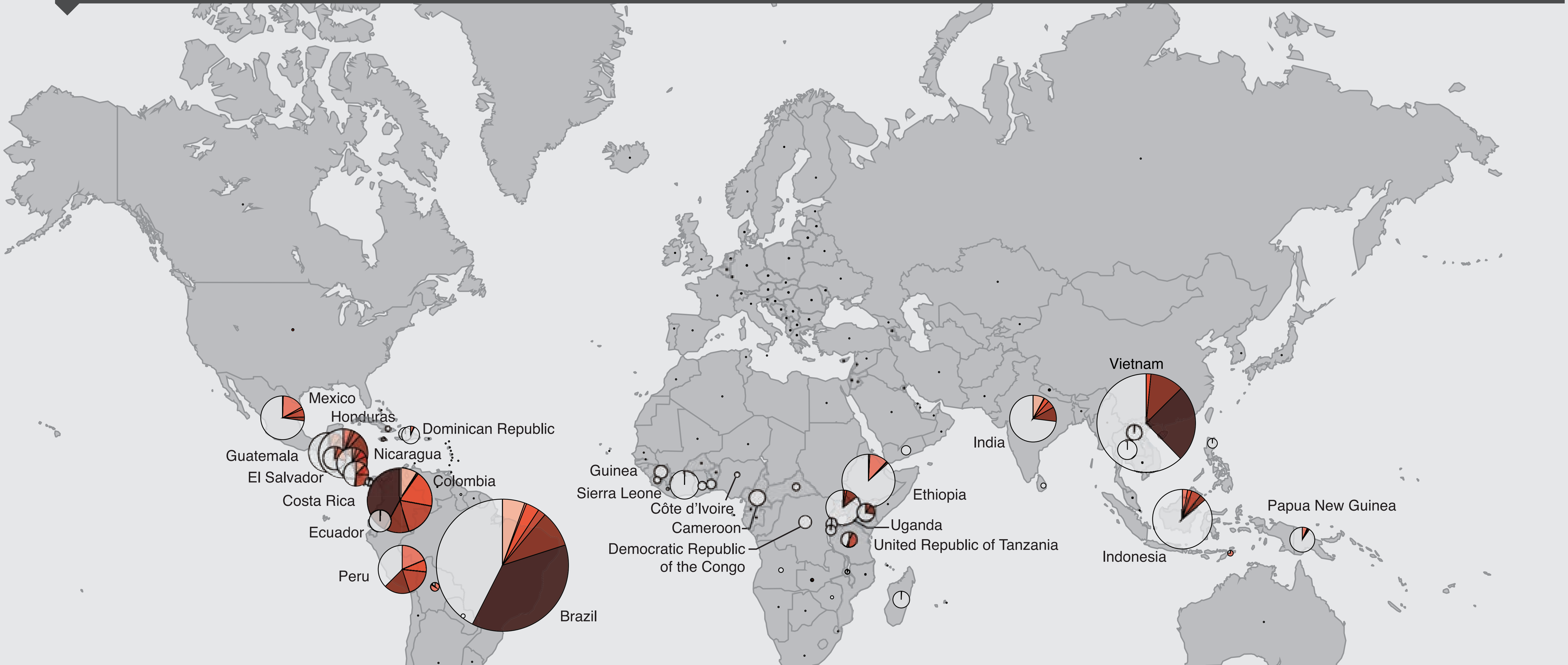
Coffee (e.g. *Coffea Arabica, C. Robusta*) is a drink brewed from the seeds of the *Coffea* genus.[1] Originating in East Africa, the coffee shrub was later cultivated in many tropical and subtropical countries across the world. It was introduced to the now major producing countries Brazil and Colombia in the early 1700s and to Vietnam in 1857. In 2012, 8.2 million metric tons of coffee were produced in over 50 countries on 0.2 per cent of the world's agricultural area. Over 80 per cent of the world's coffee production was exported, with a total export value of US$23.4 billion. Estimates of total coffee farmers worldwide have long hovered at about 20 million to 25 million (Lewin, Giovannucci, & Varangis, 2004)[2] (see Tabe 8.1, Standard-compliant and conventional key statistics for coffee production and trade.).

Coffee is generally regarded as the pioneering industry for sustainability standards and certification (Reinecke, Manning & von Hagen, 2011). As with many other primary commodities, the global coffee market has been defined by high volatility and long-term declining prices. Notwithstanding international efforts to secure more stability and predictability in the relationship between supply and demand of coffee through the International Coffee Organization (ICO), growing global production, speculation and climatic uncertainty have continued to drive price volatility and long-term price decline within the sector. With coffee production being dominated by smallholder producers in tropical regions, themselves often subject to conditions of poverty and in close interaction with highly biodiverse biomes, the coffee sector has provided fertile ground for the development and adoption of sustainability standards.

1 Coffee was first cultivated in the Horn of Africa, specifically in Ethiopia, where, according to records, it was consumed by slaves taken from Sudan to Yemen through the port of Mocha (ICO, n.d.). One coffee "cherry" contains two seeds, or "beans."

2 This estimate has been quoted for over a decade; however, it is still relevant given coffee's extremely stable harvested area (0.3 per cent decrease per annum from 2004 to 2011) (Food and Agriculture Organization of the United Nations (FAO), 2013).

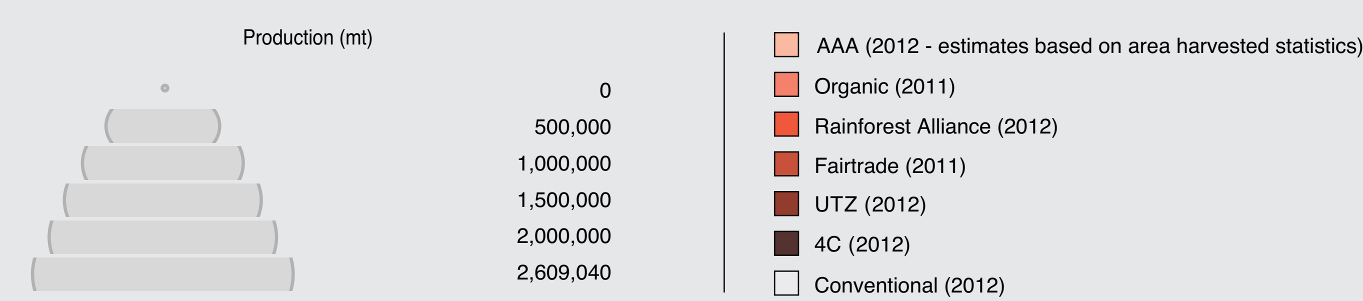
FIGURE 8.1 CONVENTIONAL VERSUS STANDARD-COMPLIANT COFFEE PRODUCTION, 2011/2012.



Circle size represents total production volumes; coloured slices represent volumes of standard-compliant coffee production. Standard-compliant coffee production represented 40 per cent of global production in 2012. Brazil, Colombia and Peru are the largest producers of standard-compliant coffee,[3] while Brazil, Vietnam and Colombia are the largest producers of coffee by volume. In several Latin American countries including Brazil, Colombia, Peru, Honduras and Costa Rica, standard-compliant production is approaching, or has surpassed, 30 to 50 per cent of total production. Geographic distribution of voluntary sustainability standards, for the most part, follows global distribution of production, although a larger proportion of standard-compliant production came from Latin America in 2012 (77 per cent of standard-compliant production, compared with 58 per cent of total production).

3 The map does not adjust for multiple certifications.

Sources: A. Bruestle, 4C Association, personal communication, February 6, 2013; Fairtrade Labelling Organizations (FLO), 2012; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; Nestlé Nespresso Corporate Communications, personal communication, September 26, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; ICO, 2013a; IISD, H. Willer, Research Institute of Organic Agriculture/Forschungsinstitut für biologischen Landbau (FiBL), personal communication, August 26, 2013.

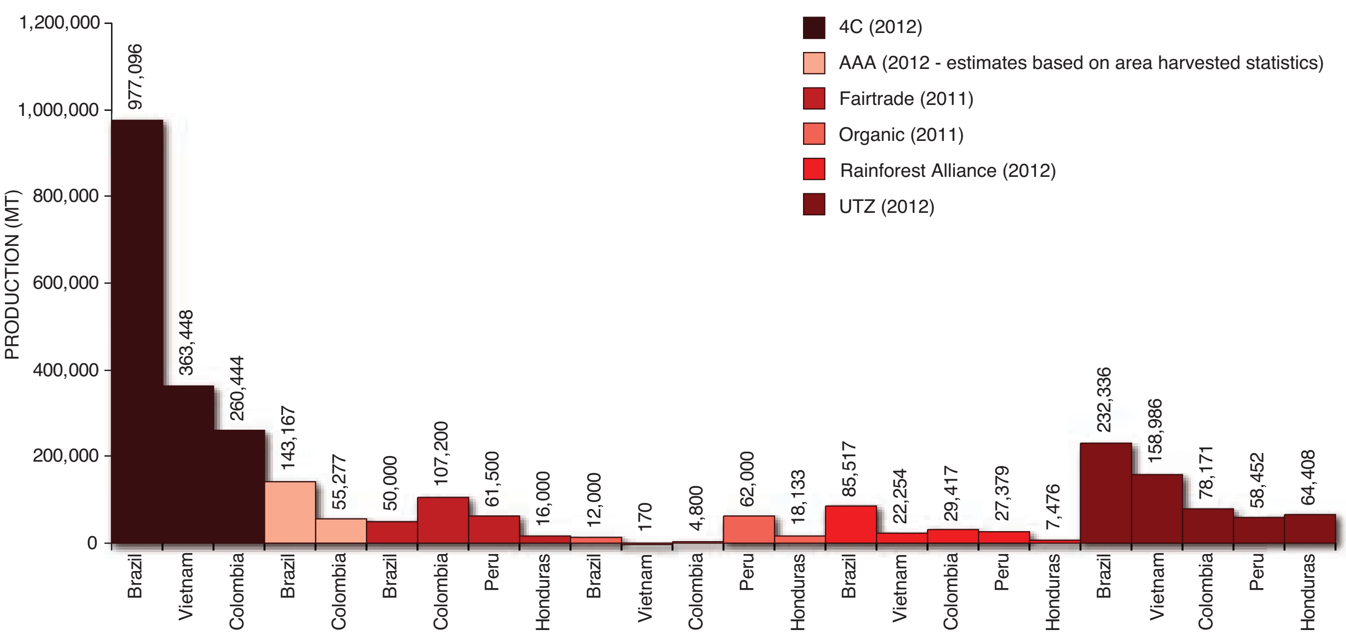


While certification initiatives for sustainable coffee have been around for more than 20 years, the past decade has seen a rapid increase in the development of new schemes and mainstream uptake of sustainable coffees. Many labels and certifications for coffee exist. The most important in terms of volumes certified include Nespresso AAA Sustainable Quality, 4C Association[4], Starbucks Coffee And Farmer Equity (C.A.F.E.) Practices, Fairtrade, Organic (IFOAM is the standard-setting body), Rainforest Alliance (Sustainable Agriculture Network is the standard-setting body) and UTZ Certified. In 2012, 3.3 million metric tons of coffee were produced in compliance with a voluntary sustainability standard (40 per cent of global production; see Figure 8.1, Conventional versus standard-compliant coffee production, 2011/2012.), of which 840,000 metric tons were sold as standard compliant (25 per cent of standard-compliant production, 10 per cent of global production and 12 per cent of global exports). Brazil and Vietnam were the largest producers of standard-compliant coffee by volume in 2011/2012;[5] see Figure 8.2, Leading producers of standard-compliant coffee by initiative, 2011/2012.

4 The coffee sector widely applies two different conformity assessment processes: certification and verification. Certification is defined as a "third party attestation related to products, processes, systems or persons" (International Organization for Standardization, 2005). The definition of verification is "confirmation through the provision of objective evidence, that specified requirements have been fulfilled" (International Organization for Standardization, 2005). Typically, verification is used to define conformity assessment for internal processes and assurances, whereas certification is used to make claims with respect to external stakeholders. Practically speaking, both certification and verification can entail many of the same processes, even through the use of third parties to carry out the conformity assessment process; the main distinction rests with the formality and legal responsibilities associated with the verification process.

5 In this section, all voluntary sustainability standard data are from 2012, except for Fairtrade and Organic country-level data and Organic aggregate data.

FIGURE 8.2 LEADING PRODUCERS OF STANDARD-COMPLIANT COFFEE BY INITIATIVE, 2011/2012.



Sources: J. Anderson, Starbucks, personal communication, November 21, 2013; A. Bruestle, 4C Association, personal communication, February 6, 2013; FLO,2013; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; Nestlé Nespresso Corporate Communications, personal communication, September 26, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 8.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR COFFEE PRODUCTION AND TRADE.

KEY STATISTICS

Top 5 producers (67% of global) (2012)	Brazil (32%), Vietnam (18%), Indonesia (6%), Colombia (6%), Ethiopia (5%)
Top 5 producers of standard-compliant coffee (81% of global) (2012)	Brazil (40%), Colombia (17%), Vietnam (15%), Peru (6%), Honduras (3%)
Top 5 coffee exporters (66% of global) (2012)	Brazil (24%), Vietnam (22%), Indonesia (9%), Colombia (6%), Honduras (5%)
Top 5 importers (64% of global) (2012)	United States (24%), Germany (20%), Italy (8%), Japan (6%), France (6%)
Global production (2012)	8.2 million metric tons
Global exports (83% of production) (2012)	6.8 million metric tons
Total coffee export value (2012)	US$33.4 billion
Global area harvested (2011)	10.5 million hectares
Total number of farmers involved in coffee production	20–25 million
Major international voluntary sustainability standards	Nespresso AAA Sustainable Quality (AAA), Starbucks Coffee And Farmer Equity Practices (C.A.F.E. Practices), 4C Association, Fairtrade, Rainforest Alliance, Organic, UTZ Certified
Standard-compliant production (2012)	3.3 million metric tons (40% of global production)
Standard-compliant sales (2012)	0.8 million metric tons (25% of compliant production, 10% of global production, 12% of global exports)
Key sustainability issues	Maintaining biodiversity, climate change, poverty, worker health and safety

Sources: Top 5 producers: ICO, 2013a; Top 5 exporters, top 5 importers: ICO, 2012; Global production (green coffee): ICO, 2013a; Global exports (all types): ICO, 2013b; Global export value (all types): International Trade Centre (ITC), 2013c; Global area harvested: Food and Agriculture Organization of the United Nations (FAO), 2013; Total number of farmers involved in coffee production: Lewin et al., 2004; Standard-compliant data are from 2012, unless for Organic, whose data are from 2011: J. Anderson, Starbucks, personal communication, November 21, 2013; A. Bruestle, 4C Association, personal communication, February 6, 2013; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; Nestlé Nespresso Corporate Communications, personal communication, September 26, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

8.1 MARKET REVIEW

Market reach
Approximately 3.3 million metric tons of standard-compliant coffee were produced in 2012, equivalent to 40 per cent of global production. Sales of standard-compliant coffee reached 12 per cent of exports during the same year (Figure 8.3).

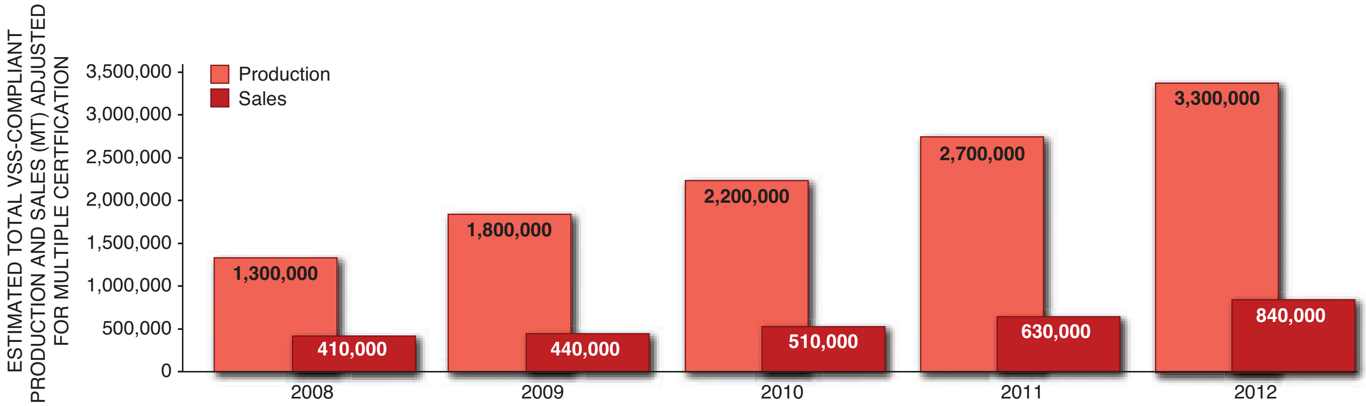
Growth
Standard-compliant coffee production grew 26 per cent per annum from 2008 to 2012.

Regional importance
Brazil (40 per cent), Colombia (17 per cent) and Vietnam (15 per cent) produce the lion's share of the world's standard-compliant coffee.

Pricing and premiums
Premiums for standard-compliant sales have been reported at 1 to 30 per cent over the 2011–2012 period. Highest premiums were observed for Fairtrade/Organic certified coffee, and lowest premiums were observed for 4C-compliant coffee.

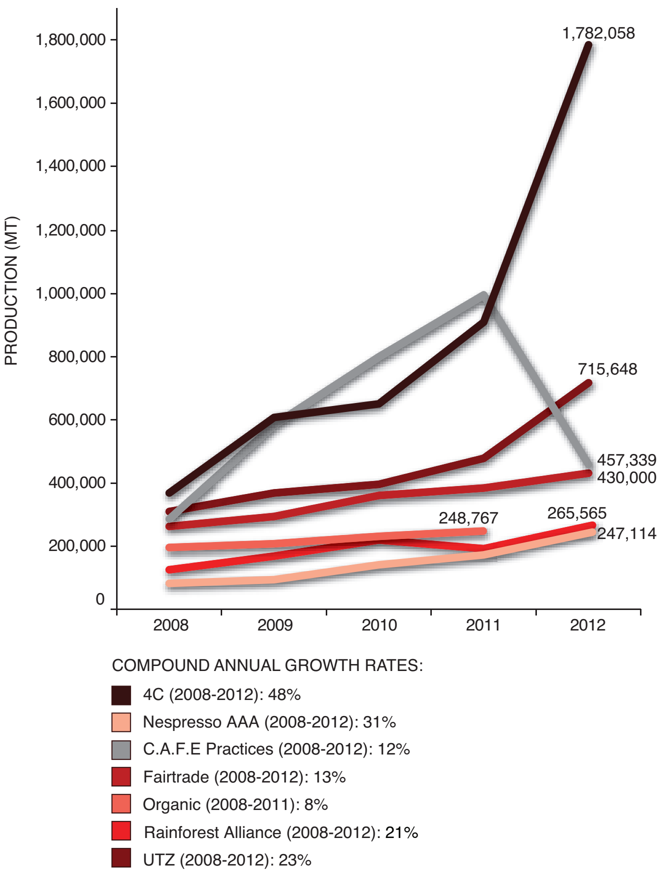
FIGURE 8.3 GROWTH IN STANDARD-COMPLIANT COFFEE PRODUCTION AND SALES, 2008–2012.

Since 2008, standard-compliant coffee (under AAA, 4C Association, C.A.F.E. Practices, Fairtrade, Organic, Rainforest Alliance and UTZ) has grown to 40 per cent of global production, up from 15 per cent of production in 2008. Sales have grown to 12 per cent of exports, up from 7 per cent of exports in 2008.



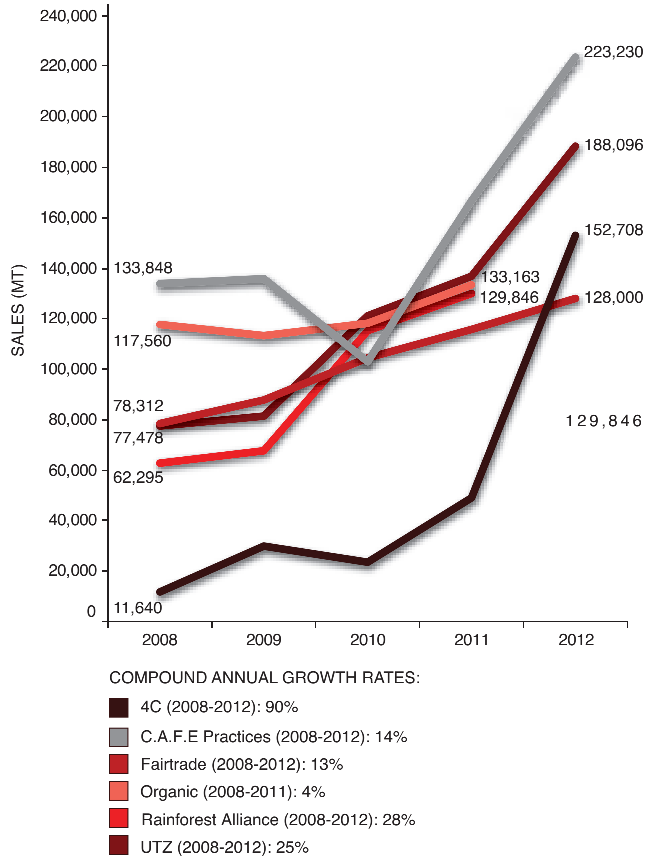
Sources: J. Anderson, Starbucks, personal communication, November 21, 2013; A. Bruestle, 4C Association, personal communication, February 6, 2013; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; Nestlé Nespresso Corporate Communications, personal communication, September 26, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 8.4 STANDARD-COMPLIANT COFFEE PRODUCED UNDER AAA, 4C ASSOCIATION, C.A.F.E. PRACTICES, FAIRTRADE, ORGANIC, RAINFOREST ALLIANCE AND UTZ CERTIFIED, 2008–2012.



Sources: J. Anderson, Starbucks, personal communication, November 21, 2013; A. Bruestle, 4C Association, personal communication, February 6, 2013; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; Nestlé Nespresso Corporate Communications, personal communication, September 26, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 8.5 STANDARD-COMPLIANT COFFEE SOLD UNDER 4C ASSOCIATION, C.A.F.E. PRACTICES, FAIRTRADE, ORGANIC, RAINFOREST ALLIANCE AND UTZ CERTIFIED, 2008–2012.



Sources: J. Anderson, Starbucks, personal communication, November 21, 2013; A. Bruestle, 4C Association, personal communication, February 6, 2013; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

8.2 MARKET DEVELOPMENT

Coffee produced in conformity with a voluntary sustainability standard represented 40 per cent of global coffee production in 2012, with about one-quarter of this actually sold as standard compliant from the certificate holder to the first buyer (representing 10 per cent of global production or 12 per cent of the coffee trade, see Importance of voluntary sustainability standard (VSS) coffee production and sales relative to the global market.). The coffee sector indeed has the highest presence of sustainability standards among major agricultural commodity sectors in regards to both supply and demand;[6] both continue to grow across all voluntary sustainability standards active within the sector[7] (see Figure 8.4, Standard-compliant coffee produced under AAA, 4C Association, C.A.F.E. Practices, Fairtrade, Organic, Rainforest Alliance and UTZ Certified, 2008–2012., and Figure 8.5, Standard-compliant coffee sold under 4C Association, C.A.F.E. Practices, Fairtrade, Organic, Rainforest Alliance and UTZ Certified, 2008–2012.). The pervasiveness of these standards throughout the sector has been driven by many factors, but can in large part be attributed to the maturity of the market, the 2001 coffee crisis and corresponding consumer and private sector awareness, and the high concentration in manufacturing, as well as the limited processing between production and consumption, and retail products with one single or very few ingredients. The last two factors allow for easier consumer recognition of certified ingredients.

Coffee pricing is well known for its volatility and long-term decline in real terms over the past century. The causes of price volatility, which are largely systemic, include the delay in moving from new planting to production[8] as well as climatic variability, although speculative trading is also a factor (Maurice, 2011). The causes of price decline, on the other hand, have been associated with oversupply, which itself can arise within the context of price volatility, but has been exacerbated over time by uncoordinated investments to increase production at the global level.[9] The collapse of the 1989 International Coffee Agreement and the corresponding disappearance of market-based controls for supply management have also contributed to more recent pricing challenges in the marketplace.[10] The most notable among these is the 2001 coffee crisis, which resulted in an estimated net loss of US$4 billion for producer countries.[11]

Certification in the coffee sector dates back to 1967, when the first organic coffee was exported from Mexico. Although principally identified as production without chemical inputs, the organic movement was initially fuelled by an interest in building farm sustainability through improved soil health. Since then, organic production has grown to be associated with, and is largely fuelled by, a combination of ensuring both environmental integrity and personal health. The first certification initiative to explicitly target trade itself as a tool for improving farmer livelihoods was the Max Havelaar label, established in Holland in 1988.[12] The Max Havelaar model, which required licensees (manufacturers) to pay a minimum price for coffee while also ensuring other trade benefits, was quickly adopted in other countries; these eventually came together to form Fairtrade Labelling Organizations International (FLO) in 1997. In addition to the specification of a minimum price, Fairtrade is exceptional in that it works only with democratically organized smallholders (i.e., those organized into cooperatives), while also specifying a fixed social premium to be distributed to the producer organizations for reinvestment in the local community.[13]

Rainforest Alliance, which was founded in 1987 with a mission to "conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices, business practices and consumer behavior" (Rainforest Alliance, 2013a), certified its first coffee in 1996. Rainforest Alliance has developed its model through extensive

6 During the same year, sales of standard-compliant cocoa production were at similar levels, at 10 per cent of the world's cocoa trade.

7 With the exception of a contraction in C.A.F.E. Practices production from 2011 to 2012.

8 It takes roughly three to four years after planting for coffee plants to bear fruit and several more to reach their most productive years.

9 Vietnam's booming entrance into the market when a U.S. embargo was lifted on the country in 1994 is but one acute example. Vietnam's production quickly grew from virtually nil in the mid-1990s, and it is currently the world's second-largest producer of coffee, behind only Brazil. This has been identified as one of the more important causes of the 2011 coffee crisis (Topik, Talbot & Samper, 2010).

10 The ICO was established in 1962 with a mandate to reduce price volatility and long-term price decline. In its original mandate, the ICO had the authority to implement a set of global quotas to manage overall supply and demand on the market. Following the removal of market management instruments from the ICO's mandate with the dissolution of the 1989 International Coffee Agreement, supplies increased and prices steadily declined until bottoming out at US$0.42 per pound in 2001; for reference, The International Coffee Agreement target price was between US$1.20 and US$1.40 per pound at the time of the agreement's collapse (International Trade Centre, 2011). Since the dissolution of market instrument–based International Coffee Agreements, the ICO has focused on information exchange and policy coordination as its main instruments for securing stability and equity in the global coffee market.

11 The dramatic swing in coffee's total traded value during this time period illustrates the severity of the crisis: coffee export revenues dropped from $US9 billion in 1982 to US$5.1 billion in 2002 and shot back up to US$17.9 in 2010. The ICO lists the economic issues arising from the crisis as abandonment of farms, widespread loss of jobs, reduced fiscal revenue, knock-on effect on other economic sectors and reduced export earnings. Social issues were listed as migration from the countryside to cities, emigration abroad, less money available for health care and education, increase in households living under the poverty line, increased incidence of malnutrition, increased indebtedness and growth in illicit crop production (ICO,2004).

12 The first explicit private efforts to leverage coffee trade as a means for improving conditions of the poor can be traced back to the alternative trade movement arising out of programs lead by SELFHELP and Oxfam in the 1950s and 1960s.

13 In 2011, almost 50 per cent of the Fairtrade premium was invested in improvements to production and processing (FLO, 2012).

rollout across Latin America, with a focus on ensuring sustainable farming practices that revolve around the use of integrated pest management.

Up until the end of the twentieth century, Organic, Fairtrade and Rainforest Alliance shared the market for certified coffee principally by leveraging market niches within the specialty coffee sector. Total sales of sustainable coffee by 2000 were still under 1 per cent of global production. Media campaigns by NGOs arising out of the 2001 coffee crisis (e.g., Oxfam through its Coffee Rescue Plan [Oxfam, 2002]) called for action by governments, NGOs, consumers and the private sector to commit to sustainable development and procurement of coffee. Although Fairtrade, Rainforest Alliance and Organic certification already had well-established markets by 2001, the depth of the crisis led to an unprecedented convergence among major private sector players through a number of pre-competitive initiatives, including the Common Code for the Coffee Community (otherwise known as "4C Association") and the Sustainable Agriculture Initiative (SAI) Platform.[14] These initiatives set the stage for a paradigm shift in the manner in which mainstream businesses integrate multistakeholder, standards-based initiatives across their supply chains (Alvarez, Pilbeam, & Wilding, 2010).

The most obvious manifestation of the new multistakeholder-mainstream paradigm came under the auspices of the 4C Association, an initiative initially launched as a public–private partnership between the German Agency for Technical Development and Cooperation and the German Coffee Association to establish a code of conduct for the global coffee trade.[15] Throughout a five-year negotiation process, 4C Association developed into a full verification-based sustainability standard with a very explicit target of reducing barriers to entry in the 4C Association supply chain as a means to facilitating producer access and mainstream uptake. In order to avoid explicit competition with existing certification initiatives, 4C Association also intentionally avoids any significant branding or on-package labelling at the consumer level. As 4C Association gave direction and comfort to the notion of mainstream standards, several of the major companies participating in the 4C Association process saw additional opportunity through consumer-facing labels and certification processes.

One of the first voluntary sustainability standards to service the mainstream market was the newly formed UTZ Certified. Formally launched in 2002 as Utz Kapeh (meaning "good coffee" in the Mayan language, Quiché), UTZ was founded on the principles of improving market transparency while promoting good agricultural practices at the farm level. UTZ immediately became one of the largest coffee certifications through a number of dedicated partnerships with major European manufacturers. By 2009, UTZ accounted for almost one-quarter of the total standard-compliant coffee available on the market.[16] As of 2012, UTZ had the largest sales volumes of any sustainability standard in the coffee sector, with a reported 188,096 metric tons being sold as UTZ certified. At the same time, UTZ had secured the second-place position in terms of the volume of sustainable coffee produced in compliance with a sustainability standard.

Similarly, in the fallout from the 2001 coffee crisis, Rainforest Alliance was able to develop new partnerships with companies such as Kraft and Nespresso, which quickly earned it the title of the fastest growing voluntary sustainability standard in coffee, reporting an average annual growth rate of 64 per cent between 2004 and 2009 (Potts et al., 2010). By 2011, Rainforest Alliance's growth had tempered somewhat (averaging 28 per cent per annum between 2008 and 2011), with total sales of 129,846 metric tons, still higher than total Fairtrade sales in the same year. Rainforest Alliance's continued rapid growth has secured it as a clear option for mainstream certification moving forward.

Although neither Fairtrade nor Organic, the two oldest initiatives, have secured the same level of growth experienced by UTZ and Rainforest Alliance under the new mainstream paradigm, they have continued to benefit from the growing corporate and consumer interest in sustainable sourcing, with constant growth well beyond that of the conventional coffee sector as a whole. The latest reported sales for both Fairtrade (2012) and Organic (2011) are in the range of 130,000 metric tons (each approximately 2.1 per cent of the 2012 coffee trade), making them major players in total sales of sustainable coffee. Beyond the usual demand constraints facing the entire sustainability sector, both Organic and Fairtrade do face potential challenges in expansion, despite their current oversupply. In 2011, 60 per cent of Organic production came from only three countries: Peru, Ethiopia and Mexico. Nearly half of Fairtrade coffee production came from Colombia and Peru during the same year. The role and importance of these two standards will depend on their ability to maintain a broad supply base within the context of major uptake of voluntary sustainability standards within mainstream supply chains.

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14 The coffee crisis also generated unprecedented multistakeholder collaboration within the ICO, most notably in the form of the Sustainable Coffee Partnership, which called for, among other things, more detailed reporting on market and performance data on sustainability standards. The Sustainable Coffee Partnership proposals gave rise to the eventual establishment of the State of Sustainability Initiatives.

15 The 4C program was born of a project called the Public Private Partnership program funded by the German Ministry for Economic Cooperation and Development and implemented by the German Agency for Technical Development and Cooperation in 2003 (4C Association, 2009). The program worked with the private sector, including Kraft (now Mondelēz International), which has set the goal of sourcing 100 per cent sustainable coffee beans for its EU brands and considerably increasing purchases of 4C Association coffee by 2015, and Nestlé, which has committed to sourcing about 180,000 metric tons (2.6 per cent of coffee traded globally) by 2015 (4C Association, 2009).

16 Sales of UTZ certified coffee in 2009 were 82,058 metric tons (Potts et al., 2010).

The 4C Association initiative, which offers itself as a stepping stone to certification through the application of a less costly verification process, has, perhaps not surprisingly, shown the greatest growth in terms of both production and sales over the past five years. As a pre-competitive sustainability platform for the coffee sector, the 4C Association is committed to stimulate supply of and demand for verified and certified sustainable coffees in the market. As such, the 4C Association not only promotes its own baseline standard and verification system but also other sustainability standards. In the *Rules of Participation* for its members, the 4C Association states:

> *Final Buyers (excluding private label roasters/manufacturers and other companies providing services to final buyers), commit themselves to purchase increasing volumes of verified and/or certified coffees (minimum 4C Compliant) over time. Sustainability certification standards qualifying for being recognized as part of this commitment must have a formal cooperation and/or membership link with the organization and a technical comparison against the baseline standard. (4C Association, 2013d)*

The three most recognized standards in the coffee sector—Fairtrade, UTZ Certified and the Rainforest Alliance—are, in fact, 4C Association members and are engaging with the association to increase alignment and cooperation (A. Bruestle, 4C Association, personal communication, December 13, 2013).

Through the 4C Association's unique "en masse" conformity assessment processes,[17] it has been able to bring significant amounts of verified production on line in a remarkably short period of time. Within two years of its initial establishment (i.e., by 2009), the 4C Association had more verified coffee being produced than any of the other available sustainability initiatives. By 2012, the total 4C-compliant coffee produced had grown to a massive 1,782,058 metric tons, making its compliant production volumes larger than all of the other certification-based sustainability standards combined. Notwithstanding this impressive growth, it is worth noting that it has been almost entirely based on the expansion of production across three countries: Brazil, Vietnam and Colombia, which alone accounted for 90 per cent of 4C-verified production in 2012. This, again, is likely a reflection of the 4C strategy to bring mainstream supply online as quickly as possible.

Securing sales for 4C-compliant coffee has, however, been more of a challenge. Notwithstanding the impressive production levels, actual sales of 4C-compliant coffee were lower than all of the other initiatives up until 2011. 2012 represented a significant year for the 4C Association in this sense, with massive sales growth securing it a second-place position in total sales, at 152,708 metric tons. It is unclear whether the challenge of getting 4C verified coffee to market "as 4C-compliant coffee" is related to the absence of a consumer-facing label and correspondingly low consumer recognition of the initiative or not. Certainly, in light of the recent growth in sales, it seems that the 4C Association is well situated to take a leadership position in sales of sustainable coffee in the coming years.

The "mainstreaming" of standards within the coffee sector has also stimulated the development of company-led programs, ranging from in-house standards systems such as Starbucks' C.A.F.E. Practices (2004) to hybrid "co-created" systems such as Nespresso's AAA Sustainable Quality Program (2003).[18] Although virtually all of the voluntary sustainability standards provide some mention of quality improvement, particularly those catering to the mainstream supply chains, these two programs build the most systemic link between quality management and sustainable sourcing. In many respects, the Nespresso and Starbucks plans are part of a more holistic corporate approach to supply and supply chain management more generally.[19] These standards have arisen on behalf of several large coffee purchasers, not typically the stakeholder whose interests that sustainability standards, at least in concept, would aim to

17 The 4C Association uses the concept of "4C units" to determine the level at which conformity with the 4C code is determined. The 4C unit is the entity where the 4C compliant coffee is produced. The 4C unit is flexible in its setup. A 4C unit can be a group of small-scale farmers who agree to register jointly, an already organized group as a cooperative or farmers' association, a collecting station, a mill, a local trader, an export organization, or even a roaster (as long as it is based in a country where coffee is produced) (A. Bruestle, 4C Association, personal communication, December 13, 2013). More than two-thirds of the 4C Association's total production comes from a total of 23 4C units in Brazil.

18 The Nespresso AAA program directly integrates SAN standards within its system of training but applies a verification process rather than full Rainforest Alliance certification (C. Wille, Rainforest Alliance, personal communication, December 20, 2013). Although historically recognized as niche market products, the growth of the specialty sector has rendered these two companies important players in the mainstream trade as well. Total volumes purchased by Starbucks in 2012 were equivalent to about 6 per cent of the world's coffee production. During the same year, the area harvested under the AAA program accounted for about 2.4 per cent of the global area harvested.

19 The stated objective of C.A.F.E. Practices is to "ensure quality while promoting social, economic and environmental standards" (J. Anderson, Starbucks, personal communication, November 21, 2013). The stated objective of Nespresso AAA program is to "safeguard the future supply of the highest quality coffee, while paying farmers a higher income and protecting the natural environment" (Nespresso, 2010). See also Alvarez et al. (2010) and Renard (2010).

benefit most. However, because of this integration with the private sector, the standards gain depth of integration within corporate supply chains and business planning. Starbucks, for example, has managed to bring 90 per cent of its entire supply in compliance with its standards over the last decade. Similarly, Nespresso reports that 80 per cent of its supply is verified compliant with its standards (2013).[20] Both companies have also continued to source from existing independent certification standards.[21]

Overall, the landscape of sustainable coffee has been one of rapid transformation from a niche market to a fully recognized strategic business management tool for mainstream and specialty coffee companies alike over the past five years. Between 2008 and 2012, the production of certified or verified coffee has grown from an estimated 15 to 40 per cent of global production today. The average annual growth rate of global certified or verified coffee production over these five years, at 26 per cent, continues to outpace growth of global coffee production itself (4 per cent).

20 Nearly 90 per cent of the area harvested under the AAA program is in Brazil, Colombia and India (Nestlé Nespresso Corporate Communications, personal communication, September 26, 2013).

21 Starbucks has a partnership with Fairtrade, while Nespresso has a partnership with Rainforest Alliance. Moreover, Nespresso recently made a public commitment to source 10 per cent of its coffee from Fairtrade (Yeomans, 2013).

8.3 MARKET PERFORMANCE

TABLE 8.2 IMPORTANCE OF VOLUNTARY SUSTAINABILITY STANDARD (VSS) COFFEE PRODUCTION AND SALES RELATIVE TO THE GLOBAL MARKET.

	VSS production (mt)	VSS production market share of global production	VSS production market share of global exports	VSS sales (mt)	VSS sales market share of global production	VSS sales market share of global exports
AAA	247,114	3%	4%	no data	NA	NA
4C Association	1,782,058	22%	26%	152,708	2%	2%
C.A.F.E. Practices	457,339	6%	7%	222,550	3%	3%
Fairtrade	430,000	5%	6%	128,000	2%	2%
Organic	248,767	3%	4%	133,163	2%	2%
Rainforest Alliance	265,565	3%	4%	129,846	2%	2%
UTZ Certified	715,648	9%	11%	188,096	2%	3%
Global VSS production / sales (mt, %), adjusted for multiple certification	3,300,000	40%	49%	840,000	10%	12%

4C Association

In 2012, the implementation of the baseline standard generated the largest volume of coffee in conformity with a sustainability standard. In 2012 approximately 1.8 million metric tons were compliant with 4C Association standards, cultivated on 1 million hectares. 4C Association production accounted for an estimated 42 per cent of total certified or verified production, and 22 per cent of global production overall. About 90 per cent of 4C-verified production was concentrated in Brazil, Vietnam and Colombia in 2012[22] (see Figure 8.6, 4C coffee production volume by country, 2012., and Table 8.3, 4C-compliant coffee area harvested, production and sales, by country, 2012.). In these countries, 4C verification accounts for significant portions of domestic production: 57 per cent in Colombia, 37 per cent in Brazil and 25 per cent in Vietnam.[23] Brazil's verified production grew the most from 2011 to 2012, nearly doubling from 505,000 metric tons to 977,000 metric tons.

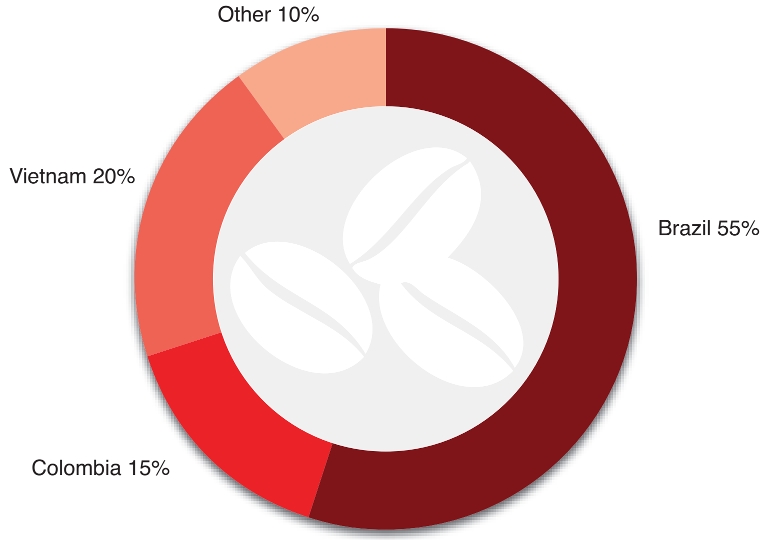
Since 2008, production of 4C-compliant coffee has increased from 367,000 metric tons to 1.8 million metric tons, for an average annual increase of 49 per cent. Sales of 4C-compliant coffee have grown at an average annual rate of 90 per cent over the last five years, indicating a growth in relative uptake of the product; purchases of 4C-compliant coffee as a percentage of global production grew from 3 per cent in 2008 to 12.5 per cent in 2012[24] (see Figure 8.7 and Table 8.4). Notwithstanding the recent growth in sales, 4C continues to exhibit massive oversupply, with a mere 12.5 per cent of total production actually being sold as 4C compliant in 2012. This is significantly below the industry average of 25 per cent of production being sold as sustainable. Nevertheless, the recent growth of purchases of 4C sales suggests substantial closing of this gap moving forward is possible (in 2008 only 3.2 per cent of 4C production was sold as 4C compliant).

22 Notwithstanding, increasing amounts of 4C compliant coffee will be available from other regions (A. Bruestle, 4C Association, personal communication, December 13, 2013).

23 4C producer members also exist in Cameroon, China, Costa Rica, Côte D'Ivoire, El Salvador, Ethiopia, Guatemala, Honduras, Kenya, Laos, Malawi, Mexico, Papua New Guinea, Peru, Tanzania and Uganda.

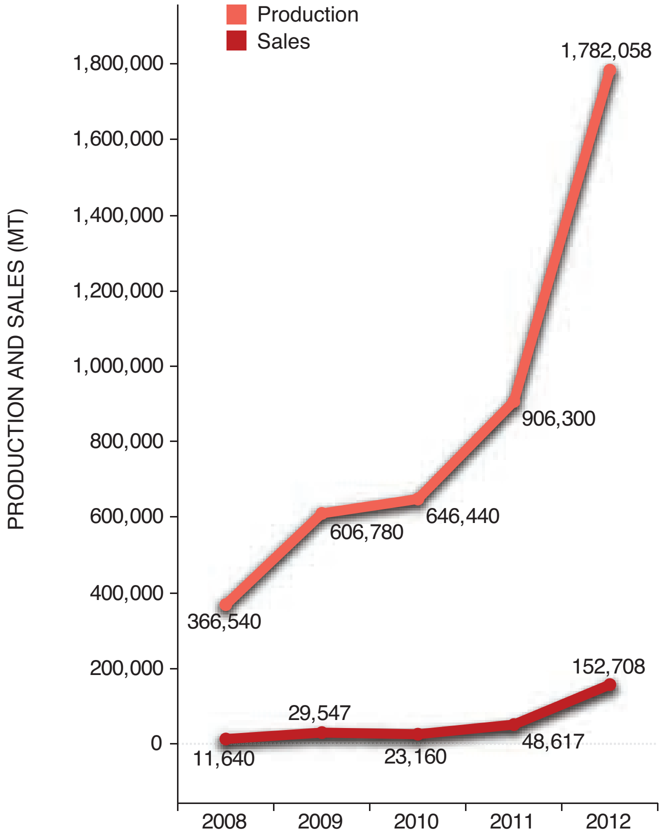
24 Taking into account a normalization of the crop year (production) with the calendar year (sales), the baseline was about 12.5 per cent (A. Bruestle, 4C Association, personal communication, 2013). Using the raw data, the sales-to-production ratio is about 8.5 per cent.

FIGURE 8.6 4C COFFEE PRODUCTION VOLUME BY COUNTRY, 2012.



Source: A. Bruestle, 4C Association, personal communication, February 6, 2013.

FIGURE 8.7 4C COFFEE PRODUCTION AND SALES, 2008–2012.



Source: A. Bruestle, 4C Association, personal communication, February 6, 2013.

TABLE 8.3 4C-COMPLIANT COFFEE AREA HARVESTED, PRODUCTION AND SALES, BY COUNTRY, 2012.

	Area harvested (ha)	Production (mt)
Brazil	568,746	977,096
Colombia	204,983	260,444
Vietnam	98,832	363,448
Other	160,480	181,070
Total	**1,033,041**	**1,782,058**

Source: A. Bruestle, 4C Association, personal communication, February 6, 2013.

TABLE 8.4 4C COFFEE AREA HARVESTED, PRODUCTION AND SALES, 2008–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2008	209,500	366,540	11,640
2009	380,400	606,780	29,547
2010	440,700	646,440	23,160
2011	566,000	906,300	48,617
2012	1,033,041	1,782,058	152,708

Source: A. Bruestle, 4C Association, personal communication, February 6, 2013.

Fairtrade International

In 2012, 430,000 metric tons of Fairtrade certified coffee were produced, making it the third-largest supplier of sustainable coffee on the global market. As with many of the other coffee initiatives, Fairtrade's production has relied heavily on Latin American sources, with an estimated 77 per cent of Fairtrade coffee production coming from Latin America and 57 per cent coming from just three countries: Colombia (28 per cent), Peru (16 per cent) and Brazil (13 per cent) (see Figure 8.8, Fairtrade coffee production volume by country, 2010–2011. and Table 8.5, Fairtrade coffee production by country, 2011.). Although Fairtrade is one of the pioneers in sustainability certification, sales of Fairtrade coffee, although still experiencing growth, have not kept up with the pace of growth within the sector more generally.[25] With sales of 128,000 metric tons in 2012, Fairtrade sales were the lowest among the other four competing global initiatives. Per-annum growth of Fairtrade production and sales were identical, at 13 per cent over the last five years, giving rise to a constant ratio of sales to production (30 per cent) over the same period (see Figure 8.9 and Table 8.6).

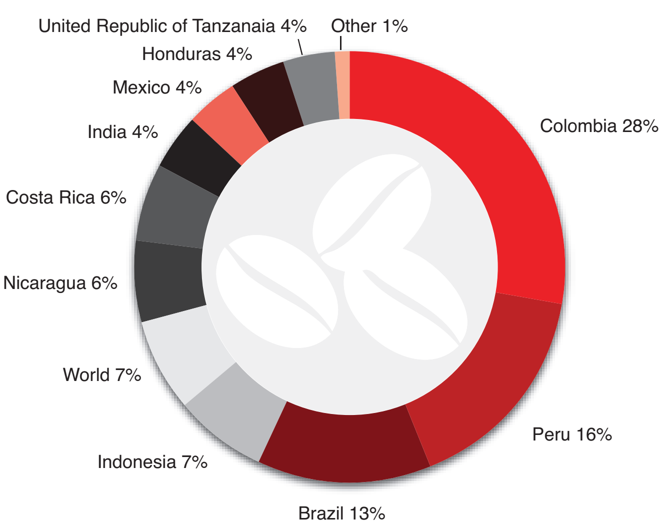
Although the ratio between sales and demand for Fairtrade (34 per cent) is slightly above the industry average (25 per cent), the potential importance of sales versus production is arguably greater within the context of Fairtrade, where many of the criteria relate to the trading relationship itself and therefore *depend* upon actual sales for their fulfillment. For example, farmers seeking to secure the minimum Fairtrade price may produce all of the Fairtrade-compliant coffee they like, but without actual sales will not be able to benefit from this element of the system.

Notwithstanding its relatively lower growth rates, Fairtrade remains a major player in both the production and sales of sustainable coffee. In 2012 Fairtrade accounted for 10 per cent of total certified or verified production and 5 per cent of global coffee production. In Colombia, Peru, Nicaragua and Tanzania, Fairtrade represents 20 per cent or more of domestic production.[26] Notably, in 2012, while no Fairtrade coffee was produced in Vietnam, Indonesian Fairtrade production (27,100 metric tons) was higher than that of any of the other sustainability initiatives. Similarly, Fairtrade's presence in Tanzania shows its potential to develop strong markets in non–Latin American countries.

25 In reality, Fairtrade sales were only marginally lower than Organic and Rainforest Alliance in 2012, with each of the initiatives selling approximately 130,000 metric tons.

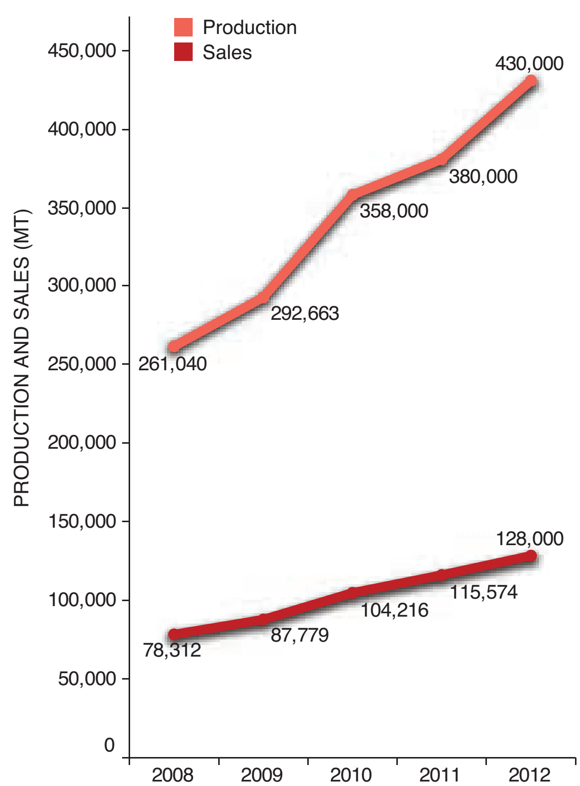
26 Other countries producing Fairtrade coffee: Indonesia (27,100 metric tons, or 5 per cent of domestic production), Nicaragua (23,700 metric tons, or 18 per cent of domestic production), Costa Rica (21,400 metric tons, or 24 per cent of domestic production), India (16,400 metric tons, or 5 per cent of domestic production), Mexico (16,100 metric tons, or 6 per cent of domestic production), Honduras (16,000 metric tons, or 5 per cent of domestic production) and Tanzania (13,800 metric tons, or 43 per cent of domestic production). Approximately 10 per cent of remaining Fairtrade certified production came from other countries. Countries with Fairtrade certified producer organizations for coffee at the time of writing include (other than those listed above) Bolivia, Burundi, Cameroon, Côte D'Ivoire, the Democratic Republic of the Congo, the Dominican Republic, East Timor, Ecuador, El Salvador, Ethiopia, Guatemala, Haiti, Kenya, Laos, Papua New Guinea, Rwanda, Sierra Leone and Uganda.

FIGURE 8.8 FAIRTRADE COFFEE PRODUCTION VOLUME BY COUNTRY, 2010–2011.



Source: FLO, 2012.

FIGURE 8.9 FAIRTRADE COFFEE PRODUCTION AND SALES, 2008–2012.



Sources: L. Beyers, Fairtrade, personal communication, 2013; FLO, 2012.

TABLE 8.5 FAIRTRADE COFFEE PRODUCTION BY COUNTRY, 2011.

	Production (mt)
Colombia	107,200
Peru	61,500
Brazil	50,000
Indonesia	27,100
Other	26,800
Nicaragua	23,700
Costa Rica	21,400
India	16,400
Mexico	16,100
Honduras	16,000
United Republic of Tanzania	13,800
Total	**380,000**

Source: FLO, 2012.

TABLE 8.6 FAIRTRADE COFFEE AREA HARVESTED, PRODUCTION AND SALES, 2008–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2008	683,000	261,040	78,312
2009	No data	292,663	87,779
2010	717,500	358,000	104,216
2011	748,000	380,000	115,574
2012	No data	430,000	128,000

Sources: L. Beyers, Fairtrade, personal communication, 2013; FLO, 2012.

Photo: Rainforest Alliance Guatemala / CC-BY

International Federation of Organic Agriculture Movements (IFOAM, or "Organic")

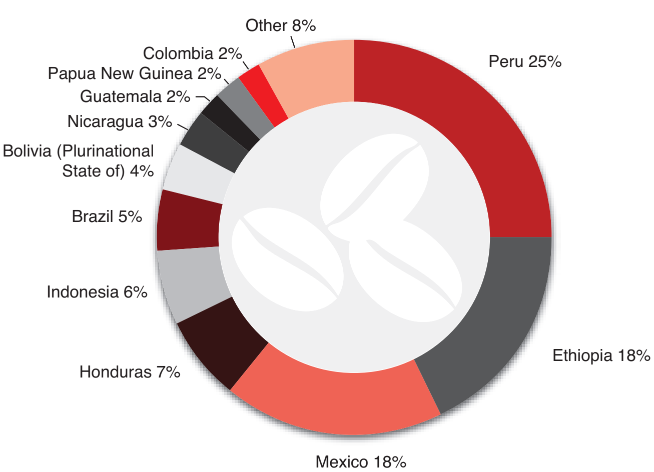
In 2011 Organic coffee production was estimated at 248,767 metric tons, making it the fourth-largest producer of sustainable coffee in that year. Organic production is remarkable for the diversity of its production base and the degree to which its supply diverges from the distribution of conventional coffee at the global level. Although 67 per cent of Organic coffee was sourced from Latin America in 2011, 51 per cent of Organic production came from Peru (25 per cent), Mexico (18 per cent) and Honduras (7 per cent) (see Figure 8.10, Organic coffee production volume by country, 2011., and Table 8.7), showing Organic certification's reliance on smaller producing countries for the majority of its supply base. This trend is repeated in Africa, with a remarkable 18 per cent of Organic supply coming from Ethiopia alone. The unique distribution of Organic supply is arguably a function of the relative comparative advantage that certain regions have in the adoption of Organic agricultural production practices. In Ethiopia, Mexico and Peru, Organic production accounted for 10 per cent or more of total domestic production in 2011, suggesting its importance to these economies.[27]

Based on current trends, we estimate that Organic fell to fifth place in terms of overall production volume of sustainable coffee in 2012. Although Organic is the oldest sustainability standard in the coffee sector, its per-annum growth in production has been well below average for the sector, at 8 per cent. Sales of Organic coffee have grown at the even slower pace of approximately 4 per cent over the last five years (see Figure 8.11 and Table 8.8).

Nevertheless, Organic stands out among the third-party sustainability initiatives for the high percentage of production that it sells as sustainable. In 2011 an estimated 54 per cent (133,000 metric tons) of Organic production was actually sold as Organic, making it the second most important sustainability standard in terms of volume sold in 2011—although, based on reported trends, we estimate that Organic sales fell to third place in 2012, behind UTZ and Rainforest Alliance. Based on our 2012 estimates, Organic accounted for 6 per cent of total certified or verified production and 3 per cent of total global coffee production in that year.

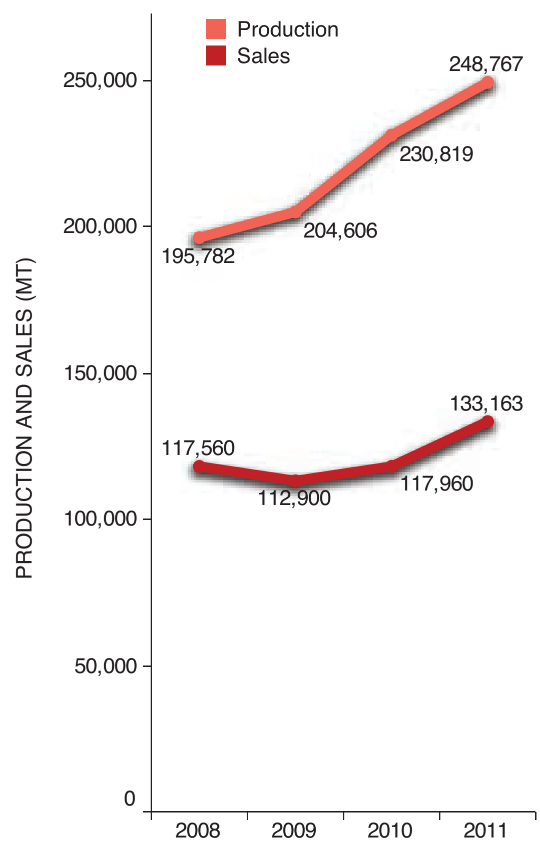
27 Organic is also active in Honduras (18,133 metric tons, or 5 per cent of domestic production), Indonesia (14,700 metric tons, or 3 per cent of domestic production), Bolivia (9,700 metric tons, or virtually all of domestic production) and Tanzania (10,705 metric tons, or 7 per cent of domestic production). Lesser amounts (fewer than 10,000 metric tons) were produced in Nicaragua, Guatemala, Papua New Guinea, Colombia, Dominican Republic, Timor-Leste, Laos, El Salvador, Ecuador, Costa Rica, Madagascar, Nepal, Côte d'Ivoire, Panama, Kenya, Rwanda, Haiti, Jamaica and Cuba.

FIGURE 8.10 ORGANIC COFFEE PRODUCTION VOLUME BY COUNTRY, 2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 8.11 ORGANIC COFFEE PRODUCTION AND SALES, 2008–2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 8.7 ORGANIC COFFEE AREA HARVESTED, PRODUCTION AND SALES BY COUNTRY, 2011.

	Area harvested (ha)	Production (mt)
Bolivia (Plurinational State of)	10,600	9,700
Brazil	12,000	12,000
Colombia	8,200	4,800
Costa Rica	800	600
Côte d'Ivoire	700	300
Dominican Republic	8,452	2,400
Ecuador	3,100	600
El Salvador	3,200	3,300
Ethiopia	112,000	45,845
Guatemala	7,600	5,900
Haiti	100	20
Honduras	22,500	18,133
India	2,000	1,400
Indonesia	38,000	14,700
Jamaica	10	10
Kenya	200	40
Lao People's Democratic Republic	600	400
Madagascar	1,000	300
Mexico	160,000	45,000
Nepal	350	60
Nicaragua	9,400	6,400
Panama	200	269
Papua New Guinea	9,800	5,500
Peru	90,000	62,000
Philippines	50	30
Rwanda	70	30
Thailand	160	60
Timor-Leste	23,000	4,200
Uganda	4,500	2,300
United Republic of Tanzania	5,700	2,300
Vietnam	100	170
Total	**534,392**	**248,767**

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 8.8 ORGANIC COFFEE AREA HARVESTED, PRODUCTION AND SALES, 2008–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2008	420,720	195,782	117,560
2009	460,390	204,606	112,900
2010	507,366	230,819	117,960
2011	534,392	248,767	133,163

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

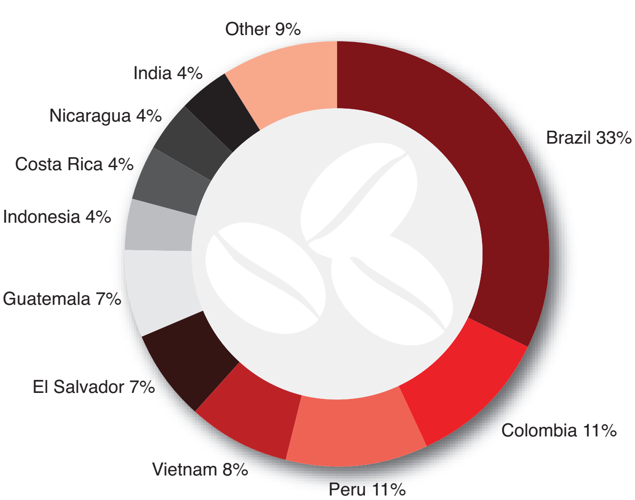
Rainforest Alliance

In 2012, Rainforest Alliance certified coffee accounted for 266,000 metric tons, cultivated on 212,000 hectares, making it the fourth largest producer of sustainable coffee in that year. Nevertheless, it has been a leader in production and sales growth over the last five years (21 per cent and 28 per cent per-annum growth, respectively), second only to 4C. In 2012, Rainforest Alliance coffee accounted for 6 per cent of certified or verified production and 3 per cent of global production. More than half of Rainforest Alliance certified coffee was produced in Brazil (33 per cent of total production), Colombia (11 per cent of total production) and Peru (11 per cent of total production) (Figure 8.12, Rainforest Alliance coffee production volumes by country, 2012., and Table 8.9, Rainforest Alliance coffee area harvested and production, by country, 2012.).[28]

Rainforest Alliance also has a strong presence in a number of other Latin American countries, with 4 per cent or more of the initiative's total production coming from Nicaragua, Costa Rica, Guatemala and El Salvador. Overall, Latin America accounts for 81 per cent of Rainforest Alliance supply.

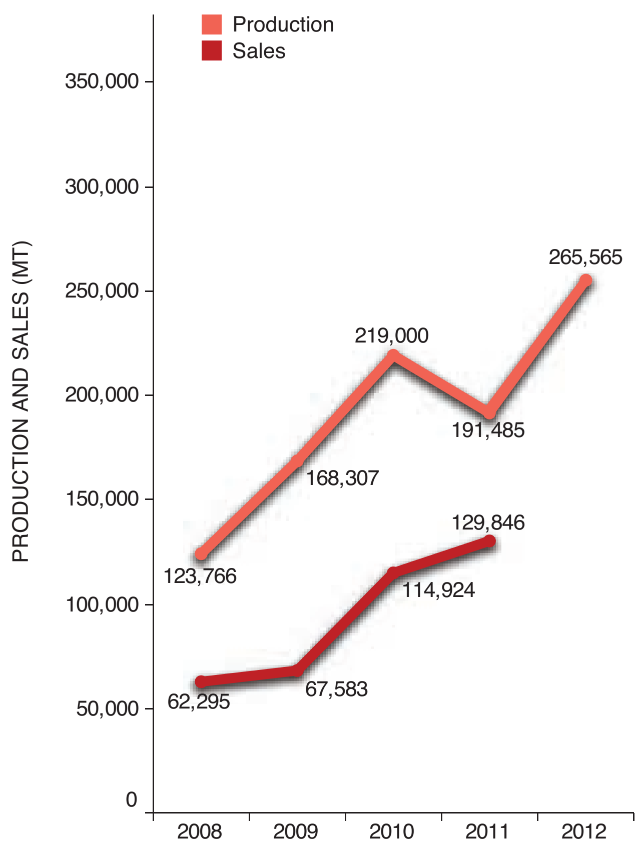
In 2011 Rainforest Alliance displayed significantly less oversupply than other initiatives in the sector, with 68 per cent of total compliant production being sold as sustainable in that year. This was up from 50 per cent in 2008 and represents a higher ratio of sales to production than the industry average (25 per cent) (see Figure 8.13 and Table 8.10 for production and sales growth). However, it is unlikely that the recent growth of Rainforest Alliance production in 2012 has been met by comparable sales growth and, as a result, it is likely that the sales ratio may have returned to something comparable to previous years.

FIGURE 8.12 RAINFOREST ALLIANCE COFFEE PRODUCTION VOLUMES BY COUNTRY, 2012.



Source: C. Guinea, Rainforest Alliance, personal communication, March 24, 2013.

FIGURE 8.13 RAINFOREST ALLIANCE PRODUCTION AND SALES, 2008–2012.



Source: C. Guinea, Rainforest Alliance, personal communication, March 24, 2013.

28 Production volumes of other producing countries involved in the program include Peru (27,379 metric tons, or 8 per cent of domestic production), Vietnam (22,254 metric tons, or 2 per cent of domestic production), El Salvador (16,534 metric tons, or 23 per cent of domestic production), Guatemala (15,765 metric tons, or 7 per cent of domestic production), Indonesia (11,888 metric tons, or 2 per cent of domestic production), Costa Rica (11,547 metric tons, or 13 per cent of domestic production), Nicaragua (10,905 metric tons, or 8 per cent of domestic production) and India (10,563 metric tons, or 3 per cent of domestic production). Fewer than 10,000 metric tons of certified product were also produced in Honduras, Mexico, Kenya, Uganda, Ethiopia, Papua New Guinea, Zambia, Dominican Republic, Panama, Tanzania, the United States, Malawi, Côte d'Ivoire and Jamaica.

TABLE 8.9 RAINFOREST ALLIANCE COFFEE AREA HARVESTED AND PRODUCTION, BY COUNTRY, 2012.

	Area harvested (ha)	Production (mt)
Brazil	40,669	85,517
Colombia	24,312	29,417
Vietnam	6,145	22,254
Costa Rica	7,727	11,547
Côte d'Ivoire	256	115
Dominican Republic	400	362
El Salvador	16,081	16,534
Ethiopia	5,996	1,586
Guatemala	13,587	15,765
Honduras	3,836	7,476
India	10,743	10,563
Indonesia	14,258	11,888
Jamaica	47	100
Kenya	3,767	3,798
Malawi	829	120
Mexico	11,612	4,442
Nicaragua	7,666	10,905
Panama	210	294
Papua New Guinea	1,518	1,224
Peru	40,184	27,379
Uganda	1,938	3,340
United Republic of Tanzania	229	230
United States	142	142
Zambia	270	567
Total	**212,422**	**265,565**

Source: C. Guinea, Rainforest Alliance, personal communication, March 24, 2013.

TABLE 8.10 RAINFOREST ALLIANCE AREA HARVESTED, PRODUCTION AND SALES, 2008–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2008	95,995	123,766	62,295
2009	115,883	168,307	67,583
2010	140,690	219,000	114,924
2011	161,615	191,485	129,846
2012	212,422	265,565	--

Source: C. Guinea, Rainforest Alliance, personal communication, March 24, 2013.

UTZ Certified

As of 2012, UTZ Certified registered the second-largest production volume of sustainable coffee, with 716,000 metric tons certified on 509,000 hectares. Although UTZ sources a significant portion of its coffee from Latin America (61 per cent coming from Brazil, Colombia, Peru and Honduras), it is remarkable for its high level of supply from African and Asian regions (Figure 8.14, UTZ Certified coffee production volume by country, 2012., and Table 8.11, UTZ Certified coffee area harvested, production and sales, by country, 2012.). With a full 28 per cent coming from Asian sources, most notably Vietnam, which accounted for 22 per cent of total UTZ production in 2012, UTZ Certified has distinguished itself by its capacity to bring non-Latin American sources into its supply chain. The largest percentage increase in production in 2012 came from Asia, where Vietnamese Robusta production led growth.

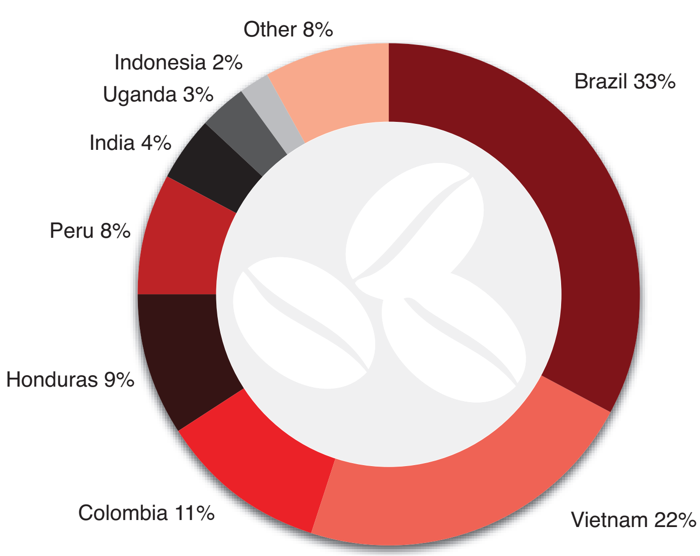
Regarding sales, UTZ registered the largest volume relative to all other voluntary sustainability standards active within the sector, with 187,634 metric tons sold as standard compliant. In 2012 UTZ accounted for 17 per cent of compliant production (certified or verified) and 9 per cent of total global coffee production.

Although UTZ is third in terms of annual production and sales growth (23 per cent and 25 per cent per annum, respectively) over the last five years, it has nevertheless doubled in total volume produced since 2008 (Figure 8.15 and Table 8.12). Not surprisingly, the relatively similar rates of growth for production and sales have led to little change in the ratio of production being sold as sustainable (25 per cent in 2008 versus 27 per cent in 2012). This is the same as the industry average of 25 per cent. Nevertheless, there is a trend toward growing sales, with the organization reporting that all countries involved in the program increased sales versus production in the 2011 season. The only exception was Guatemala, whose sales decreased by 40 per cent.

Notably, Colombia sold only 12 per cent of its UTZ-compliant coffee as UTZ coffee in 2012, signalling more serious oversupply from the country.[29] This may be attributable to the significant penetration of sustainability initiatives within Colombia, with many producers exhibiting compliance with more than a single initiative. Within this context, UTZ's relatively lower capacity to sell as UTZ may be a reflection of the high level of competition for sales within this market. This interpretation would appear to be supported by the relatively higher proportion of sales to production (43 per cent) experienced in Vietnam, where the competition from other initiatives is limited.

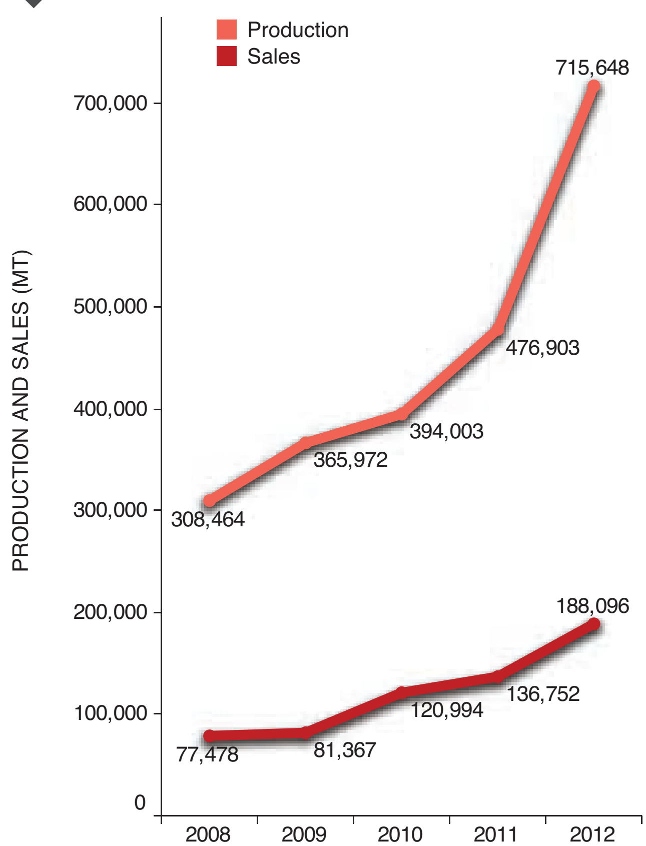
29 It's also important to consider that a high level of multiple certification in Colombia might contribute to a perceived oversupply from UTZ, although the coffee may be bought as standard compliant under other voluntary sustainability standards. The country with the highest levels of UTZ multi-certification with Fairtrade and Rainforest Alliance is Peru, followed by Colombia.

FIGURE 8.14 UTZ CERTIFIED COFFEE PRODUCTION VOLUME BY COUNTRY, 2012.



Source: J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013.

FIGURE 8.15 UTZ CERTIFIED COFFEE PRODUCTION AND SALES, 2008–2012.



Source: J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013.

TABLE 8.11 UTZ CERTIFIED COFFEE AREA HARVESTED, PRODUCTION AND SALES, BY COUNTRY, 2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
Brazil	99,148	232,336	79,666
Vietnam	44,647	158,986	38,669
Colombia	48,518	78,171	9,218
Honduras	46,863	64,408	27,920
Peru	87,291	58,452	6,278
India	25,549	31,549	8,815
Uganda	48,751	18,609	1,906
Indonesia	17,951	17,527	2,108
Guatemala	13,285	15,997	2,715
Nicaragua	15,813	13,704	3,282
Mexico	12,240	7,891	2,107
Kenya	9,411	7,801	2,548
Ethiopia	13,969	3,693	568
Costa Rica	1,966	1,857	1,052
Papua New Guinea	2,008	1,461	573
United Republic of Tanzania	13,105	1,381	235
Zambia	270	424	36
Bolivia (Plurinational State of)	360	377	228
Congo	5,962	313	no data
Burundi	890	286	58
Dominican Republic	195	204	115
El Salvador	298	184	0
Rwanda	175	39	0
Total	**508,661**	**715,648**	**188,096**

Source: J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013.

TABLE 8.12 UTZ CERTIFIED COFFEE AREA HARVESTED, PRODUCTION AND SALES, 2008–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2008	no data	308,464	77,478
2009	no data	365,010	81,367
2010	261,453	394,003	120,994
2011	320,308	476,903	136,752
2012	508,661	715,648	188,096

Source: J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013.

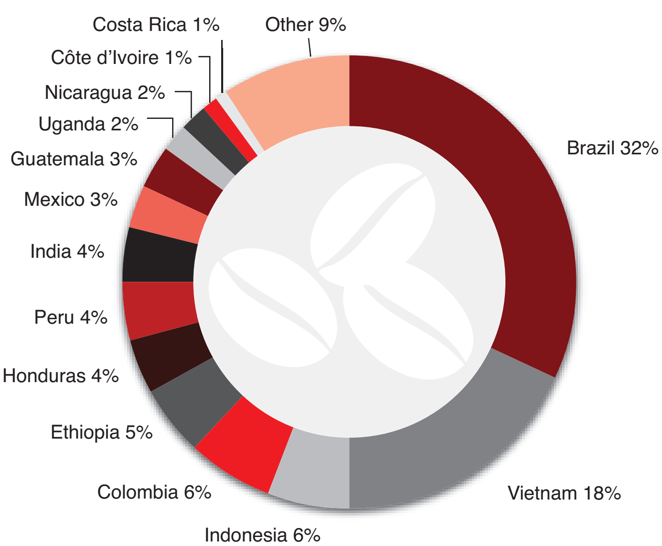
Global coffee production has been dominated by Latin America for much of the last century. More recently, production has been shifting somewhat towards Asian sources—most notably, Vietnam. The supply of sustainable coffee is concentrated in similar areas, but with a higher degree of concentration. In 2012 Latin America accounted for approximately 58 per cent of global coffee production but 77 per cent of sustainable coffee production (see Figure 8.16 and Figure 8.17). Table 8.13 shows the sustainability intensity for the 20 largest coffee producers (or proportion of domestic production under sustainable production).

Five of the seven countries with a sustainability intensity of 30 per cent or more are Latin American. Colombia is notable as the country with the highest sustainability intensity, having more than 60 per cent of its total production either certified or verified as sustainable. Colombia is also remarkable for the significant presence of sustainable production across all of the initiatives except Organic, giving it a highly diverse production base for sustainable markets. Peru has also excelled at reaching a high level of sustainable production—registering an intensity of greater than 30 per cent—through a high diversity across all of the initiatives. By contrast, other leaders such as Brazil and Vietnam, with 40 per cent and 30 per cent of production qualifying as standard compliant, respectively, rely heavily on 4C and UTZ for their sustainable supply and, as such, have entered sustainable markets more recently. Tanzania, on the other hand, stands out with 43 per cent of its production being certified as sustainable, through an almost exclusive relationship with Fairtrade (Figure 8.18).

Over the past several years, division in production for verified versus certified sustainable coffee markets has emerged, with verified coffee production coming primarily from the largest producers (Brazil, Vietnam and Colombia) and certified production coming from a wider range of "semi-major" producers (including Peru, Mexico, Nicaragua, Costa Rica and Honduras).

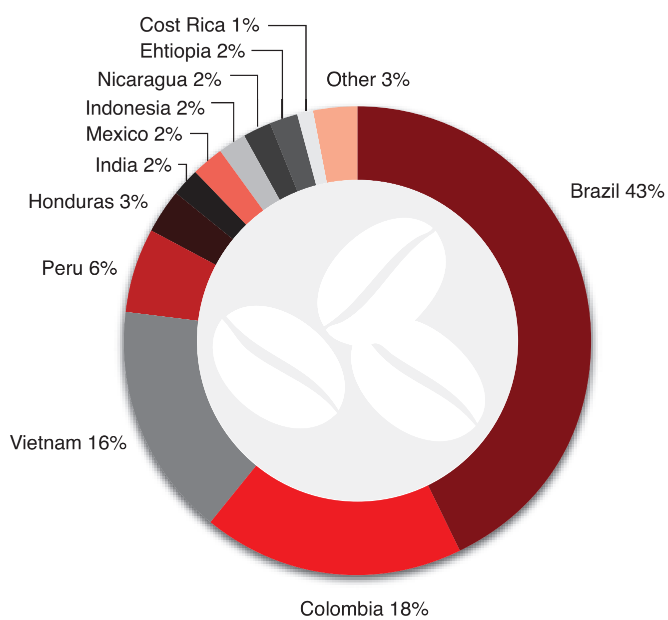
Overall, the distribution of sustainable production appears to be closely connected to a combination of historical linkages and capacity for commercialization associated with larger producing countries and Latin America more generally. With the exception of Kenya and Tanzania, Africa has been disproportionately under-represented as a supplier to sustainable markets (Figure 8.19).

FIGURE 8.16 GLOBAL COFFEE PRODUCTION BREAKDOWN BY COUNTRY (INCLUDES CONVENTIONAL AND STANDARD-COMPLIANT), 2012.



Source: ICO, 2013a.

FIGURE 8.17 STANDARD-COMPLIANT COFFEE PRODUCTION BY COUNTRY, 2012.



Sources: FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 8.13 STANDARD-COMPLIANT PRODUCTION AS A PERCENTAGE OF TOTAL NATIONAL PRODUCTION FOR 20 LARGEST COFFEE PRODUCERS, 2012.

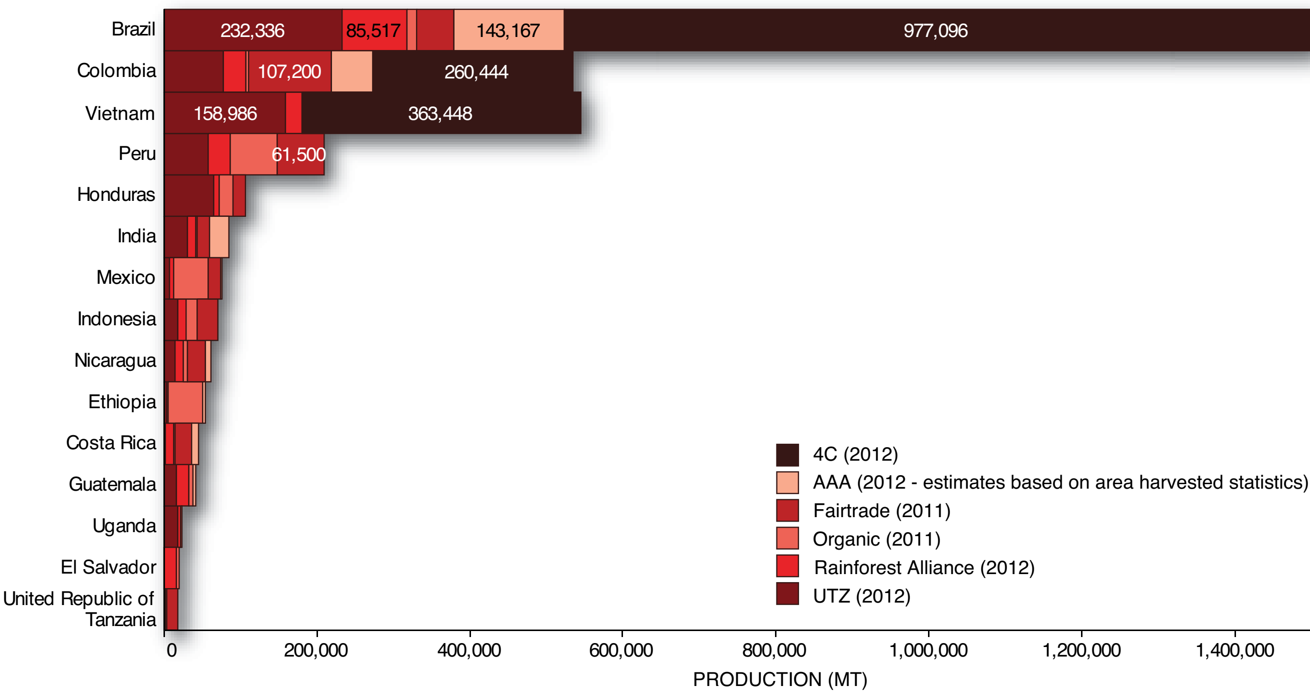
Dashes represent negligible or no standard-compliant production relative to national production; they may also reflect an absence of data. double or multiple certification also occur in Peru (79 per cent overlap in UTZ/Rainforest Alliance, 99 per cent UTZ/Organic, 33 per cent UTZ/4C, and approximately 100 per cent Organic/Fairtrade).

	4C	Fairtrade	Organic	Rainforest Alliance	UTZ Certified	Adjusted aggregate*
Brazil	37.5%	1.9%	0.5%	3.3%	8.9%	41%
Vietnam	25.2%	-	-	1.5%	11.0%	30%
Colombia	56.9%	23.4%	1.0%	6.4%	17.1%	>60%
Indonesia	-	5.2%	2.8%	2.3%	3.4%	11%
Peru	-	18.4%	18.5%	8.2%	17.5%	>30%
Honduras	-	4.5%	5.1%	2.1%	18.2%	24%
Ethiopia	-	-	11.2%	0.4%	0.9%	10%
India	-	5.2%	0.4%	3.4%	10.0%	15%
Mexico	-	5.9%	16.4%	1.6%	2.9%	21%
Guatemala	-	-	2.6%	6.8%	6.9%	13%
Uganda	-	-	1.4%	2.0%	11.0%	11%
Nicaragua	-	17.9%	4.8%	8.2%	10.3%	33%
Costa Rica	-	24.4%	0.7%	13.2%	2.1%	32%
Côte d'Ivoire	-	-	0.3%	0.1%	-	0%
Papua New Guinea	-	-	6.5%	1.4%	1.7%	8%
El Salvador	-	-	4.7%	23.5%	0.3%	22%
Ecuador	-	-	0.9%	-	-	1%
Kenya	-	-	0.1%	9.3%	19.1%	23%
Thailand	-	-	0.1%	-	-	0%
United Republic of Tanzania	-	43.1%	7.2%	0.7%	-	40%

*All figures in the aggregate column are downward adjusted for multiple certifications, using the median between the minimum and maximum values (100 per cent and 0 per cent multiple certification levels, respectively). Red text signals intensities that have been adjusted using other means, based on the presence of suspected higher levels of double certification or suspected lower levels of double certification. For example, Colombia also houses significant volumes of double- and multiple-certified production (e.g., 72 per cent overlap in UTZ/Rainforest Alliance, 63 per cent UTZ/Fairtrade, and 9 per cent Organic/Fairtrade). Significant amounts of

Sources: A. Bruestle, 4C Association, personal communication, February 6, 2013; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; ICO, 2013a; Nestlé Nespresso Corporate Communications, personal communication, September 26, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

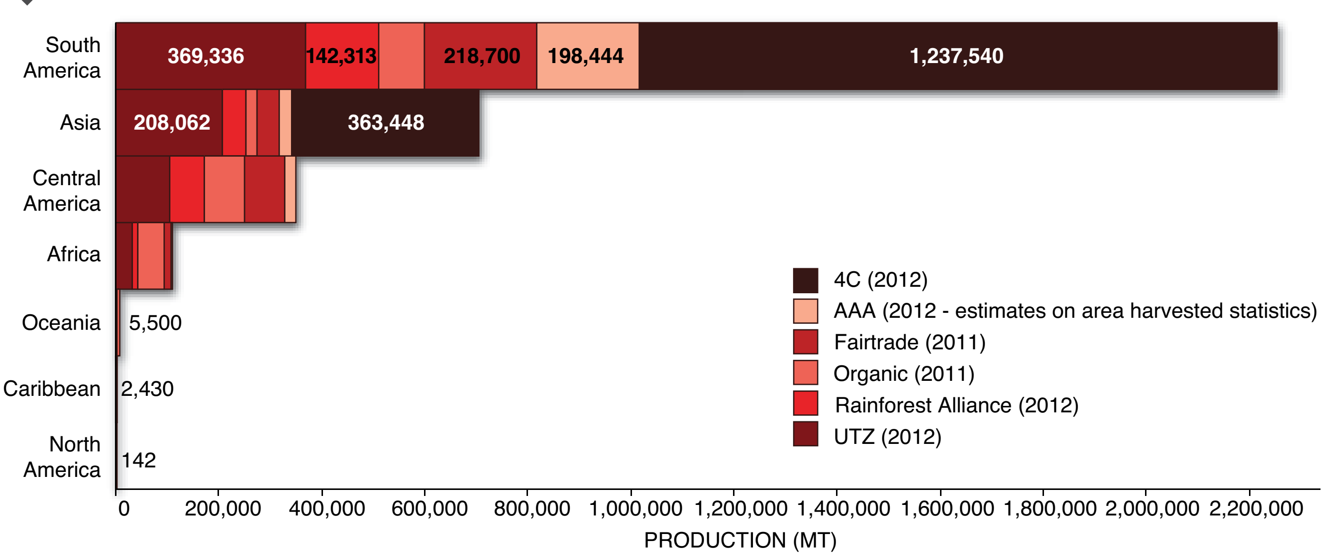
FIGURE 8.18 STANDARD-COMPLIANT COFFEE PRODUCTION BY COUNTRY, 2011/2012.



Where space permits, data points are visible.

Sources: A. Bruestle, 4C Association, personal communication, February 6, 2013; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 8.19 STANDARD-COMPLIANT COFFEE PRODUCTION BY CONTINENT, 2011/2012.



Where space permits, data points are visible.

Sources: A. Bruestle, 4C Association, personal communication, February 6, 2013; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, March 24, 2013; J. Rijkenberg, UTZ Certified, personal communication, March 19, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

8.5 PRICING AND PREMIUMS

While pricing, and economic conditions more generally, are widely recognized as major sustainability challenges in the coffee sector, there is little consensus among coffee standards as to how to best address issues of economic sustainability within the sector. What is clear, however, is that pricing and premium rules offer but one mechanism for addressing economic uncertainty; better farm management practices, increased organization and improved relations with buyers all play important roles as well.

As such, the range of approaches for dealing with premiums is highly diverse, including setting a fixed baseline price combined with a fixed "above market" premium (Fairtrade), stipulating a fixed premium when specific conditions are met (C.A.F.E. Practices), facilitating a more transparent market for sustainable coffee transactions as a basis for improving the bargaining position of producers (UTZ), and case-by-case and/or market-based premiums (Rainforest Alliance and 4C Association).

Fairtrade has traditionally placed pricing and premiums as one of the flagship components of its certification scheme, with the standard requiring both the payment of a minimum price and the additional payment of a social premium above and beyond the minimum price (FLO, 2011a). As of 2013, the minimum price for Fairtrade coffee was US$1.40 per pound (washed Arabica), while the required social premium was US$0.20 per pound. Between 2010 and 2013, the average composite price for coffee was above the Fairtrade minimum, suggesting that only the social premium resulted in "additional revenue" to coffee producers over these years. Based on the 2012 average composite price of US$1.56, the straight Fairtrade social premium amounted to a 13 per cent premium.[30] Fairtrade social premiums are meant to be distributed by producer organizations to projects such as reinvestment in production or processing systems, school facilities and baseball pitches.[31] Fairtrade reports that the total value of Fairtrade premium revenues increased 9 per cent from the 2009–2010 season to the 2010–2011 season, reaching €19 million (FLO, 2012).

The Organic coffee market is the most mature among the voluntary sustainability initiatives. As a general rule, the premiums associated with Organic are closely linked with overall quality (Giovannucci & Villalobos, 2007). As Organic gains in popularity and other competing initiatives enter into the market, there has been a trend toward premium decline in the market.[32] Reports of premiums of 25 per cent to 35 per cent in the early to mid-2000s were common.[33] More recent premiums associated with Organic production, however, have been reported as averaging between 10 per cent and 15 per cent (ITC, n.d.). Double Fairtrade-Organic certified coffee represents an exception to this general rule, receiving the Fairtrade minimum price and the Fairtrade social premium as well as an additional Organic premium of US$0.30 per pound. Based on the 2012 average composite price, the estimated premium for Fairtrade-Organic (Arabica, washed) coffee was approximately 30 per cent.

UTZ Certified is unique among the coffee standards for the detail with which it records the pricing and premiums related to certified sales. In 2012, UTZ reported an average premium of US$0.04 (or 2.5 per cent based on the 2012 ICO composite price), representing a slight increase over the year prior but down from its high of US$0.05 in 2009. As with other standard-compliant coffees, premiums for Arabica varieties tend to be higher in light of the higher quality markets they tend to serve. Trends in the delivery of premiums for UTZ Certified coffees, however, may point towards a more general closing of this gap across the voluntary sustainability standard sector. Records of UTZ Certified prices reveal that the difference in premiums across varieties has decreased considerably over the past few years, with Arabica earning a modest 25 per cent higher premium than UTZ Certified Robusta in 2012 (as compared with 100 per cent higher in 2011). This finding is also in line with general market trends, which have seen a general closing in the price differential between Arabica and Robusta varieties over the same period (ICO, 2013c).

Price premiums paid for coffee in India and Vietnam accounted for much of the Robusta variety premium increase year over year, as did recent positive price swings for Robusta varieties. The UTZ Certified (2012b) *Supply and Demand Update* provides useful insights into the variability of premiums under the program, which may serve as indicators of determinants of premiums with other sustainable coffees as well:

- Colombia, Brazil, Mexico, India and Ethiopia, on average, receive higher premiums for UTZ Certified coffee than UTZ Certified coffees from other sources (see Figure 8.20)—the high Colombian premium is due to purchases of high-quality Arabica Excelso beans.
- Tanzania, Honduras and Vietnam, on average, receive the lower premiums, but Honduras and Vietnam have the highest max premiums paid.

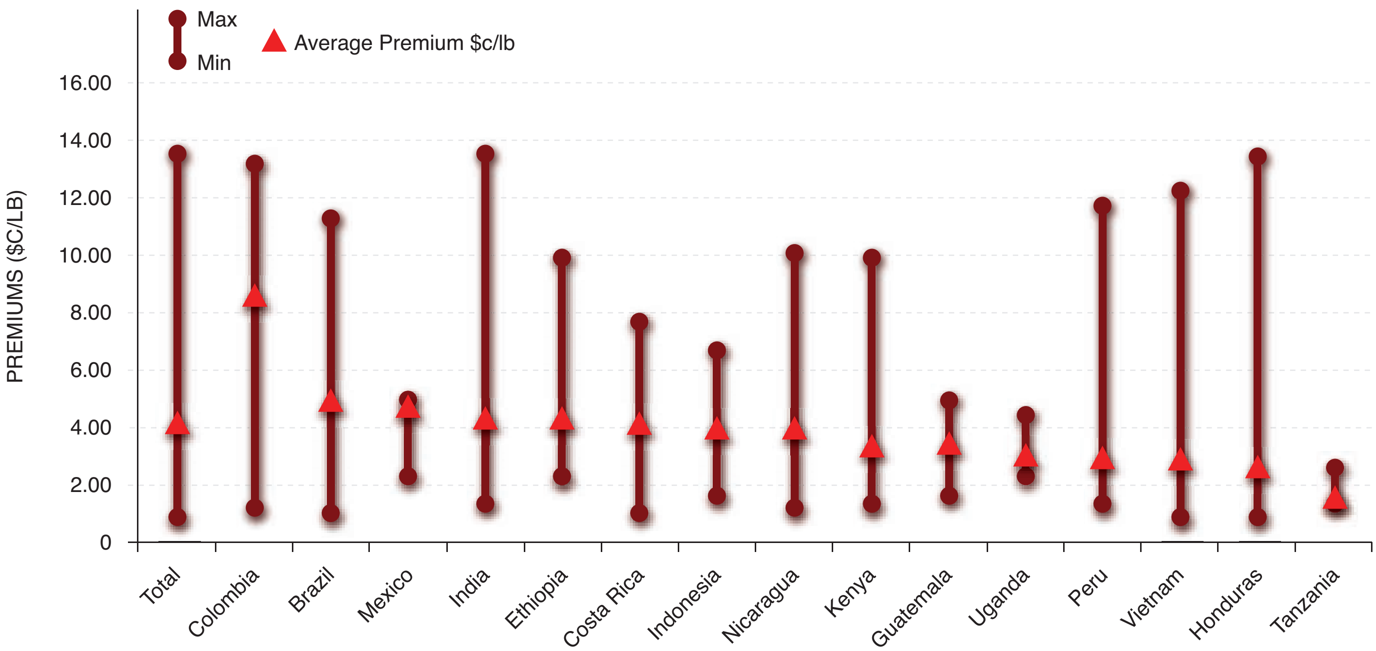
30 Note that the Fairtrade premium amounts to an 11 per cent gain over the average ex-dock New York price for 2012.

31 US$0.05 per pound of these premiums are earmarked for productivity and quality control efforts.

32 Note the decline in Organic premiums over the past decade may also be linked to the trend toward rising coffee prices. Higher prices on the international market have a tendency to reduce premiums commanded on niche market products (see Potts, 2007).

33 Reported premiums of US$0.22 per pound were observed for "Other Mild Arabicas" in 2001 where the global price averaged around US$0.62 per pound (IndexMundi, 2013c), giving a premium of 35 per cent (Bacon, 2005). A 2007 study of the North American coffee market found Organic coffee premiums to range from US$0.10 to US$0.60 per pound, averaging at US$0.24 or 22 per cent based on the 2007 international composite price (US$1.07) (A. Villalobos, CIMS, personal communication, 2007); see also CIMS (2002, 2005) and Giovannucci & Villalobos (2007).

FIGURE 8.20 UTZ CERTIFIED COFFEE, WEIGHTED AVERAGE PREMIUMS BY COUNTRY, 2012 (US$C/LB).



Source: UTZ Certified, 2012b.

Pricing data on Rainforest Alliance and 4C coffees[34] are scarce due to the absence of requirements or systematic monitoring of initiative-related pricing. Rainforest Alliance reported premiums of around 8 per cent in 2009,[35] which agrees with another study's reported premiums for one Rainforest Alliance certified cooperative—from 3 to 10 per cent over the three years 2006–2008, with an average premium of about 8 per cent.[36] 4C reports that producers and traders have cited premiums of between US$0.02 and US$0.04 per pound (equivalent to 1–2 per cent of 2012 ICO composite price), although this is observed to vary on a country-by-country basis.

34 In this review "4C coffees" and "4C coffee" refer to "4C-compliant coffee."

35 The organization reported an US$0.11 per pound premium for Rainforest Alliance coffee, while prices for "Other Mild Arabicas" averaged around US$1.40 per pound in 2009.

36 This corresponds to the price that was paid to farmers by a cooperative in Peru (Barham & Weber, 2012).

8.6 CHALLENGES AND OPPORTUNITIES

In many ways, the coffee sector has operated as the testing ground for many of the sustainability initiatives operative across commodities today. As such, the sustainable coffee market is one of the most mature markets currently in operation. One of the key attributes of mature markets, namely reduced growth, is observed within Fairtrade and Organic, the most mature initiatives within the sector. The more recent awareness and uptake of sustainability issues by the mainstream sector over the course of the last decade, however, has created major opportunities for market growth, as signalled by the development of new initiatives such as UTZ Certified and 4C. As a result, the growth of both production and sales of sustainable coffee—across all initiatives—has continued at a rapid pace, well above the global production and sales growth of conventional coffee. Current trends suggest not only that sustainable coffee is here to stay, but that conformity with one standard or another will soon become a requirement for market entry.

It is important to note, however, that supply of sustainable coffee has historically been far above actual demand, with certified producers typically selling only a portion of their standard-compliant production as certified or verified. All voluntary standards, with the exception of in-house standards such as C.A.F.E. Practices and Nespresso, and perhaps Organic, exhibit significant oversupply, with sales volumes being far lower than actual production volumes. This is not necessarily undesirable, as companies—including Mondelēz International (Kraft Foods Inc., 2011; Mondelēz International, n.d.-b), Nestlé (Nestlé, 2013a), Sara Lee, now DE Masterblenders 1753 (Sara Lee Corporation, 2011), Tchibo (Kuhrt, 2013) and Starbucks (J. Anderson, Starbucks, personal communication, November 21, 2013)—have all made specific commitments to sustainable coffee sourcing moving forward. Several of these companies have significant room to grow in the coming years and will need supply beyond that which is currently being purchased to meet coming demand (see, for example, Kuhrt, 2013).

Nevertheless, systemic oversupply could lead to reduced benefits for sustainable producers, while limiting opportunities for entry of producers not yet certified or verified. Historically, the supply of sustainable coffee has been more concentrated than the supply of conventional coffee. This makes sense given the expected time delays in transitioning production to sustainable practices, but a more disconcerting feature of the concentration is its geographic localization in more developed regions such as Latin America. Importantly, the concentration of sustainable production in the Latin American region has remained constant over the past five years, signalling the potential role of voluntary standards as *systemic* barriers to entry for more marginalized producers and regions. This is particularly a concern for African producers in general, who have seen very little growth in production or sales of sustainable coffee over the last five years. In addition, this remains a serious concern for proponents of a "needs-based" approach to sustainable development, which proactively seeks to secure the "needs of those most in need" as part of a broader approach to sustainable development.

For the time being, however, ample opportunity exists for growth and increased inclusiveness. Taking nothing more than existing private sector commitments for sustainable sourcing, the global market for sustainable coffee is set to continue on a path of significant growth and can be expected to reach a critical mass, accounting for more than 50 per cent of global production within the next five years.

Given this, it will be critical for the industry that the impacts of these organizations be objectively evaluated and their strategies adjusted to optimize their performances given modern developments in markets. To date, there remains little in the way of science-based, comparative analysis of the field-level impacts of such initiatives. Although this is slowly changing as voluntary sustainability standards and other stakeholders begin to implement their own systemic impact evaluation programs, the leveraging of voluntary standards effectively within the sector will depend upon a better understanding of which initiatives are having the desired impacts, and where.

The liberalization of coffee markets has been a key driver in the proliferation of voluntary sustainability standards within the industry, but this has also resulted in a privatization of extension services and technical assistance, which now, in a large way, falls upon voluntary sustainability standards and partner organizations to provide. Given the reach that voluntary standards have attained within the sector, they can provide an invaluable opportunity for collaboration and help ensure a healthy and sustainable coffee crop on a global level moving forward, but doing so will almost certainly entail more than merely ensuring "compliance" with a particular set of standards. Technical assistance and continual improvement will be critical and costly pillars of the transformation to fully sustainable supply chains, and will demand ongoing vigilance and investment by private and public sectors alike.[37]

37 The Sustainable Commodity Assistance Network, originally launched by the Sustainable Commodity Initiative, represents a unique partnership between different standards bodies seeking a more unified and concerted technical assistance strategy for ensuring both compliance with standards and overall quality improvement through good agricultural practices (Sustainable Commodity Initiative, n.d.).

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9 COTTON MARKET

Cotton is primarily produced for its fibre ("cotton lint"), which is used as a textile raw material. Its seed is also used as cattle feed, or crushed to make oil. The shrub, whose seed and surrounding lint is termed a "boll," is native to the Americas, Africa and India. Cotton has been cultivated since antiquity, but its use was industrialized after the invention of the mechanical cotton gin in 1793, which allowed for the efficient extraction of cottonseed from its fibre. The consumption of cotton grew to well over 40 per cent of the world's fibre consumption in the 1990s, but has since dropped to about one-third (U.S. Department of Agriculture (USDA) Foreign Agriculture Service, 2012), largely due to consumption of new synthetic fibres. In 2012, 27.2 million metric tons of cotton lint were produced by about 100 million farmers (Valderrama, 2005) on 0.7 per cent of the world's agricultural land (see Table 9.1), about one-third of which was exported, for a total export value of US$20.2 billion (USDA, 2013c). As a reference, the larger textile trade was worth US$294 billion in 2011.[1]

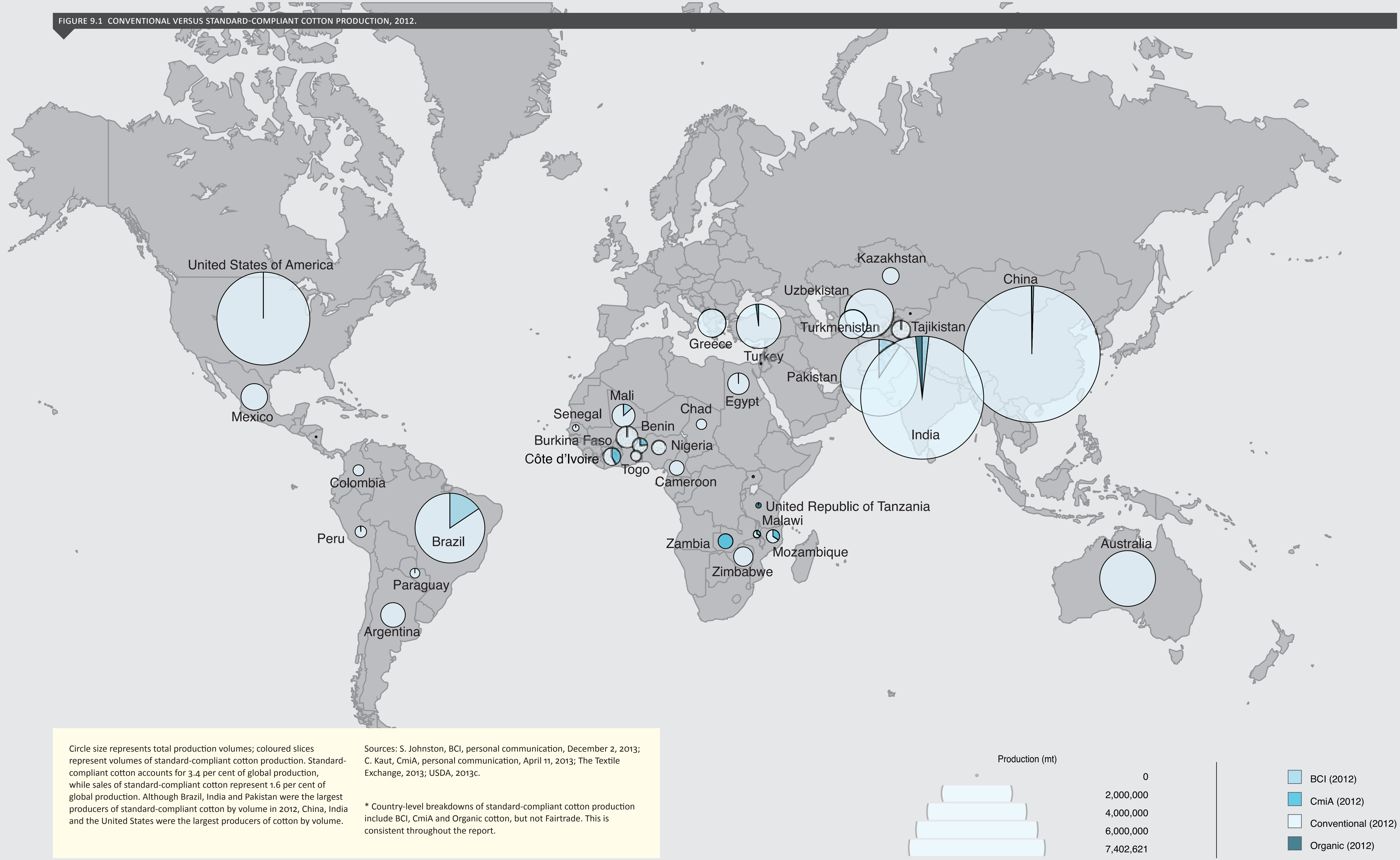
Cotton has the potential to provide a sustainable source of textile fibre, notably in that it is renewable, recyclable, and drought and saline tolerant; it can be cultivated in areas where few other cash crops would survive. When cultivated using suboptimal agricultural practices, however, cotton production can have significant impacts on its surrounding ecosystem and communities. Although forced labour once dominated the discussion of cotton and sustainability (most infamously, during the U.S. Civil War), environmental, social and economic concerns including pesticide use, water use, genetically modified organisms (GMOs) and government subsidies have come to the forefront over the last two decades, demonstrating that "sustainability and cotton" is a complex topic—one that can only be addressed and achieved through approaches adapted to local context.[2]

Cotton fibre is cultivated on both plantations and smallholdings and is harvested both mechanically and by hand. Well over three-quarters of annual global cotton production is now genetically modified (International Service for the Acquisition of Agri-Biotech Applications (ISAAA), 2012a), and about half the global area harvested is irrigated (accounting for 73 per cent of production; Ferrigno, 2012). This context has set the stage for the entry of two major international, multisector voluntary sustainability standards, Fairtrade and Organic, as well as two new sector-specific initiatives, the Better Cotton Initiative (BCI) and Cotton made in Africa (CmiA). In 2012, 933,000 metric tons of cotton were produced in compliance with a sustainability standard (3.4 per cent of global production; see Figure 9.1), of which 448,000 metric tons were sold as standard compliant (48 per cent of standard-compliant production, 1.6 per cent of global production and 4.8 per cent of global exports). Brazil and India and Pakistan were the largest producers of standard-compliant cotton by volume in 2012; Figure 9.12 breaks this down by standard.

1 The apparel trade was worth US$412 billion during the same year (Fukunishi, Goto & Yamagata, 2013).

2 This is the case in many sectors, but notably even more so in cotton, due to the plant's finicky growth cycle and massive variance in production systems across countries and regions.

FIGURE 9.1 CONVENTIONAL VERSUS STANDARD-COMPLIANT COTTON PRODUCTION, 2012.



Circle size represents total production volumes; coloured slices represent volumes of standard-compliant cotton production. Standard-compliant cotton accounts for 3.4 per cent of global production, while sales of standard-compliant cotton represent 1.6 per cent of global production. Although Brazil, India and Pakistan were the largest producers of standard-compliant cotton by volume in 2012, China, India and the United States were the largest producers of cotton by volume.

Sources: S. Johnston, BCI, personal communication, December 2, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; The Textile Exchange, 2013; USDA, 2013c.

* Country-level breakdowns of standard-compliant cotton production include BCI, CmiA and Organic cotton, but not Fairtrade. This is consistent throughout the report.

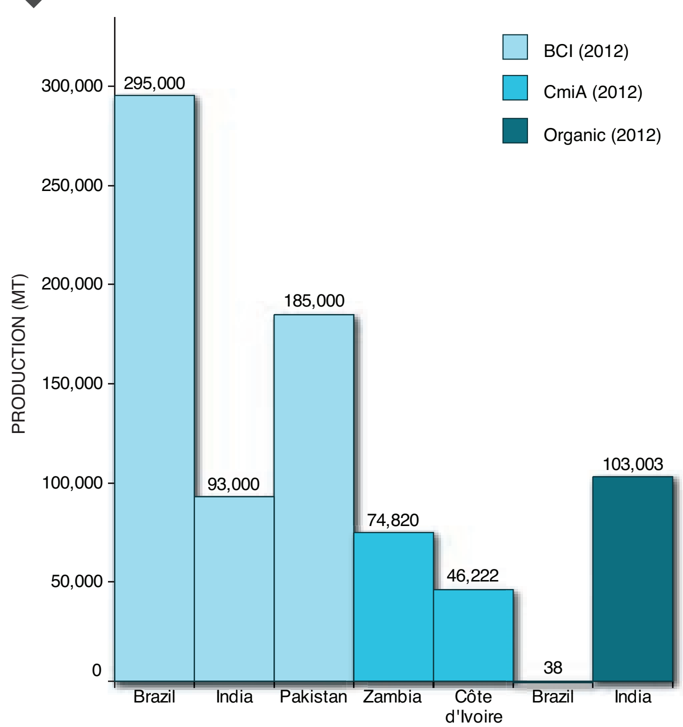
TABLE 9.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR COTTON PRODUCTION AND TRADE (STATISTICS REFER TO COTTON LINT OR COTTON LINT EQUIVALENT).

KEY STATISTICS

Top 5 producers (80% of global) (2012)	China (28%), India (23%), United States (13%), Pakistan (9%), Brazil (7%)
Top 5 producers of standard-compliant cotton (86% of global) (2012)	Brazil (30%), Pakistan (22%), India (21%), Zambia (8%), Côte d'Ivoire (5%)
Top 5 exporters (75% of global) (2012)	United States (26%), India (24%), Australia (10%), Brazil (10%), Uzbekistan (5%)
Top 5 importers (75% of global) (2012)	China (54%), Turkey (5%), Bangladesh (7%), Indonesia (5%), Vietnam (4%)
Global production (2012)	27.2 million metric tons
Global exports (2012)	10.0 million metric tons (37% of production)
Trade value (2012)	US$20.2 billion
Global area harvested (2012)	35.7 million hectares (0.7% of agricultural area – compare to 25 million hectares for sugar cane, 163 million hectares for rice, 217 million hectares for wheat)
Total number of farmers involved in cotton production	100 million family units (2 million in West Africa, 10 million across Africa)
Major international voluntary sustainability standards	BCI, CmiA, Fairtrade, Organic
Standard-compliant production (2012)	933,000 metric tons (3.4% of global production)
Standard-compliant production sold (2012)	448,000 metric tons (48% of compliant production, 1.6% of global production, 4.8% of global exports)
Key sustainability issues	Pest management, water management, fertilizer application, GMOs, poverty, worker health and safety

Sources: Top 5 producers: USDA, 2013c; Top 5 producers of standard-compliant cotton: B. Bandi, BCI, personal communication, February 12, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; The Textile Exchange, 2013; Top 5 exporters, top 5 importers, global production, global exports: 2011–2012 crop year data from USDA, 2013c; Total export value: International Trade Centre (ITC), 2013c; Global area under cultivation: Food and Agriculture Organization of the United Nations (FAO), 2013; Total number of farmers: S. Ferrigno, independent researcher, personal communication, 2013; Valderrama, 2005; Standard-compliant production and sales: B. Bandi, BCI, personal communication, February 12, 2013; Fairtrade Labelling Organizations (FLO), 2012; C. Kaut, CmiA, personal communication, April 11, 2013; The Textile Exchange, 2013.

FIGURE 9.2 LEADING PRODUCERS OF STANDARD-COMPLIANT COTTON BY INITIATIVE, 2012.



Sources: S. Johnston, BCI, personal communication, December 2, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; The Textile Exchange, 2013.

9.1 MARKET REVIEW

Market reach

Approximately 933,000 metric tons of cotton production were standard-compliant in 2012, equivalent to 3.4 per cent of global production; sales of standard-compliant production reached 1.6 per cent of global production during the same year (Figure 9.3).

Growth

Standard-compliant cotton production grew 54 per cent per annum from 2008 to 2012.[3]

Regional importance

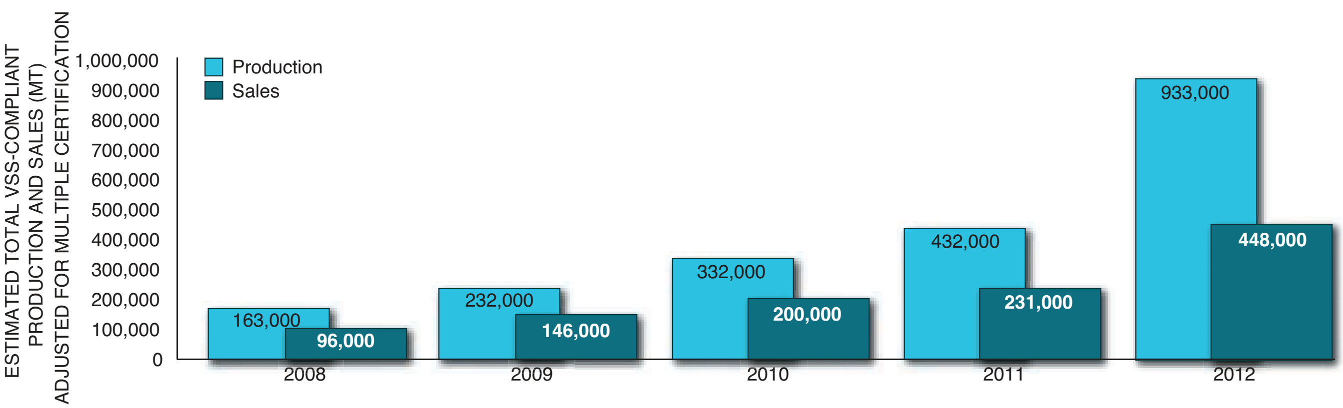
Brazil (30 per cent), Pakistan (22 per cent) and India (21 per cent) produce nearly three-quarters of the world's standard-compliant cotton.

Pricing and premiums

Premiums for standard-compliant sales have been reported at up to 30 per cent over the past several years.[4] The highest premiums were observed for Organic cotton and the lowest premiums ("surcharges") for Better Cotton.[5]

FIGURE 9.3 GROWTH IN STANDARD-COMPLIANT COTTON PRODUCTION AND SALES, 2008–2012.

From 2008 to 2012, production of standard-compliant cotton grew from 0.7 to 3.4 per cent of global production, and sales grew from 0.4 to 1.6 per cent of global production.



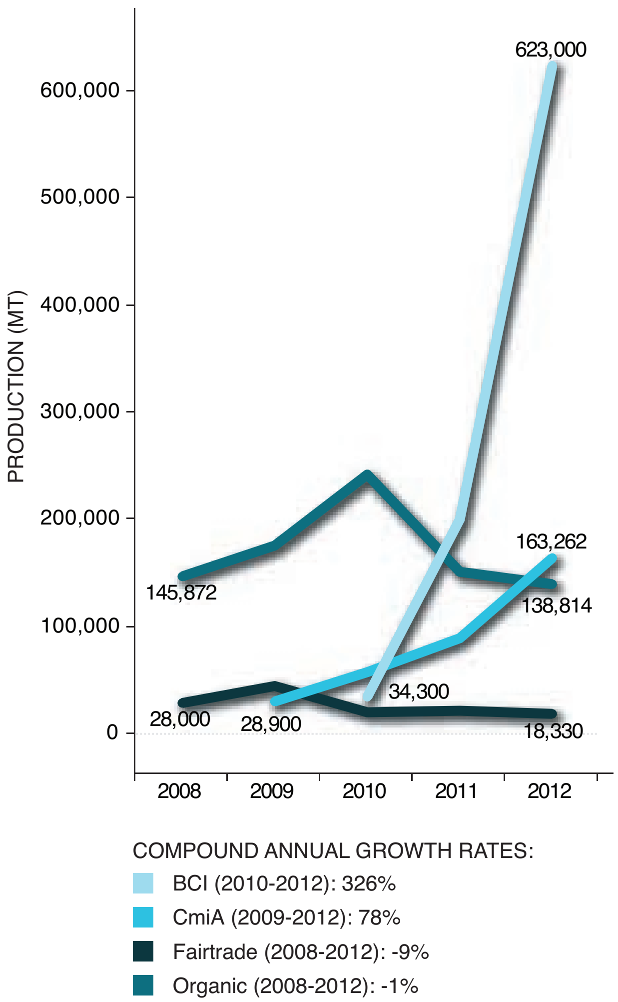
Sources: B. Bandi, BCI, personal communication, February 12, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; FLO, 2011b, 2012; S. Ferrigno, independent researcher, personal communication, 2013; The Textile Exchange, 2011, 2013.

3 125 million bales in 2011–2012 versus 120 million bales in 2007–2008 (USDA, 2013c). Cotton area is constrained by lack of new land and competition for existing land, as well as by technological limits to potential yield increases.

4 For ginned cotton.

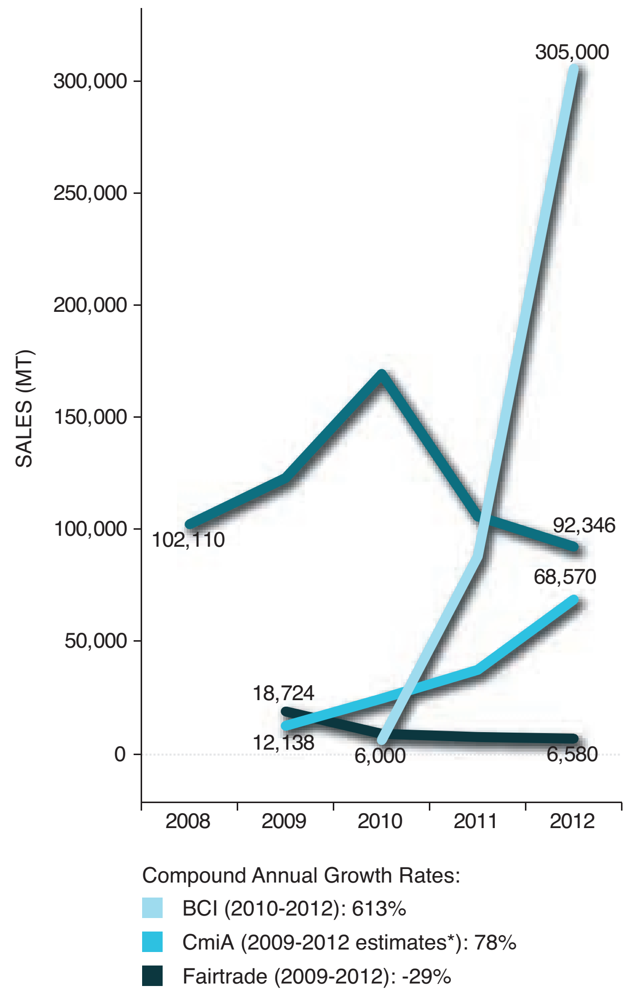
5 Better Cotton has no consumer-facing label, and additional prices paid for cotton are not "premiums" so much as quality surcharges.

FIGURE 9.4 STANDARD-COMPLIANT BCI, CMIA, FAIRTRADE AND ORGANIC COTTON PRODUCTION, 2008–2012.



Sources: B. Bandi, BCI, personal communication, February 12, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; FLO, 2011b, 2012; S. Ferrigno, independent researcher, personal communication, 2013; S. Johnston, BCI, personal communication, December 2, 2013; The Textile Exchange, 2011, 2013.

FIGURE 9.5 STANDARD-COMPLIANT COTTON SOLD UNDER BCI, CMIA, FAIRTRADE AND ORGANIC, 2008–2012.



*Sales of CmiA are estimated based on a cross-sector, average sales-to-production ratio of about 42 per cent, and estimates indicate that about 70 per cent of Organic production volumes are sold as certified (S. Ferrigno, independent researcher, personal communication, 2013).

Sources: B. Bandi, BCI, personal communication, February 12, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; S. Ferrigno, independent researcher, personal communication, 2013; S. Johnston, BCI, personal communication, December 2, 2013; FLO, 2011b, 2012; The Textile Exchange, 2011, 2013.

9.2 MARKET DEVELOPMENT

In 2012, 3.4 per cent of the world's cotton was produced in compliance with a voluntary sustainability standard (933,000 metric tons),[6] with about half of compliant production actually sold as compliant from the certificate holder to the first buyer (see Figure 9.3, Figure 9.4 and Figure 9.5). In the case of cotton, this is generally from the producer/producer organization to the gin (see Figure 9.3 and Table 9.2).[7] Although the emergence of voluntary standards in the sector is a relatively new phenomenon, the desire to create more sustainable cotton supply chains dates back many years. As early as the U.S. Civil War period, for example, the English Ladies' Free Grown Cotton Movement was an organized group of women who committed to purchasing only cloth produced without slave labour (Beckert, 2004; Ferrigno, 2012). Recent reports of forced labour in Uzbekistan (Cotton Campaign & Uzbek-German Forum for Human Rights, 2012) and Burkina Faso (Simpson, 2011) have brought more recent attention to labour issues within the cotton sector, but forced labour is one of several factors that have contributed to a renewed focus on sustainability within the sector, along with pesticide and water use, GMOs, government price subsidies, and other forms of social justice.

A combination of several campaigns are notable in having significantly advanced awareness of some of the challenges facing the cotton sector in recent years, one of the more recognizable being the "Dirty Dozen" campaign launched by the Pesticide Action Network in the 1980s (Pesticide Action Network UK, 2009). WWF has also campaigned around cotton's water use and other environmental impacts, while Oxfam has campaigned extensively on issues related to international trade tariffs and their links to social and economic problems for cotton producers (Oxfam, 2007; WWF, 1999). Technical assistance programs by Solidaridad, Helvetas and the Pesticide Action Network have also aided in the uptake of voluntary sustainability standards and are notable for their contributions to development of the sustainable cotton sector, as are dozens of other public and private institutions (Helvetas, 2008; Solidaridad, n.d.).

The picture that has emerged from these (and other) organizations with respect to cotton and sustainability can be summarized as follows: cotton is cultivated on 2 to 3 per cent of the world's arable land[8] and accounts for 6 per cent of the world's pesticide (insecticide and herbicide) use, 14 per cent of insecticide use,[9] and 2 to 3 per cent of the world's agricultural water use (Ferrigno, 2012; S. Ferrigno, independent researcher, personal communication, 2013). In 2012 genetically modified cotton was planted in 15 countries and accounted for 81 per cent of global planting (ISAAA, 2012a), and its presence within sustainable production systems is the subject of much debate. Forced labour is still present in some areas and it is very difficult to ensure its exclusion in larger supply chains.

Each voluntary sustainability standard emerging within the cotton sector has implemented its own strategy for addressing the above points. With respect to pesticide use, for example, the use of integrated pest management or Integrated Production and Pest Management practices can drastically reduce pesticide application by applying a systematic approach to diagnosing and treating pest-related problems. All voluntary sustainability standards active within the sector incorporate integrated pest management either in its explicit sense, as defined by the FAO (e.g., BCI), or implicitly in their support of natural pest control systems, crop rotation, intercropping, non-use of the most hazardous pesticides, and so forth.[10] Pesticides can also account for a significant amount of total input costs (up to 60 per cent in West Africa, and averaging around 30 per cent) (S. Ferrigno, independent researcher, personal communication, 2013), and their systematic and reduced applications can have significant positive financial impacts for cotton producers.

With respect to water use, cotton does require significant amounts of water at certain points in its life cycle, but the crop is also drought and saline tolerant.[11] Extremely inefficient irrigation practices can negatively impact water systems used for cotton production, and each voluntary sustainability standard within the sector addresses the problem uniquely, be it through good agricultural practices (e.g., CmiA), integrated pest management (e.g., BCI), organic farming systems (e.g., Organic) or other methods.

On the social and economic side, rising input costs such as seed and fertilizer (linked to oil prices) as well as falling cotton prices, price variability and unsecured markets all contribute to keeping many producers systemically underprivileged. Low prices, taxes and other costs imposed by intermediaries often further reduce prices received by farmers. The negative impacts of U.S. cotton subsidies on African producers are documented (Oxfam, 2007), but there are also estimates that any gains from total elimination of subsidies might be short lived (Baffes, 2006). Regardless, there are between

6 Adjusting for estimated multiple certification.

7 The remainder would be sold as conventional, due to a lack of buyers or logistical reasons.

8 Cotton is cultivated on 0.7 per cent of the world's agricultural area. Arable land is used here to remain consistent with other such references made to the sector. Agricultural area is true "cultivable land" in that it includes temporary and permanent crops. Arable land refers only to temporary crops, which in some ways is more appropriate for comparing cotton to other crops with more similar production systems (a significant portion of the production is monocropped, reseeded every year, and so on). The pesticide and water figures are not as limited in their scope as the definition of arable land.

9 Down from 11 per cent (in 1988) and 22.5 per cent (in 1990), respectively (Ferrigno, 2012).

10 With regard to pesticide use, selective breeding of cotton lint for qualities like "staple length" and "character" over other qualities like resistance to pests is one fundamental reason why cotton now accounts for such a high proportion of global insecticide use. A weakened genetic pool resulting from selective breeding is another factor, as is the misuse of insecticides and subsequent resistance to them by insects (Ferrigno, 2012).

11 Cotton's impact on water use is perhaps most often associated with the infamous early 1960s' Soviet government project to irrigate the desert between modern day Uzbekistan and Kazakhstan, which led to the virtual disappearance of the Aral Sea; however, this calamity was more a result of poor policy and production systems than due to the crop itself.

50 million and 100 million households involved in cotton production, with roughly two-thirds of all cotton production occurring in developing countries (Clay, 2004), where cotton production is often maintained manually and under impoverished conditions. Improper storage and application of pesticides is also of particular concern for worker safety.

The cotton sector presents an interesting case study for sustainability standards more generally, given the dramatic variations in the production systems applied and corresponding sustainability challenges faced around the world. For example, in areas where cotton is irrigated, the implementation of drip irrigation systems, as opposed to flood systems, has the potential to improve the efficiency of cotton irrigation (currently only 1 per cent of the world's irrigated cotton is drip irrigated). Most African cotton, however, is rain-fed, as it is in Brazil, the United States and some parts of India. With about half of cotton's area harvested and one-third of its production coming from rain-fed cotton, yield increases for rain-fed cotton through the implementation of integrated pest management or good agricultural practices may be of particular importance not only for environmental sustainability, but also for economic sustainability (Ferrigno, 2012). Since most cotton standards require the adoption of some level of good agricultural practices, the most appropriate standards (from a sustainability perspective) will depend on the degree to which a standard's good agricultural practices system is in alignment with the local conditions of a given producing region.

Similarly, given the high penetration of GMO cotton across global production (81 per cent of global planting was genetically modified in 2012 [ISAAA, 2012a]), the scalability of a given sustainability initiative will be largely dependent on whether or not GMO cotton is considered eligible for conformity within the system. In select regions where cotton production has not adopted GMO production or is not reliant on irrigation, such as in much of Africa, clear opportunities exist for differentiation through affiliation with any of the sustainability standards active within the sector.

Organic cotton has been present in the market since the late 1980s,[12] but increasing demand for social and environmental accountability has resulted in the emergence of several new cotton initiatives, including California's Sustainable Cotton Project ("Cleaner Cotton," established in 1996 [Sustainable Cotton Project, n.d.]), the Australian national standard Australian Best Management Practices (MyBMP, established in 1999[13]), Fairtrade cotton (first production in the 2004–2005 season [Koolskools, 2010]), BCI (established in 2005 [WWF, n.d.-a], first production in the 2009–2010 season), CmiA (established in 2005 [CmiA, 2013], first production in the 2008–2009 season), and Bayer's e3 (first production in the 2011–2012 season).[14]

In the following section we report on sustainability standards with international scope: BCI, CmiA, Fairtrade and Organic. Of these, it is important to note that BCI permits GMO cotton, while CmiA, Fairtrade and Organic do not. Also, due to a one-way partnership agreement between CmiA and BCI, CmiA can also be sold as Better Cotton, but not vice-versa.[15] Fairtrade and Organic also each have a shared "dual" standard, which was held by 57 per cent of all Fairtrade cotton producer organizations in 2011 (FLO, 2012).

Both BCI and CmiA draw heavily from integrated pest management and good agricultural practices. More holistically, both follow the approach to improve sustainability along the three principles of "people" (social criteria), "planet" (ecological criteria) and "profit" (economic criteria) (C. Kaut, CmiA, personal communication, December 16, 2013). Both also lean heavily on technical assistance as part of their strategy—BCI through its partners, including Solidaridad, and CmiA through its partner, the Competitive African Cotton Initiative (COMPACI).

Overall, the aggregate production of compliant cotton has been undergoing significant expansion over the past five years. Despite this, Fairtrade and Organic certified cotton have seen relatively stable sales, and the continued growth of global production levels over this period speak to the importance of CmiA and Better Cotton within the sustainable cotton supply (see Figure 9.4). BCI, which permits the use of genetically modified seed, has made massive production expansions in the major producing countries of Brazil and Pakistan and currently comprises 68 per cent of global standard-compliant cotton and 53 per cent of global sales of compliant cotton. CmiA comprises 16 per cent of compliant production and 29 per cent of sales. Average annual changes in compliant production volumes for BCI, CmiA, Fairtrade and Organic cotton from the 2008 season to the 2012 season (i.e., four years) were 343 per cent (from 2010), 78 per cent (from 2009), -9 per cent and -1 per cent, respectively.

12 The first organic cottons were produced in the United States and Turkey; these were grown as rotational crops on organically certified farms (S. Ferrigno, independent researcher, personal communication, 2013; ITC, 2007).

13 Land and Water Australia (2005); 1999 was the first year that voluntary BMP audits were established; 1997 was the year that the BMP manual was first published.

14 Note that our market review below only accounts for the major multistakeholder initiatives with international presence, notably BCI, CmiA, Fairtrade and Organic.

15 Therefore, the 2012 data for BCI may also include production or sales of CmiA cotton.

TABLE 9.2 IMPORTANCE OF VOLUNTARY SUSTAINABILITY STANDARD (VSS) COTTON PRODUCTION AND SALES RELATIVE TO THE GLOBAL MARKET.

	VSS production (mt)	VSS production market share of global production	VSS production market share of global exports	VSS sales (mt)	VSS sales market share of global production	VSS sales market share of global exports
BCI	623,000	2%	6%	305,000	1%	3%
CmiA	163,262	1%	2%	*68,570	0%	1%
Fairtrade	18,330	0%	0%	6,580	0%	0%
Organic	138,841	1%	1%	*81,631	0%	1%
Global VSS production / sales (mt and %), adjusted for multiple certification	933,000	3%	9%	448,000	2%	4%

*Estimates based on a cross-sector, average sales-to-production ratio of 42 per cent.

9.3 MARKET PERFORMANCE

Better Cotton Initiative (BCI)

Better Cotton production accounted for 2 per cent of global cotton production in 2012, and BCI is currently the voluntary sustainability standard with the most compliant production on the market. Programs in Brazil, Pakistan and India accounted for 92 per cent of Better Cotton production, while volumes in China and Mali accounted for the remaining 8 per cent (see Figure 9.6 and Table 9.3). Better Cotton is produced by larger estates in Brazil and Pakistan (almost exclusively in the case of Brazil), and these countries accounted for three-quarters of the tripling of volumes of Better Cotton from 2011 to 2012, pointing at efficiencies in securing compliant supply through larger production systems. Better Cotton accounted for 16 per cent of Brazil's cotton production and 8 per cent of Pakistan's cotton production in 2012.

BCI reported that sales of Better Cotton from the certificate holder to the gin were 305,000 metric tons in 2012 (as reflected in Figure 9.7 and Table 9.4), or 49 per cent of Better Cotton production, and 1 per cent of global production.[16]

Turkey, traditionally one of the largest producers of Organic cotton, is licensed to produce 14,923 metric tons of Better Cotton in the 2013 season (Fibre2fashion.com, 2013). Likewise, new producers of Better Cotton in Tajikistan and Mozambique are licensed to produce 10,196 and 3,389 metric tons, respectively, of Better Cotton during the same year (S. Johnston, BCI, personal communication, December 2, 2013). Also notable is the program's development via its partnership with CmiA, which allows the latter organization to sell its product as Better Cotton and to access BCI's markets. These developments are part of an aggressive expansion strategy by BCI, which hopes to expand production to 2.5 million metric tons by 2015 (quadrupling 2012 production) and to reach 10 million metric tons (or 30 per cent of global cotton production) by 2020 (BCI, 2013c). BCI refers to the period from 2016 to 2020 as its projected "mainstreaming phase," which is expected to feature a normalizing of supply and demand.

16 Sales refer to cotton sold from the certificate holder to the gin as Better Cotton. Retail sales of Better Cotton were slightly less than 100,000 metric tons in 2012 (BCI, 2013b).

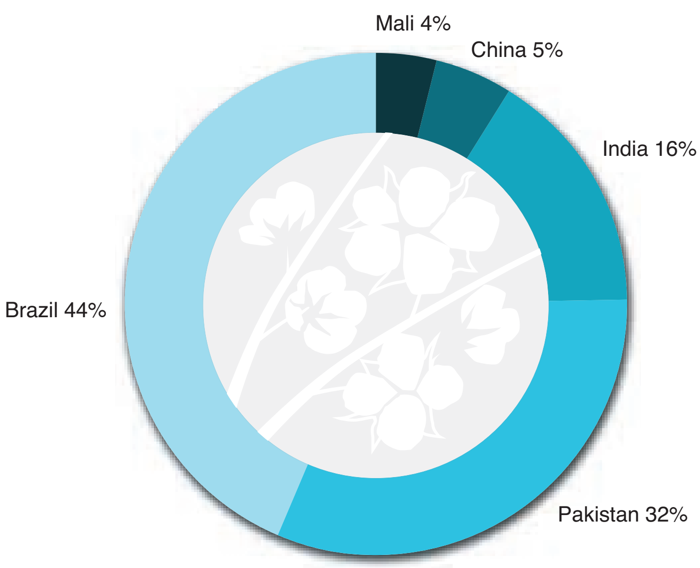
TABLE 9.3 BETTER COTTON AREA HARVESTED AND PRODUCTION BY COUNTRY, 2012.[17]

	Area harvested (ha)	Production (mt)
Brazil	210,000	295,000
China	15,000	26,000
India	138,000	93,000
Mali	63,000	24,000
Pakistan	260,000	185,000
Total	**686,000**	**623,000**

Sources: B. Bandi, BCI, personal communication, February 12, 2013;
S. Johnston, BCI, personal communication, December 2, 2013.

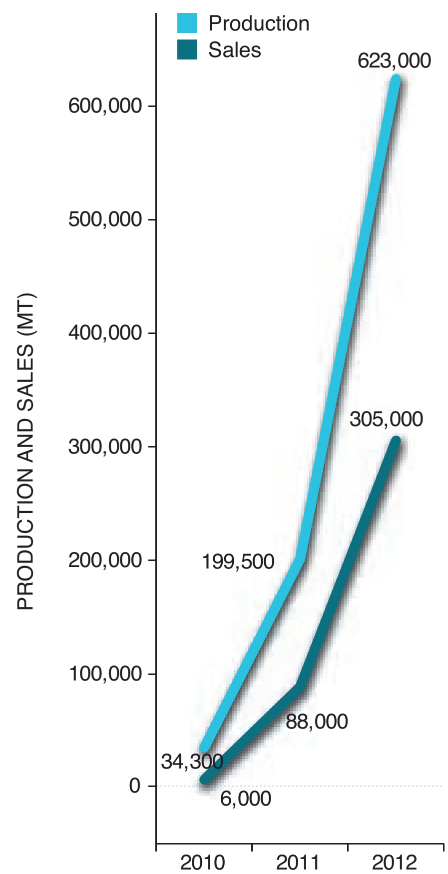
17 For the purpose of this review, "Better Cotton Initiative" and "Better Cotton" will be used interchangeably.

FIGURE 9.6 BETTER COTTON PRODUCTION BY COUNTRY, 2012.



Source: S. Johnston, BCI, personal communication, December 2, 2013.

FIGURE 9.7 BETTER COTTON PRODUCTION AND SALES, 2010–2012.



Sources: B. Bandi, BCI, personal communication, February 12, 2013; S. Johnston, BCI, personal communication, December 2, 2013.

TABLE 9.4 BETTER COTTON AREA HARVESTED, PRODUCTION AND SALES, 2010–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2010	65,000	34,300	6,000
2011	249,500	199,500	88,000
2012	686,000	623,000	305,000

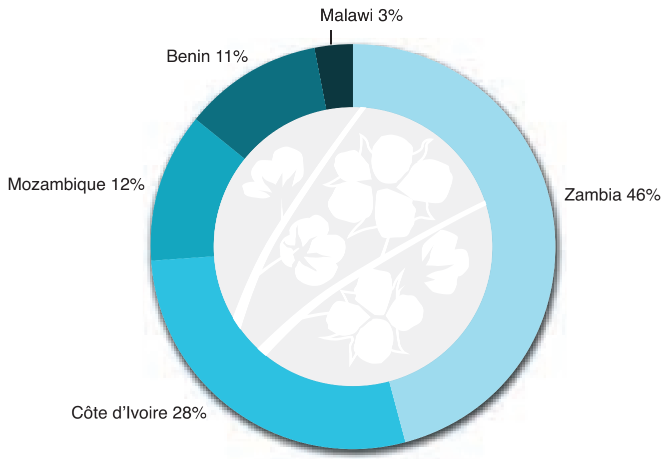
Sources: B. Bandi, BCI, personal communication, February 12, 2013;
S. Johnston, BCI, personal communication, December 2, 2013.

Cotton made in Africa (CmiA)

CmiA-compliant production accounted for 0.6 per cent of global production in the 2012 season and came from the traditionally smallholder-based, rain-fed production systems of Western and Southern Africa (see Figure 9.8 and Table 9.5). CmiA's total compliant production accounted for 42 per cent of Côte d'Ivoire's cotton production, 23 per cent of Benin's production, 33 per cent of Malawi's production, 34 per cent of Mozambique's production and virtually all of Zambia's production.[18] Production under compliance with CmiA accounted for about 15 per cent of cotton lint produced in Africa in 2012.[19]

Since first coming onto the market in 2009, CmiA-compliant cotton production has grown more than five-fold (see Figure 9.9 and Table 9.6). More recently, production has continued to grow, with volumes between the 2011 and 2012 seasons nearly doubling.[20] Moving forward, the organization's partnership with BCI should allow it to access new markets and expand production beyond the corresponding demand provided by its Demand Alliance.

FIGURE 9.8 CMIA PRODUCTION BY COUNTRY, 2012.



Source: C. Kaut, CmiA, personal communication, April 11, 2013.

18 Estimates made are based on total production figures (USDA, 2013c) and CmiA production figures (C. Kaut, CmiA, personal communication, April 11, 2013). This has not been confirmed by CmiA.

19 Total cotton produced in Africa was about 4.88 million 480-pound bales in 2012 (USDA, 2013c).

20 Note that most of the production increases during 2011–2012 were attributed to Zambia, whose production roughly doubled in the last year, and to Mozambique, whose production came online for the first time in 2011–2012.

TABLE 9.5 CMIA AREA HARVESTED AND PRODUCTION BY COUNTRY, 2012.

	Area harvested (ha)	Production (mt)
Benin	43,183	17,740
Côte d'Ivoire	103,396	46,222
Malawi	17,424	4,600
Mozambique	82,833	19,880
Zambia	317,450	74,820
Total	**564,286**	**163,262**

Source: C. Kaut, CmiA, personal communication, April 11, 2013.

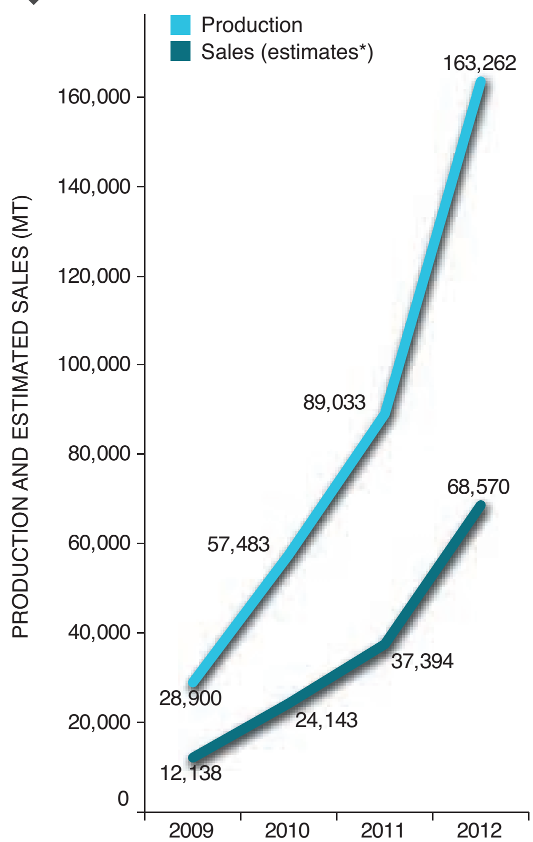
TABLE 9.6 CMIA AREA HARVESTED AND PRODUCTION, 2009–2012.

	Area harvested (ha)	Production (mt)
2009	117,750	28,900
2010	162,403	57,483
2011	309,219	89,033
2012	564,286	163,262

Source: C. Kaut, CmiA, personal communication, April 11, 2013.

Photo: CIFOR / CC-BY-NC

FIGURE 9.9 CMIA PRODUCTION AND ESTIMATED SALES, 2009–2012.



*Sales of CmiA are estimated based on a cross-sector, average sales-to-production ratio of 42 per cent.

Source: C. Kaut, CmiA, personal communication, April 11, 2013.

Fairtrade International

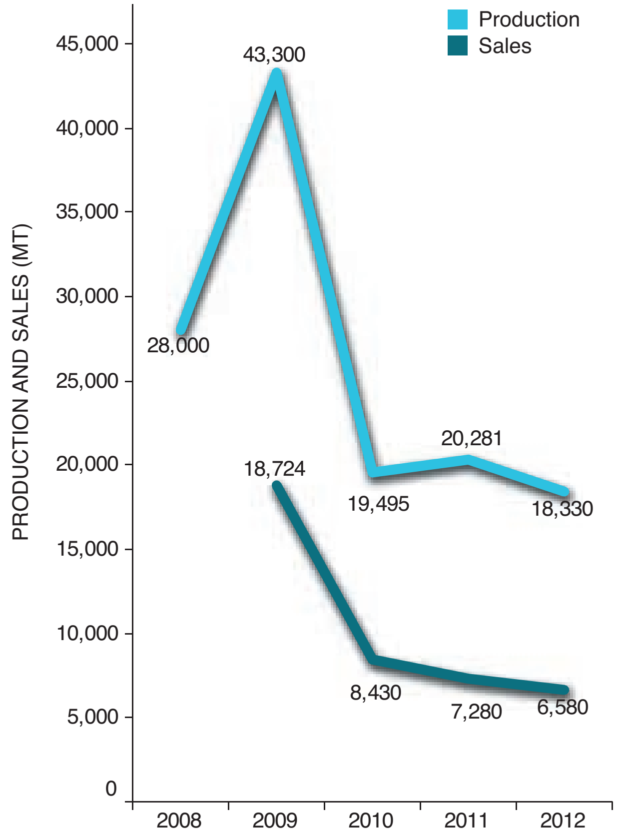
Fairtrade cotton production accounted for 0.1 per cent of global production in 2012, with 18,000 metric tons of cotton lint produced. Notably, Fairtrade is currently rolling out a new Fairtrade cotton model, and until that time, producers and buyers have been advised to hold off on any expansion plans (The Textile Exchange, 2013); this would likely explain in part Fairtrade's recent declines in production and sales (see Figure 9.10 and Table 9.7 for overviews of 2008–2012).

In 2012, about 37 per cent of the production licensed under Fairtrade was sold as certified, and sales were down to 7,000 metric tons from 19,000 metric tons in 2009. Fairtrade mandates a fixed premium for cotton sold as certified, and establishing markets ("reducing their volatility") is crucial for the model's uptake.[21] Reduced sales of Fairtrade cotton have recently been reported to have had deleterious effects on the incomes of producers in West and Central Africa (The Textile Exchange, 2013), and unsecured markets can result in producers moving away from certification or even the entire crop.

Fairtrade cotton is sourced along the following lines: Nicaragua and Brazil provide supply through 120 smallholders; Burkina Faso, Cameroon, Egypt, Mali and Senegal provide supply through 30,000 organized smallholders (45 per cent of total); and India and Kyrgyzstan provide supply through 7,000 organized smallholders (10 per cent of total) and 30,000 smallholder contract producers (45 per cent of total), respectively.

21 This conclusion was reached in a 2011 impact study on Fairtrade cotton in Mali, Senegal, Cameroon and India (Nelson & Smith, 2011).

FIGURE 9.10 FAIRTRADE COTTON PRODUCTION AND SALES, 2008–2012.



Sources: FLO, 2011b, 2012; The Textile Exchange, 2013.

TABLE 9.7 FAIRTRADE COTTON AREA HARVESTED, PRODUCTION AND SALES, 2008–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2008	--	28,000	--
2009	--	43,300	18,724
2010	117,200	19,495	8,430
2011	141,400	20,281	7,280
2012	--	18,330	6,580

Sources: FLO, 2011b, 2012; The Textile Exchange, 2013.

International Federation of Organic Agriculture Movements (IFOAM, or "Organic")

In 2012, 139,000 metric tons of Organic cotton were produced, accounting for 0.5 per cent of global cotton production. About three-quarters of the world's Organic production came from India, while the remaining quarter came primarily from Turkey, China, Tanzania and the United States (Figure 9.11 and Table 9.8).

Although Organic certified cotton had, as recently as 2010, accounted for 68 per cent of the world's standard-compliant cotton produced, by 2012 it accounted for only 39 per cent (see Figure 9.12 and Table 9.9 for overviews of 2008–2012). Over the last production year (2011–2012), Organic production also dropped 8 per cent.[22]

There are several forces in action that have contributed to Organic's fall from its market leadership position. The rapid emergence of BCI and CmiA has attracted mainstream attention and may have diverted potential investment in Organic production as these initiatives expand their production and marketing strategies. However, with CmiA and BCI target markets being mainstream supply chains, the extent to which these initiatives have led to declining market penetration for Organic cotton may be limited. Instead, a more systemic cause, and certainly a longer-term challenge facing the continued growth of Organic cotton, relates to the growing difficulty in obtaining non-GMO seeds in major producing countries such as India. Temporary challenges in other major supply countries include internal political strife in Syria and drought-like conditions in the United States. Allegations of genetically modified cotton being exported as Organic in India and the subsequent implementation of TraceNet in the country[23] may have also played a role in India's stable/declining production over the past three years. A mismatch between production and demand (and corresponding downward pressure on prices) has led to a reduction in the number of forward agreements and may also affect current Organic production volumes (S. Ferrigno, independent researcher, personal communication, 2013).

While Organic production dropped over the last year,[24] it is nevertheless worth noting that Organic production actually rose nine-fold between 2005 and 2009 (The Textile Exchange, 2013).

22 Note that the actual area harvested showed a somewhat reduced decline of 2 per cent in the last production year.

23 The TraceNet system, which allows Organic cotton to be traced back through a bar code and requires producers to register information such as production details and GPS coordinates of farms, was introduced in 2010 in India after heavily debated rumours of genetically modified cotton entering the European Union from India as fraudulently Organic certified (Pepper, 2010). Thus, a possible decrease in production of the alleged fraudulent Organic cotton, producer drop-outs due to increased costs of the system, or a reduction in double counting may have all contributed to the drop in Indian Organic cotton production from 2010 to 2012 (approximately 92 million metric tons, or roughly two-thirds of current Organic production). India is the world's largest Organic cotton producer.

24 Note that the actual area harvested showed a somewhat reduced decline of 2 per cent in the last production year.

TABLE 9.8 ORGANIC COTTON PRODUCTION BY COUNTRY, 2012.

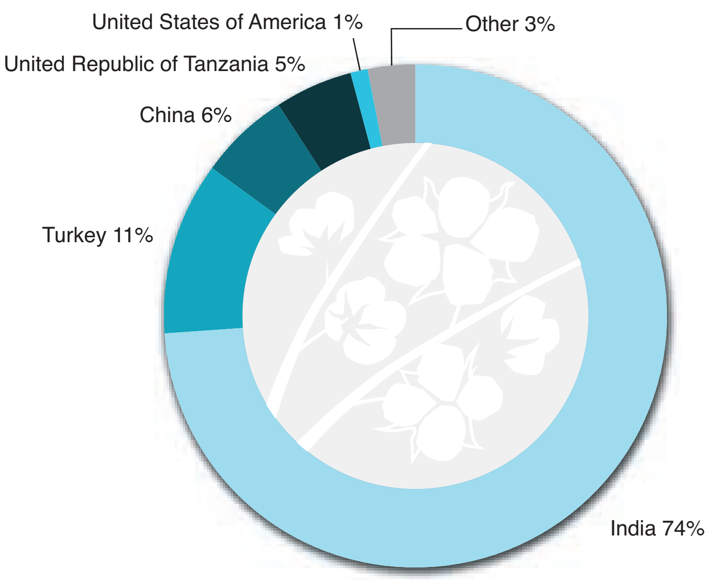
	Production (mt)
Benin	328
Brazil	38
Burkina Faso	370
China	8,106
Egypt	420
India	103,003
Israel	70
Kyrgyzstan	156
Mali	860
Nicaragua	122
Paraguay	100
Peru	479
Senegal	17
Tajikistan	16
Turkey	15,802
Uganda	456
United Republic of Tanzania	6,891
United States	1,580
Total	**138,814**

Source: The Textile Exchange, 2013.

Also, the incidence of Organic production in Africa more than doubled from 2011 to 2012, with much of this increased production coming from Tanzania. Mali, Uganda, Egypt, Burkina Faso and Benin are other important African cotton-producing countries, with each producing between 200 and 800 metric tons of Organic cotton in 2012. Tanzania produced 7 million metric tons during the same year.

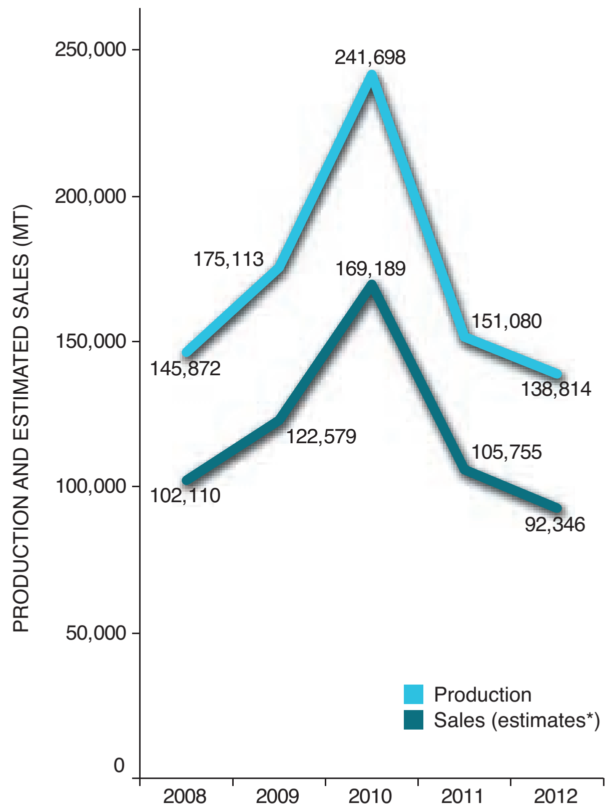
Certified sales of Organic cotton are estimated to be no more than 70 per cent of production, with a lack of forward contracts by buyers (i.e., long-term commitments) cited as the primary cause of selling Organic production as conventional (S. Ferrigno, independent researcher, personal communication, 2013).

FIGURE 9.11 ORGANIC COTTON PRODUCTION BY COUNTRY, 2012.



Source: The Textile Exchange, 2013.

FIGURE 9.12 ORGANIC COTTON PRODUCTION, 2008–2012.



*Estimates indicate that about 70 per cent of Organic production volumes are sold as certified (S. Ferrigno, independent researcher, personal communication, 2013).

Source: The Textile Exchange, 2013.

TABLE 9.9 ORGANIC COTTON AREA HARVESTED AND PRODUCTION, 2008–2012.

	Area harvested (ha)	Production (mt)
2008	--	145,872
2009	253,000	175,113
2010	461,000	241,698
2011	324,577	151,080
2012	316,907	138,814

Source: The Textile Exchange, 2013.

Table 9.10 shows the percentage of total national production produced according to compliance with one or more major voluntary sustainability standards in 2012, for the world's 20 largest cotton producers. In China, India and the United States, the world's largest producers of cotton, 0.5 per cent, 3.3 per cent, and 0.0 per cent of cotton, respectively, were produced under one or more of the four major international sustainability standards. Brazil and Pakistan, the world's fifth- and fourth-largest producers of cotton, are the first- and second-largest producers of sustainable cotton (see Figure 9.13).

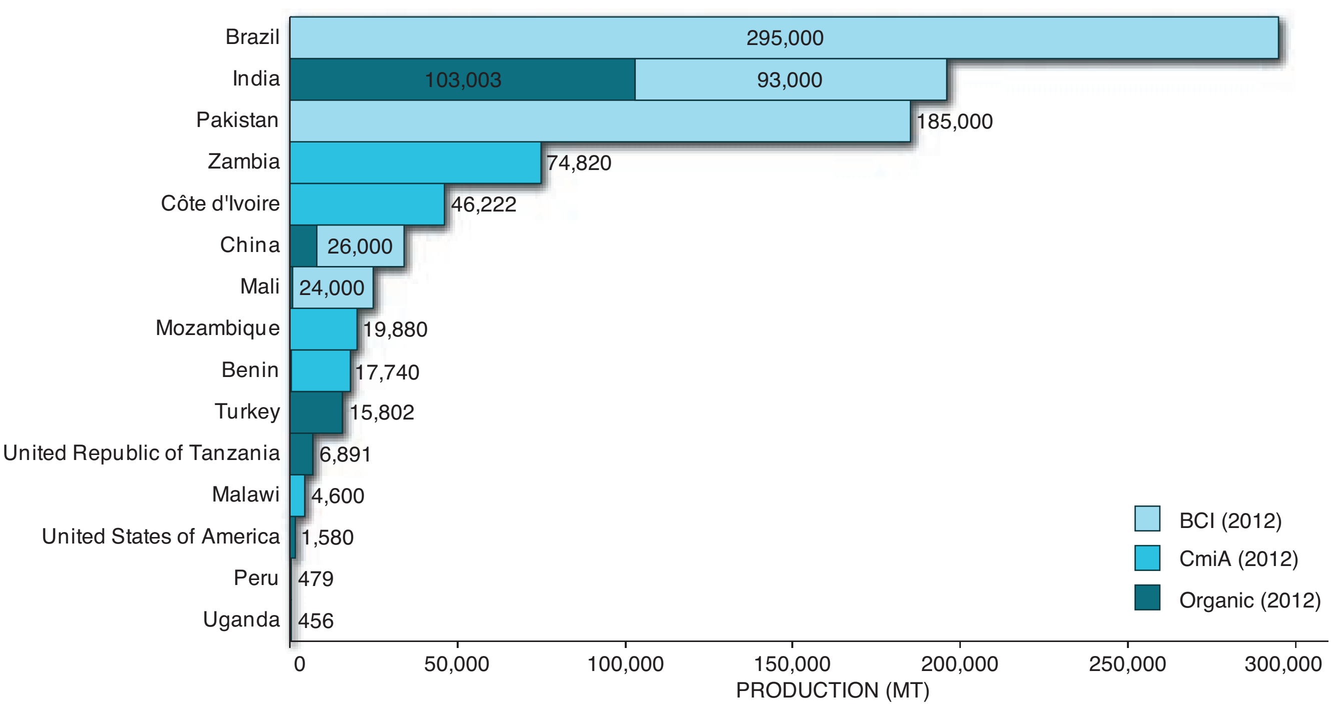
Globally, cotton production is highly concentrated, with 80 per cent coming from China, India, the United States, Pakistan and Brazil (see Figure 9.14). The compliant cotton market is even more concentrated, with 85 per cent coming from Brazil, Pakistan, India, Zambia and Côte d'Ivoire; 72 per cent comes from Brazil, Pakistan and India alone (see Figure 9.15 for a breakdown of standard-compliant production by country in 2012 and Figure 9.16 for breakdown by continent). The importance of voluntary sustainability standard (particularly CmiA) activity in Africa is noteworthy; although African countries produce 11 per cent of the world's cotton, 20 per cent of the world's compliant cotton is supplied from Africa; this is due almost entirely to production compliant with the CmiA standard.

With respect to the largest cotton producers, participation in sustainable markets is dominated by Brazil and Pakistan (52 per cent of total standard-compliant production). The United States and Australia are, however, home to several strictly domestic cotton programs not detailed in this report—for example, the Sustainable Cotton Project and Bayer e3 in the United States, and the national program MyBMP in Australia. Arguably, the general absence of forced labour and extreme poverty in American and Australian production has led to reduced pressures for standard-compliant production in these countries.[25] This remains particularly relevant for initiatives such as Fairtrade and CmiA, which have explicit development objectives within their standards systems. BCI and Organic standards, however, are not constrained by this larger objective and therefore have significant potential for expansion in these markets.

Although China is not a significant player in the production of standard-compliant cotton at present, there are signs that this may change in the near future. As of 2012, 0.5 per cent of China's production was produced as compliant with a voluntary sustainability standard, versus 3.3 per cent in India, 8.0 per cent in Pakistan and 15.6 per cent in Brazil (see Table 9.10).

25 Note that heavy reliance on GMO cotton in both the United States and Australia could render them vulnerable to scrutiny, depending on where the evidence falls with respect to sustainability and GMO cotton.

FIGURE 9.13 FIFTEEN LARGEST STANDARD-COMPLIANT COTTON PRODUCERS, 2012.



Where space permits, data points are visible.

Sources: S. Johnston, BCI, personal communication, December 2, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; The Textile Exchange, 2013.

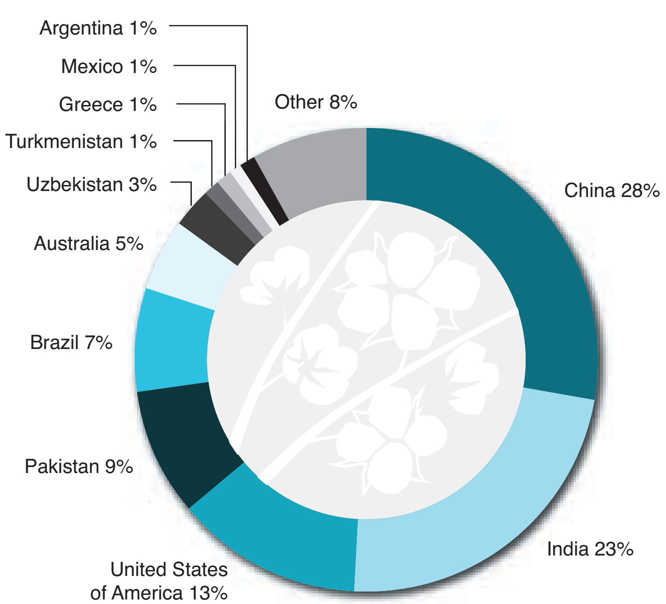
TABLE 9.10 STANDARD-COMPLIANT PRODUCTION AS A PERCENTAGE OF TOTAL NATIONAL PRODUCTION FOR 20 LARGEST COTTON PRODUCERS, 2012.

Dashes represent negligible or no standard-compliant production relative to national production; they may also reflect an absence of data.

	BCI	CmiA	Fairtrade	Organic	Total
China	0.4%	-	-	0.1%	0.5%
India	1.6%	-	-	1.7%	3.3%
United States	-	-	-	-	-
Pakistan	8.0%	-	-	-	8.0%
Brazil	15.6%	-	-	-	15.6%
Australia	-	-	-	-	-
Uzbekistan	-	-	-	-	-
Turkey	-	-	-	2.1%	2.1%
Turkmenistan	-	-	-	-	-
Greece	-	-	-	-	-
Mexico	-	-	-	-	-
Argentina	-	-	-	-	-
Mali	12.8%	-	-	0.5%	13.3%
Burkina Faso	-	-	-	0.2%	0.2%
Egypt	-	-	-	0.3%	0.3%
Zimbabwe	-	-	-	-	-
Tajikistan	-	-	-	-	-
Côte d'Ivoire	-	42.5%	-	-	42.5%
Kazakhstan	-	-	-	-	-
Benin	-	23.3%	-	0.4%	23.7%

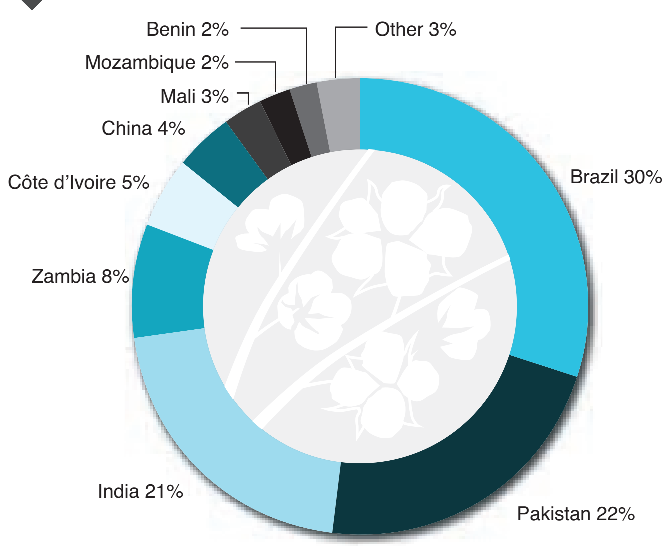
Sources: S. Johnston, BCI, personal communication, December 2, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; The Textile Exchange, 2013; USDA, 2013c.

FIGURE 9.14 GLOBAL COTTON PRODUCTION BY COUNTRY (INCLUDES CONVENTIONAL AND SUSTAINABLE), 2012.



Source: USDA, 2013c.

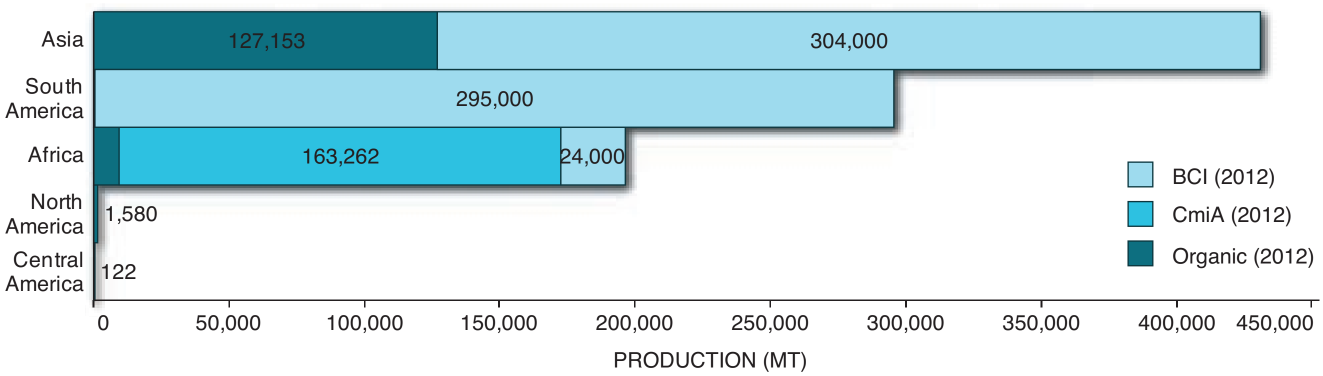
FIGURE 9.15 STANDARD-COMPLIANT COTTON PRODUCTION BY COUNTRY, 2012.



Where space permits, data points are visible.

Sources: B. Bandi, BCI, personal communication, February 12, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; The Textile Exchange, 2013.

FIGURE 9.16 STANDARD-COMPLIANT COTTON PRODUCTION BY CONTINENT, 2012.



Sources: S. Johnston, BCI, personal communication, December 2, 2013; C. Kaut, CmiA, personal communication, April 11, 2013; The Textile Exchange, 2013.

9.5 PRICING AND PREMIUMS

Pricing and premiums[26] associated with the varying sustainability standards on the market vary considerably depending on the business model and target audience of the initiative, as well as the source country. Overall, standard-compliant cotton has been reported sold at prices ranging from 0 to 30 per cent over market price, depending on the standard and country of origin.

Organic cotton premiums ranging from 8 to 30 per cent, depending on the program and region, have been reported over the past several years (S. Ferrigno, independent researcher, personal communication, 2013). Although a downward pressure on Organic premiums has been observed in recent years (Ferrigno, 2012), the additional conversion costs involved within Organic production systems[27] suggest overall constraints on oversupply and price decline in the near future.

BCI operates primarily as a business-to-business initiative targeting mainstream markets. The initiative's focus on quality improvement seeks to enable economic gains through "quality based' premiums, rather than premiums associated with standard compliance per se.[28] Indeed, throughout its evolution BCI has explicitly sought to avoid associating BCI compliance with direct premiums in order to ensure accessibility to cost-sensitive markets (BCI, 2009). Notwithstanding BCI's conservative approach to compliance-related premiums, BCI cotton has reportedly been associated with quality "surcharges" in the range of 6 to 8 per cent (S. Ferrigno, independent researcher, personal communication, 2013).

Like BCI and Organic, CmiA also does not fix premiums, but reports farm gate prices in U.S. dollars per kilogram, as seen in Table 9.11.[29] Using available data on prices paid to cotton farmers in the relevant regions, it is possible that surcharges may be paid for CmiA cotton for quality features. Comparing average prices paid for CmiA with these countries' cotton prices for the same season, CmiA surcharges ranged from 8 per cent in Côte d'Ivoire[30] to 13 per cent in Zambia.[31] Note also that CmiA also charges a license fee of 1 per cent on retail sales to the members of its Demand Alliance (C. Kaut, CmiA, personal communication, 2013), which is reinvested in farms within CmiA's project countries. BCI has begun to do the same (as of May 2012) with its "volume based fee" (BCI, 2012).

Fairtrade is the only standard within the cotton sector that actually fixes a premium for seed cotton. Fairtrade currently sets its "social premium" at $0.05 per kilogram for seed cotton, roughly equivalent to $0.11 per pound, or 13 per cent over 2012 international lint prices. This premium is distributed among producers through Fairtrade certified producer organizations. The Fairtrade pricing model, however, may be subject to change as Fairtrade rolls out its new model for cotton certification in the coming years.

26 For purposes of comparison in this section, we treat quality surcharges and premiums as interchangeable.

27 Note that it normally takes about three years to convert to organic production.

28 This business model is further reinforced by the absence of any consumer-facing label, which reduces the ability of manufacturers to secure a premium for BCI products at the retail level.

29 While it is difficult to extract what this might mean with regard to a market premium, it is clear that this cotton is receiving some sort of premium at the farm gate–whether this is due to better quality product or the CmiA label cannot be easily disentangled.

30 Where prices were set at US$0.50 per kilogram in the 2011–2012 season versus US$0.54 paid for CmiA; see IRIN (2014).

31 Where prices were set at US$0.31 per kilogram in 2012 versus an average of US$0.35 for CmiA; see Bariyo (2012).

TABLE 9.11 PRICES PAID FOR CMIA, 2010–2012.

	2010	2011	2012
	US$/kg	US$/kg	US$/kg
Benin	0.43	0.42	0.51
Burkina Faso	0.38	0.44	0.56
Côte d'Ivoire	0.39	0.44	0.54
Malawi	0.38	0.80	0.42
Zambia	0.43	0.70	0.35
Mozambique	0.23	0.54	0.36

Source: C. Kaut, CmiA, personal communication, April 11, 2013.

9.6 CHALLENGES AND OPPORTUNITIES

Despite the industry's diverse production systems and its dynamic relationship with environmental, social and economic sustainability, there is a clear consensus on the need for increased social and environmental accountability, which is a positive sign for growth of voluntary standards within the industry.[32] The global call for accountability, and the industry's corresponding ability to respond to such calls, will likely play a significant role in determining the place of the crop as a major textile fibre moving forward, and in itself will be an important driver for standard-compliant production. Over the past decade, cotton's global position as a source of textile fibre has declined from 42 per cent (1997) to 33 per cent (2011).[33] As cotton's market leadership position comes under increasing threat, the development and expansion of sustainable supply may provide a valuable basis for differentiation between cotton and its substitutes. The adoption of sustainable practices also holds the potential of improving overall quality and security of supply, which may also serve in building the fibre's competitiveness on global markets.

This background points toward the massive potential for growth in standard-compliant production across the sector in the coming years. Based on the investments in the development of standard-compliant supply over the past several years, combined with existing corporate commitments, we estimate standard-compliant cotton to reach at least 25 per cent of global production by 2020.

BCI and CmiA were born out of a desire to improve the environmental, economic and social conditions associated with mainstream cotton production and trade,[34] and mark a significant development in the relationship between sustainability standards and global cotton markets. Notably, the proactive participation of major industry players in these initiatives points toward strong

32 A panel of experts recently convened by The Textile Exchange (2013) noted, "The trend [...] can be summarized as an Increasing Call for Social and Environmental Accountability – including evaluation of natural capital, and even a "new capitalism" based on triple bottom line accounting. This would lead to greater supply chain integration and transparency, plus a recognition of "tier 4" (farm level) impacts and their connection to the rest of the textile supply chain."

33 The International Cotton Advisory Committee reports that the drop in market share from 2009 to 2010 was the largest single-year decline on record (USDA Foreign Agriculture Service, 2012).

34 Their interests align in such a way that a memorandum of understanding has been signed between the two initiatives to harmonize systems and procedures and make CmiA available to BCI manufacturers and retailers as early as mid-2012.

demand in the future;[35] BCI, for example, estimates that 30 per cent of the world's cotton production will be Better Cotton by 2020. The ability of BCI to reach this objective will depend on the successful implementation of major corporate commitments, such as those made by IKEA and Adidas to source 100 per cent of their cotton from BCI by 2015 and 2018, respectively.[36] CmiA's Demand Alliance can be expected to carry it forward on a significant growth pattern for the coming years, though its overall supply is limited by its focus on African-sourced cotton, which currently accounts for less than 8 per cent of global production.

Overall Organic cotton supply is increasingly limited due to the wide-scale transition to GMO cotton. While it remains unclear how significant this constraint is in terms of global production volumes in the short term given the relatively low volumes of Organic production, it is clear that Organic cotton will likely have to diversify the distribution of its supply if it is to ensure longer-term stability and growth. The existence of smaller levels of Organic production across a wide range of African countries (where GMO cotton is less prevalent) suggests that Organic is well positioned to expand production as necessary; however, maintaining the availability of this potential supply base will likely require proactive strategies to ensure that Organic supply can be maintained as GMO production expands across the continent.

To be sure, market volatility and the general absence of long-term commitments by buyers represent major roadblocks in the expansion of both Organic and Fairtrade cotton, which require market security for expansion. Closing this gap will likely require more proactive strategies for the integration of private sector needs within the overall business models of these initiatives. Organic certification is well on its way to maintaining significant growth through its expanding markets and partnership, having grown its retail value four-fold over the past decade,[37] while securing high-profile commitments from retailers ranging from H&M[38] to C&A.[39] Fairtrade's ability to do the same will depend on its ability to secure longer-term private sector commitments as part of its new cotton strategy.

35 Adidas, H&M, IKEA, Levi Strauss & Co., Your M&S, Walmart, Nike and Olam are partners of BCI, while Otto Group, REWE Group, Tchibo GmbH, TOM TAILOR Holding AG, Accenture, Accuracy, Avery Dennison, Puma and Ethical Export are partners of CmiA.

36 In the case of IKEA, this represents a significant increase from its 2012 level of 34 per cent of total supply sourced from BCI (see IKEA, 2013a).

37 Growing from US$15 billion in 1999 to US$63 billion in 2011 (Willer, Kilcher & Lernoud, 2013).

38 The world's largest user of Organic cotton worldwide.

39 Currently sources 13 per cent Organic cotton.

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10 FORESTRY MARKET

Forests cover 31 per cent of Earth's land surface and provide ecosystem services that affect air, water and soil quality.[1] They are likewise crucial to the global economy, employing nearly 14 million people in more than 160 countries, and their value added accounts for 1 per cent of the world's GDP (roughly US$700 billion) (Food and Agriculture Organization of the United Nations (FAO), 2011. In 2012, 2.2 billion cubic metres of forest products were produced, of which 19 per cent was exported, for a total value of US$233 billion (ForesSTAT, 2013)[2] (see Table 10.1).

Forests play a critical role in maintaining local, regional and global ecosystems. Practices related to the use of forests have important short- and long-term impacts on biodiversity, habitat, and watershed and soil quality, not to mention economic development. As a result, sustainable forest management has been a preoccupation of governments around the world for many decades. More recently, the private sector, consumers and NGOs have sought the use of voluntary sustainability standards as key instruments for facilitating a broader market transformation toward the adoption of sustainable forest management practices.

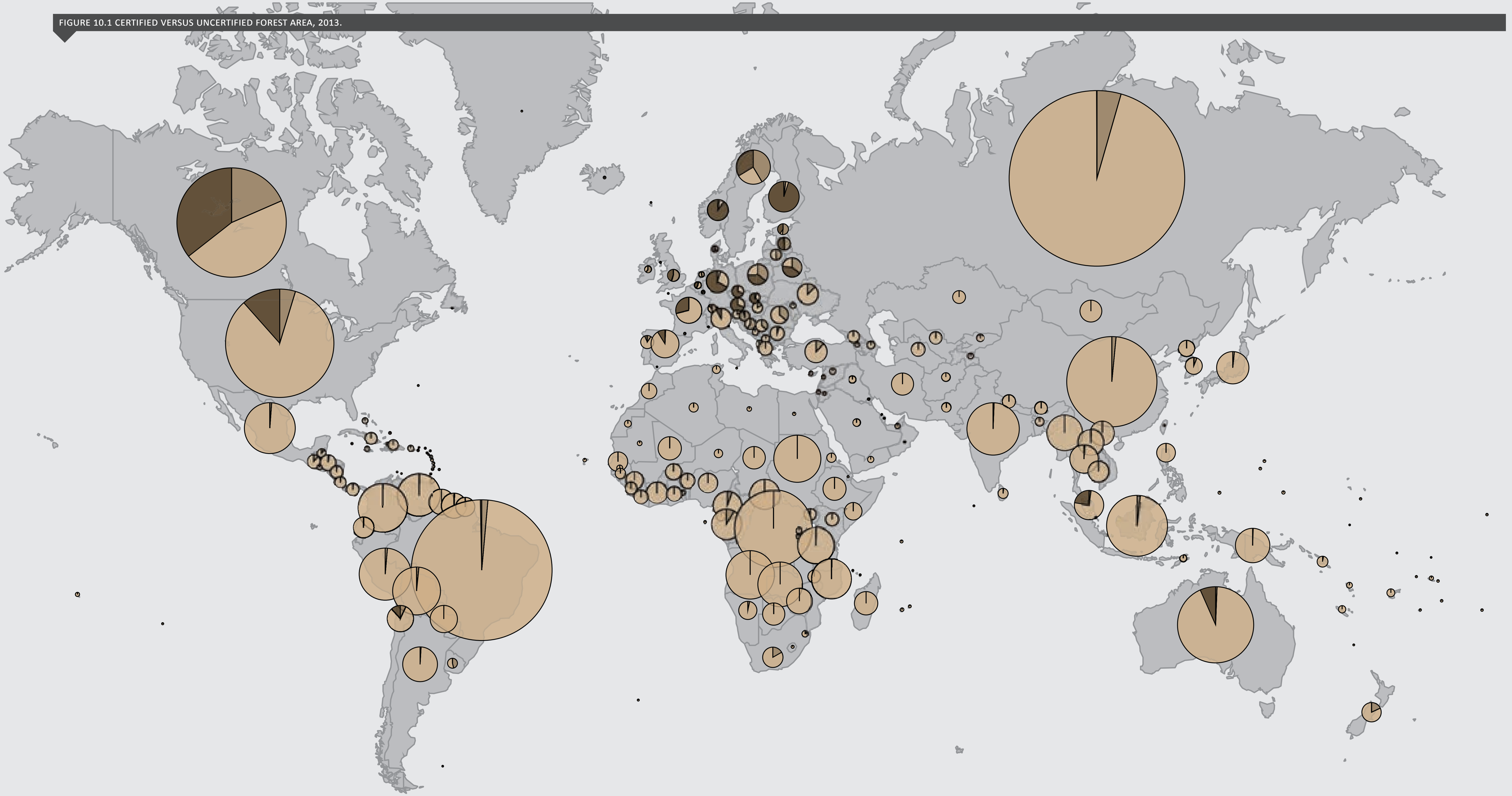
Below, we review the most recent market trends for the two major international voluntary sustainability standards operational in the forestry sector, the Forest Stewardship Council (FSC), established in 1993, and the Programme for the Endorsement of Forest Certification (PEFC), established in 1999. Although these initiatives do not necessarily serve to address the fundamental causes of deforestation or forest degradation, they can be important tools, especially when combined with policy and legislative efforts, to demonstrate and increase demand for sustainable forest management. By mid-2013, these initiatives had together certified 9.1 per cent of global forested area and 23 per cent of managed forests (see Figure 10.1).[3] Canada, the United States, Russia, Finland and Sweden are the countries with the most standard-compliant forests certified; Figure 10.2 breaks this down by standard.

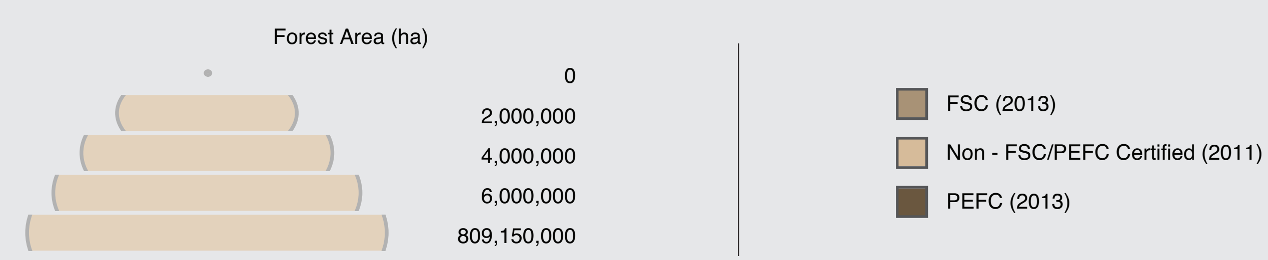
1 Ecosystem services provided by forests include the regulation of water regimes, maintenance of soil quality, limiting of erosion and modulation of climate. Forests are also key components of biodiversity health (FAO, 1997).

2 In this case, "forest products" is a grouping of the following categories: chemical wood pulp, chips and particles, dissolving wood pulp, hardboard, industrial roundwood wood in the rough, tropica, insulating board, medium-density fibreboard, mechanical wood pulp, newsprint, other fibre pulp, other industrial roundwood Trd, other paper and paperboard, particle board, plywood, printing and writing paper, pulpwood, round and split Trd, recovered paper, saw logs and veneer logs, sawn wood, semi-chemical wood pulp, veneer sheets, wood charcoal, wood fuel Trd and wood residues.

3 This takes into account a 13 per cent reduction in aggregate volume, in order to account for estimated double certification.

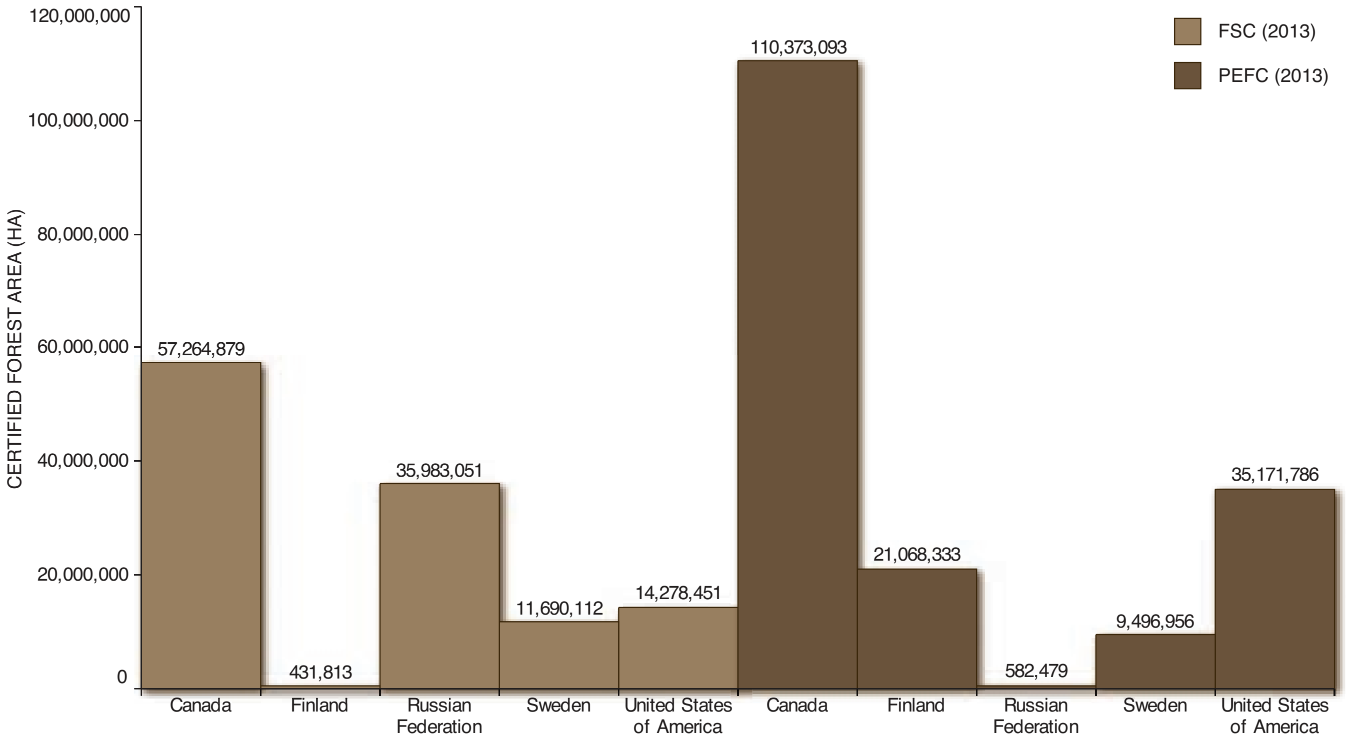
FIGURE 10.1 CERTIFIED VERSUS UNCERTIFIED FOREST AREA, 2013.





Circle size represents total forested area; coloured slices represent area certified under FSC or PEFC. Relative to total forested area, sustainably certified forest area represents about 9 per cent of global forested area (mid-2013), or 23 per cent of the total managed forests. Canada, the United States and Russia account for a significant majority of certified area globally. In many European (especially Scandanavian) countries, virtually all forested area is certified under at least one of the two voluntary sustainability standards. Certification is also highly concentrated in leading forest product exporter countries.
Sources: ForesSTAT, 2013; FSC, 2013a; PEFC, 2013c.

FIGURE 10.2 LEADING COUNTRIES WITH STANDARD-COMPLIANT FOREST AREA, 2012.



Sources: FSC, 2013a; PEFC, 2013c.

TABLE 10.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR FORESTRY PRODUCTION AND TRADE.

KEY STATISTICS

Top 5 forest product producers (cubic metres; 54% of global)* (2012)	China (14%), United States (13%), Canada (12%), Russia (9%), Brazil (6%)
Top 5 sustainable certified countries (hectares; 71% of global) (2013)	Canada (40%), United States(12%), Russia (9%), Finland (5%), Sweden (5%)
Top 5 forest product exporters (39% of global)** (2012)	Russia (12%), Canada (10%), United States (7%), Germany (5%), New Zealand (5%)
Top 5 forest product importers (44% of global) (2012)	China (20%), United States (9%), Canada (7%), Brazil (5%), Russia (3%)
Major international voluntary sustainability standards	FSC, PEFC
Global production of forest products (2012)	2.2 billion cubic metres
Global exports (2012)	392 million cubic metres (18% of production)
Export value (2012)	US$233 billion
Global forested area (2011)	4.0 billion hectares
People employed within the forestry sector	14 million
Standard-compliant forest area (2013)	368 million hectares (9.1% of total forested area; 23% of total managed forest area)***
Key sustainability issues	Deforestation, forest degradation, biodiversity loss, destruction of watersheds, soil erosion, climate change
Top 5 countries with decreasing forest cover (number of hectares lost from 2000 to 2011)	Brazil (57 million), Australia (13 million), Indonesia (11 million), Nigeria (9 million), Tanzania (9 million)

Sources: Forest product production data and forest products exporters data: ForesSTAT, 2013; People employed within the forestry sector: FAO, 2011b; Sustainable forestry data: FSC, 2013a; PEFC, 2013c.

* Includes chips and particles, hardboard, insulating board, medium-density fibreboard, other industrial roundwood, particle board, plywood, pulpwood, round and split Trd, pulpwood and particles, sawlogs and veneer logs, sawn wood, veneer sheets and wood residues. It does not include chemical wood pulp, dissolving wood pulp, mechanical wood pulp, newsprint, other fibre pulp, other paper and paperboard, printing and writing paper, recovered paper, semi-chemical wood pulp and wood charcoal.
** Ibid.
*** Taking into account a 13 per cent reduction in aggregate (FSC and PEFC) certified area to account for multiple certification.

10.1 MARKET REVIEW

Market reach
Globally, FSC forest area accounts for approximately 4.5 per cent of forest area, while PEFC forest area accounts for approximately 6 per cent (see Figure 10.3 and Table 10.2). Conservatively, we estimate certified forest area after accounting for double certification to be about 9 per cent of total forest area.

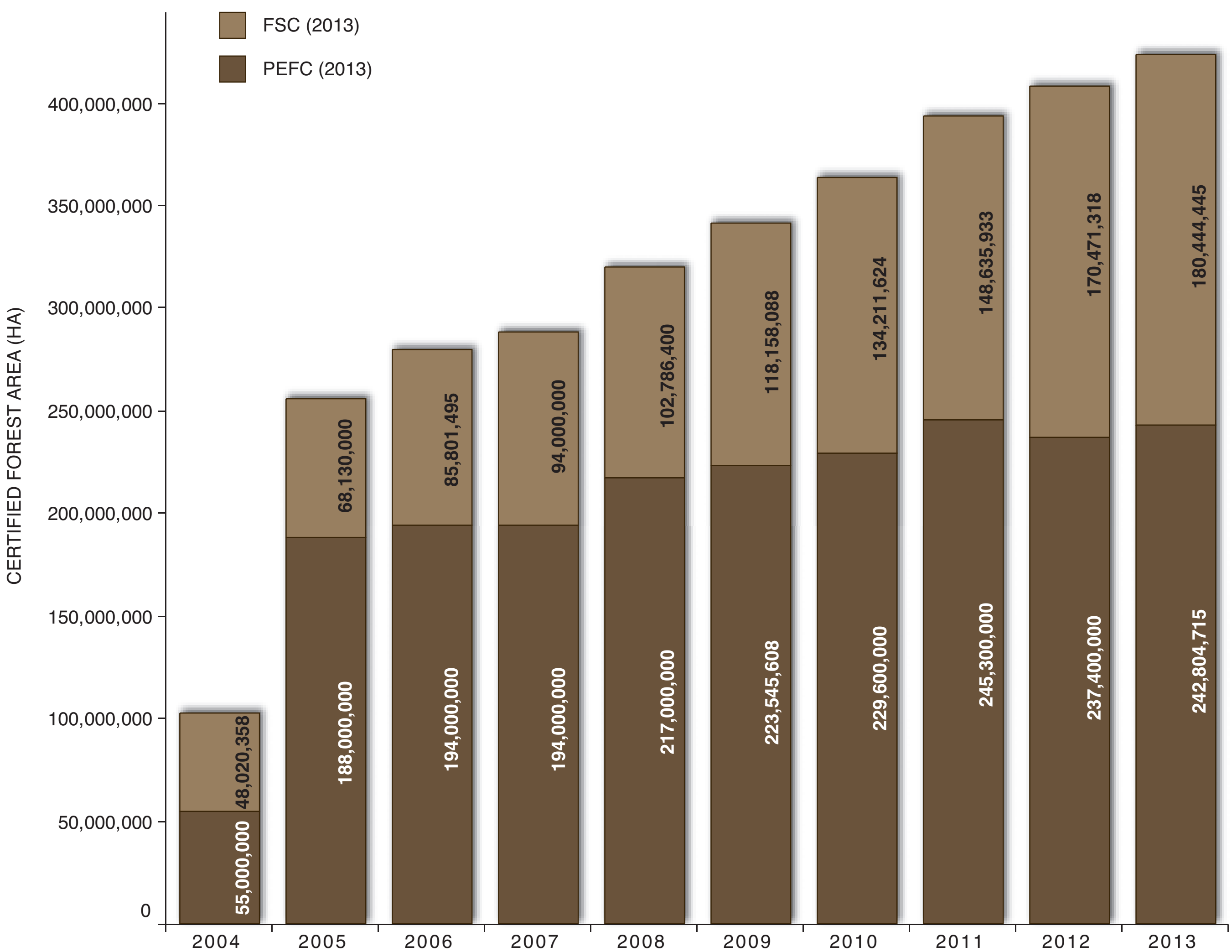
Growth
Certified area grew at an average annual rate of 6 per cent from 2008 to 2013.

Regional importance
FSC and PEFC certification are present across 80 countries, with a relatively heavier presence in North America and Europe (88 per cent) than in South America and Africa (6 per cent). Canada and the United States are the most important countries by area certified for both initiatives.

Pricing and premiums
Several recent studies have documented premiums for certified forest products and stumpage fees (see "Pricing and Premiums" section). Generally, it has been found that premiums for certified logs range from 1 to 30 per cent, or more for high quality hardwoods (Kollert & Lagan, 2007; Schreiber, 2012; Yamamoto, Takeuchi & Shinkuma, 2013).

FIGURE 10.3 GROWTH IN FOREST AREA UNDER FSC AND PEFC, 2004–2013.

The large increase from 2004 to 2005 is due to PEFC's recognition of Sustainable Forest Initiative–compliant forests in 2005. This figure is not adjusted for multiple certification.



Sources: FSC, 2013a; PEFC, 2013c.

10.2 MARKET DEVELOPMENT

Forests represent a pillar of innumerable economies and ecosystems. Unsustainable forest management can result in biodiversity reduction, destruction of watersheds, soil erosion and climate change, as well as the degradation or elimination of habitats, not to mention the economies for the estimated 1.8 billion indigenous habitants and other forest people who live in or depend on forests (International Institute for Environment and Development (IIED), 2013).

The causes and relief mechanisms of deforestation and forest degradation are immensely complex. While the extraction of timber and timber products have, historically, been important drivers in deforestation, agriculture currently represents the single most important driver of deforestation globally, being responsible for 80 per cent of global deforestation (48 per cent due to subsistence farming and 32 per cent due to commercial agriculture) (IIED, 2013). Agriculture's pressure on forests is closely linked to population growth and changing consumption habits in developing countries. Compounding factors include corruption related to forest concession grants, unsustainable national land use strategies and lack of enforcement of forest laws, among others. Between 1996 and 2010, over 100 million hectares, or approximately 2.5 per cent of the world's current forested area, was almost entirely deforested in tropical climate zones (FAO, 2012b).

Deforestation and forest degradation are thus largely intertwined with demand for food, population growth, developing economies in the global South, national legislation, trade laws, policy initiatives, and law enforcement, as well as shifting trends in consumer demand in certain markets. Specific attention to the roles and responsibilities of manufacturers and consumers grew out of NGO campaigns in the 1980s. For example, a 1987 Friends of the Earth campaign in the United Kingdom is credited with generating corporate interest in building sustainable forest management supply chains (Synnott, 2005). As media coverage of the sustainable forest management grew, retailers increasingly began searching for ways to prove sustainable management of the forests they sourced from. Arising nearly in tandem with Friends of the Earth UK, the Ecological Trading Company and the Woodworkers Alliance for Rainforest Protection were some of the first organizations to promote trade as an instrument for implementing sustainable forest management and were precursors to the development of forest certification (Synnott, 2005).

The UN Conference on Environment and Development (UNCED) process also provided a major catalyst for private forest certification, culminating in the negotiation of the now widely accepted UNCED Forest Principles (UNCED, 1992). The Forest Principles provided a platform for the development of post-UNCED forest management strategies at the regional and international levels. Within this context, several post-UNCED initiatives are particularly noteworthy:

- 1992: Publication of the International Tropical Timber Organization Guidelines on the Sustainable Management of Natural Tropical Forests, setting out an internationally agreed-upon set of principles for the sustainable management of tropical forests (International Tropical Timber Organization, 1992).
- 1992–1993: Led by the WWF, several NGOs and forest sector members negotiated the establishment of the first global sustainable forest management certification scheme under the auspices of the FSC. The FSC provided the first multistakeholder, market-based approach to promoting sustainable forest management.
- 1993–1994: Development of the Pan-European Operational Level Guidelines for Sustainable Forest Management, a set of principles and guidelines building from the UNCED principles and applicable to the European context.
- 1999: The Pan European Forest Certification Council was formed, utilizing the above-mentioned guidelines as mandatory requirements for sustainable forest management certification. In 2003, it widened its scoped to become a global VSS under the name Programme for the Endorsement of Forest Certification (PEFC).
- 2003: Establishment of the Forest Law Enforcement, Governance and Trade Action Plan, a pan-European timber licensing system designed to eliminate illegal sources of forest products from European markets through the development of voluntary partnership agreements with exporting countries (European Forest Institute, 2012).
- 2007–2010: At the 13th session of the conference of parties at the UN Framework Convention on Climate Change, the parties agreed to pursue a process for directing payments to nations to avoid deforestation and land degradation. At the 16th session, the parties agreed to formally establish a fund to finance activities in developing countries.
- 2008: Amendment to U.S. Lacey Act prohibiting the trade of illegally harvested timber on the U.S. market. The amendment states that it is the duty of the government to provide proof of illegality (Lacey Act Amendment, 2008).
- 2009: The European Union Renewable Energy Directive mandated that imported biofuels and feedstock be imported from renewable sources (European Union, 2009).
- 2010–2013: The European Union Timber Regulation was established as part of the EU Forest Law Enforcement, Governance and Trade Action Plan to formally prohibit the placement of illegally harvested timber on the EU market and require that traders keep records on suppliers and customers. The regulation was published in 2010 and is applicable from March 2013 onward (European Union, 2010).

BOX 10.1 A BRIEF HISTORY OF MAJOR SOURCING COMMITMENTS IN THE FORESTRY SECTOR

1999: Home Depot adopts wood sourcing policy giving preference to wood from certified sources.

2000: Lowes announces policy to give preference to FSC certified wood products in its sourcing.

2001: B&Q refuses to purchase non–FSC certified lumber from Canadian sources.

2003: Domtar makes commitment to supply 100 per cent from FSC certified sources.

2004: Greenpeace launches campaign against Kimberly-Clark to promote sustainable forest management in boreal forests.

2007: Harry Potter and the Deathly Hallows printed on FSC certified paper, representing the largest single FSC paper order (valued at $20 million).

2009: Kimberly-Clark Professional commits to sourcing 40 per cent FSC certified and recycled wood fibre by 2011.

2011: Home Depot commits to sourcing 100 per cent of framing lumber as FSC certified in its San Francisco Bay area stores.

2012: The 2012 London Olympic Park development achieves project certification from both FSC and PEFC for its timber usage; three-quarters of the timber used is FSC certified.

2012: IKEA aims to source 50 per cent of its wood material (10 million cubic metres, projected) from recycled wood or from FSC certified forests by 2017.

Although initially perceived as a niche market, forest certification has entered into mainstream channels over the past decade. The certification of the 2012 London Olympic Park under both FSC and PEFC Chain of Custody (CoC) standards is one of many examples of this trend. Over the past five years, the certified area under the two leading global schemes—FSC and PEFC—has grown at an average annual rate of 6 per cent. As of 2013, a conservatively estimated 9 per cent of global forested area (368 million hectares) had been certified under either the FSC criteria, PEFC criteria, or both.[4] Of the 1.6 billion hectares of managed forests, sustainably managed forests under FSC and PEFC account for 23 per cent.

4 As with other commodity sectors where more than one certification system is in operation, there is the potential for double certification. There are virtually no data on the actual levels of double certification among forestry producers. Globally, we estimate that between 319.5 million (7.9 per cent) and 423.2 (10.5 per cent) million forestry hectares are certified sustainable. We estimate the total certified area, adjusting for multiple certification, to be somewhere between these two, in the range of 368 million hectares (9.1 per cent of total forested area and 23 per cent of managed forests, globally). Note also that the 2010 edition of the SSI reported a straight sum of the certified area without any downward adjustment for double certification, thus reporting the maximum value in the range (Potts et al., 2010).

Historically, growth in certification has largely been driven by several factors[5]:

- NGO media campaigns raising awareness about unsustainable forest management and aiding corporations in sourcing from sustainable supply chains (e.g., The Forest Trust, WWF's Global Forest and Trade Network, Friends of the Earth UK).
- Commitments from the private sector (see Box 10.1).
- Green public procurement policies (e.g., EU Green Public Procurement).
- Green building initiatives[6] (e.g., LEED and BREEAM).
- Illegal logging legislation, notably the Lacey Act and the European Union Timber Regulation, both mentioned earlier in this section. Both FSC and PEFC address local laws pertaining to sourcing and processing of timber and have made special efforts to facilitate compliance with legal timber sourcing legislation in North America and Europe.[7]

5 FSC (2012b) notes in its Global Market Survey that the drivers of its particular market include increased environmental awareness of end consumers (21 per cent of respondents), FSC certification as a competitive advantage (21 per cent), requirements for corporate social responsibility (14 per cent), actors other than end users requiring certification (11 per cent) and consumer demand for any label (9 per cent). Notably, public procurement policies, legislation and the green building movement received only 6 per cent, 5 per cent and 4 per cent of respondents' votes, respectively. While the specific wording of the FSC and FAO product review demand drivers differ, they both point to the same drivers. The leading FSC demand drivers like "certification as a competitive advantage" and "actors other than end users requiring certification" resemble drivers like "company commitments," "green public procurement policies," "green building initiatives" and "legislation," all of which were outlined by FAO in its Forest Products Annual Market Review (FAO, 2010a).

6 In 2012 green building accounted for 44 per cent of all commercial and institutional construction in the United States and was worth around US$100 billion. This market share is expected to grow to 55 per cent by 2016 (U.S. Green Building Council, 2013).

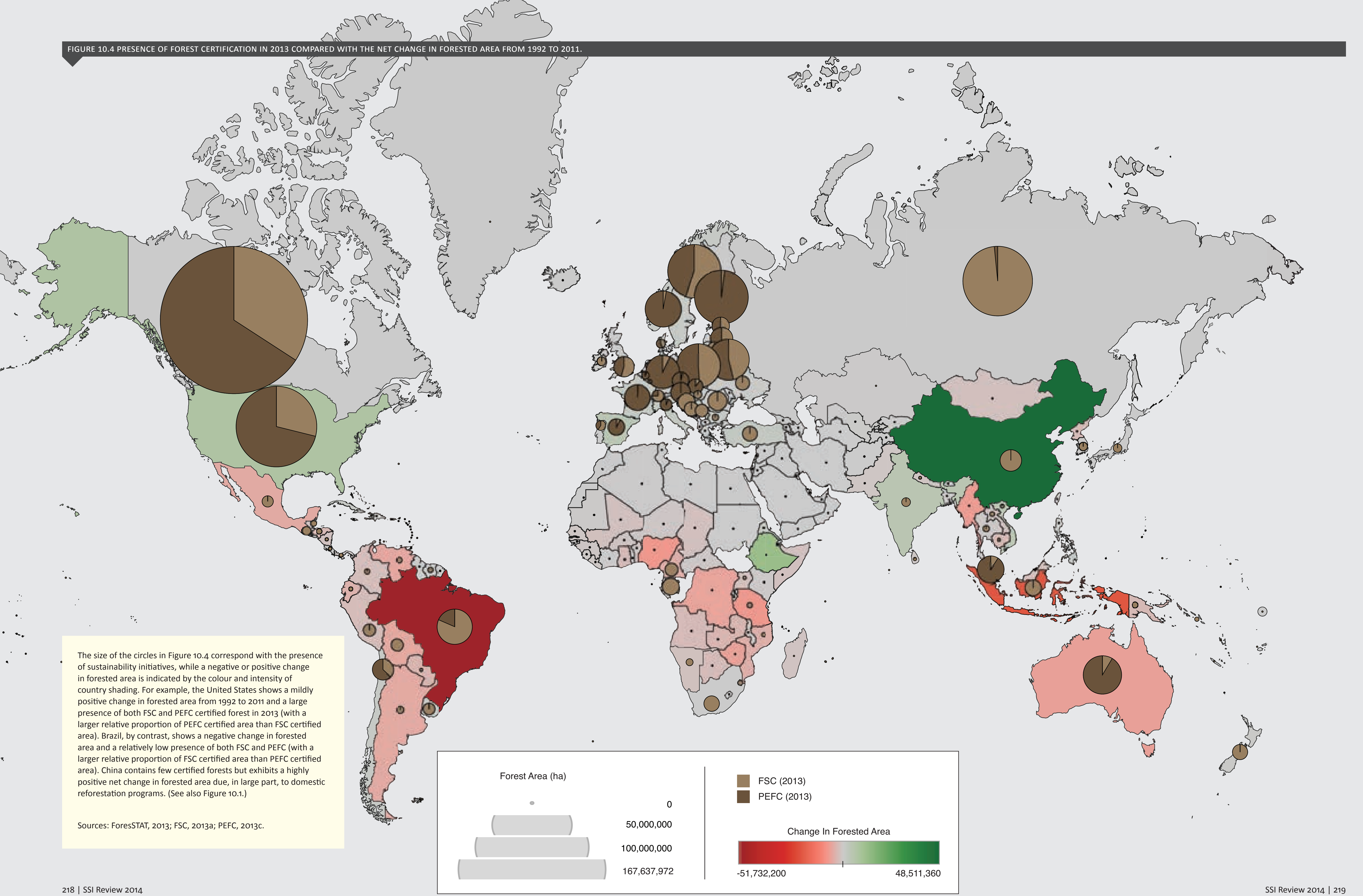
7 For more information on how standards interact with the European Union Timber Regulation, see PEFC (2013d) and FSC (2013b); see question 3 of FSC (2013b) for more information on how FSC helps companies in implementing the due diligence required by the European Union Timber Regulation.

Certified area has grown from an adjusted total of 297 million hectares in 2009 to 368 million hectares by mid-2013, corresponding to an average annual growth rate of 6 per cent.[8] Growth in forest certification has not been consistent in all areas of the world, however. Although almost all deforestation and illegal logging over the last three decades has occurred in tropical forests, only 3 countries in the top 15 certified by PEFC and FSC (Australia, Brazil and Malaysia) contain tropical forest (see Figure 10.4). Notably, Brazil had the most significant negative change in forested cover of any country from 1992 to 2011 (see Figure 10.11), and was 57th in terms of market penetration for sustainable forestry in 2013.

Forest certification continues to be disproportionately concentrated in northern developed economies. Notably, Europe and North America account for 88 per cent of certified forests but constitute only 34 per cent of the world's total forested area. Africa and South America, by contrast, contain 2 per cent and 4 per cent of certified forests but represent 17 per cent and 21 per cent of the world's forested area, respectively. The concentration of certification is even more pronounced within the context of roundwood production, with 96 per cent of all certified roundwood produced in Western Europe and North America in 2012 but both regions accounting for a combined total of 50 per cent of global roundwood production over the same period (see Figure 10.12; a similar scenario exists with respect to pulp for paper production—see Figure 10.13) (Fernholz & Kraxner, 2012). One factor explaining some of the reasons behind this difference in distribution includes difficulties relating to the specific characteristics of tropical sustainable forest management (e.g., political instability, limited resources for implementation, and land ownership arrangements) (FAO, 1999, sections 3.2.3 and 3.4.4). Secondly, the sustainable forestry sector is unique in that a high level of certified product consumed is also produced domestically in the relevant eco-sensitive markets (see Ebeling & Yasué, 2008, p. 2) in Western Europe, the United States and Japan (this is not the case for coffee, cocoa or bananas, for example). However, because channels for certified tropical timber markets are often completely separate from certified temperate and boreal markets (benefiting tropical producers by avoiding competition with North American and European certified wood), their development also implies the development of additional networks and supply chain implementation infrastructure and strategies (e.g., additional transaction costs).

8 These figures have been adjusted for double certification. The absolute aggregate figures for PEFC and FSC are 368 million hectares (2009) and 423 million hectares (2013).

FIGURE 10.4 PRESENCE OF FOREST CERTIFICATION IN 2013 COMPARED WITH THE NET CHANGE IN FORESTED AREA FROM 1992 TO 2011.



The size of the circles in Figure 10.4 correspond with the presence of sustainability initiatives, while a negative or positive change in forested area is indicated by the colour and intensity of country shading. For example, the United States shows a mildly positive change in forested area from 1992 to 2011 and a large presence of both FSC and PEFC certified forest in 2013 (with a larger relative proportion of PEFC certified area than FSC certified area). Brazil, by contrast, shows a negative change in forested area and a relatively low presence of both FSC and PEFC (with a larger relative proportion of FSC certified area than PEFC certified area). China contains few certified forests but exhibits a highly positive net change in forested area due, in large part, to domestic reforestation programs. (See also Figure 10.1.)

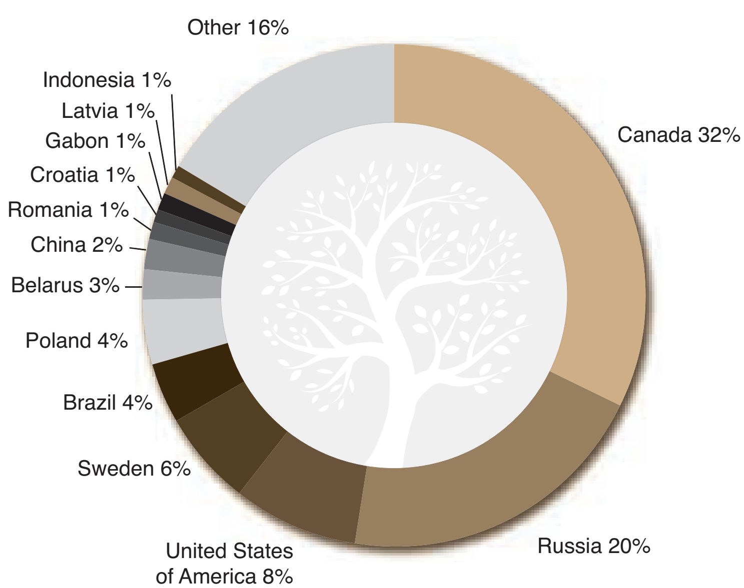
Sources: ForesSTAT, 2013; FSC, 2013a; PEFC, 2013c.

TABLE 10.2 IMPORTANCE OF CERTIFIED AREA AND ROUNDWOOD PRODUCTION, RELATIVE TO GLOBAL FIGURES.

	VSS certified area (ha)	VSS certified area as a percentage of global area	Potential supply of VSS certified industrial roundwood (m³)	Potential supply of certified industrial roundwood, market share of global exports	VSS potential industrial roundwood supply, market share of global production
FSC	180,444,445	5%	no data	n/a	n/a
PEFC	242,804,715	6%	no data	n/a	n/a
Global VSS certified area (ha) and potential supply (m³, %), adjusted for multiple certification	368,000,000	9%	469,000,000	419%	28%

Source: Fernholz & Kraxner, 2012; FSC, 2013a; PEFC, 2013b.

FIGURE 10.5 FSC FORESTED AREA BY COUNTRY, JULY 2013.



Source: FSC, 2013a.

Forest Stewardship Council (FSC)

Established in 1993, FSC was the first global system of forest certification and is currently the fastest-growing global forestry certification initiative. FSC implements CoC and forest management standards, the latter of which consist of a system of national standards developed in accordance with FSC's global principles and criteria.

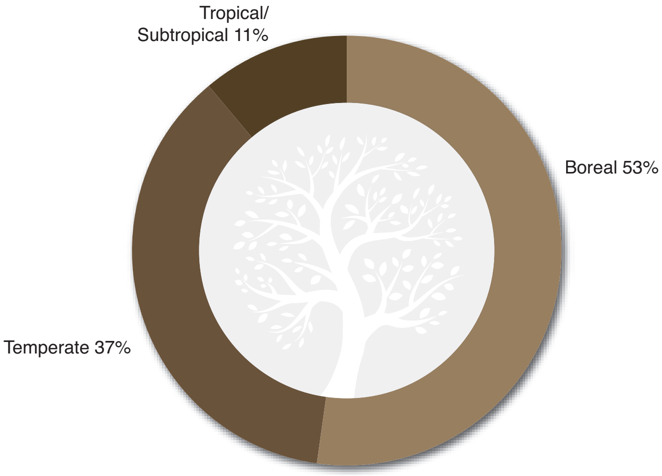
On the supply side, as of July 2013, FSC had certified 180 million hectares across 80 countries (see Figure 10.14 for countries with the largest areas of certification) and 4 continents (see Figure 10.15). During the five years since 2009, forested area under FSC has grown at a relatively constant rate of 15.5 million hectares per year, equivalent to an average annual growth rate of 11 per cent (see Table 10.4). Canada, Russia, the United States and Sweden account for 66 per cent of total FSC certified area (120 million hectares). Canada alone represents about one-third of total FSC certified area, while Russia represents about one-fifth (see Figure 10.5 and Table 10.3). By continent, forested area certified under FSC is concentrated in Europe (43 per cent), North America (40 per cent), South America (7 per cent), Asia (5 per cent), Africa (4 per cent), Oceania (1 per cent) and the Caribbean (1 per cent). While FSC has achieved particular success in North American and European countries, FSC coverage is significantly less in tropical regions. Nevertheless, FSC has succeeded in certifying 1 per cent or more of total forested area in certain countries containing tropical forest, including China, Brazil, Indonesia, Gabon, South Africa and New Zealand.

The concentration of certification in the temperate and boreal forests of North America and Europe is illustrated in FSC's 2012 certification breakdown by biome: 90 per cent of FSC certified area was concentrated in boreal (53 per cent) and temperate forests (37 per cent), with tropical forests accounting for only 11 per cent of total certified area (see Figure 10.6).[9] FSC's total certified area is primarily supplied by natural forests (65 per cent), followed by semi-natural and mixed plantation and natural forest sources (28 per cent), and plantation forests (8 per cent) (see Figure 10.7).

Notwithstanding the overall challenges faced in securing tropical certification, growth in certified area under FSC continues in both tropical and temperate forests. The majority of growth in certified area in 2012 came from the Asia-Pacific region, where the area of FSC certified forests grew by 30 per cent and the number of CoC certificates grew by 20 per cent (FSC, 2012a). During 2012, over 9 million hectares of forest were certified in 16 different countries, driving the growth of the global FSC supply chain. In Canada, certification saw a rapid increase of 175 per cent from 2008 to 2013, driven in part by campaigns to safeguard the rights of First Nations and local communities (FSC, 2012a). The FSC's *Global Market Survey* found that 98 per cent of FSC's certification holders were planning to renew or keep their certification, and 54.5 per cent of respondents indicated they were already planning to source more FSC certified materials than they did in 2011 (FSC, 2012b). This was particularly the case for companies in South America, Central America and Africa.

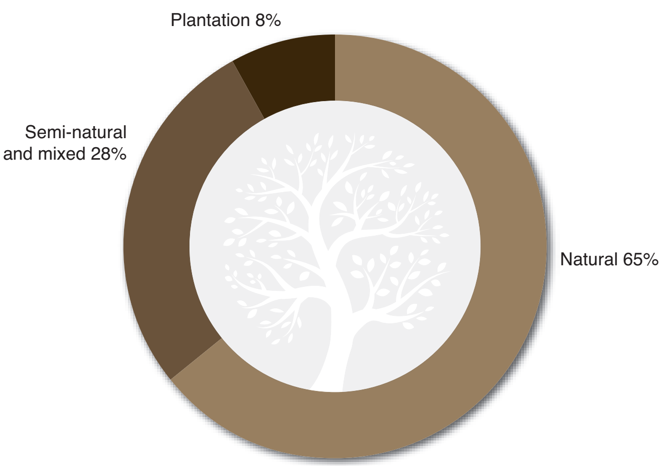
9 Note that tropical forest area accounts for 47 per cent of global forested area (FAO, 1993).

FIGURE 10.6 FSC FORESTED AREA BY BIOME, JULY 2013.



Source: FSC, 2013a.

FIGURE 10.7 FSC FORESTED AREA BY FOREST TYPE, JULY 2013.



Source: FSC, 2013a.

TABLE 10.3 FSC FORESTED AREA AND COC CERTIFICATES BY COUNTRY, 2013.

	Forested area (ha)	CoC certificates
Canada	57,264,879	980
Russian Federation	35,983,051	222
United States	14,278,451	3,375
Sweden	11,690,112	278
Brazil	7,299,232	976
Poland	6,998,809	946
Belarus	5,735,508	21
China	3,146,305	3,058
Romania	2,386,942	147
Croatia	2,038,296	190
Gabon	1,873,505	9
Latvia	1,740,297	201
Indonesia	1,679,117	192
Democratic Republic of Congo	1,574,310	2
United Kingdom	1,570,272	2,341
South Africa	1,544,885	103
New Zealand	1,487,489	151
Turkey	1,380,123	133
Bosnia and Herzegovina	1,289,151	189
Ukraine	1,236,805	44

Source: FSC, 2013a.

TABLE 10.4 FSC FORESTED AREA, 2004–2013.

	Forested area (ha)
2004	48,020,358
2005	68,130,000
2006	85,801,495
2007	94,000,000
2008	102,786,400
2009	118,158,088
2010	134,211,624
2011	148,635,933
2012	170,471,318
2013	180,444,445

Source: FSC, 2013a.

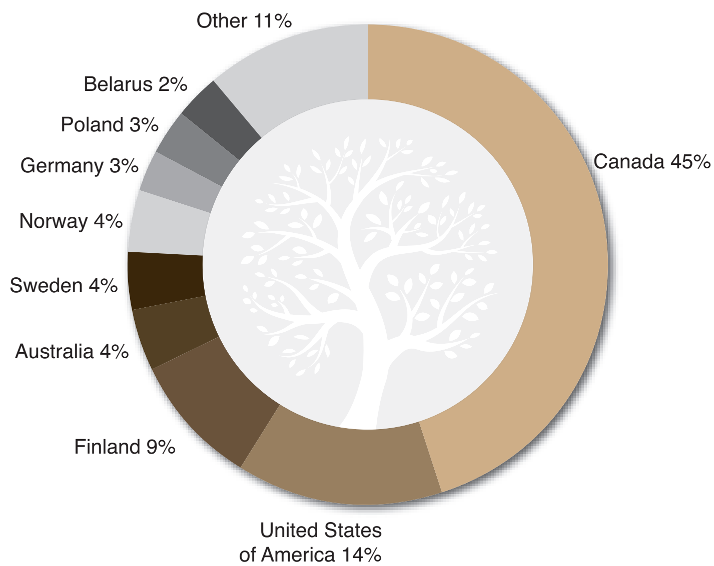
Programme for the Endorsement of Forest Certification (PEFC)

PEFC, established in 1999,[10] operates as an umbrella organization recognizing existing national forest certification systems that comply with PEFC's sustainability benchmark criteria. PEFC is the global leader in terms of total area certified, with 243 million hectares across 27 countries (see Figure 10.14 for countries with the largest areas of certification) in 4 continents (see Figure 10.15). As with FSC, PEFC certified area is also concentrated in temperate and boreal forests, although to a larger degree. The distribution of PEFC certified products is attributed to its reliance on independent national standards for PEFC recognition. PEFC's bottom-up approach to standards development results in a resource-intensive and complex process that has restricted the speed with which it can move into new countries where standard-setting capacity itself is limited.[11] Nevertheless, PEFC has recently made specific efforts to bring tropical sources into its supply stream, with notable success in Malaysia, Chile, China and Indonesia. Among other countries, Myanmar and India have indicated their interest in developing PEFC-compliant certification systems (T. Arndt, PEFC, personal communication, December 10, 2013).

In 2005, PEFC endorsed all Sustainable Forestry Initiative (SFI) forests,[12] resulting in a major one-time increase and more than tripling its area under certification at the time. PEFC has also certified the American Tree Farm System and the Canadian Standards Association, which currently account for nearly 60 per cent of its certified area.[13] Total hectares certified have been relatively stable, around 240 million hectares between 2011 and 2013. During the past five years (from 2009 to mid-2013), certified area under PEFC has grown at an average annual rate of 2 per cent per year (see Table 10.6).

As of June 2013, three countries accounted for approximately 68 per cent of total PEFC certified area: Canada (45 per cent), the United States (14 per cent) and Finland (9 per cent); see Figure 10.8. At the regional level, North America and Europe account for 93 per cent of total certified area (60 per cent and 33 per cent, respectively). South America (1 per cent), Asia (2 per cent) and Oceania (4 per cent) account for the remainder of certified area. In terms of intensity of sustainable certification, PEFC has notable presence in countries such as Chile (with 12 per cent of total forested area PEFC certified) and Malaysia (22 per cent PEFC certified). CoC certificates have grown five-fold since 2004. Germany, France and the United Kingdom are the countries with the most CoC certificates (Table 10.5).

FIGURE 10.8 PEFC FORESTED AREA BY COUNTRY, JUNE 2013.



Source: PEFC, 2013c.

10 The PEFC was originally established as the Pan-European Forest Certification system and was designed to facilitate sustainable forest management across the European community. Subsequently, the organization changed its name to the Programme for the Endorsement of Forest Certification so that it could address a more global clientele.

11 PEFC's approach is based on the belief that standard setting must take place at the local level to ensure utmost consideration of local conditions. From a historical context, this allowed the standard to address the multiplicity of national certification initiatives in the European context (Belgian Development Cooperation, 2013).

12 The SFI is a forest certification scheme launched in 1994, currently operating in North America (SFI, n.d.). More than 100 million hectares of land across the United States and Canada were certified under the SFI standard by 2013; at these volumes, forest area certified under the initiative represents over 40 per cent of PEFC certified area.

13 Based on 109 million hectares certified in North America by the American Tree Farm System and the Canadian Standards Association (PEFC, 2013b).

TABLE 10.5 PEFC FORESTED AREA AND COC CERTIFICATES BY COUNTRY, 2013.

	Forested area (ha)	CoC certificates
Canada	110,373,093	186
United States	35,171,786	319
Finland	21,068,333	182
Australia	9,800,877	245
Sweden	9,496,956	126
Norway	9,125,902	44
Germany	7,384,800	1,546
Poland	7,304,356	69
Belarus	6,670,700	26
France	4,637,851	2,056
Malaysia	4,566,376	236
Austria	2,698,433	419
Chile	1,913,521	54
Czech Republic	1,845,321	159
Latvia	1,683,641	26
Brazil	1,658,583	46
Spain	1,618,365	638
United Kingdom	1,298,047	1,160
Slovakia	1,233,364	47
Estonia	897,688	26

Source: PEFC, 2013c.

TABLE 10.6 PEFC FORESTED AREA AND COC CERTIFICATES, 2004–2013.

	Forested area (ha)	CoC certificates
2004	55,000,000	1,905
2005	188,000,000	2,362
2006	194,000,000	2,901
2007	194,000,000	3,545
2008	217,000,000	4,420
2009	223,545,608	6,166
2010	229,600,000	7,688
2011	245,300,000	8,797
2012	237,400,000	9,529
2013	242,804,715	9,807

Source: PEFC, 2013c.

10.4 SUPPLY

The world's top 25 countries, in terms of total forested area, represent 82.5 per cent of the world's forest surface area. Russia, Brazil, Canada, the United States and China are the five largest countries by forest area and represent about half of the world's forest cover (see Figure 10.10); however, whereas FSC and PEFC have significantly penetrated the Canadian and U.S. forestry sectors, sustainability intensity rates in Russia, Brazil and China have remained relatively low. The FSC certifies 4.4 per cent, 1.4 per cent and 1.5 per cent, respectively, of Russian, Brazilian and Chinese forestry, while PEFC's certified area in these countries is between 0 per cent and 0.3 per cent (PEFC forest certification endorsed China in February, 2014). Since Russia, Brazil and China represent about 38 per cent of the world's forested area, the relatively low sustainability intensity of these countries represents an important opportunity for expansion. The link between such regions and illegal forestry practices and deforestation also renders them important target countries from a sustainability perspective.

Forest certification also continues to face challenges in addressing global deforestation. The countries with the highest changes in net forest area also tend to exhibit the lowest uptake for certification. For example, Brazil, the leading country in terms of annual net forest loss, ranked 57th with regard to sustainability intensity, with 1.6 per cent of its forest area certified. Similarly, Australia (second in annual net forest loss) ranked 44th, with 6.9 per cent certified, and Indonesia (third in annual net forest loss) ranked 52nd, with 1.8 per cent certified. As of 2012, Nigeria (fifth in annual net forest loss) had no certified area and Tanzania (sixth in annual net forest loss) ranked 73rd, with 0.3 per cent certified. It stands to reason that countries with high proportions of certified area would have less negative net change in forested area than those who don't. However, deforestation occurs almost exclusively in tropical forests, which—in the context of building a supply base for compliant forest products—face the above-mentioned difficulties relating to the specific characteristics of tropical sustainable forest management (e.g., political instability, limited resources for implementation and land ownership arrangements) (FAO, 1999, sections 3.2.3 and 3.4.4).

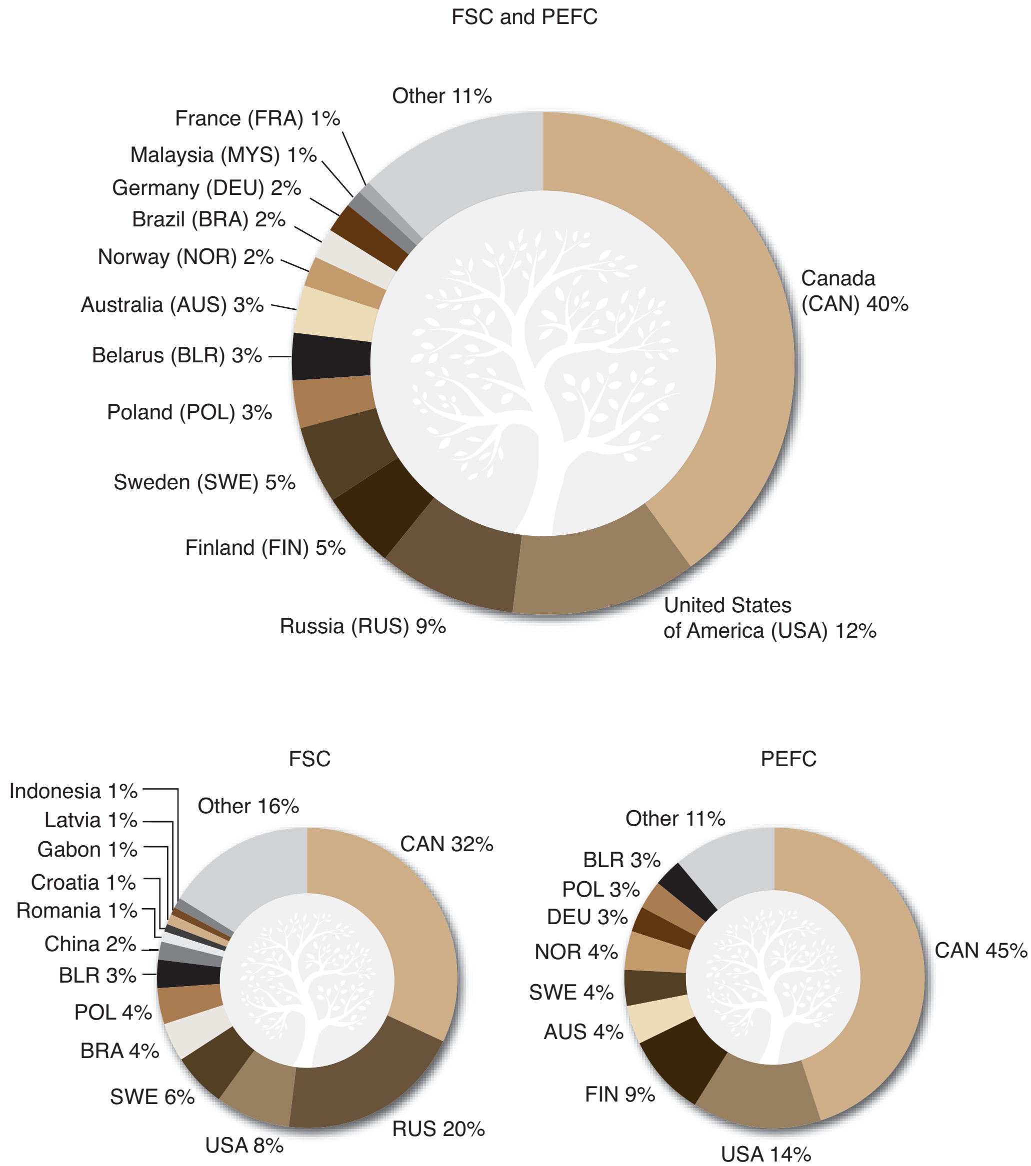
Although PEFC has higher global area of certified forest, FSC has a broader distribution base for its supply. For example, PEFC certification is present in 6 of the top 25 most forested countries, while FSC certification is present in 19 of these countries (see Figure 10.9 and Table 10.7). Of these countries, Sweden, which occupies the 23rd rank by forested area (hectares), has the highest sustainability intensity rate, with 41 per cent of forestry land area being certified FSC and 34 per cent being certified PEFC. Whereas Australia benefits from 7 per cent PEFC certification, all other countries have a sustainability intensity that is smaller than 2 per cent; however, countries like Finland, Germany, Norway, Poland, Belarus, Austria, Latvia, the United Kingdom, Czech Republic and Slovakia, which have smaller forestry sectors, have PEFC penetration rates higher than 50 per cent. As of 2013, FSC certified over 50 per cent of forestry area in Germany, Poland, Belarus, Latvia, United Kingdom, Croatia and Ireland (see Table 10.7).

Globally, we estimate that between 319.5 million (7.9 per cent) and 423.2 million (10.5 per cent) forestry hectares are certified sustainable.[14] We estimate the total certified area, adjusting for multiple certification, to be somewhere between these two, in the range of 368 million hectares (9.1 per cent of total forested area and 23 per cent of managed forests, globally).[15]

14 This range is generated by an assumption of maximum double certification across PEFC and FSC where operating in the same country, which produces the minimum value in the range (319 million hectares) and no double certification (the maximum value in the range is 423 million hectares).

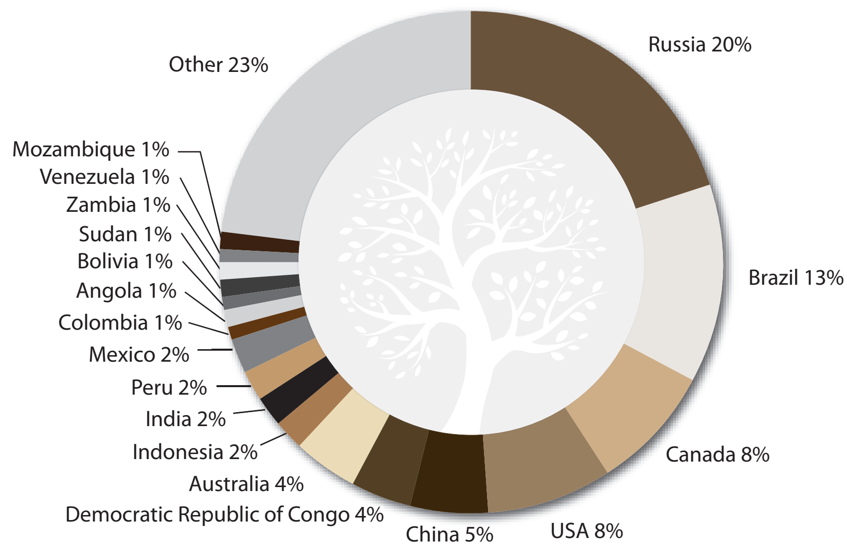
15 We have calculated double certification as the median between the minimum and maximum in our possible range of sustainable production (see above).

FIGURE 10.9 FSC AND PEFC FORESTED AREA BY COUNTRY, 2013.



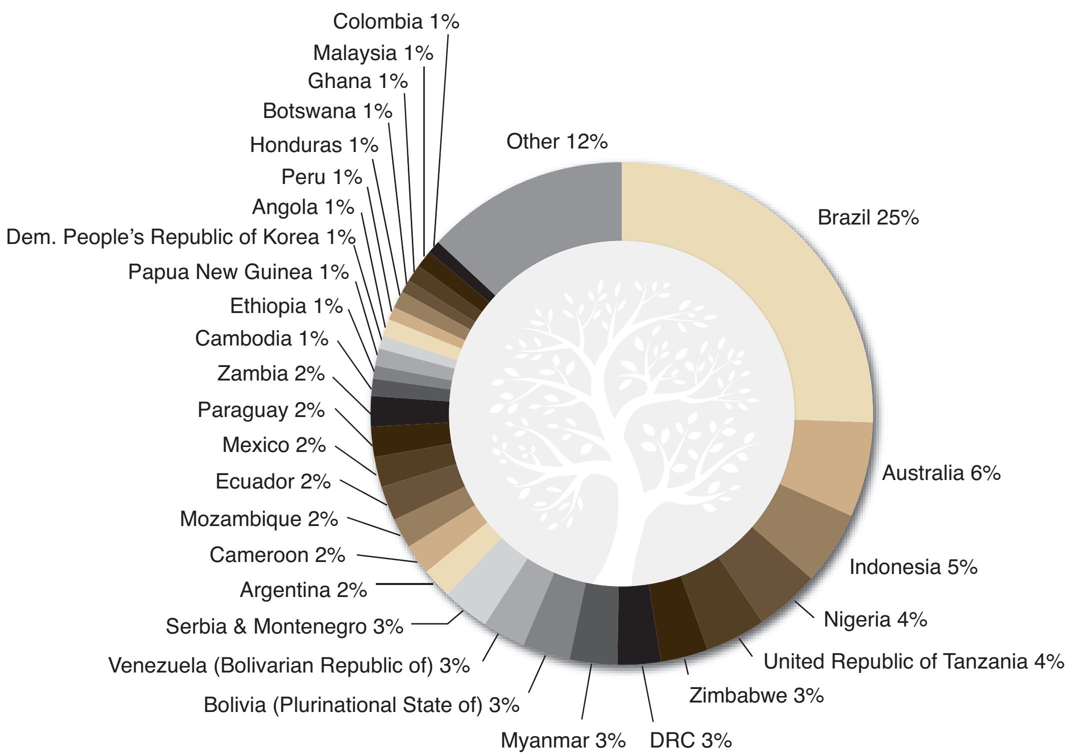
Sources: FSC, 2013a; PEFC, 2013c.

FIGURE 10.10 FORESTED AREA GLOBALLY, 2012.



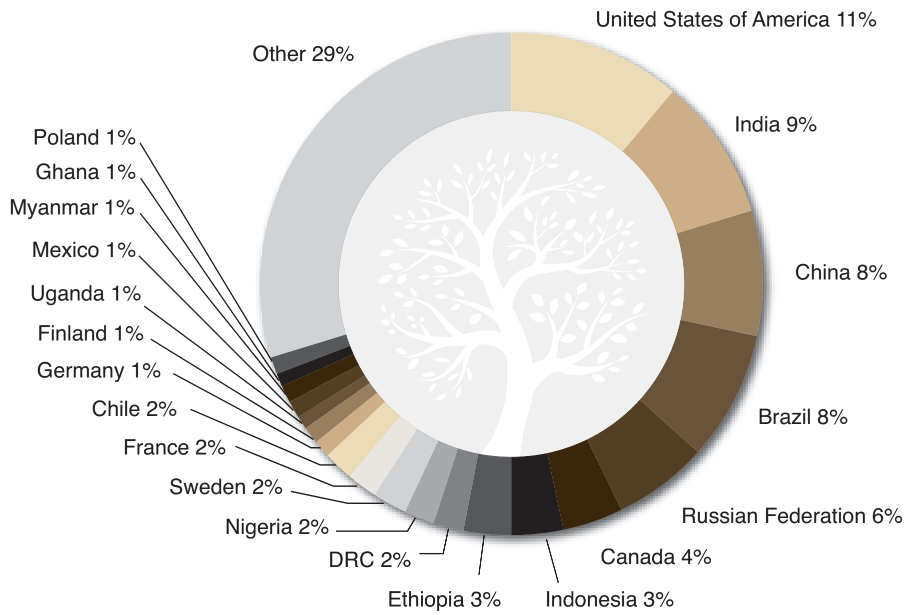
Source: ForesSTAT, 2013.

FIGURE 10.11 NEGATIVE CHANGE IN GLOBAL FORESTED AREA, 2000–2011.



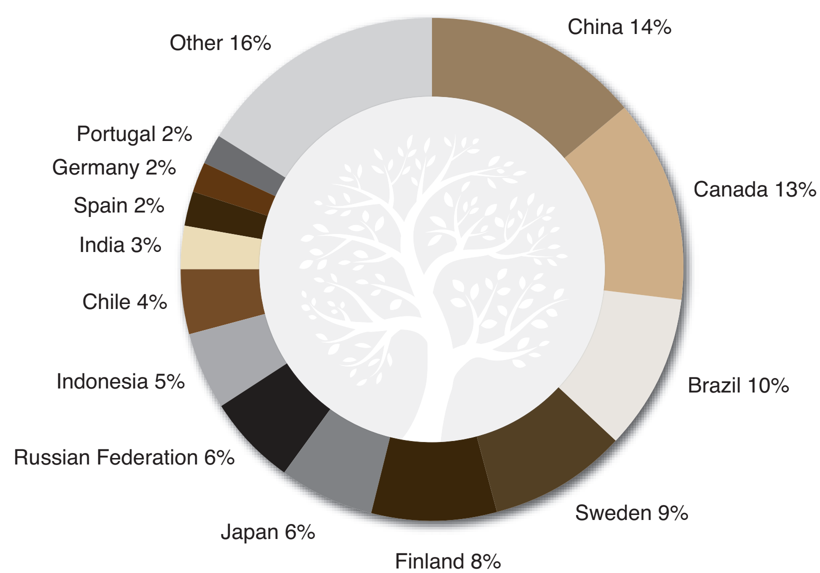
Source: ForesSTAT, 2013.

FIGURE 10.12 ROUNDWOOD PRODUCTION BY COUNTRY, 2012.



Source: ForesSTAT, 2013.

FIGURE 10.13 PULP FOR PAPER PRODUCTION, 2012.



Source: ForesSTAT, 2013.

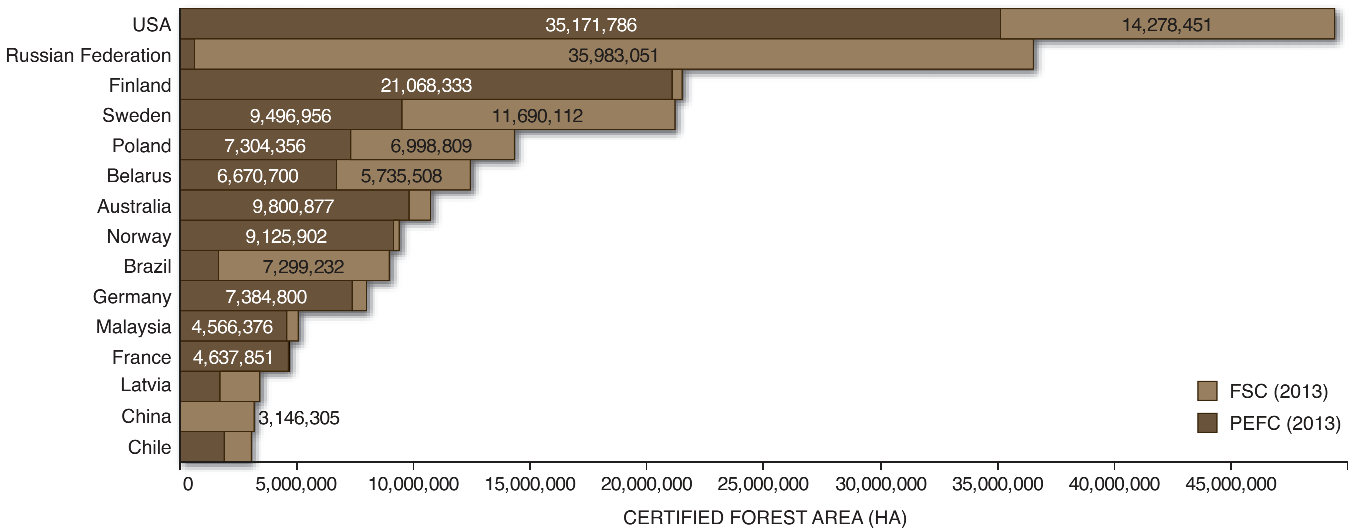
TABLE 10.7 STANDARD-COMPLIANT FORESTED AREA.

As a percentage of total national forested area for 40 most forested countries, 2013. Dashes represent negligible or no standard-compliant forested area relative to national forested area.

	FSC	PEFC
Russian Federation	4.4%	0.1%
Brazil	1.4%	0.3%
Canada	18.5%	35.6%
United States	4.7%	11.6%
China	1.5%	-
Democratic Republic of Congo	-	-
Australia	0.6%	6.6%
Indonesia	1.8%	-
India	0.6%	-
Peru	1.3%	-
Mexico	1.2%	-
Colombia	0.2%	-
Angola	-	-
Bolivia (Plurinational State of)	1.6%	-
Sudan	-	-
Zambia	-	-
Venezuela (Bolivarian Republic of)	0.3%	-
Mozambique	0.1%	-
United Republic of Tanzania	0.3%	-
Myanmar	-	-
Argentina	0.9%	-
Papua New Guinea	0.6%	-
Sweden	41.4%	33.7%
Japan	1.6%	-
Central African Republic	-	-
Finland	1.9%	95.1%
Germany	5.2%	66.7%
Norway	2.6%	90.0%
Poland	74.7%	78.0%
Belarus	66.2%	77.0%
Austria	-	69.3%
Latvia	51.7%	50.0%
United Kingdom	54.4%	44.9%
Czech Republic	1.9%	69.4%
Estonia	51.6%	40.6%
Lithuania	48.8%	-
Slovakia	7.5%	63.8%
Croatia	100.0%	-
Ireland	59.6%	-
Denmark	36.4%	46.6%

Sources: ForesSTAT, 2013; FSC, 2013a; PEFC, 2013c.

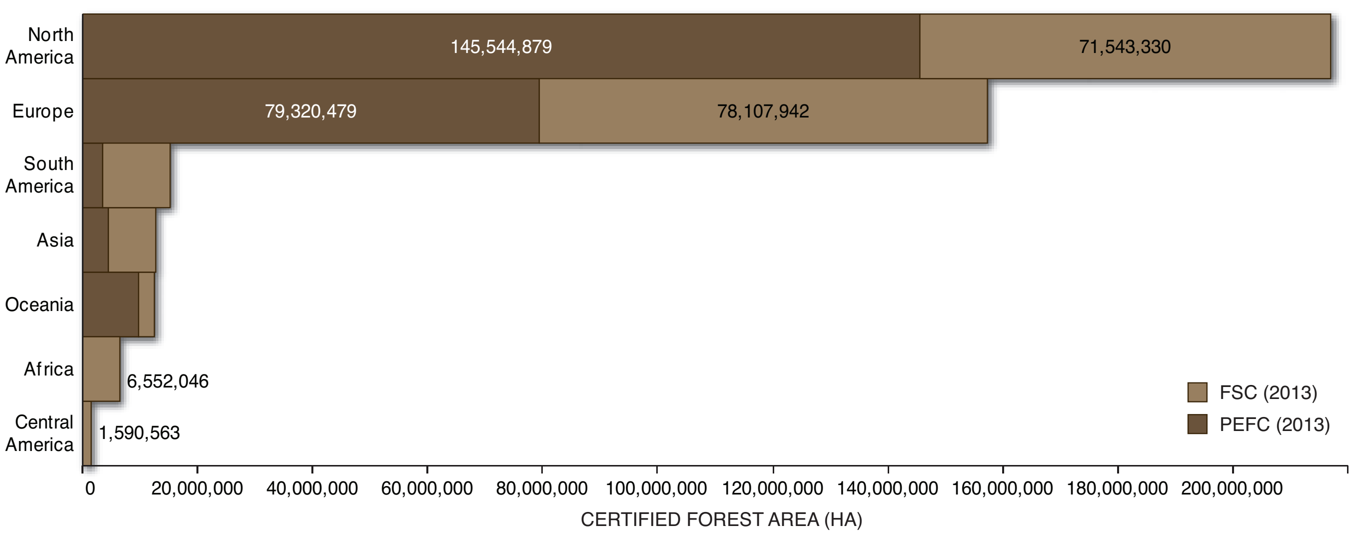
FIGURE 10.14 COUNTRIES WITH THE MOST CERTIFIED FOREST, 2013.



Where space permits, data points are visible.

Sources: FSC, 2013a; PEFC, 2013c.

FIGURE 10.15 FSC AND PEFC FORESTED AREA BY CONTINENT, 2013.



Where space permits, data points are visible.

Sources: FSC, 2013a; PEFC, 2013d.

10.5 PRICING AND PREMIUMS

Prices and premiums paid for FSC and PEFC certified products or stumpage fees are market driven and are inconsistent across products or countries. In the mid-1990s, early on in the history of forest certification, several studies looked at pricing within certified markets and claimed that consumers in Europe and North America were willing to pay premiums of between 2 per cent and 30 per cent (Kollert & Lagan, 2007). More recently, several studies have corroborated these estimates:

Kollert and Lagan (2007) looked at the price premiums for FSC certified logs in Malaysia and found average premiums of between 2 per cent and 56 per cent. High-quality logs mostly destined for export received premiums of between 27 and 56 per cent, and lower quality logs (for example, light hardwoods used for the production of veneer) between 2 and 30 per cent. In Malaysia, by mid-2013, FSC had certified roughly 500,000 hectares, while PEFC had certified 4.6 million hectares.

Schreiber (2012) found that "Certified wood products receive an overall price premium of 10.5% while the premium for certified stumpage ranges from 1.6-4.3%" (p. 3). The study found that premiums for finished wood products were higher for domestic sales than for export sales, generating statistically significant premiums of 30 per cent and 3.4 per cent, respectively.

Cai and Aguilar (2013) conducted a meta-analysis of 19 studies of "willingness to pay" premiums associated with forest certification, finding that "frequently purchased wood products and wood products with lower base prices tended to have higher percentage premiums" (p. 15) and that willingness to pay premiums have increased in recent years. Willingness to pay premiums in the 19 studies were found to be between 1 and 39 per cent.

Yamamoto et al. (2013) carried out a study using data from more than 38,000 log transactions in Shizuoka Prefecture, Japan, and found premiums of 1.4 per cent for certified logs. The study used data from logs certified by FSC (1.5 per cent of Japan's forest at the time of writing) and the domestic forestry certification Sustainable Green Ecosystem Council (3.5 per cent of Japan's forest area). Of the two international forestry voluntary sustainability initiatives, only FSC is present in Japan. There was a positive and statistically significant effect of certification on prices, but this is at the lower end of what has been found in much of the literature. Higher-quality logs received higher premiums; cedar, for instance, received premiums of 4 per cent.

10.6 CHALLENGES AND OPPORTUNITIES

Forest certification has been growing at a constant pace for the past two decades. As companies move forward on existing public commitments and legislation requiring proof of legality comes to bear, we expect this trend to continue for the foreseeable future. Based on current trends, we expect approximately 15 per cent of total forest area to be certified sustainable under PEFC or FSC by 2020. As sustainable forest certification continues on its path of growth, it faces a number of challenges.

The gap between certification in temperate versus tropical forests represents one of the major challenges facing forest certification and is driven by a number of factors, including reduced certification costs due to the pre-existence of forest management plans in temperate forests in Europe and North America,[16] incompatibility between standards and local contexts in some tropical regions, absence of pre-existing national standards, reduced implementation infrastructure, opportunity costs in preserving tropical forests for local commercial or sustenance farmers and, in some cases, corruption in granting forest concessions (International Tropical Timber Organization, 2002). In addition to the specific difficulties of tropical sustainable forest management (also see FAO, 1999, sections 3.2.3 and 3.4.4), the sustainable forestry sector has the unique arrangement among sustainable commodities of having high levels of certified product consumed and produced within the same country (mostly relevant eco-sensitive markets [see Ebeling & Yasué, 2008, p. 2] in Western Europe, the United States and Japan), which lends itself as a possible added difficulty for tropical producers if they access similar markets as boreal and temperate producers. However, as stated earlier in Section 10.2, because channels for certified tropical timber markets are often completely separate from certified temperate and boreal markets (benefiting tropical producers in one sense), their development also implies the development of additional networks and supply chain implementation infrastructure and strategies (e.g., additional transaction costs).

Increasing certification across tropical forests will likely require systemic changes in economic and political structures in developing countries as well as continued pressure on the demand side specifically targeting such sources. Legislative and procurement initiatives have been and continue to be important drivers in this respect. With sourcing programs only just beginning under the European Union's Forest Law Enforcement, Governance and Trade

16 1.6 billion hectares of the world's forested area are covered by a forest management plan, 23 per cent of which are certified by FSC or PEFC. In 1990, before either FSC or PEFC were established, Europe already had over 900 million hectares of forest covered under a management plan. South America and Africa, on the other hand, had a combined area of less than 100 million hectares under a forest management plan (FAO, 2010b).

Action Plan and the European Union Timber Regulation, one can expect significant pressures in this direction moving forward; however, investment in capacity at production and enforcement capacity in tropical production regions will also be critical parts of meeting this challenge. Programs like the Forest Trust and WWF's Global Forest Trade Network represent important instruments and will likely need to be scaled up. An expansion of trade-oriented technical assistance and extension services is likely to be an important part of any strategy, bringing a more proportional participation of tropical regions into sustainable forestry supply chains.

Partnerships with industry players, trade associations and other public and private sector representatives in new supply markets is, and will continue to be, a critical part of the expansion strategy for sustainable forest certification. The adoption of sustainable forest management standards requires local ownership and commitment in order to create the requisite infrastructure for entry into global certified markets, and growth strategies will need to focus on building this ownership locally where it doesn't already exist.

Russia, Brazil and China account for more than one-third of global forested area but represent less than 5 per cent of global certified forest product supply. These countries, therefore, constitute important opportunities for market expansion but also for ensuring that forest certification has maximum impact. At present, FSC's market development activities are focused on projects in Japan, Russia and North America and are geared toward raising market awareness of FSC certification, while PEFC is engaged in several projects, including its Asia Promotions Initiative, which is working to eventually establish PEFC certification within Japan and China.[17]

Private sector commitments also remain a major feature of market growth in the sector. There is no indication at present that sustainable forest certification will become the de facto "price of entry" into mainstream channels. As such, forest certification initiatives and partners will need to remain diligent in making the business case for the adoption of forest certification for new clients.

In doing so, forest certification must likely continue to refine the certification business model. Although the diversity of forest products allows for some degree of market differentiation, and existing studies from various parts of the world suggest that certified logs receive premiums between 2 and 30 per cent or more, a significant portion of the market is fungible and/or incorporated within intermediate products not easily differentiated on the consumer market. Both PEFC and FSC have sought mechanisms for enabling reduced costs where differentiation is neither necessary nor practically feasible.[18] As forest certification grows in importance, it is possible that the broader adoption of certification in undifferentiated markets (mass markets) will drive down both certification costs and market premiums. If this occurs, incentives for the adoption of forest certification at the local level are likely to be driven more by market access and/or soft benefits associated with overall risk reduction and improved management.

17 PEFC is working with other countries that have shown an interest in developing a PEFC-compliant forest certification system as well, including Myanmar, India, the Philippines, Vietnam, Thailand, Nepal and South Korea. The program currently also supports China and Indonesia, two countries that have already applied for PEFC endorsement (T. Arndt, PEFC, personal communication, December 10, 2013).

18 In addition to 100 per cent certified labels, both PEFC and FSC offer mixed content or recycled content labels.

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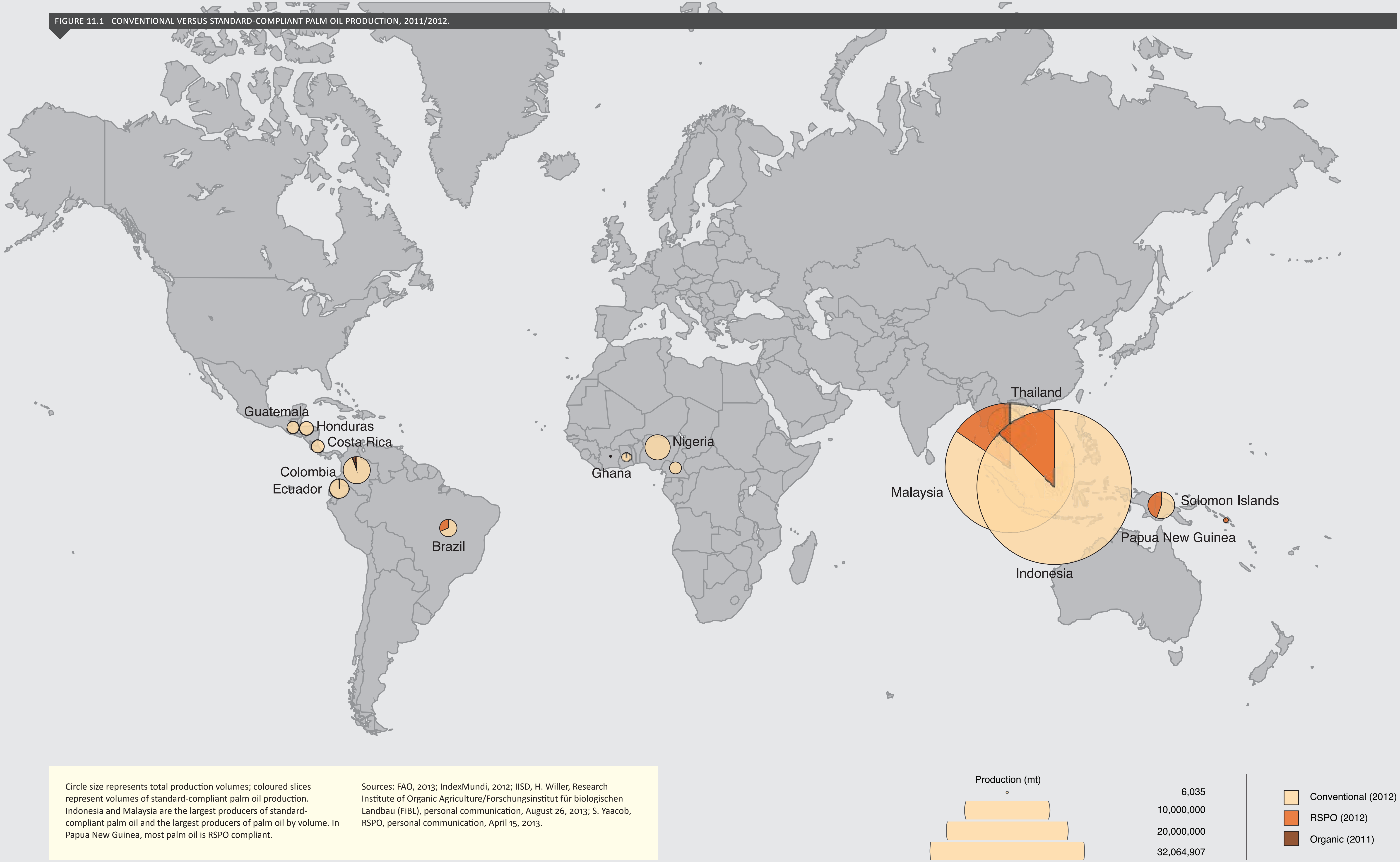
11 PALM OIL MARKET

Palm oil is an economically important and versatile vegetable oil that is used as raw material for both food and non-food products. Large red and orange 'fresh fruit bunches' grow on palm oil trees, which can be broken up into individual fruits. Both the flesh and the kernel of the fruit yield palm oil. Each fresh fruit bunch weighs between 10 kg and 40 kg, and the flesh of the fruit (not the kernel) yields over 50 per cent oil (Food and Agricultural Organization of the United Nations (FAO), 2002). Around the world, vegetable oil production totals approximately 150 million metric tons per year, of which approximately one-third is palm oil (FAO, 2013). Palm oil is the most widely used vegetable oil in the world and is found in supermarket products ranging from margarine, cereals, sweets and baked goods to soaps, washing powders and cosmetics. Increasingly, palm oil is also being used as a first-generation biofuel. In 2011 oil palm plantations produced over 53 million metric tons of palm oil on 16 million hectares. Most of this production (89 per cent) comes from Indonesia and Malaysia (see Figure 11.1), where palm oil is a key economic driver and is an important component of GDP.

Over the last few decades the growing consumption of palm oil and simultaneous expansion in plantation area has been criticized by civil society organizations as a driver of deforestation as well as displacement and disruption of human and animal populations. The sustainability standards emerging in the context of these concerns include the Roundtable for Sustainable Palm Oil (RSPO), Organic and Rainforest Alliance.[1] The International Sustainability and Carbon Certification (ISCC) and the Roundtable on Sustainable Biomaterials are other standards involved in the palm oil industry, and are covered in Section 6. Palm oil compliant with voluntary sustainability standards accounted for 15 per cent of global production in 2012 (RSPO accounted for the vast majority of this; Organic production accounted for 0.1 per cent of global production volumes; see Figure 11.2 and Table 11.2 for a breakdown by voluntary sustainability standard).

1 Since Rainforest Alliance's palm oil program is in its early stages, only RSPO and Organic are discussed below.

FIGURE 11.1 CONVENTIONAL VERSUS STANDARD-COMPLIANT PALM OIL PRODUCTION, 2011/2012.



Circle size represents total production volumes; coloured slices represent volumes of standard-compliant palm oil production. Indonesia and Malaysia are the largest producers of standard-compliant palm oil and the largest producers of palm oil by volume. In Papua New Guinea, most palm oil is RSPO compliant.

Sources: FAO, 2013; IndexMundi, 2012; IISD, H. Willer, Research Institute of Organic Agriculture/Forschungsinstitut für biologischen Landbau (FiBL), personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013.

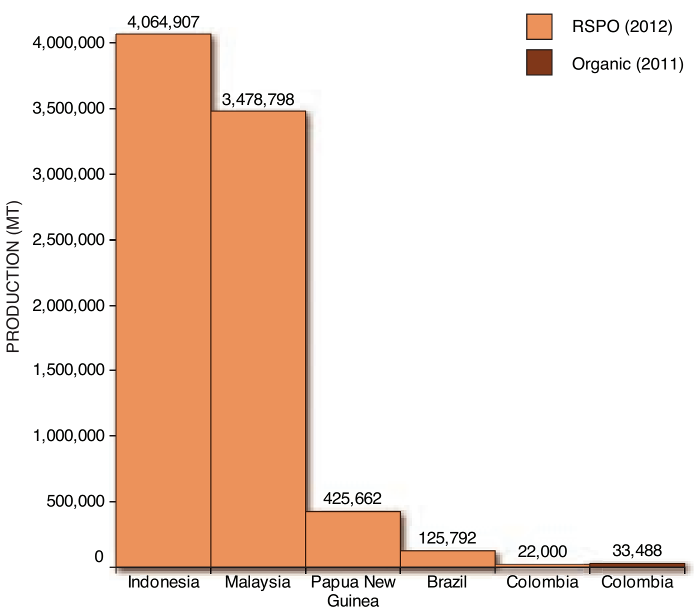
TABLE 11.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR PALM OIL PRODUCTION AND TRADE.

KEY STATISTICS

Top 5 palm oil producers (96% of global) (2012)	Indonesia (53%), Malaysia (36%), Thailand (3%), Colombia (2%), Nigeria (2%)
Top 5 standard-compliant palm oil producers (99% of global) (2012)	Indonesia (49%), Malaysia (42%), Papua New Guinea (5%), Brazil (2%), Colombia (1%)
Top 5 palm oil exporters (93% of global) (2013)	Indonesia (44%), Malaysia (29%), Ghana (18%), Guatemala (1%), Thailand (1%)
Top 5 palm oil importers (65% of global) (2012)	India (21%), China (16%) Netherlands (16%), Germany (6%), Malaysia (6%)
Major international voluntary sustainability standards	RSPO, Organic, Rainforest Alliance
Global palm oil production (2012)	53.8 million metric tons
Global palm oil exports (2012)	41.2 million metric tons (77% of production)
Global area harvested (2012)	16.4 million hectares
Total number of oil palm farmers (2012)	3 million smallholder farmers
Standard-compliant palm oil production (2012)	8.2 million metric tons (15% of global production)
Key sustainability issues	Deforestation, land rights, worker health and safety, effluent discharge

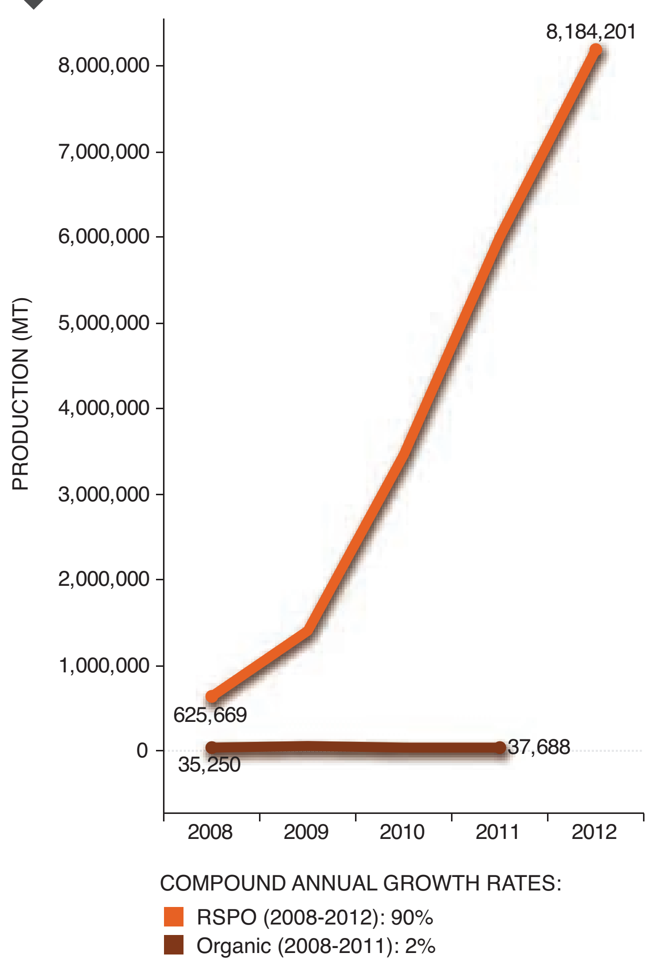
Sources: Top 5 producers, global production, global exports: IndexMundi, 2013d; Top 2 standard-compliant producers: IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013; Top 5 exporters: International Trade Centre, 2013c; Top 5 importers: International Trade Centre, 2013c, IndexMundi, 2013d; Global area harvested: FAO, 2013; Standard-compliant production (2012 RSPO data and 2011 Organic data): IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013.

FIGURE 11.2 LEADING PRODUCERS OF SUSTAINABLE PALM OIL BY STANDARD, 2011/2012.



Sources: IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013.

FIGURE 11.3 ORGANIC AND RSPO PALM OIL PRODUCTION, 2008–2012.



Sources: IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013.

11.1 MARKET REVIEW

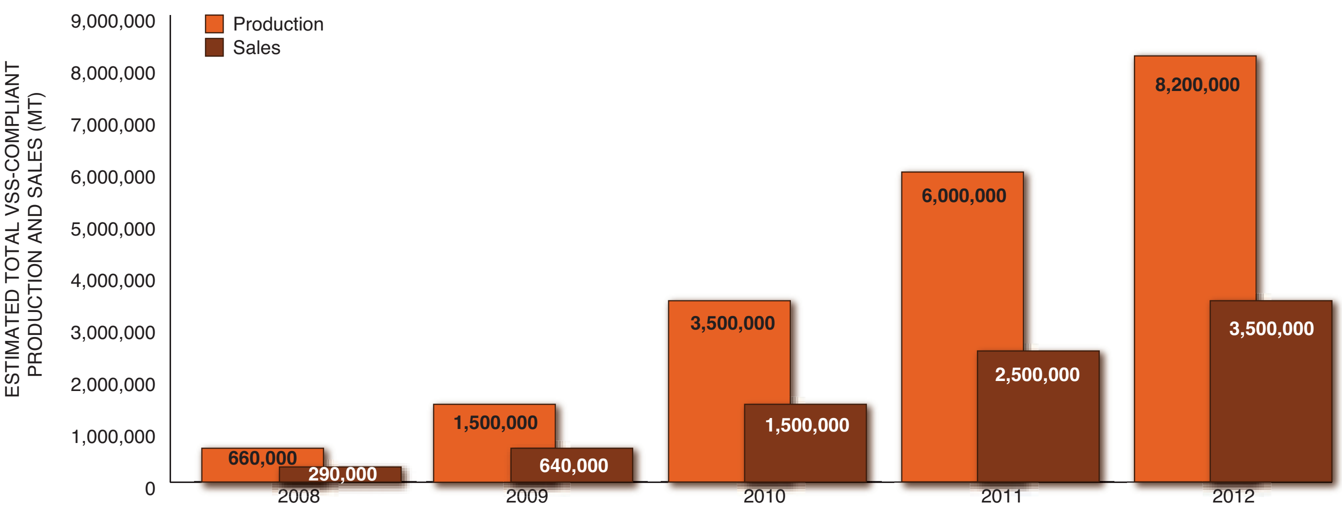
Market reach
Approximately 8.2 million metric tons of palm oil were standard-compliant by 2012, equivalent to 15 per cent of global palm oil production (see Figure 11.3).

Growth
Standard-compliant palm oil production grew at a compound annual growth rate of 87 per cent from 2008 to 2012.

Regional importance
Together, Indonesia and Malaysia represent over 90 per cent of total land area and production volumes of standard-compliant production.

Pricing and premiums
Premiums for sustainable palm oil certificates (RSPO) have been shown to range from 1 to 6 per cent.

FIGURE 11.4 GROWTH IN STANDARD-COMPLIANT PALM OIL PRODUCTION AND SALES, 2008–2012.



Sources: IISD, H. Willer, FiBL, personal communication, August 26, 2013;
S. Yaacob, RSPO, personal communication, April 15, 2013.

In 2012, 8.2 million metric tons, or 15 per cent of palm oil, was produced in compliance with a global sustainability standard. Despite the recent sharp growth in standard-compliant production volumes, calls for sustainability within the industry are not a recent phenomenon. Of particular note in recent history, the palm oil sector became an area of heavy contention during the Asian Crisis in 1997 when Indonesia, Papua New Guinea, Brazil, Colombia and parts of Africa suffered severe forest fires that caused much of Southeast Asia to be covered by smog for extended periods.[2] Various organizations such as WWF and the International Union for Conservation of Nature worked on establishing the causes of these fires and, in some cases, it was determined that they were being used to clear land for oil palm plantations (Rowell & Moore, 2000). Concerns over deforestation were the initial focus, but eventually the scope broadened to the impacts on biodiversity, land use and social conflicts related to palm oil production. In particular, the orangutan became a central figure of the movement due to the impact of deforestation on its habitat.

Civil society organizations, especially Greenpeace and WWF, have been a potent force in influencing change in the palm oil industry. WWF publishes scorecards that assess the performance of retailers and consumer goods manufacturers highlighting their commitments to, and actions on, the responsible purchasing of palm oil (WWF 2009, 2011, 2013). WWF has also issued a variety of recommendations for both companies and consumers in accelerating the uptake of RSPO certified products. With regards to influencing supply, WWF has published an assessment of the performance of RSPO producers (growers and mills) on their commitments to the RSPO (WWF, n.d.-e). Greenpeace has also published an RSPO producer scorecard, assessing producers' performance (Greenpeace, 2012). A Greenpeace campaign launched in 2008 in several countries pushed companies at various points in the supply chain to support sustainable palm oil, targeting some of the largest companies like Unilever and Nestlé (Greenpeace, 2008). These efforts by various NGOs have been key factors in encouraging actors along the supply chain to accelerate their commitments to sustainable palm oil sourcing.

The three major international voluntary sustainability standards that have emerged within the sector are RSPO, Organic and Rainforest Alliance. The Roundtable on Sustainable Biomaterials and ISCC[3] also publish standards for biofuel feedstock including palm oil (for more information on the biomaterials standards see Section 6). Of these three voluntary sustainability standards, RSPO[4] dominates production (see Figure 11.3). Whereas 660,000 metric tons of palm oil and 150,000 metric tons of palm kernel were certified by the end of 2008 (first year of certification), these certification volumes had grown 87 per cent per year by the end of year 2012 to 8.2 million metric tons of palm oil and 1.9 million metric tons of palm kernel oil. This total certified volume represented 15 per cent of total global production of palm oil in 2012, a remarkable achievement given that the first certifications were issued in late 2008. RSPO's rapid growth is largely enabled by the organization's unique implementation strategy, which is closely related to the features and structure of the palm oil market more generally. The most obvious example of this is the GreenPalm certificate program, which allows companies to trade certificates linked to the application of sustainable practices independent of physical trades in palm oil (See Table 11.1).

2 WWF even went so far as calling the year 1997 "the year the world caught fire" (WWF, 1997).

3 ISCC is a dominant standard for palm oil certification within the biofuel feedstock space. The ISCC model is very flexible and includes a Chain of Custody that recognizes all other EU-RED approved systems (including RSPO). The ISCC-PLUS standard was published in 2012, and allows producers under the ISCC EU or DE standards (for biofuel use) to convert to certified feed or food (ISCC, n.d.-b). ISCC-PLUS will be covered in the next edition of the SSI.

4 The RSPO Principles and Criteria define indicators and guidance for a set of criteria that aims to make palm oil operations more sustainable. Accordingly, the RSPO has three different types of certificates. One certifies the palm oil (Certified Sustainable Palm Oil, or CSPO), the other certifies the palm kernel (Certified Sustainable Palm Kernel, or CSPK) and the last certifies fresh fruit bunches produced by groups of independent smallholders (J.M. Dros, Solidaridad, personal communication, December 2, 2013).

BOX 11.1 GREENPALM CERTIFICATES: POINTING TOWARD THE FUTURE FOR SUSTAINABLE COMMODITY TRADE?

The vast majority of sustainability standards tie market claims to products actually produced in accordance with criteria. While book and claim allows for a degree of delinking sustainable practices from actual purchases, the GreenPalm certificate program allows for the direct trade of "sustainable practices" as distinct from the products themselves.

GreenPalm allows RSPO certified growers to convert their certified oil into GreenPalm certificates, which are then put up for bids on the GreenPalm market. All palm oil producers certified by the RSPO are also invited to register a quantity of their output with the GreenPalm program. These producers are awarded one GreenPalm certificate for each metric ton of palm oil that has been produced sustainably. The certificates are then traded, allowing companies that wish to support sustainable production to bid for these certificates online. Off-market deals are also possible and are currently the bulk of transactions.

Product manufacturers who use palm oil or palm-based derivatives in their products then place offers for these certificates in order to offset their actual use of conventional palm oil with the equivalent amount of certificates and thus be able to claim that their company or products support the production of RSPO certified palm oil (GreenPalm, n.d.). The full value of each certificate is then sent back to the RSPO producer, who can then reinvest this premium to help tackle the environmental and social issues created by the production of palm oil.

Photo: Cayambe / CC-BY-SA

A select group of major companies such as AAK, KLK, Unilever and Sainsbury's have led the way in transitioning the palm oil industry toward more sustainable practices by establishing the RSPO in 2004, with the objective of promoting the growth and use of sustainable oil palm products through credible global standards and engagement of stakeholders. Unilever, which is one of the largest buyers of palm oil with about 3 per cent (approximately 1.5 million metric tons) of the total world volume being bought annually, has played an instrumental role in the development and promotion of the RSPO Principles and Criteria (WWF, n.d.-e). The company has also worked with Greenpeace to support a moratorium on deforestation for palm oil in Indonesia and has committed to sourcing all palm oil from sustainable sources by 2015. In 2011 Unilever bought 800,000 GreenPalm certificates, covering two-thirds of its palm oil use globally and reaching 100 per cent of its palm oil use in 2012. The company made a more stringent commitment to source 100 per cent of its palm oil from traceable sources (certified sustainable palm oil, or CSPO) by 2020 (Unilever, 2014).

Nestlé, another major buyer, joined the RSPO in 2009 and partnered with The Forest Trust to establish its own responsible sourcing guidelines for palm oil. Since then, it has made significant progress, committing to sourcing 80 per cent of its total palm oil volume from RSPO certified sources by the end of 2012, and in 2013 it achieved 100 per cent sourcing of its volumes from sustainable sources (Nestlé, 2013b). Other companies that have implemented sustainable palm oil policy include Sainsbury's (Sainsbury's, n.d.), Young's/Findus (Young's, 2009), Cadbury (Cadbury, 2013), Mondelēz (Mondelēz International, n.d.-a), Johnson&Johnson (Johnson&Johnson, 2013) and Friesland Campina (Friesland Campina, 2012).

Although the RSPO is the leading voluntary standard-setting body in palm oil, Organic and the Rainforest Alliance also offer standards for the commodity. Organic palm oil production volumes have fluctuated around 135,000 metric tons over the last three years, while area harvested has declined remarkably, to about two-thirds of its hectarage in 2008. The Rainforest Alliance has certified one oil palm producer located in Guatemala, with production volumes for this producer currently unknown. Despite declining Organic production and a Rainforest Alliance program in its infancy, the momentum behind the RSPO commitments suggest that annual sales could within the next couple years approach 6 million metric tons (11 per cent of 2012 production volumes) and production volumes around 13 million metric tons (25 per cent) versus production of about 8.2 million in 2012 (15 per cent) (see Table 11.1).

Roundtable for Sustainable Palm Oil (RSPO)

RSPO operates by allocating either certified sustainable palm oil (CSPO) certificates or certified sustainable palm kernel (CSPK) certificates. The allocation of certificates is determined by compliance with the RSPO Standard for Sustainable Palm Oil Production, which consists of a series of principles, criteria, indicators and guidance used by producers (oil palm growers and palm oil mills) to implement sustainable production practices.

RSPO has also developed the RSPO Supply Chain Standard, which describes the requirements related to the control of RSPO certified palm, palm derivatives and palm products along the supply chain, including the flows of material and associated claims. This latter standard is used by organizations in the palm value chain to demonstrate implemented systems for control of RSPO certified oil palm products. Downstream processers or users of RSPO standard-compliant palm oil can only claim use of RSPO certified products when they adhere to these standards.

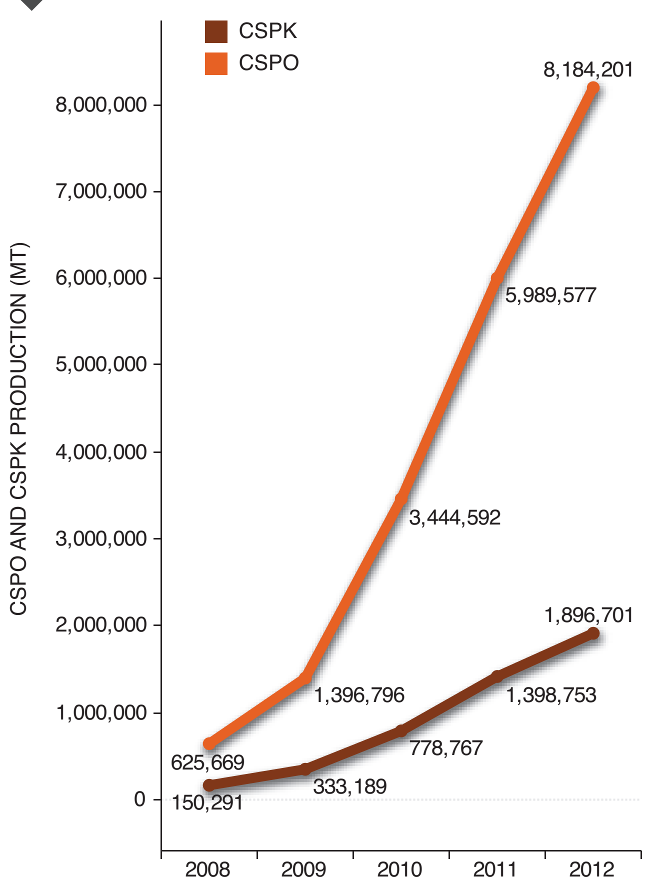
The market performance of RSPO from the time of its first certification of sustainable palm oil in 2008 has been remarkable, growing 90 per cent per annum over the four years from 2008 to 2012, to cover 15 per cent of global palm oil production in 2012 (see Figure 11.5 and Table 11.4) (IndexMundi, 2013d; S. Yaacob, RSPO, personal communication, April 15, 2013). Although retail sales volume were lagging in the early years of the RSPO (2008–2009), sales have since grown quickly, reaching 3.5 million metric tons by the end of 2012.

RSPO certified production area increased from 0.1 million hectares in 2008 to 1.6 million hectares in 2011, with total RSPO certified area now representing 10 per cent of total world area under palm oil cultivation (IndexMundi, 2013d; S. Yaacob, RPSO, personal communication, April 15, 2013). In 2012 alone, there was a tripling of the number of palm oil mills certified and a doubling of growers,[5] which points to the potential for accelerated growth in certified palm oil and palm kernel volumes in the years ahead due to this important increase in the production capacity certified by the RSPO (RSPO, 2011b).

More specifically, based on members meeting their stated commitments, the annual production of CSPO is projected to increase about 50 per cent from 2012 to 2015, from 8 million metric tons to 13 million metric tons, representing 15 per cent and 24 per cent of 2012 production volumes, respectively. However, data suggest a significant mismatch between the projected volumes of RSPO certified products and the demand for these products (RSPO, 2012a). With the certification commitments made by palm oil producers (growers and mills), intermediaries (processors and traders) and the users of these products (consumer goods manufacturers and retailers), there emerges an important demand gap, suggesting that the current pattern of only half of available CSPO being consumed may persist unless more manufacturers and retailers make commitments to use RSPO certified products. Whereas only 3.5 million metric tons of the 8.2 million metric tons in CSPO production were being used by retailers and consumer goods manufacturers in 2012, RSPO projects that 5.8 million metric tons of 12.9 million metric tons will be sold as RSPO compliant in 2015, according to current commitments (RSPO, 2012a).

The vast majority of RSPO certified supply comes from Malaysia and Indonesia (see Figure 11.6, Figure 11.7 and Table 11.3.). Although this is largely in line with the global distribution of palm oil production, RSPO compliant production is slightly more concentrated across these two countries (accounting for 93 per cent of global RSPO production) than global palm oil production (where Malaysia and Indonesia account for 89 per cent of global production). This is arguably a reflection of the strong involvement of these geographic regions in the development and implementation of RSPO itself. Nevertheless, other important palm oil producing countries like Papua New Guinea (accounting for 5 per cent of global RSPO) and Brazil (accounting for 2 per cent of global RSPO) also represent important suppliers for RSPO compliant palm oil.

FIGURE 11.5 PRODUCTION OF CSPO AND CSPK, 2008–2012.



Source: S. Yaacob, RSPO, personal communication, April 15, 2013.

5 The RSPO certifies palm oil mills and their supply bases (palm oil growers).

TABLE 11.2 IMPORTANCE OF VOLUNTARY SUSTAINABILITY STANDARD (VSS) PALM OIL PRODUCTION AND SALES RELATIVE TO THE GLOBAL MARKET.

	VSS production (mt)	VSS production market share of global production (%)	VSS production market share of global exports (%)	VSS sales (mt)	VSS sales market share of global production (%)	VSS sales market share of global exports (%)
Organic	37,687	0%	0%	30,650	0%	0%
RSPO	8,184,201	15%	20%	3,500,000	6%	8%
Global VSS production / sales (mt and %)	8,200,000	15%	20%	3,500,000	7%	8%

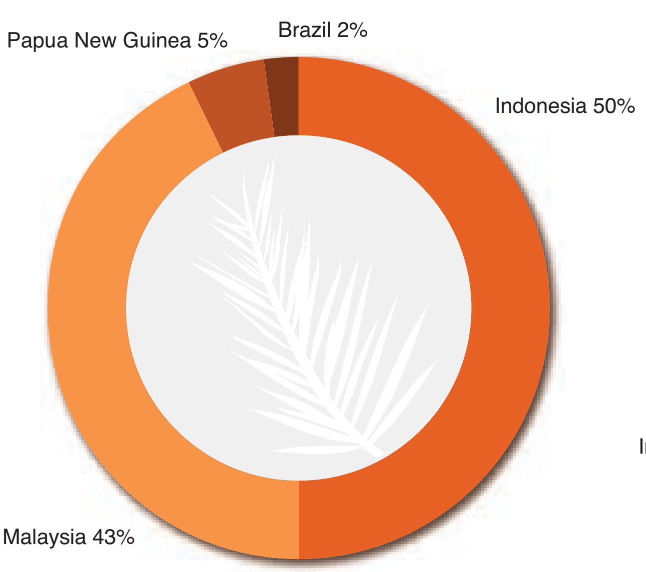
Sources: FAO, 2013; IndexMundi, 2012; International Trade Centre, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013.

TABLE 11.3 RSPO PRODUCTION VOLUMES AND AREA HARVESTED, 2012.

	CSPO production volume (mt)	CSPK production volume (mt)	Area harvested (ha)
Brazil	125,792	44,216	33,272
Colombia	22,000	1,760	4,472
Thailand	9,201	3,161	2,648
Indonesia	4,064,907	846,050	729,187
Solomon Islands	31,592	3,637	5,346
Côte d'Ivoire	5,760	1,420	8,661
Cambodia	20,489	3,995	7,064
Malaysia	3,478,798	898,993	739,561
Papua New Guinea	425,662	93,469	85,757

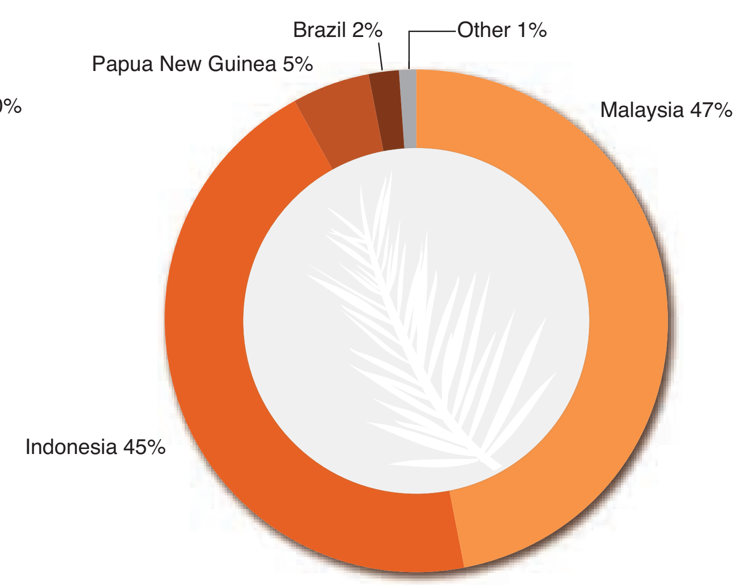
Source: S. Yaacob, RSPO, personal communication, April 15, 2013.

FIGURE 11.6 CSPO PRODUCTION BY COUNTRY, 2012.



Source: S. Yaacob, RSPO, personal communication, April 15, 2013.

FIGURE 11.7 CSPK PRODUCTION BY COUNTRY, 2012.



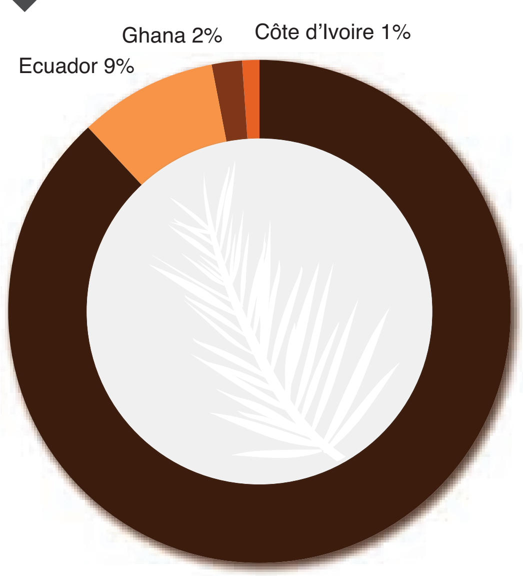
Source: S. Yaacob, RSPO, personal communication, April 15, 2013.

International Federation of Organic Agriculture Movements (IFOAM, or "Organic")

In 2011, Organic certified palm oil fruit represented 150,750 metric tons globally. Assuming that 25 per cent of the palm oil fruit is composed of palm oil and that 6.5 per cent is composed of the palm kernel (KL Maritime, n.d.), Organic palm oil accounted for approximately 38,000 metric tons, while Organic palm kernel accounted for approximately 10,000 metric tons. Organic certified palm oil accounted for approximately 0.07 per cent of global palm oil production. Organic palm oil fruit production has fluctuated around the 150,000 metric ton mark over the last three years, while Organic area harvested has decreased dramatically, going from 16,700 hectares certified in 2008 down to 7,200 hectares in 2011 (see Figure 11.9 and Table 11.6).

Ecuador and Colombia together represent 97 per cent of total Organic palm oil fruit production volumes globally, with Colombia alone representing 89 per cent (see Figure 11.8 and Table 11.5). Whereas the Organic standard often represents the most geographically diverse supply across different voluntary sustainability standards, in the case of palm oil, the Organic standard has a relatively low geographical presence, having penetrated only a handful of countries. Moreover, it is noteworthy that Indonesia and Malaysia do not have Organic penetration in the palm oil sector.

FIGURE 11.8 ORGANIC PALM OIL PRODUCTION BY COUNTRY, 2011.

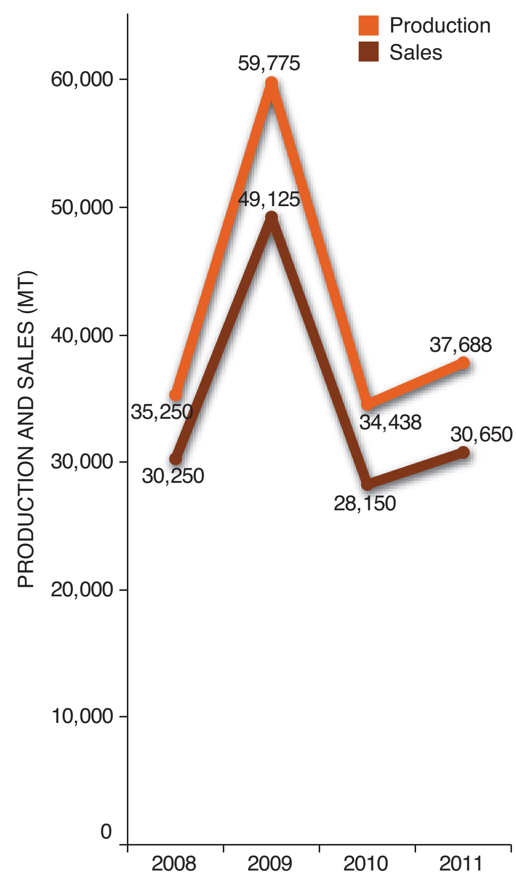


Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

Rainforest Alliance

Rainforest Alliance has created its own certification system for oil palm based on the Sustainable Agriculture Network standard. This system aims to complement the RSPO and to support the expansion of sustainable production and manufacturing of palm oil and palm kernel oil as a means of reducing the social and environmental impacts of a growing and important palm oil industry. As of 2013, Rainforest Alliance had certified one oil palm producer located in Guatemala (Sustainable Farm Certification International, 2012).

FIGURE 11.9 PRODUCTION AND SALES OF ORGANIC PALM OIL, 2008–2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 11.4 RSPO, CSPO AND CSPK PRODUCTION VOLUMES AND AREA HARVESTED, 2008–2012.

	CSPO production volume (mt)	CSPK production volume (mt)	Area harvested (ha)
2008	625,669	150,291	87,734
2009	1,396,796	333,189	239,949
2010	3,444,592	778,767	599,339
2011	5,989,577	1,398,753	1,140,020
2012	8,184,201	1,896,701	1,615,968

Source: S. Yaacob, RSPO, personal communication, April 15, 2013.

TABLE 11.5 ORGANIC PALM OIL AREA HARVESTED, SALES AND PRODUCTION VOLUMES BY COUNTRY, 2011.

	Production (mt)	Sales (mt)	Area harvested (ha)
Colombia	133,950	110,000	5,500
Côte d'Ivoire	1,100	400	100
Ecuador	13,000	10,000	1,000
Ghana	2,700	2,200	600

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 11.6 ORGANIC PALM OIL PRODUCTION, SALES AND AREA HARVESTED, 2008–2011.

	Production (mt)	Sales (mt)	Area harvested (ha)
2008	141,000 (35,250 mt palm oil)	121,000 (30,250 mt palm oil)	16,700
2009	239,100 (59,775 mt palm oil)	196,500 (49,125 mt palm oil)	25,700
2010	137,750 (34,438 mt palm oil)	112,600 (28,150 mt palm oil)	6,400
2011	150,750 (37,688 mt palm oil)	122,600 (30,650 mt palm oil)	7,200

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

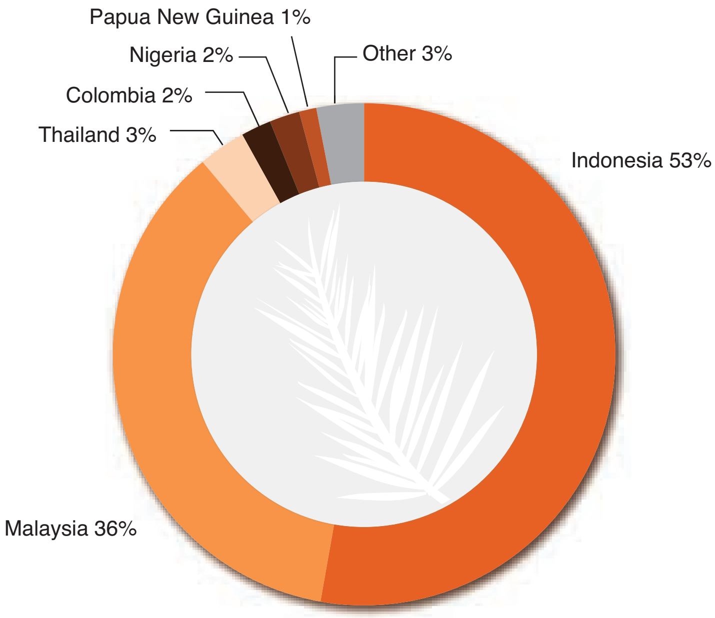
11.4 SUPPLY

Indonesia and Malaysia represent the largest share of RSPO certified production and land area (see Figure 11.10, Figure 11.11 and Figure 11.12). Importantly, however, in addition to being the most important absolute sources of standard-compliant palm oil, both Malaysia and Indonesia have some of the highest sustainability intensities, at 15 per cent and 18 per cent of total production certified under the RSPO system (see Table 11.7). At the global level, these two countries together account for 92 per cent of total production volumes (CSPO and CSPK) and 91 per cent of land area certified by the RSPO, with Indonesia's share being larger than that of Malaysia's in both total and standard-compliant palm oil, although only marginally in the latter case (see Figure 11.10 and Figure 11.11).

The global distribution of the RSPO certification standards for sustainable palm oil production are therefore mostly consistent with the global distribution of total palm oil production; however, some important deviations exist. For example, whereas Indonesia and Malaysia do account for 86 per cent of total global production, Malaysia's actual uptake of the RSPO in terms of market penetration is higher (18 per cent), proportionally, than in Indonesia (15 per cent). Moreover, eight of the remaining top 15 (three of the remaining top 10) producing countries in the world have no compliant production under RSPO program. However, major RSPO certification initiatives are ongoing in Honduras, Ecuador, Nigeria, Ghana, Guatemala and Cameroon, although the full set of RSPO requirements have yet to be met in these countries.

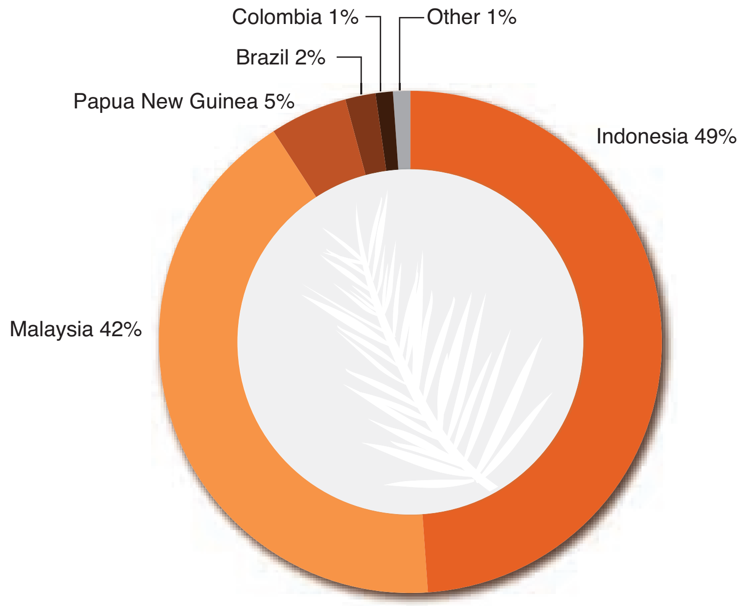
Countries like Brazil and Papua New Guinea have already experienced rapid uptake, achieving 46 per cent and 80 per cent, respectively, of RSPO certified production (CSPO) as a share of total domestic palm oil production. RSPO certified companies Agropalma and New Britain Palm Oil Limited are responsible for the entire

FIGURE 11.10 TOTAL (STANDARD-COMPLIANT AND CONVENTIONAL) PALM OIL PRODUCTION BY COUNTRY, 2012.



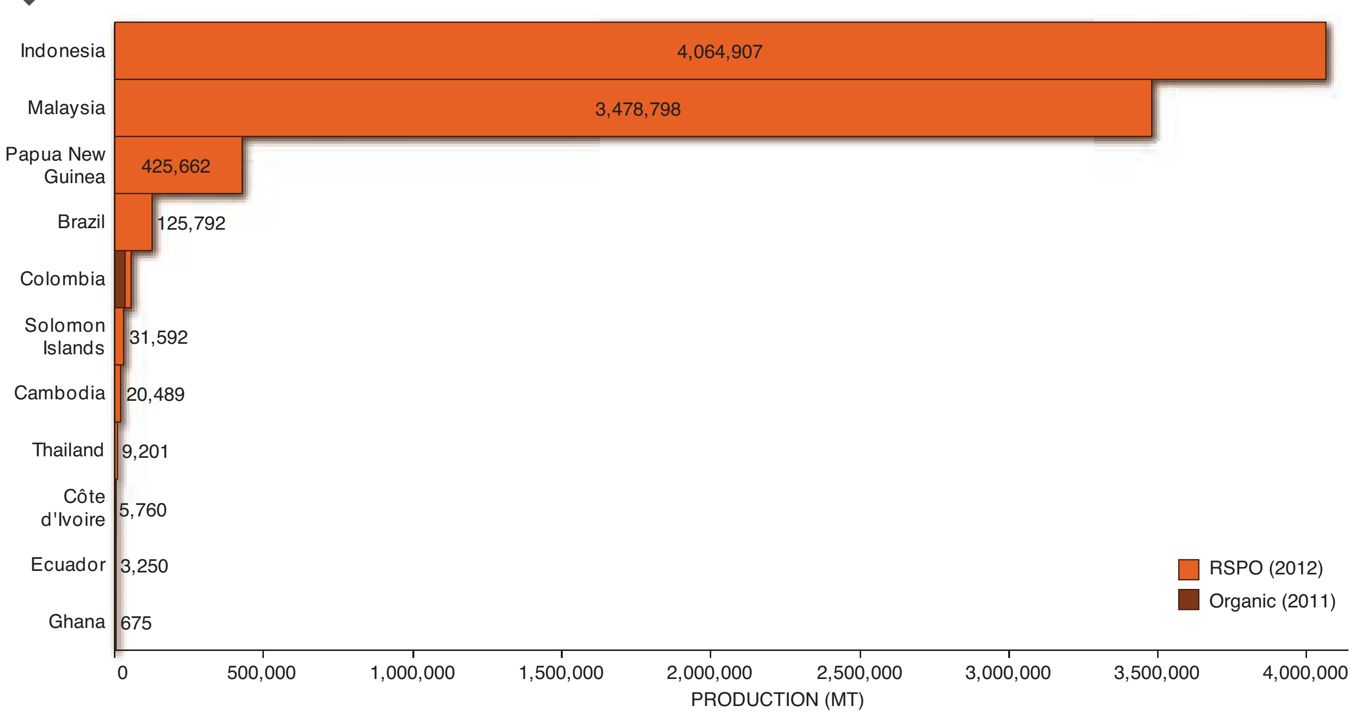
Source: IndexMundi, 2012.

FIGURE 11.11 STANDARD-COMPLIANT PALM OIL PRODUCTION BY COUNTRY, 2011/2012.



Sources: IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013.

FIGURE 11.12 RSPO AND ORGANIC PALM OIL PRODUCTION BY COUNTRY, 2011/2012.



Where space permits, data points are visible.

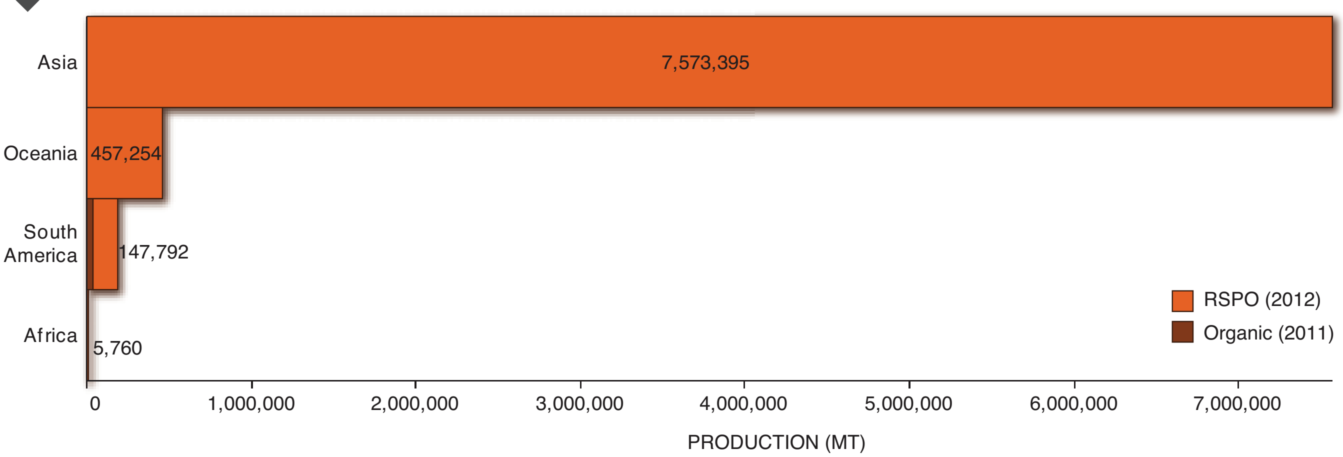
Sources: IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013.

national production of CSPO in these countries. Other remaining countries have achieved lower uptake of RSPO, at levels below 3 per cent penetration.

Organic standards have reached 4 per cent of total palm oil production in Colombia, due largely to uptake by Daabon, a major Colombian producer. RSPO penetration in Colombia is lower, at 2 per cent. However, Organic has struggled to gain traction in existing supply chains more generally; penetration is relatively low globally, and growth is even lower than the growth of conventional production, at a mere 2 per cent (see Figure 11.13).

Palm oil production will continue to increase globally. Indonesia aims to increase its production by 10 million metric tons to 40 million metric tons by 2020 (UN Conference on Trade and Development, 2012b) while setting aside 50 per cent for biofuels. Malaysia, although more constrained by the availability of land, is projected to increase production by 11.5 million to 20.5 million metric tons by 2020 and to 24.6 million metric tons by 2030 (Gan & Li, 2012). According to these forecasts, palm oil production could increase about 20 million tons, or about 30 per cent by 2020 in those two countries alone, which represent over 90 per cent of palm oil produced globally. With only 14.5 per cent penetration of RSPO certification in Indonesia and 18.3 per cent in Malaysia, efforts are needed to ensure the sustainable expansion of the sector in the future.

FIGURE 11.13 RSPO AND ORGANIC PALM OIL PRODUCTION BY CONTINENT, 2011/2012.



Where space permits, data points are visible.

Sources: IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013.

TABLE 11.7 SUSTAINABILITY INTENSITY OF TOP 15 PALM OIL PRODUCING COUNTRIES, 2012.

	RSPO production 2012 (CSPO, % penetration)	Organic production 2011*
Indonesia	15%	--
Malaysia	18%	--
Thailand	1%	--
Colombia	2%	4%
Nigeria	--	--
Papua New Guinea	80%	--
Ecuador	--	1%
Côte d'Ivoire	2%	0%
Brazil	46%	--
Honduras	--	--
Costa Rica	--	--
Guatemala	--	--
Cameroon	--	--
Congo	--	--
Ghana	--	1%

*Assuming palm oil equivalent of 25 per cent of palm oil fruit.
Sources: IndexMundi, 2012; IISD, H. Willer, FiBL, personal communication, August 26, 2013; S. Yaacob, RSPO, personal communication, April 15, 2013.

11.5 PRICING AND PREMIUMS

Premiums for standard-compliant palm oil ranged, on average, between 1 and 6 per cent during 2012. While neither RSPO nor Rainforest Alliance collects pricing and premiums information, some pricing data are available for GreenPalm certificates. Anecdotal reports show that RSPO mass balance premiums vary between US$10 and $25 per metric ton (between 1.0 and 2.5 per cent), while RSPO segregated premiums vary between US$15 and $50 per metric ton (WWF, 2012).[6]

Over time, the premiums associated with GreenPalm certificates have declined as uptake has grown. Over the course of 2008 and 2009 GreenPalm certificates (both certified palm oil and certified palm kernel) were sold at a premium of between US$50 and US$40 per metric ton (RSPO, 2011b). Since 2010, however, GreenPalm certificate premiums have ranged between US$0 to $10 per metric ton.

6 UTZ provides the IT platform of traceability to the RSPO relating to physical trades.

11.6 CHALLENGES AND OPPORTUNITIES

Standard-compliant palm oil production and sales grew an average of over 85 per cent per annum between 2008 and 2012, reaching 8,221,889 metric tons and 4,122,751 metric tons, respectively, in 2012. The current commitments of RSPO members suggest that standard-compliant palm oil production will almost double to reach 15,000,000 metric tons in 2020, while sales will maintain at lower levels, with only a 50 per cent increase until 2020 to reach almost 6 million metric tons. According to these estimates, standard-compliant palm oil would account for about 28 per cent of total palm oil produced globally by 2020.[7]

Market expansion for RSPO certified production and consumption can be achieved through various means. As a general prerequisite, standard-compliant supply growth can only occur by recruiting additional RSPO members and/or accelerating existing members' progress toward achieving 100 per cent RSPO certification. RSPO has, in fact, been very successful at getting commitments from major manufacturers, supply chain actors and estates (see Figure 11.14). However, there is evidence that palm oil buyers are lagging significantly behind their commitments to source 100 per cent sustainable palm oil supplies by 2015 (WWF, 2013a). The 2013 edition of WWF's Palm Oil Buyers' Scorecard ranks 78 manufacturers and 52 retailers of products containing palm oil based on RSPO membership, compliance with targets, actions on using 100 per cent sustainable palm oil, and policies and plans for greenhouse gas emissions reduction from the palm oil they source.

"INCREASING MARKET PENETRATION IN THE TOP PRODUCING COUNTRIES LIKE INDONESIA, MALAYSIA AND THAILAND REMAINS THE MOST IMPORTANT OPPORTUNITY FOR EXPANSION."

7 Relative to 2012 global production volumes of 53,827,000 metric tons.

Only 45 of the 130 companies assessed were using 100 per cent CSPO, which totals approximately 2 million metric tons per year. However, all 130 companies together are sourcing close to 7 million metric tons of palm oil annually, which illustrates the degree of improvement possible (WWF, 2013a).

Nevertheless, with more 75 per cent of total production in major producing countries still uncertified, increasing market penetration in the top producing countries like Indonesia, Malaysia and Thailand remains the most important opportunity for expansion. Smallholders appear to have a far lower appetite for achieving 100 per cent RSPO certification. Overcoming this obstacle suggests particular value in building the business case for RSPO certification for such producers. By effectively engaging smallholders, the RSPO could significantly increase its supply (e.g., 70 per cent in Indonesia within five years) (la Croix, 2011). RSPO members have plans to develop partnerships and initiatives for such smallholder projects, including the Smallholder and REDD Plan and participation in other pilot projects (RSPO, 2012b). RSPO processors and traders are also an important constituency because they represent 48 per cent of global trade in palm oil. However, only 8 per cent of this volume is currently certified, suggesting another major opportunity for building demand through such actors and corresponding commitments.

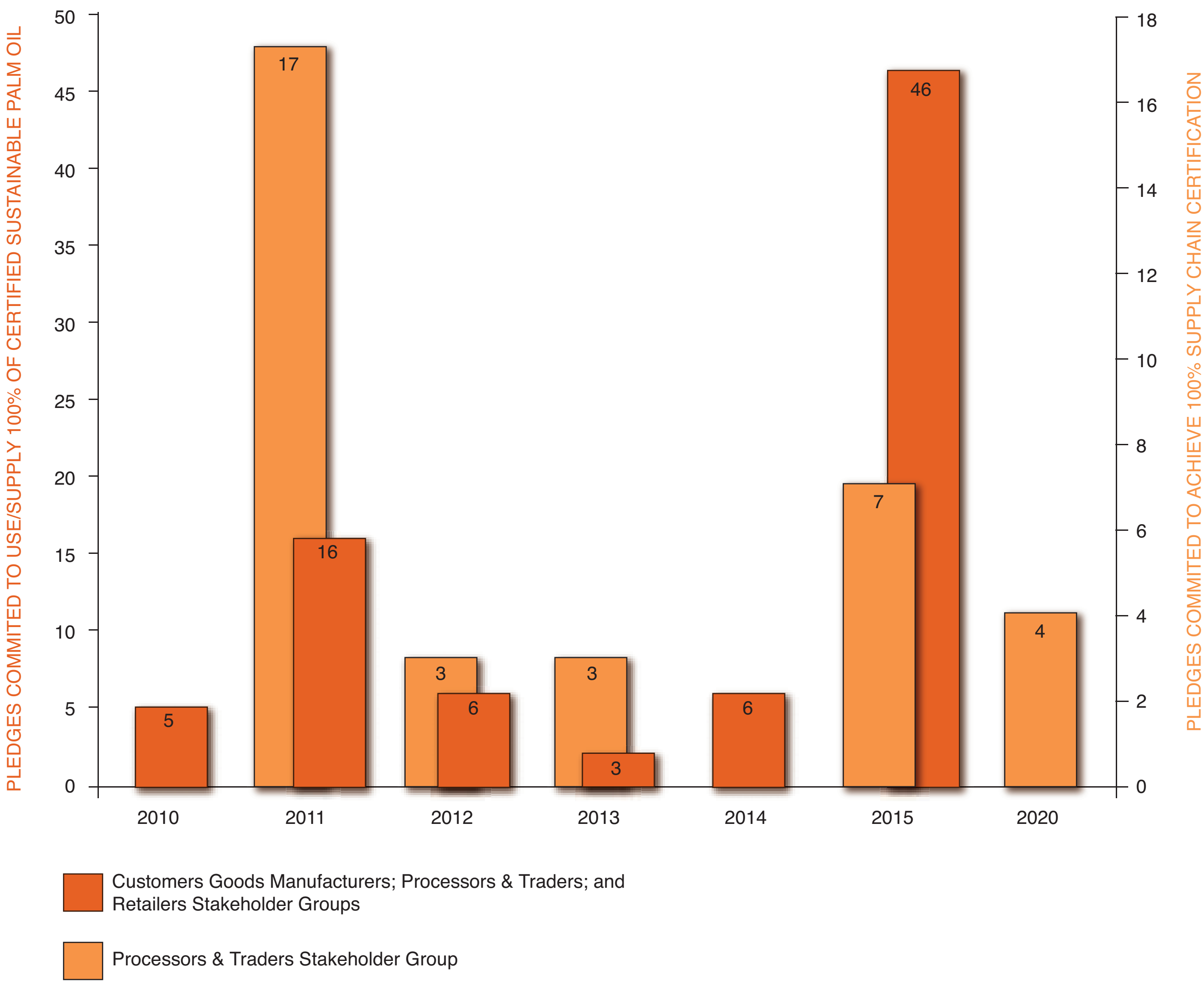
Matching demand with actual supply also remains a major challenge. As of 2013 only about half of total RSPO compliant supply was sold as such. Current demand for CSPO is concentrated in Europe and the United States, (la Croix, 2011). However, these two markets account for only about 13 per cent (6.6 million metric tons) of the total world demand. In particular, India and China, which together account for about 30 per cent (14.5 million metric tons) of global consumption of palm oil, represent key bottlenecks for achieving ongoing growth in standard-compliant palm oil markets. At present, neither of these countries represents a significant source of demand for standard-compliant palm oil. Malaysia and Indonesia also account for a large proportion of global consumption (21 per cent) but have played virtually no role in generating domestic demand for RSPO certified palm oil. Attaining a majority share of standard-compliant palm oil as a percentage of global production will require uptake from one or more of these major consuming countries.

Developments in India and China seem promising. India has taken on several initiatives to promote sustainable palm oil, including the Oil Palm Development Programme and the Oil Palm Area Expansion Programme (RSPO, n.d.-b). However, these initiatives target sustainable production and not the demand for sustainable palm oil. In China, the China Chamber of Commerce for Import and Export of Foodstuffs, Native Produce and Animal By-Products has raised awareness about and promoted sustainable palm oil among its members since 2008, and in 2009 organized, in conjunction with the China International Oils and Oilseeds Industry, a summit that sought to foster stakeholder dialogue on sustainable palm oil (RSPO, n.d.-c). As a result, the Network for Promoting Sustainable Palm Oil in China was created to support the promotion and procurement of sustainable palm oil in China and the production of sustainable palm oil in producing countries.

The RSPO faces several operational challenges. Foremost is the conversion of its membership base into lending greater support to sustainable palm oil. Currently, the only criteria for becoming a member of the RSPO is that members act in good faith toward the objectives of the RSPO, which is to support, promote and work toward the production, procurement and use of sustainable palm oil, and that they acknowledge their membership of the RSPO "through informed and public endorsement." However, some of the current RSPO members have been accused of continuing to engage in destructive deforestation practices and the destruction of ecologically sensitive habitats, while some cases demonstrate clear violations of the RSPO Principles and Criteria (Greenpeace 2013a; 2013b). If these sentiments were to gain traction among industry or the media, it could threaten further uptake of RSPO in key consumer markets. However, at present, we do not expect this specific challenge to threaten further uptake of RSPO in light of the commitments already in place and actions being taken by the RSPO to rectify these issues.

There are several promising policy initiatives in Europe around sustainable palm oil as well (RSPO, n.d.-a). In the Netherlands, all food sectors committed to using solely 100 per cent sustainable palm oil by the end of 2015 (Dutch Task Force Sustainable Palm Oil, 2010). Similar initiatives were launched in Belgium (RSPO, 2011a) and the United Kingdom (Department for Environment, Food and Rural Affairs, 2012), which have both committed to 100 per cent sustainable sourcing by 2015, while stakeholders in France and Germany are currently discussing the potential to form similar national commitments. The RSPO has called for other countries in Europe to follow the leadership of Belgium, the United Kingdom and the Netherlands in setting high objectives for sustainable palm oil procurement and consumption. It has also co-organized meetings on European national endeavours to discuss the acceleration and uptake of sustainable palm oil in Europe, ways to secure industry commitment, common challenges, promotion of national endeavours and alignment with RSPO's strategy for Europe. Another important driver is the European Commission's recent approval of biofuels certified by the RSPO under its Renewable Energy Directive (RSPO, 2012f). If all current European (EU-27) consumption volumes were to become RSPO compliant today, it would equate to 5,585,000 metric tons of sustainable palm oil, or about 10.4 per cent of global production of palm oil in 2012.

FIGURE 11.14 GROWTH INTERPRETATION OF COMPANIES SOURCING CSPO.



Source: RSPO, 2011b.

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12 SOYBEAN MARKET

Soybeans serve a variety of functions in the global food chain, ranging from use as edible oil to a source of protein for humans to use in livestock feed. Globally, approximately 87 per cent of all soybean production is crushed into soy meal and soy oil, with the remaining 13 per cent used for direct human consumption. From the soybean crushing process, roughly 80 per cent is extracted as soy meal for use in animal feed,[1] and 20 per cent is extracted as oil for human consumption and as a biofuel feedstock (Product Board MVO, 2011). With such a large portion of soybeans produced for animal feed (approximately 70 per cent), demand growth for higher protein diets across the world is also having an important impact on demand and overall growth in soy production. In 2012 soybeans were produced on an estimated 2.2 per cent of the world's agricultural land, up from 1.5 per cent in the year 2000 (Food and Agriculture Organization of the United Nations (FAO), 2013). Most of this growth (79 per cent) occurred in South America (FAO, 2013).[2] Global production during the same year reached 253.1 million metric tons, with exports (whole beans only, not including meal and oil) worth US$53.2 billion (see Figure 12.1 and Table 12.1).

Rapid market expansion in developing countries leading to deforestation and biodiversity loss (notably South America), along with the commodity's significant reliance on genetically modified organisms (GMOs), has given rise to a host of sustainability concerns. Soy production systems range from smallholder production in China to large-scale, capital-intensive farming in Brazil and the United States. The diversity of production systems in the soy sector presents significant challenges for global standards. Voluntary standards in the soy sector are also challenged by soy's predominant role as an "intermediate" input in the food supply chain as livestock feed—leading to reduced opportunities for direct branding through consumer-facing labels. Notwithstanding, major international voluntary sustainability standards active in the sector and growing in popularity include the Danube Soya Initiative, Fairtrade, the Round Table on Responsible Soy (RTRS), ProTerra and Organic. The International Sustainability and Carbon Certification (ISCC)[3] and the Roundtable on Sustainable Biomaterials (RSB) are other standards involved in the soybean industry (see Section 6).[4] In total, 2.0 per cent of global production and 1.5 per cent of global exports were standard-compliant in 2012 (Organic, ProTerra and RTRS, as well as minimal volumes of Fairtrade; see Table 12.2). Brazil, China and Argentina were the largest standard-compliant producers; Figure 12.2 breaks this down by voluntary sustainability standard.

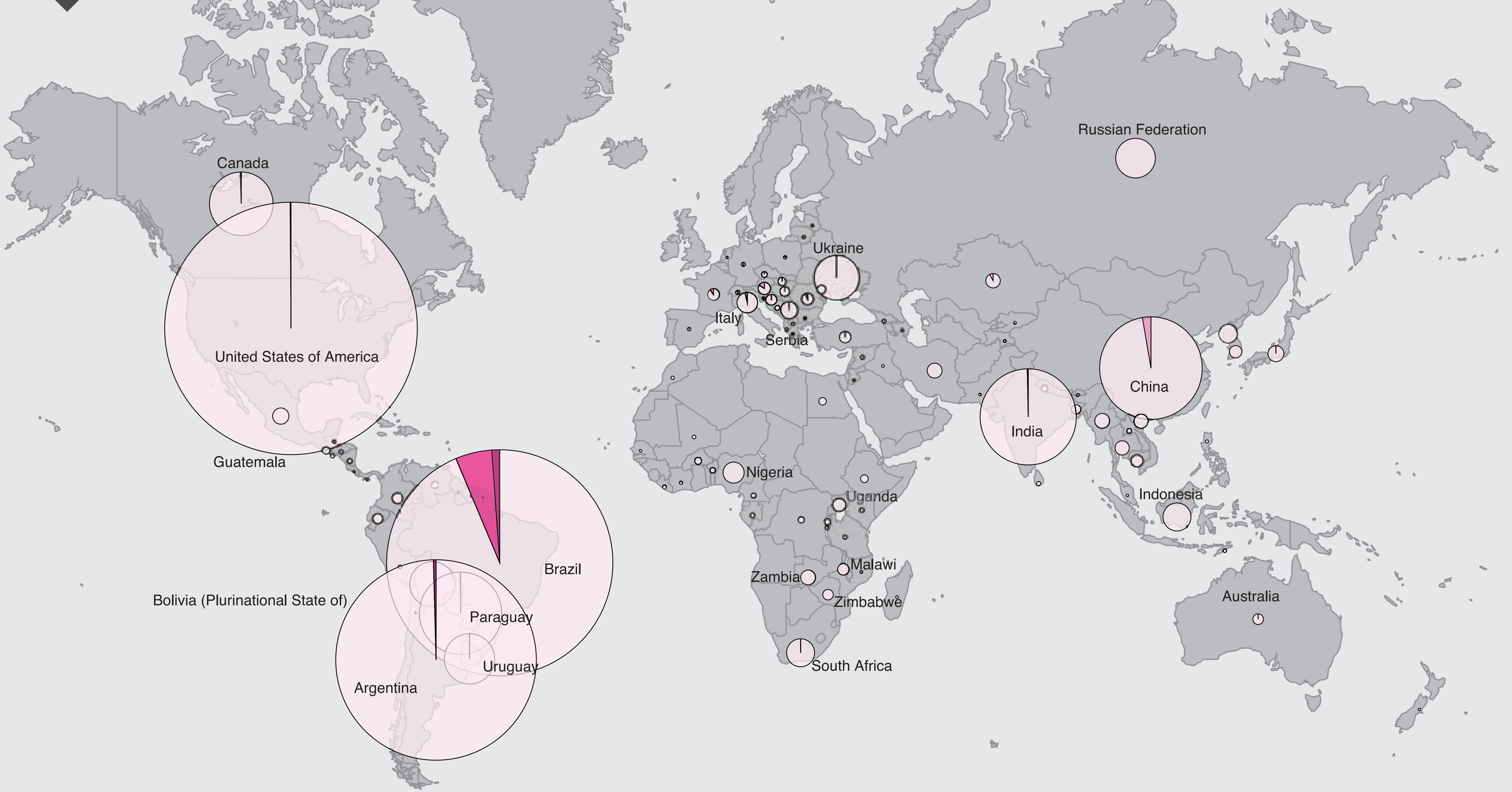
1 Soybeans produce more protein per hectare than any other plant, making them a popular choice for high-protein, compound animal feed. Soybeans are also favoured for the quality of their protein—they are one of the few "complete" non-animal proteins, meaning that they contain all essential amino acids (Dutch Soy Coalition AIDEnvironment, 2006; Product Board MVO, 2011). In animal feed, grains are the primary carbohydrate source, while oil meals are used as the primary protein source. In the global consumption of oil meals, soybeans accounted for 61 per cent in 2010 (Product Board MVO, 2011).

2 As measured by area harvested.

3 ISCC PLUS, which allows ISCC units to extend certification to food and feed products (ISCC, n.d.-b), was established in 2012 and will be covered in the next edition of the SSI Review.

4 RTRS also has a program geared toward the certification of soy as a biofuel feedstock in its RTRS standard, for compliance under the European Union's Renewable Energy Directive.

FIGURE 12.1 CONVENTIONAL VERSUS STANDARD-COMPLIANT SOYBEAN PRODUCTION, 2012.



Circle size represents total production volumes; coloured slices represent volumes of standard-compliant soybean production. Relative to total production, standard-compliant soybeans represent a small share of the market, at 2.0 per cent. Sales of standard-compliant soybeans were equivalent to 1.5 per cent of exports, an important consideration given that the vast majority of compliant production volumes are exported. Brazil is the second-largest producer of soybeans next to the United States, and in relative and absolute terms produces the largest amount of compliant soybeans, largely due to the activity of ProTerra certification within the country.

Sources: FAO, 2013; ProTerra, 2013; IISD, H. Willer, Research Institute of Organic Agriculture/Forschungsinstitut für biologischen Landbau (FiBL), personal communication, Aug 26, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication communication, February 28, 2013.

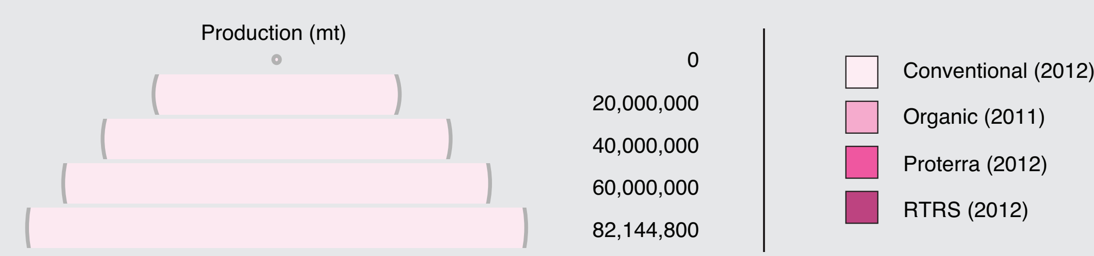
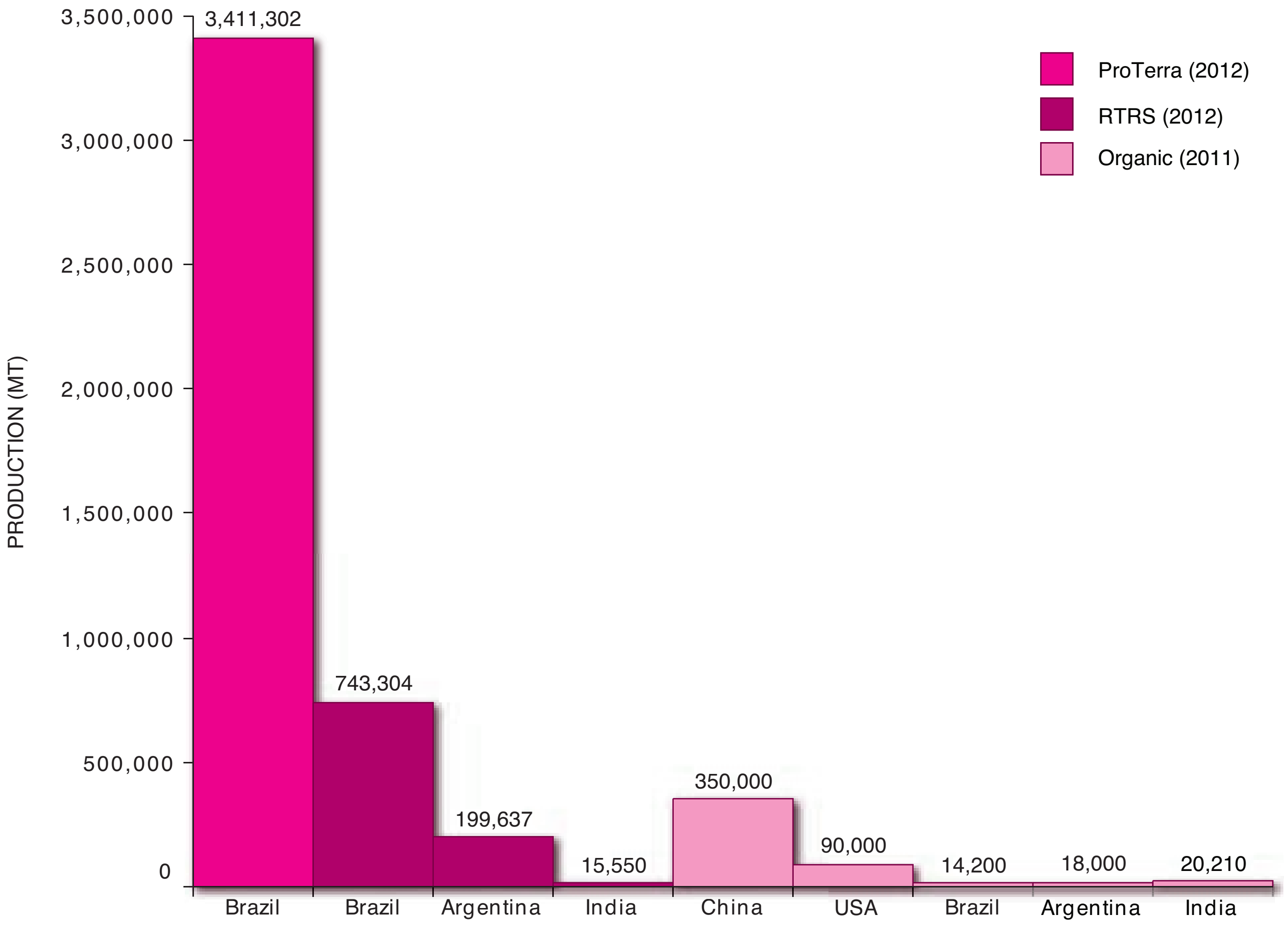


FIGURE 12.2 LEADING PRODUCERS OF STANDARD-COMPLIANT SOYBEANS BY VOLUNTARY SUSTAINABILITY STANDARD, 2012.



Sources: Freire, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; B. Zeehandelaar & F. Cativiela, RTRS, personal communication communication, February 28, 2013.

TABLE 12.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR SOYBEAN PRODUCTION AND TRADE.

KEY STATISTICS

Top 5 producers (88% of global) (2012)	United States (32%), Brazil (26%), Argentina (20%), China (5%), India (5%)
Top 5 standard-compliant producers (98% of global) (2011 and 2012)	Brazil (84%), China (7%), Argentina (4%), United States (2%), India (1%)
Top 5 exporters (92% of global) (2012)	United States (45%), Brazil (34%), Argentina (6%), Canada (4%), Paraguay (3%)
Top 5 importers (73% of global) (2012)	China (61%), Spain (3%), Germany (3%), Japan (3%), Netherlands (3%)
Global production (2012)	253.1 million metric tons
Global exports (2012)	159.0 million metric tons (63% of production)
Trade value (2012)	US$53.2 billion
Global area harvested (2012)	106.6 million hectares (2.2% of all agricultural land)
Estimated total number of farmers involved in soybean production	5–6 million in India, 20 million in China (small-scale); South America, United States and Europe in the 100,000s
Major international voluntary sustainability standards	Danube Soya Initiative, Fairtrade, Organic, ProTerra, RTRS
Standard-compliant production (2011 and 2012)	5.0 million metric tons (2.0% of production)
Standard-compliant sales (2011 and 2012)	2.1 million metric tons (42% of compliant production, 0.8% of production, 1.3% of exports)
Key sustainability issues	Deforestation and biodiversity, pest management, soil erosion, land ownership rights, land use change within agriculture (example: natural grassland changed to monoculture of soybeans), GMOs

Sources: Top 5 producers, global production, global area under cultivation: F. Cativiela, RTRS, personal communication, February 28, 2013; FAO, 2013; Top 5 standard-compliant producers: FAO, 2013; Freire, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication communication, February 28, 2013; Top 5 exporters, top 5 importers, trade value: International Trade Centre, 2013c; Global exports (data include soybeans, soybean meal and soybean oil): U.S. Department of Agriculture, 2013e; Estimated total number of farmers (rough estimate): G. Van der Bijl, Solidaridad, personal communication, September 1, 2013; Standard-compliant production (2011 data for Organic, 2012 data for ProTerra and RTRS): F. Cativiela, RTRS, personal communication, February 28, 2013; Freire, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

12.1 MARKET REVIEW

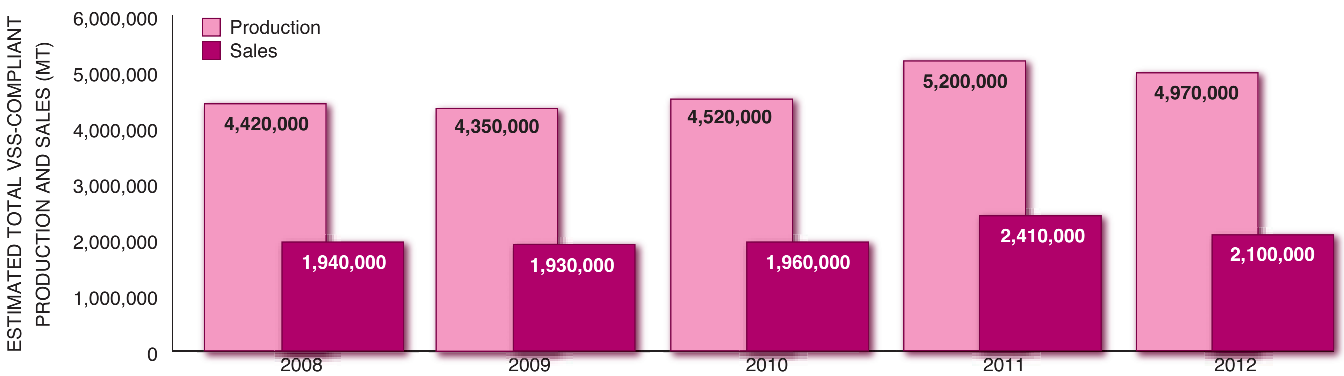
Market reach
Approximately 5 million metric tons of soybeans were standard-compliant in 2012 (see Figure 12.3), equivalent to 2.0 per cent of global production. Sales of compliant soybeans accounted for 1.5 per cent of exports.

Growth
Standard-compliant soy production grew at an average annual rate of 3.0 per cent from 2008 to 2012.

Regional importance
Brazilian standard-compliant soy comprises the vast majority of the market (84 per cent).

Pricing and premiums
Premiums for standard-compliant products ranged from an estimated 0.3 per cent to over 80 per cent. Highest premiums were estimated for Organic certified soybeans. The lowest premiums were estimated for RTRS certified soybeans.

FIGURE 12.3 GROWTH IN STANDARD-COMPLIANT SOY PRODUCTION AND SALES, 2008–2012.

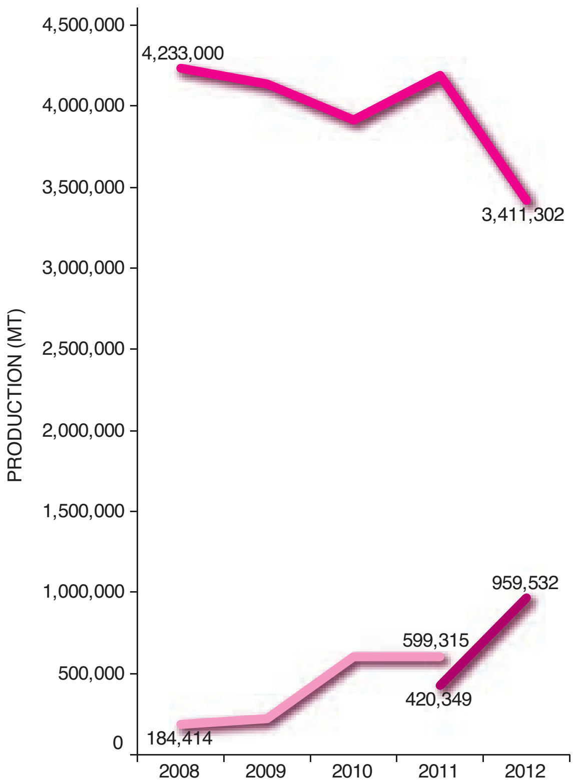


* ProTerra sales are based on the assumption that 42 per cent of ProTerra soybean production is sold as certified (a cross-sector average).

Sources: Freire, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication communication, February 28, 2013.

FIGURE 12.4 ORGANIC, PROTERRA AND RTRS SOYBEAN PRODUCTION, 2008–2012.

ProTerra certified roughly 4.0 million metric tons of soybeans per year from 2008 to2012 globally, +/- 600,000 metric tons (2.5 per cent of exports). 2012 volumes saw an 18 per cent contraction from the year prior, due to heavy droughts in Brazil and a late confirmation of demand by EU buyers. RTRS expects certification to reach between 4 and 5 million metric tons by 2015, just over ProTerra's current certified volumes (3.4 million metric tons in 2012).

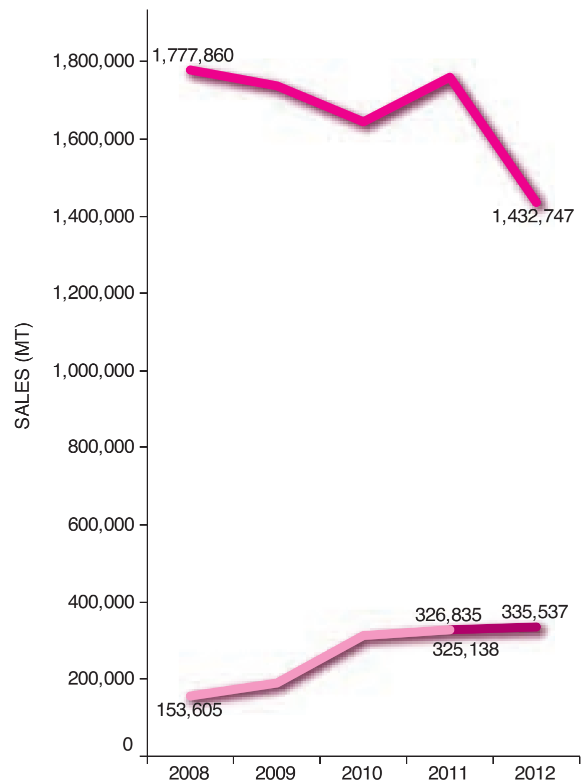


COMPOUND ANNUAL GROWTH RATES:
- Organic 2008-2011: 48%
- ProTerra 2008-2012: -5%
- RTRS 2011-2012: 128%

Sources: Freire, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

FIGURE 12.5 ORGANIC, PROTERRA AND RTRS SOYBEAN SALES, 2008–2012.

Fifty-six per cent of Organic and 35 per cent of RTRS-compliant production was sold as standard compliant in 2011 and 2012, respectively. Each voluntary sustainability standard had sold just over 300,000 metric tons as compliant, which is roughly equivalent to 0.2 per cent of 2012 global exports.



COMPOUND ANNUAL GROWTH RATES:
- Organic 2008-2011: 29%
- ProTerra (estimates*) 2008-2012: -5%
- RTRS 2011-2012: 3%

*ProTerra sales are based on the assumption that 42 per cent of ProTerra soybean production is sold as certified (a cross-sector average).

Sources: Freire, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

Soy production reached 253 million metric tons globally in 2012, with the United States, Brazil and Argentina responsible for more than 76 per cent of global production. Although soy originated in China and has traditionally been grown in temperate and subtropical regions, current expansion is being led by tropical regions, including in Brazil and Argentina. Over the past decade, global soy exports have grown by 100 per cent. In South America alone, it was originally estimated that the area committed to soy production would double, by 2020, from 2000 production levels (Dros, 2003); by 2012, it had already done so (FAO, 2013).

As a direct result of the growing demand for soy, there has been a parallel growth in the social and environmental threats imposed by more intensive soy production, particularly in the new growth areas in South America. Some analysts have estimated that 90 per cent of the growth over the past decade, and moving forward until 2020, will rely on the removal of natural forest vegetation (Dros, 2003). Meanwhile, the use of genetically modified soy plants has resulted in increases in the use of chemical inputs in many of the major soy producing countries, thus adding additional stress to the ecosystems proximate to soy production areas.[5] The current growth of voluntary standards in the soy sector represents the merging of these two principle pre-occupations, land transformation and the widespread use of GMO production.

The five major international sustainability standards active in the sector are the Danube Soya Initiative, Organic, Fairtrade, ProTerra and RTRS. The RSB and ISCC[6] also publish standards for biofuel feedstock, including soy (for more information on the biomaterials standards, see Section 6).

Organic soy, which has been available since the 1970s, focuses on the preservation of soil and eco-system health through, among other things, the avoidance of agrochemical inputs. National Organic standards are developed at the national and/or regional level through relevant Organic standard setting bodies. Organic production, although voluntary, stands out among the different standards in the soy sector as being the only certification system directly regulated by national policy.

Prior to the release of GMO soy by Monsanto in 1995, the most recognized sustainability issues in the soy sector arguably related to the use of pesticides. Consequently, Organic certification existed as the sole provider of standard-compliant soy to the global market until 2000. Although Fairtrade soy also became available during 2008 (Fairtrade Labelling Organizations (FLO), 2008), the quantities were small, being largely limited to the use of soy as an ingredient in Fairtrade chocolate.

The arrival of GMO soy has led to a radical transformation of the marketplace. Genetically modified soy is now, in most countries, the dominant source of production,[7] accounting for 81 per cent of world plantings and 98 per cent of U.S. production in 2012. Within the context of increasingly widespread application of GMO soy, many countries have established technical requirements related to the labelling of GMO products, most of which are carried out independent of any given sustainability labelling process.[8]

Although Organic and Fairtrade standards prohibit the use of GMOs, and the growing expansion of GMO soy around the world has arguably given these initiatives another point of differentiation on conventional markets, their niche status has largely prevented them from taking full advantage of more popular concerns about GMO production generally. At the same time, with GMOs becoming increasingly ubiquitous within the sector, non-GMO-based efforts to address sustainability at the mainstream level face serious supply constraints and limits on total growth.[9]

It was within this context that the WWF launched its Forest Conversion Initiative in 2001 and began directing the world's attention to the effect of rapidly expanding soy production on the Amazonian forests. As a result of WWF's campaign, land conversion quickly became a second driver of sustainability initiatives within the sector. This was reflected through the ensuing development of the "Basel Criteria for Responsible Soy" in 2004, itself the product of a collaborative effort between WWF Switzerland and the Swiss retailer Co-op, among others.[10] The development of the Basel Criteria, and growing attention to forest conversion issues within the soy sector more generally, eventually led to the development of two additional sustainability standards within the sector.

In 2004, Cert ID began the development of the ProTerra certification program, based on the Basel Criteria. The first audits to this standard were carried out in 2005, and the first ProTerra certified material was shipped to Europe in 2006. The standard

5 Glyphosate is used in higher concentrations and with greater frequency on genetically modified soy. There is substantial evidence of human poisoning from the use of glyphosate (Benbrook, 2009).

6 ISCC is a dominant standard for soybean certification serving the biofuel feedstock sector. The ISCC model is very flexible and includes a Chain of Custody that recognizes all other European Union Renewable Energy Directive–approved systems (including RTRS). The ISCC PLUS standard was recently published—in 2012—and allows producers under the ISCC-EU or ISCC-DE (Germany) standards (for biofuel use) to convert to certified feed or food (ISCC, n.d.-b).

7 GMO cotton is grown in 11 different countries and accounted for 81 per cent of global plantings in 2012. Of the four major biotech crops (soy, cotton, maize and canola), soybeans and cotton had the highest relative presence of biotech, and soybeans had the highest absolute presence of biotech hectarage in the world (FAO, 2013; International Service for the Acquisition of Agri-Biotech Applications (ISAAA), 2012b).

8 One major driving factor for certification from a historical perspective has been certain countries' cautious stances and trade policies on GMOs (one early example being the CERT ID Non-GMO certification program established in 1998). The European Union, Japan, Australia and New Zealand, for example, all implement pre-market approval processes for GMOs, and all but Japan have implemented mandatory labelling of GMOs (American University, n.d.).

9 It should be noted that in countries like China and India, virtually no soy crop is GMO. In Brazil, 20 to 25 per cent of soy production is non-GMO (Freire, 2013).

10 See "Basel Criteria for Responsible Soy Production" at http://wwf.panda.org/?16872/The-Basel-Criteria-for-Responsible-Soy-Production.

includes requirements related to conservation of high-value conservation areas, worker welfare, avoidance of certain pesticides, and protection of traditional land use. Drawing from established markets for non-GMO products, ProTerra was able to rapidly bring compliant production to 4.5 million metric tons by 2007. Since then, certified production under the ProTerra standard has remained relatively stable, at around 4 million metric tons.

In 2006 RTRS was established through the combined efforts of NGOS and major manufacturers and traders including Gruppo Maggi, WWF, Cordaid, Co-op, Fetro-sul, and Unilever. Fuelled by its aspirations to be a vehicle for mainstream "market transformation" toward improved sustainability, RTRS distinguished itself by adopting a permissive approach to the use of GMO soy within its system. RTRS finalized its standard in 2010 and was first implemented by soy producers in 2011, with Dutch, Belgian, English and Scandinavian traders and processors buying the first RTRS certified soy in 2011 (Sustainable Trade Initiative/Initiatief Duurzame Handel (IDH), n.d.-a). In addition to its position on GMO production, RTRS also differs from other sustainability standards in that its Chain of Custody certification operates largely through book-and-claim and mass balance systems, allowing for reduced supply chain costs but also in some cases affecting the claims that can be made at the retail level.[11] Although the total sales volumes of RTRS soy in 2012 were only 353,000 metric tons, they more than doubled the following year, reaching 900,000 metric tons in 2013 (J. Fagan, ProTerra, personal communication, December 12, 2013), and the standard is positioned to become an important supplier of standard-compliant soy within the coming years.

Most recently, the Danube Soy Initiative was launched in 2012 as a "mainstream" vehicle for providing access to non-GMO soy for EU markets.[12] Although it is the newest of the initiatives in the soy market, the Danube Soy Initiative has shown signs of potential for significant growth and uptake, with significant support coming from stakeholders in Germany, France, Austria, Luxembourg and the United Kingdom (see Box 12.1).

11 For more information on Chain of Custody certification, see the short video Effective Chain-of-Custody and Traceability (ISEAL, 2012a).

12 The Danube Soya Initiative will be formally covered in the next edition of the SSI Review.

BOX 12.1 THE DANUBE SOYA INITIATIVE AND PRESSURE FOR NON-GMO IN EUROPE

There is a relatively new movement among some European retailers, including REWE Group, Lidl, Edeke in Germany, Carrefour in France, and many of the retailers in Austria, along with Waitrose in the United Kingdom, toward moving significant production of livestock and animal and poultry products (dairy, eggs, etc.) to use non-GMO feed. The production systems of various retailers are at different stages of transition, but very influential players, like REWE, are well on their way to full conversion and are making public commitments to full transition within a reasonably short period of time. These commitments are putting pressure on the soy supply chain to support this transition. The Brussels Soy Declaration (AllAboutFeed.net, 2013), which supports non-GMO soybean production in Brazil, is one channel through which the retailers are working to support transition in the sustainable soy supply chain (J. Fagen, ProTerra, personal communication, December 19, 2013).

A more in-depth route through which the retailers and major manufacturers are supporting the transition to non-GMO for animal production is their current effort to foster the development of new sources of non-GMO and sustainable soy in addition to existing South American sources. The most prominent of these initiatives, which has the strong financial and political support of German, French and Austrian retailers, major manufacturers and government officials, is the development of non-GMO, sustainable soy production in Eastern Europe under the Danube Soya Initiative. Because customers, retailers and manufacturers have signalled a commitment to non-GMO products, the livestock industry has also linked to this initiative (J. Fagen, ProTerra, personal communication, December 19, 2013). This was the context for the signing of the Danube Soya Declaration in September 2012 (Danube Soya, 2012) by 17 industry experts and policy-makers, thus forming the Danube Soya Association.

The Danube Soya Initiative (the Association's corresponding platform) focuses on non-GMO compliance but also requires conformity with basic sustainability indicators; it is undergoing rapid growth as a source of sustainable and non-GMO soy for Europe. Because the Danube River is navigable with barges and is linked to a network of canals and rivers that reaches throughout Europe, certified Danube Soy can be viewed as "low-carbon soy" because the carbon dioxide generated in delivering Danube Soy to the European end user is significantly lower than that generated in delivering South American or North American soy to these markets.

While the Danube Soy has unique sustainability features as a local source of non-GMO soy for EU farmers and retailers, it nevertheless faces significant hurdles in light of current market dynamics. As of 2011, the EU imported an estimated 72 per cent of its protein feed needs with the vast majority coming from the U.S., Argentina and Brazil (whose production bases, as of 2009, were estimated to be 91 per cent, 99 per cent and 69 per cent GMO soy, respectively) (EuropaBio 2011). Reversing the current market trend toward *increased* reliance on GMO feed sources by European farmers will likely require not only leadership from retailers, but also support from policy-makers.

Since 2006, ProTerra has consistently certified 3 million metric tons or more of soy in Brazil, making it the current market leader for standard-compliant soy (see Figure 12.4). In 2012 ProTerra volumes shrank 18 per cent from 2011 volumes, largely due to heavy droughts in Brazil. Although not all of these production volumes are actually sold as ProTerra-compliant (this is true with all voluntary sustainability standards covered in this section and is due to a variety of factors, including limited demand for compliant product—see Figure 12.3, Figure 12.4 and Figure 12.5 for more information on the gap between production and sales of standard-compliant product in the soy sector), ProTerra soybeans accounted for 69 per cent of total standard-compliant production globally in 2012, with Organic and RTRS certifying 12 per cent and 19 per cent, respectively. Although the amount of certified ProTerra beans is expected to increase to over 4 million metric tons again in 2013, planned diversification to China and India will help boost supply, especially in the European Union.

While most standard-compliant soybeans were certified under the ProTerra standard in 2012, RTRS and Organic sourced their soybeans from a wider variety of countries. During 2012, most Organic soybeans came from China and Canada, and RTRS soybeans came from Brazil, Argentina and a small portion (2 per cent) from India. Notwithstanding, the vast majority of standard-compliant soy came from Brazil in 2012 (84 per cent). Organic soybeans could also see an expansion in Brazil within the coming two or three years, as the country has considerable hectarage under conversion to Organic soybeans, although it remains unclear whether demand will keep up with supply, particularly given the dynamic nature of the market.

One major unknown for voluntary sustainability standard activity in the soy sector is the expansion and uptake of RTRS. Without the limits on supply faced by the other voluntary sustainability initiatives, RTRS has an important potential for expansion. RTRS projects that production volumes will reach between 4 and 5 million metric tons by 2015, with new programs to be developed in China. The WWF, on the other hand, cites a target of 25 per cent of global soy production (e.g., between 60 and 70 million metric tons) of responsible soy certified by 2020 (WWF, n.d.-b). Achieving either of these objectives will require significant commitment and integration of RTRS within supply chains beyond current levels.[13] Regardless of whether or not RTRS is able to ramp up production to projected values by 2015, the demand (sales) of certificates would have to increase substantially to maintain some sort of equilibrium in the market for credits. As of 2012, about two-thirds of compliant production remained unsold.

Other important actors in the sustainable soy sector are the sustainable biomass and biofuel standards, including, as previously mentioned, ISCC[14] and RSB (see Section 6 for more detail). ISCC is a holistic biomass standard with an emphasis on greenhouse gas emissions and a major standard for gaining compliance for import into the European Union under the Renewable Energy Directive. The ISCC Chain of Custody recognizes all other European Union Renewable Energy Directive–approved systems (including Bonsucro, RSB, RTRS and RSPO). This flexibility in its Chain of Custody has helped ISCC become a major actor in the certification of soybeans as a biofuel feedstock. RSB is another potential certifier of soybean feedstock, although the standard is still in its infancy with only seven certificates issued by mid-2013.

In aggregate, 5.0 million metric tons of soybeans were standard-compliant in 2012 (Organic, ProTerra, RTRS, and very minor volumes of Fairtrade soybeans), which is equivalent to 2.0 per cent of global soybean production (or 3.1 per cent of global soybean exports). We estimate that 2.1 million metric tons (42 per cent of certified production) were sold as certified in 2012, equivalent to 0.8 per cent of production and 1.3 per cent of exports (see Table 12.2).

13 WWF includes Proterra and RTRS certified soy, among others, as examples of sustainable soy for the purposes of its target.

14 As noted earlier, ISCC PLUS, which allows ISCC units to extend certification to food an d feed products (ISCC, n.d.-d), was established in 2012 and will be covered in the next edition of the SSI Review.

12.3 MARKET PERFORMANCE

TABLE 12.2 IMPORTANCE OF VOLUNTARY SUSTAINABILITY STANDARD (VSS) SOY BEAN PRODUCTION AND SALES RELATIVE TO THE GLOBAL MARKET.

	VSS production (mt)	VSS production market share of global production	VSS production market share of global exports	VSS sales (mt)	VSS sales market share of global production	VSS sales market share of global exports
Organic	599,315	0%	0%	326,853	0%	0%
ProTerra	3,411,302	1%	2%	* 1,432,746	1%	1%
RTRS	959,532	0%	1%	335,537	0%	0%
Global VSS production / sales (mt and %)	4,970,000	2%	3%	2,100,000	1%	1%

* Assumes that 42 per cent of ProTerra soybean production is sold as certified (a cross-sector average).

Sources: FAO, 2013; ProTerra, 2013; U.S. Department of Agriculture, 2013e; IISD, H. Willer, FiBL, personal communication, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

Fairtrade International

Fairtrade International certifies soybeans under its combinable crops standard. In 2010 there was only one soybean producer organization certified, so data were not reported. As of 2011, soybeans were being reported by Fairtrade International within the aggregated "Oilseeds and Oleaginous Fruit" category, which represented 8,800 farmers certified and 300 metric tons in sales volume in 2011. With real soy prices hovering at some of their highest levels since the mid-1980s, farmers may be less incentivized by the Fairtrade premium as they are in other agricultural sectors.

International Federation of Organic Agriculture Movements (IFOAM, or "Organic")

In 2011 Organic certified soybeans were produced in 31 countries and accounted for an estimated 600,000 metric tons of soybeans produced globally, or about 0.2 per cent of total world production. Of total certified volumes, an estimated 56 per cent were sold as certified (90 per cent are sold as certified outside of China), with remaining volumes sold as conventional (see Figure 12.7 and Table 12.4). The total harvested area for certified Organic for soybeans cultivation represented 278,000 hectares, or about 0.3 per cent of total world area under cultivation.

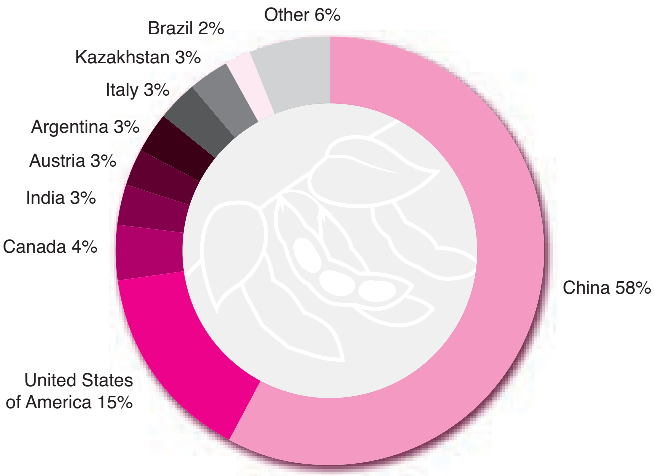
In the last three years (since 2008), reported estimates of Organic soybean production and harvested area have more than tripled, with an average annual growth rate of 48 per cent, although this is largely due to an incorporation of Chinese volumes into the statistics for the first time in 2010. It can be assumed that the Chinese were producing Organic certified soybeans prior to this, in which case growth rates in production volumes would be relatively flat in recent years. FiBL expects that the area and production for Organic soybeans will grow moving forward, partly due to an EU regulation on organic farming that will require that 100 per cent of protein feedstuffs for monogastric animals (e.g., poultry) be of organic origin in the near future (European Commission, 2012b). Because the European Union is the second-largest Organic market, it is expected that the implementation of this regulation will have an important impact on the future supply and demand of Organic soybeans for feed. FiBL expects that much of the supply growth to feed this demand will occur domestically within the European Union as the Union aims to diminish the dependency on Organic soy from China and other exporting countries.[15]

Of the voluntary sustainability standards involved in soybean certification, Organic certified soybeans are sourced from the most geographically diverse set of countries. Seven countries account for 90 per cent of certified Organic production: China (58 per cent), the United States (15 per cent), Canada (4 per cent), India (3 per cent), Austria (3 per cent), Argentina (3 per cent) and Italy (3 per cent) (see Figure 12.6 and Table 12.3).[16]

15 One area where this is occurring is Germany. The German Federal Ministry for Agriculture is funding a large project on soy production (organic and non-organic) in order to optimize crop production and processing technology for soy (Wilbois, 2012). The project, "Improved Contribution of Local Feed to Support 100% Organic Feed Supply to Pigs and Poultry," is a collaboration of 15 partners across 10 European countries that will bring together an extended knowledge of different local feeds and their wider impact on growth, health and welfare, and the environment to identify feeding strategies that comply with organic principles (ICOPP, 2011).

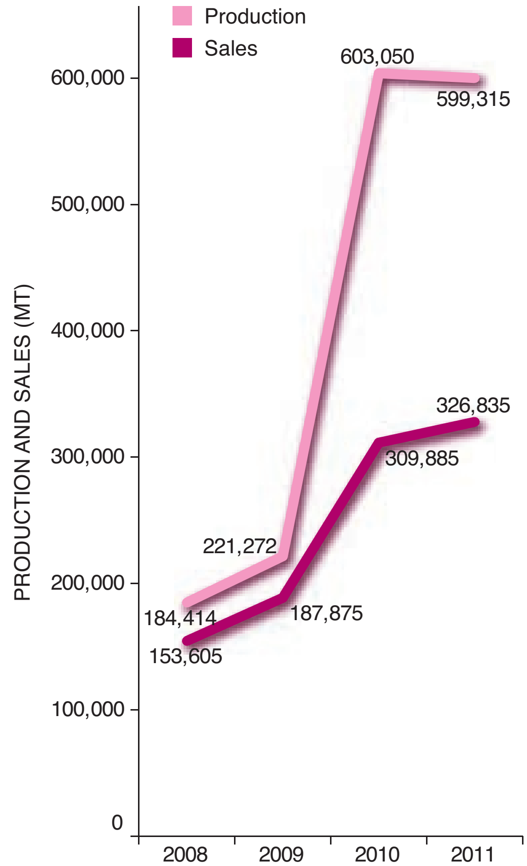
16 Rounding accounts for the discrepancy between the sum of values (89 per cent) and the 90 per cent total figure.

FIGURE 12.6 ORGANIC SOYBEAN PRODUCTION BY COUNTRY, 2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 12.7 ORGANIC SOYBEAN PRODUCTION AND SALES, 2008–2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 12.3 ORGANIC SOYBEAN PRODUCTION, SALES AND AREA HARVESTED, BY COUNTRY, 2011.

	Production (mt)	Sales (mt)	Area harvested (ha)
Argentina	18,000	16,000	8,600
Australia	80	70	50
Austria	19,772	17,800	7,100
Brazil	14,200	12,800	5,400
Bulgaria	69	60	50
Canada	24,600	22,000	13,000
China	350,000	107,000	150,000
Croatia	122	100	50
Czech Republic	55	50	30
France	11,157	10,000	7,400
Germany	2,160	1,900	1,100
Greece	80	70	50
Hungary	779	700	700
India	20,210	15,000	16,000
Italy	15,768	14,200	4,600
Japan	939	600	700
Kazakhstan	15,014	13,500	5,900
Lithuania	191	170	300
Mozambique	263	200	200
Paraguay	4,300	3,300	1,800
Poland	5	5	4
Romania	7,300	6,500	6,600
Serbia	220	200	100
Slovakia	330	300	360
Slovenia	13	10	10
South Africa	30	30	30
Spain	56	50	50
Switzerland	130	120	60
Turkey	572	500	150
Ukraine	2,900	2,600	1,600
United States	90,000	81,000	46,000
Total	599,315	320,685	277,994

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 12.4 ORGANIC SOYBEAN AREA HARVESTED, PRODUCTION AND SALES, 2008–2011.

	Area harvested (ha)	Production (mt)	Sales (mt)
2008	98,091	184,414	153,605
2009	115,651	221,272	187,875
2010	270,952	603,050	309,885
2011	277,994	599,315	320,685

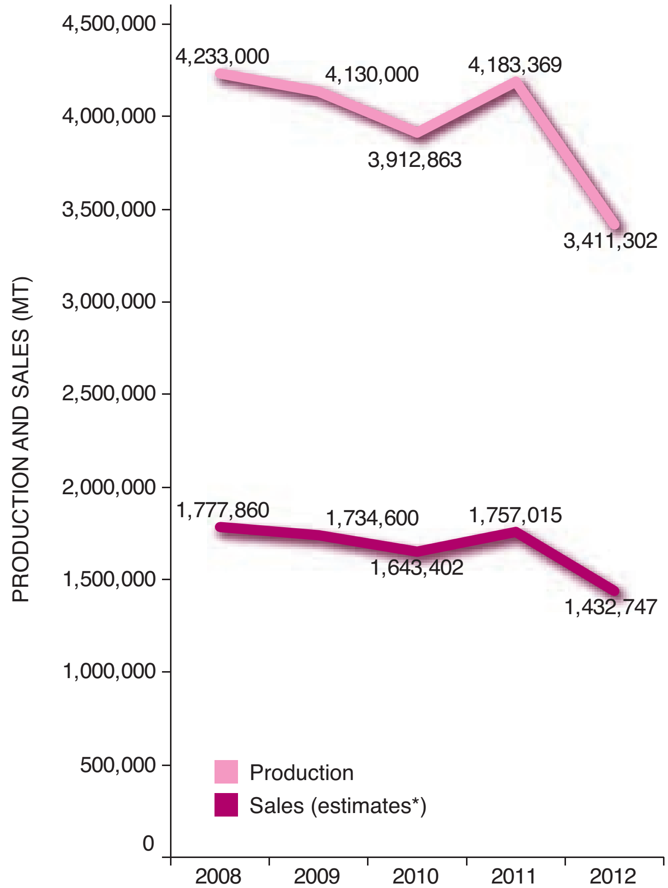
Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

ProTerra

ProTerra certified soybeans account for the largest volumes of soybeans of the major voluntary sustainability standards active in the sector, with 3.4 million metric tons certified in Brazil in 2012 (see Table 12.5), or 5.2 per cent of total Brazilian soybean production and 6.4 per cent of Brazilian exports. The volume of soybeans certified in 2012 represented 1.3 per cent of total world production and 2.1 per cent of exports. ProTerra's strict non-GMO stance accounts for the organization's current concentration in Brazil, as the country is one of the only large exporters with significant amounts (20 to 25 per cent) of non-GMO soy.

Although volumes certified dipped slightly in 2012 due to droughts in Brazil (see Figure 12.8), ProTerra asserts that an additional 1.5 million metric tons could have been certified if EU buyers had expressed their demands earlier in the year. The organization asserts that new adoption of the standard by several producers in Brazil and strong demand in the European Union will push certified volumes to over 4 million metric tons again in 2013.

FIGURE 12.8 PRODUCTION AND ESTIMATED SALES GROWTH OF PROTERRA SOYBEANS, 2008–2012.



* Assumes that 42 per cent of ProTerra soybean production is sold as certified (a cross-sector average).

Source: Freire, 2013.

Round Table on Responsible Soy (RTRS)

The year 2011 saw the first RTRS certified soy producers and the first produce sold on the market to companies in Europe, of which the largest purchasers were the Cefetra Group, the Stichting Project Ketentransitie–Verantwoorde Soja (Ex IDS), and Lantmännen. Unilever Brasil and Shell Trading Rotterdam B.V. also purchased RTRS soy that year.

RTRS production volumes have increased two-fold, from 420,000 metric tons to 960,000 metric tons between years 2011 and 2012 (128 per cent growth; see Figure 12.10 and Table 12.7), accounting for 0.4 per cent of global soy production by 2012. Over 2011 and 2012, sales remained stable—around 330,000 metric tons during the same time period, accounting for 0.1 per cent of global production.

However, RTRS expects certified volumes to reach between 4 and 5 million metric tons by 2015, driven by buyer commitments. In December 2011, for example, several Dutch companies[17] agreed to achieve 100 per cent use of "responsible soy" (defined in the agreements as compliant with RTRS standard or equivalent[18]) for the production of meat, dairy, eggs and other foods in the Netherlands by 2015. These companies are preparing to purchase increasingly large volumes of "responsible" soy: 1 million metric tons in 2013 and 1.5 million metric tons in 2014, representing 0.4 per cent and 0.6 per cent of 2012 world production volumes. An estimated €7 million in investments are needed to achieve this transition, and the participating companies have agreed to finance half of this amount, with IDH agreeing to finance the other half (IDH, 2011a). Such investments should allow growers in South America and other supply chain actors to implement the necessary improvements and achieve RTRS certification. Reaching WWF's target of 25 per cent of global production as "responsible" soy by 2020 will require even further investment and remains largely uncertain at this point in time. Achieving this objective will almost certainly depend on RTRS's ability to expand production (and demand) to other regions around the world.

The RTRS standard is currently mainly active in Argentina and Brazil, which represent 98 per cent of total RTRS production volumes. India represents the remaining 2 per cent, with very small amounts in Paraguay and Uruguay (see Figure 12.9 and Table 12.6). Brazil alone accounts for 77 per cent of total RTRS production volumes.

17 These companies represent the food industry and trade sectors and include Nevedi (the Dutch Feed Industry Association), IDH, Friesland Campina and other members of the Dutch Dairy Association, the Dutch Meat Association, Dutch retailers Albert Heijn, C1000, Jumbo, Lidl, SuperUnie, LTO Nederland, the Product Board for Poultry and Eggs and the Product Board for Margarine, Fats and Oils.

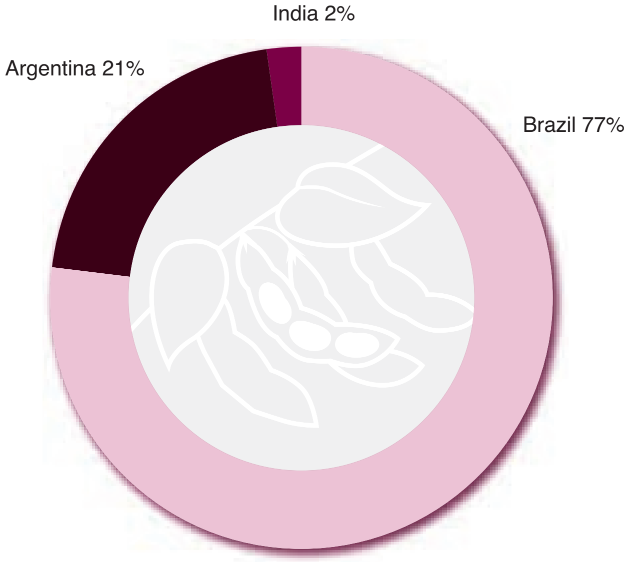
18 RTRS and ProTerra are currently engaged in a mutual harmonization process that will result in ProTerra certified soy being recognized as "responsible soy" (J. Fagen, ProTerra, personal communication, December 12, 2013).

TABLE 12.5 VOLUMES OF PROTERRA SOYBEANS IN BRAZIL, 2005–2011.

Year	Volume (mt)
2005	1,500,000
2006	4,000,000
2007	4,550,000
2008	4,233,000
2009	4,130,000
2010	3,912,863
2011	4,183,369
2012	3,411,302

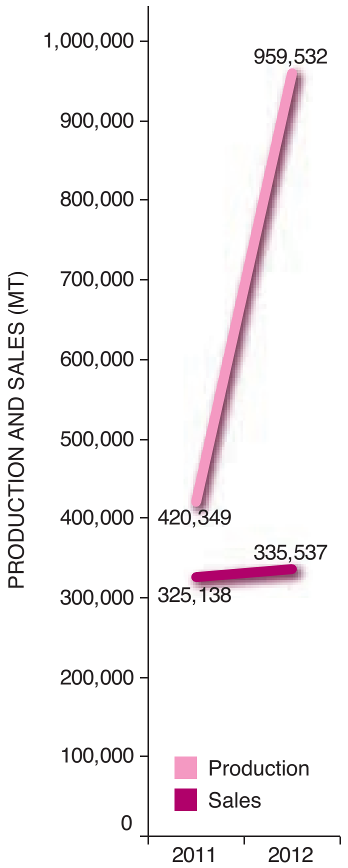
Source: Freire, 2013.

FIGURE 12.9 RTRS SOYBEAN PRODUCTION BY COUNTRY, 2012.[19]



Sources: B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

FIGURE 12.10 RTRS SOYBEAN PRODUCTION AND SALES, 2011–2012.



Sources: B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

19 RTRS certified production in Uruguay is less than 1 per cent.

TABLE 12.6 PRODUCTION, AREA HARVESTED AND SALES OF RTRS SOYBEANS BY COUNTRY, 2012.

	Production volume (mt)	Area harvested (ha)	Sales (mt)
Argentina	199,637	81,212	157,570
Brazil	743,304	224,691	166,191
India	15,550	10,904	11,776
Uruguay	1,041	372	0

Sources: B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

TABLE 12.7 VOLUMES, AREA HARVESTED AND SALES OF RTRS SOYBEANS, 2011–2012.

	Production volume (mt)	Area harvested (ha)	Sales (mt)
2011	420,349	146,932	325,138
2012	959,532	317,178.5	335,537

Sources: B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

12.4 SUPPLY

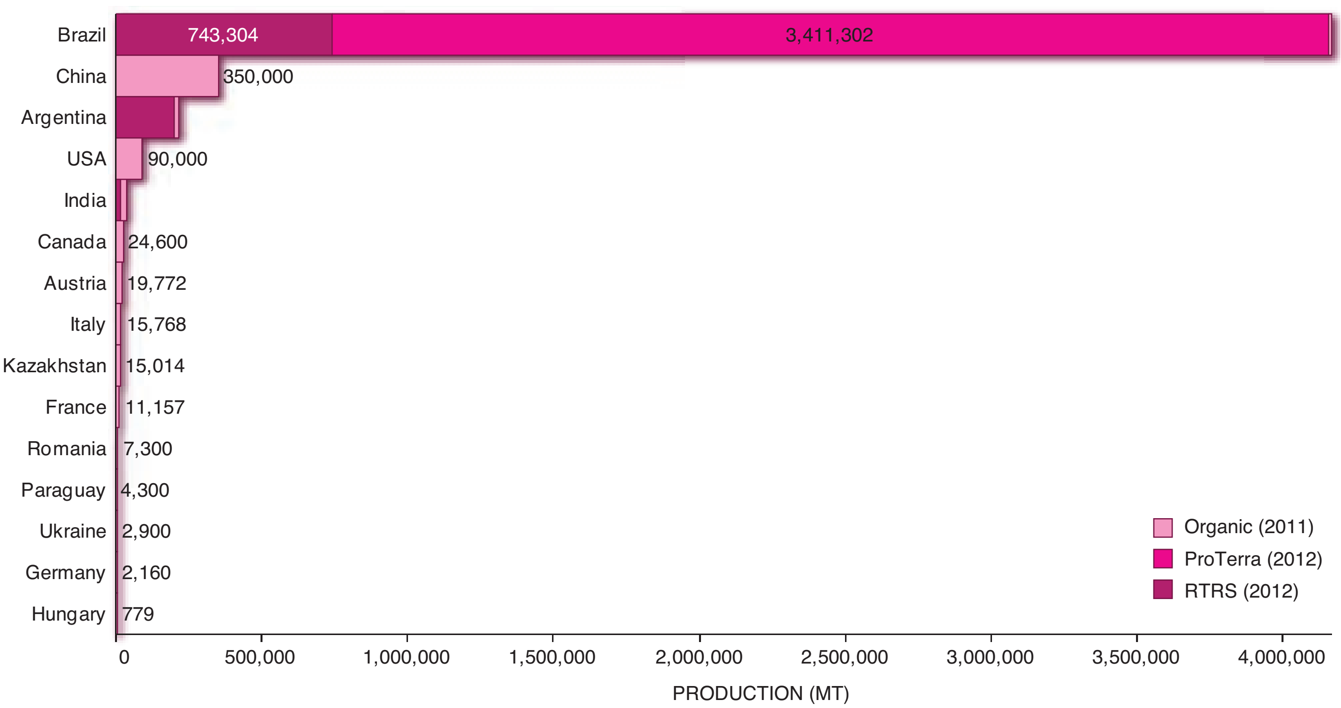
As of 2012, standard-compliant soybeans can be sourced from a large number of countries due to the wide coverage of organic schemes; however, the RTRS and ProTerra standards have penetrated only a handful of countries, and the vast majority (84 per cent; see Figure 12.14) of all compliant production currently occurs in Brazil (versus 26 per cent of total production; see Figure 12.13). Looking at the top 20 soybean producing countries in the world (Table 12.8), only Brazil has a sustainability intensity of higher than 5 per cent (6.3 per cent), due to ProTerra's and RTRS's coverage of the Brazilian market. The closest second—in terms of sustainability intensity—of the top 20 countries is Italy, where 3.7 per cent of soybeans are certified Organic.

Notably, RTRS production is not currently available in the United States and China, two of the largest producers of soybeans in the world (see Figure 12.11), and with ProTerra volumes certified in Brazil, South America is currently by far the dominant producer of soybeans certified by a voluntary sustainability standard (see Figure 12.12). Although Organic soy is present in these two countries, only 0.1 per cent of total soybean production in the United States is certified Organic, while about 2.7 per cent is certified Organic in China. In the case of several minor producing European and Asian countries such as Germany, Kazakhstan, Austria, Bulgaria and France, Organic certification levels range from 5 per cent to 95 per cent.

However, production volumes and land areas of standard-compliant soybeans have, almost without exception, increased for all international voluntary sustainability standards active in the soy sector in recent years[20] and it is expected that compliant volumes will generally continue to increase across all countries moving forward. The RTRS saw the largest year-over-year increase between 2011 and 2012, with 128 per cent growth in compliant production volumes. Organic production more than tripled between 2008 and 2011 (2012 data are not yet available). Over the last five years, ProTerra certified volumes have remained relatively stable, while Organic-compliant production is on a continuous upward trend, growing at about 29 per cent every year since 2008. Finally, the establishment of the Danube Soy Initiative in 2012 promises to reinforce this trend of growth in the volumes and diversity of standard-compliant soy supply in coming years.

20 The one exception being ProTerra, which experienced a decline in production between 2011 and 2012 due to climatic conditions in Brazil.

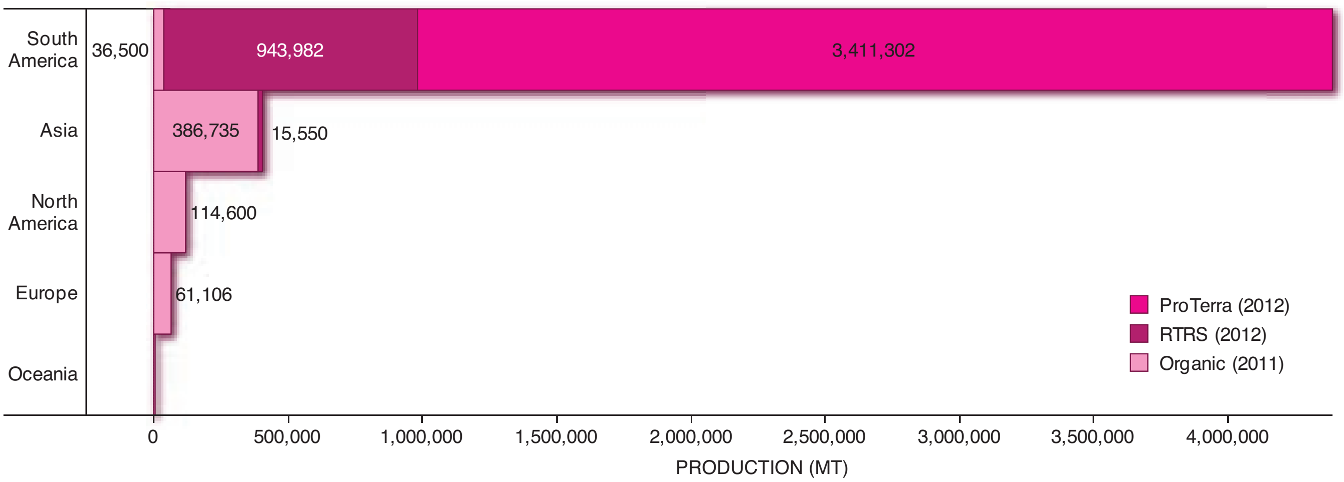
FIGURE 12.11 LARGEST STANDARD-COMPLIANT SOY PRODUCERS BY COUNTRY, 2012.



Where space permits, data points are visible.

Sources: Freire, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

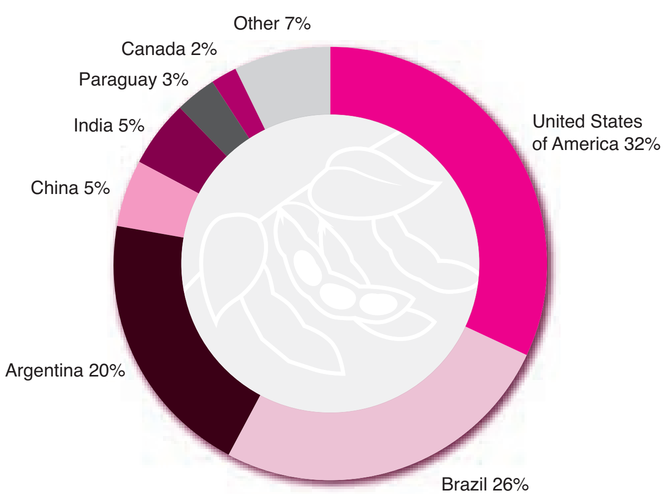
FIGURE 12.12 STANDARD-COMPLIANT SOY PRODUCTION BY CONTINENT, 2012 (2011 DATA FOR ORGANIC).



Where space permits, data points are visible.

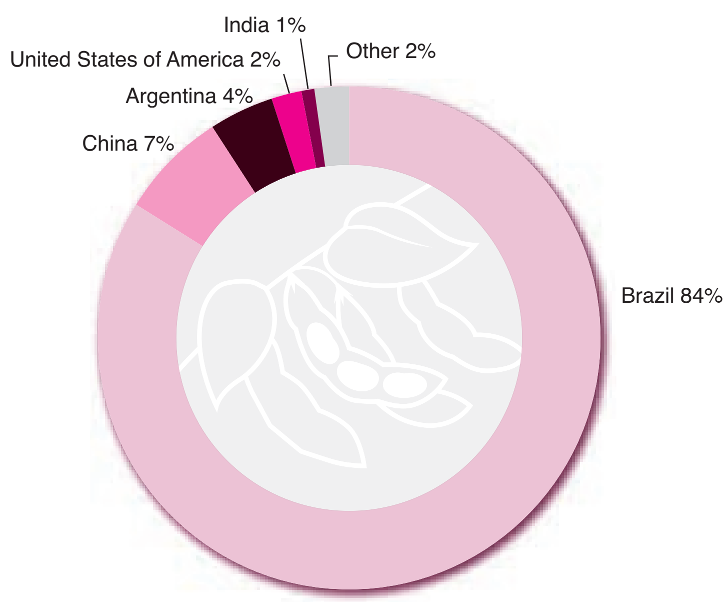
Sources: Freire, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

FIGURE 12.13 TOTAL (STANDARD-COMPLIANT AND CONVENTIONAL) SOYBEAN PRODUCTION BY COUNTRY, 2012.



Source: FAO, 2013.

FIGURE 12.14 STANDARD-COMPLIANT SOYBEAN PRODUCTION BY COUNTRY, 2012 (2011 DATA FOR ORGANIC).



Sources: Freire, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

TABLE 12.8 LARGEST PRODUCERS OF STANDARD-COMPLIANT SOY PRODUCTION AS A PERCENTAGE OF TOTAL NATIONAL PRODUCTION, FOR 20 LARGEST SOYBEAN PRODUCERS.

Dashes represent negligible or no standard-compliant production relative to national production.

	Organic	ProTerra	RTRS	Total
United States	0.1%	-	-	0.1%
Brazil	-	5.2%	1.1%	6.3%
Argentina	-	-	0.4%	0.4%
China	2.7%	-	-	0.4%
India	0.2%	-	0.1%	0.3%
Paraguay	0.1%	-	-	0.1%
Canada	0.5%	-	-	0.5%
Uruguay	-	-	-	-
Ukraine	0.1%	-	-	0.1%
Bolivia	-	-	-	-
Russian Federation	-	-	-	-
Indonesia	-	-	-	-
South Africa	-	-	-	-
Nigeria	-	-	-	-
Italy	3.7%	-	-	3.7%
Democratic People's Republic of Korea	-	-	-	-
Serbia	0.1%	-	-	0.1%
Mexico	-	-	-	-
Japan	0.4%	-	-	0.4%
Myanmar	-	-	-	-

Sources: FAO, 2013; Freire, 2013; IISD, H. Willer, FiBL, personal communication, Aug, 26, 2013; B. Zeehandelaar, F. Cativiela, RTRS, personal communication, February 28, 2013.

12.5 PRICING AND PREMIUMS

Premiums for standard-compliant soybeans have been estimated to range from 0.3 per cent for some RTRS certified soybeans to over 80 per cent for Organic soybeans.[21] With the relative difficulty in procurement of non-GMO seed and the costs and time associated with conversion to compliant production for certain standards (three years in the case of Organic, for example), it is likely that premiums for non-GMO standards Organic and ProTerra will remain upwards of 25 per cent for the foreseeable future. It remains to be seen what will happen to RTRS premiums as production and demand ramp up in the coming years, although current analysis suggests that RTRS supply chains are willing to support premiums of around 0.3 per cent (US$1.5 per metric ton) for soy and 0.7 per cent to 0.9 per cent (US$3 to $4 per metric ton[22]) for soy meal (KPMG, 2013). Premiums for certified soy oil may be higher still, with refiners in the European Union receiving a tax rebate for using soy oil to produce biodiesel. Premiums for RTRS soybeans are not fixed, however, and another industry source has estimated that premiums can be expected to generally fall between 0.4 and 1.5 per cent (€1.50 and €5[23]) in the coming years.[24] Regardless, with current industry commitments, it is likely that demand can be expected to grow significantly in the coming two years due to commitments by the Dutch and Belgian soy industries to source 100 per cent RTRS soybeans by 2015. This should support current premium levels until 2015.

Premiums for ProTerra certified soybeans are estimated at 20 to 25 per cent (J. Fagen, ProTerra, personal communication, December 12, 2013) or US$100 per metric ton, although about 90 per cent of the premiums come from ProTerra's non-GMO status, while the additional 10 per cent is for the ProTerra standard itself. About 30 per cent of the total trade premium makes it back to the farmer (A. Freire, personal communication, November 21, 2013). Organic soybean premiums are anywhere between 59 and 89 per cent (€200–€300).[25] Although the production and sales for Fairtrade soybeans are very small, the organization sets premiums of US$35 per metric ton and US$50 per metric ton for double-certified Fairtrade/Organic soybeans. These figures represent premiums of 7 per cent and 10 per cent over current market prices.

21 Based on Chicago Soybean Futures contract of US$503 per metric ton in September 2013 (IndexMundi, 2013c).

22 Percentages calculated based on Chicago Soybean Meal Futures price of US$490 per metric ton in September 2013 (IndexMundi, 2013c).

23 To calculate percentage premium, these figures were converted to U.S. dollars using the EUR/USD exchange rate of 1.38 on October 29, 2013.

24 Rough estimates (G. Van der Bijl, Solidaridad, personal communication, September 1, 2013).

25 Rough estimates (G. Van der Bijl, Solidaridad, personal communication, September 1, 2013).

12.6 CHALLENGES AND OPPORTUNITIES

Considering only RTRS's projected growth in its own compliant production by 2015, it is likely that volumes of standard-compliant soybeans will more than double within the next three years, reaching around 4 per cent of global soybean production. However, it remains to be seen whether supply from voluntary sustainability standards will be embraced as a major vehicle for mainstream supply as in other leading commodity sectors.[26] Sustainability standards in the soybean industry face several significant hurdles, including weak market demand for "sustainable" soy, supply constraints (particularly for non-GMO standards), and a poorly diversified production base.

Soy remains a largely invisible ingredient incorporated within other products. The market position of soy contrasts significantly with other commodities where voluntary sustainability standards have had successful mainstream adoption, such as coffee and cocoa, which are largely marketed without significant transformation. As a result, demand for standard-compliant soy can be expected to rely heavily on manufacturers and policy-makers, and perhaps less upon consumers (KPMG, 2013). However, for standards prohibiting the use of GMOs, consumer sentiment regarding the topic should be an important driver of compliant uptake, especially in countries where GMO labelling is mandatory such as Australia, New Zealand, and members of the European Union. Non-GMO soybeans are gaining traction in the European Union, and the push for non-GMO certified soybeans from European consumers, governments and industry is a positive development for future Danube, ProTerra, Organic and Fairtrade soy sales.

Demand for standard-compliant GMO soybeans also seems to be healthy, and support through NGO campaigns such as the Soy Fast Track Fund[27] will help ensure growth in supply moving forward, while other European commitments to standard-compliant sourcing should keep demand strong over the medium- to long-term. With the Dutch and Belgian industry having committed to sourcing all of its soy as "responsible" by 2015 and IDH's goal of 10 to 15 per cent of EU imports compliant under the RTRS standard by 2015, growth in voluntary sustainability standards within the sector in coming years should be strong, especially considering the impressive hurdles that these standards have had to navigate within the sector.

Notwithstanding the growing demand for responsible soy, it is important to note that China remains one of the most important producers and importers of soy production globally. As changing demographics within China increase its importance in the global soy market, the absence of Chinese demand for responsible soy points towards an important, and potentially growing gap in the more generalized market growth strategy for responsible soy.

Assuming demand for certified soy does grow as predicted by many, all of the initiatives will have to invest intentionally in the expansion and, perhaps even more importantly, the diversification of supply. At present, virtually all standard-compliant soy is sourced from Latin America, with the overwhelming majority of this coming from Brazil. More significant penetration in global markets will almost certainly depend on securing significant standard-compliant supply from other major producing countries such as the United States, Canada and China. For the standards initiatives prohibiting the use of GMO soy, the prospects for growth remain significantly constrained due to the ubiquity of GMO production. China and Brazilian production do, however, remain important opportunities for expanding supply for these initiatives at present.

26 As, for example, in the coffee and cocoa sectors, which currently account for 40 per cent and 22 per cent of global production, respectively.

27 The Soy Fast Track Fund is a joint initiative of IDH and Solidaridad that provides matching funds to private investments aimed at expanding sustainable soy production in High Conservation Value areas; see IDH (2011b).

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13 SUGAR MARKET

Sugar is a food additive used in drinks and foodstuffs of all kinds. It is produced from sugar cane[1] and sugar beets, which currently account for approximately 75 per cent and 25 per cent of the world's sugar production, respectively.[2] Sugar cane is a tall perennial grass native to New Guinea and was first used to produce crystalline sugar in India around 300 BC. Following its migration to Indochina and the Mediterranean by AD 1000, sugar cane production eventually found its way to Latin America through colonialism. Today, the majority of global production comes from Brazil, India and China, and Brazil alone accounts for more than half of all cane sugar exports (Higman, 2013). In 2012, 143 million metric tons of cane sugar were produced from sugar cane harvested on 26 million hectares, equivalent to 0.5 per cent of the world's agricultural area.[3] About one-third of all cane sugar was exported in 2012, for a value of US$17.1 billion (see Table 13.1).

Sugar cane cultivation is an important part of the rural development strategy in many countries, perhaps most notably in Brazil, where in the Cerrado region sugar production was shown to be positively correlated with higher levels of economic and social development (Martinelli, Garrett, Ferraz, & Naylor, 2011). Notwithstanding, the crop has long been the subject of media campaigns highlighting specific cases of forced labour, child labour, and land tenure issues, as well as health-related issues affecting sugar cane cutters.

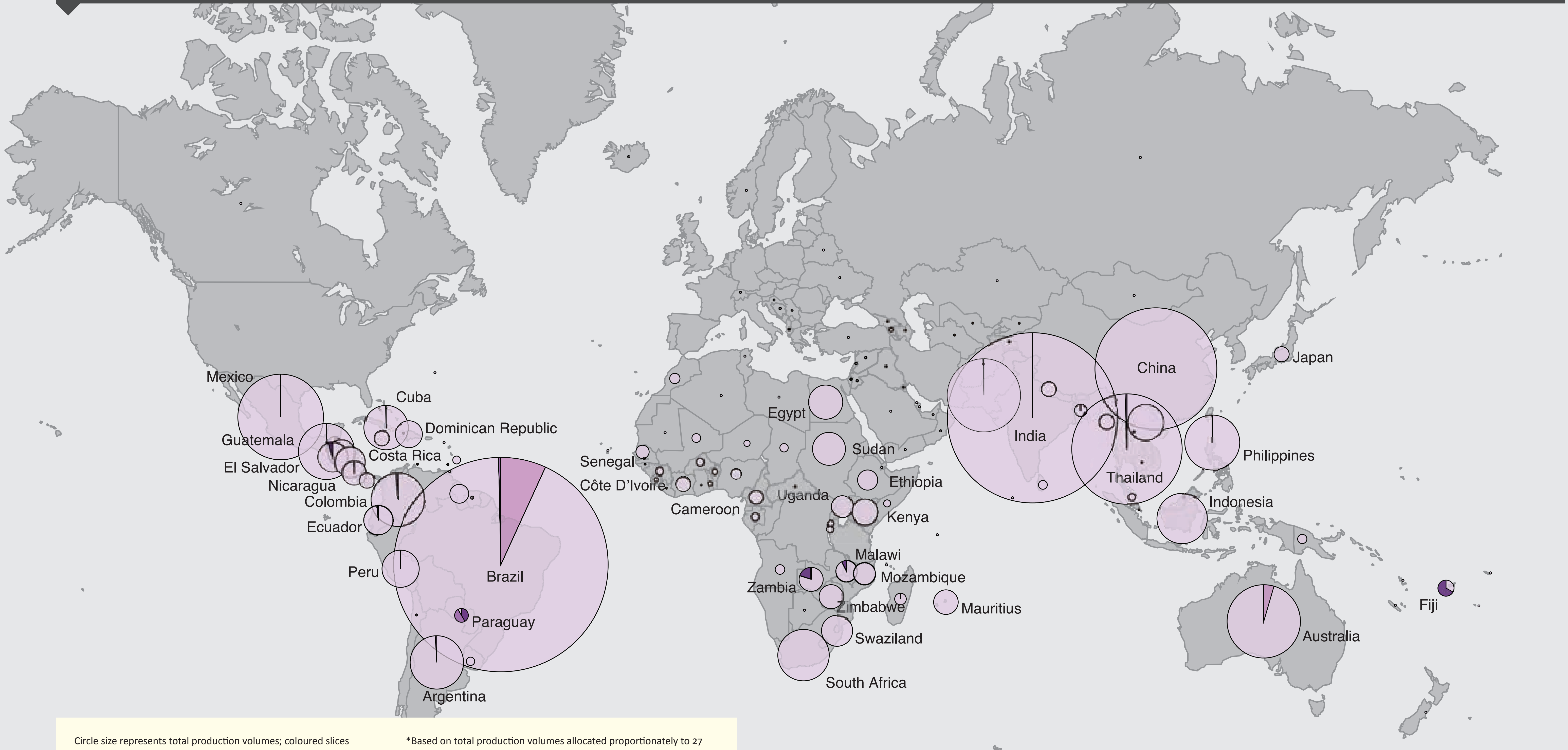
Sustainability issues within the sugar sector have driven the development of production compliant with four voluntary sustainability initiatives: Organic, Fairtrade, Rainforest Alliance and Bonsucro. Working conditions among sugar cane cutters (Fairtrade) and soil and personal health (Organic) were the main drivers of certification until 2011. The entry of Bonsucro and Rainforest Alliance certified production points toward the use of sugar standards to enable better supply chain risk and environmental management in mainstream channels. In 2012, standard-compliant sugar accounted for 2.7 per cent of all cane sugar production (see Figure 13.1; Figure 13.2 breaks this down by voluntary sustainability standard), and its sales accounted for 1 per cent of global exports.

1 Sugar cane crushing involves the production of sugar cane juice, which can be used for the production of ethanol or raw sugar, and bagasse, a fiber that is used for energy production, often to power the processing facilities. Additionally, molasses is a by-product of the conversion process of sugar cane juice into raw sugar, and it can be used for the production of alcohol (e.g., rum), ethanol, animal feed or table molasses. Sugar cane processing factories can be one of three types: factories used for the production of raw sugar only (from sugar cane juice), factories used for the production of ethanol only (from sugar cane juice), or integrated factories where sugar cane juice is used for both the production of sugar and ethanol and the molasses by-product (created from raw sugar production) is used for the production of ethanol. Roughly 80 per cent of factories in Brazil use this integrated method, allowing for the production of varying amounts of ethanol or sugar depending on the respective opportunity costs of producing either product (Gopal & Kammen, 2009). This section focuses on sugar production; for more information on ethanol and bagasse produced from sugar cane, see Section 6.

2 Sugar and syrups are also produced from the saps of certain species of maple trees and from sweet sorghum, although total production volumes are insignificant on a global scale (UN Development Programme, 2010b).

3 4,911,622,650 hectares in 2011 (Food and Agriculture Organization, 2013).

FIGURE 13.1 CONVENTIONAL VERSUS STANDARD-COMPLIANT CANE SUGAR PRODUCTION, 2011/2012.



Circle size represents total production volumes; coloured slices represent volumes of standard-compliant sugar production. Aggregate compliant production across initiatives does not reflect total sustainable production in Paraguay, Cuba, India, Philippines or Costa Rica, as these countries are producers of double-certified Fairtrade/Organic sugar. Standard-compliant sugar sales represented 1 per cent of total exports in 2012, although compliant production (which includes Bonsucro) reached 3 per cent of global production during the same year. The compliant sugar landscape has been and will be heavily influenced by Bonsucro moving forward, especially as the organization establishes larger markets for its compliant sugar. Brazil, Australia and Belize are the largest producers of compliant sugar, while Brazil and India are the largest producers of cane sugar by volume. Fairtrade certified sugar (orange) is mostly (about 60 per cent) produced and sold in the former British colonies of Belize and Fiji and is destined for the British market, where it accounts for one-third of retail sugar sales.

*Based on total production volumes allocated proportionately to 27 mills in Brazil and two in Australia.

**Based on available country-level sales and aggregate production data.

***Based on available country-level sales data. It is estimated that the sales are large relative to total production volumes (relative to other voluntary sustainability standards in sugar and other commodity sectors), at about 90 per cent (IISD, H. Willer, Research Institute of Organic Agriculture/Forschungsinstitut für biologischen Landbau (FiBL), personal communication, July 16, 2013).

Sources: Fairtrade Labelling Organizations (FLO), 2012; International Trade Centre, 2013c; IISD, H. Willer, FiBL, personal communication, 2013.

TABLE 13.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR CANE SUGAR PRODUCTION AND TRADE.

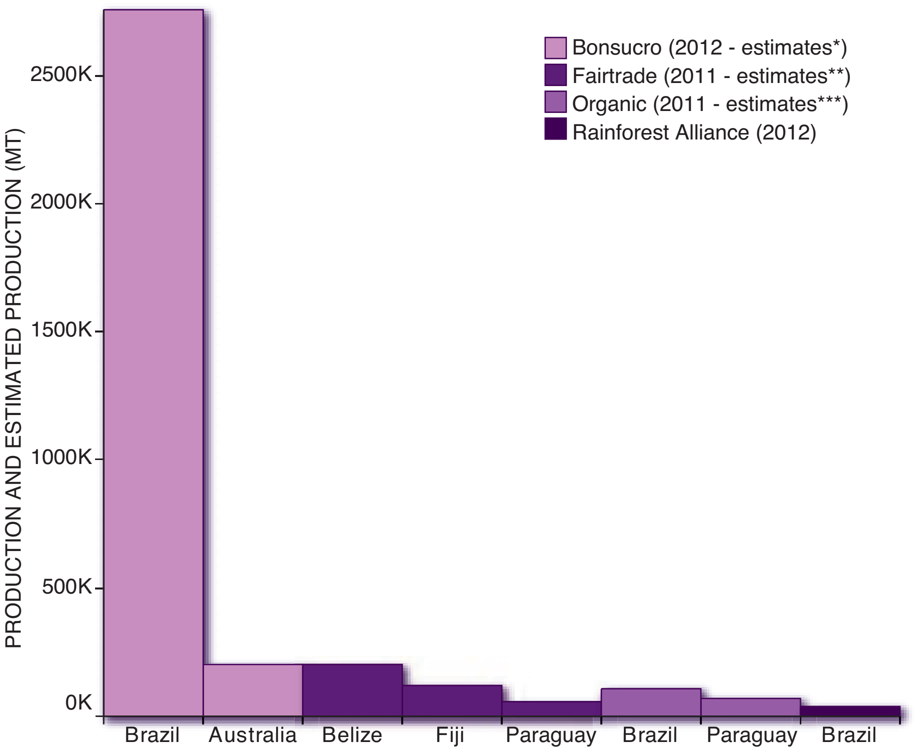
KEY STATISTICS

Top 5 producers (71% of global) (2012)	Brazil (30%), India (19%), China (10%), Thailand (8%), Mexico (4%)
Top 5 producers of standard-compliant cane sugar (91% of global) (2011/2012)	Brazil (75%), Australia (5%), Belize (5%), Paraguay (3%), Fiji (3%)
Top 5 exporters (86% of global) (2012)	Brazil (57%), Thailand (15%), India (6%), Guatemala (5%), Cuba (3%)
Top 5 sellers of standard-compliant cane sugar (68% of global) (2011*)	Brazil (19%), Paraguay (17%), Belize (14%), Thailand (10%), Fiji (8%)
Top 5 importers (35% of global) (2012)	China (11%), Indonesia (8%), United States (6%), Republic of Korea (5%), Malaysia (5%)
Global production (2012)	142.6 million metric tons
Global exports (2012)	46.1 million metric tons
Trade value (2012)	US$17.1 billion
Global area harvested (2012)	25.8 million hectares** (0.5% of agricultural area – compare to 163 million hectares for rice, 217 million hectares for wheat, 36 million hectares for cotton)
Total number of jobs in sugar cane production (2013)	250,000 in Brazil (accounts for one-quarter of global production)***
Major international voluntary sustainability standards	Bonsucro, Fairtrade, Rainforest Alliance, Organic
Standard-compliant production (2011 and 2012)	3.8 million metric tons (2.7% of total production)
Standard-compliant sales (2011)	478,000 metric tons (16% of compliant production, 1% of total exports, 0.3% of global production)
Key sustainability issues	Water management, land rights, climate change, working conditions, pest management

* Data for Fairtrade and Organic sugar only. Bonsucro and Rainforest Alliance had not yet established significant markets for their compliant sugar at the time of writing (mid-2013).
** In Brazil, about 55 per cent of sucrose (so-called ATR or totally recoverable sugar) in harvested cane is used for ethanol production (S. Gudoshnikov, International Sugar Organization, personal communication, 2013).
*** Including temporary cane cutters. These jobs are fast disappearing, however, due to the conversion to mechanical harvesting, which is currently at 50 per cent in Brazil (K. Ogorzalek, WWF, personal communication, 2013).

Sources: Top 5 producers: IndexMundi, 2013b; Top 5 exporters and total export value: International Trade Centre, 2013c; Top 5 importers: S. Gudoshnikov, International Sugar Organization, personal communication, September 20, 2013; U.S. Department of Agriculture (USDA), 2013d; Top producers and sellers of standard-compliant product: IISD, H. Willer, personal communication, August 26, 2013; FLO, 2012; Global production and global exports: S. Gudoshnikov, International Sugar Organization, personal communication, 2013; Total number of jobs in Brazil: K. Ogorzalek, WWF, personal communication, September 14, 2013; Standard-compliant production (2011 data for Organic, 2012 data for Bonsucro, Fairtrade and Rainforest Alliance): Bonsucro, 2013d; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 13.2 LEADING PRODUCERS OF STANDARD-COMPLIANT CANE SUGAR BY STANDARD, 2011/2012.



*Based on total production volumes allocated proportionately to 27 mills in Brazil and two in Australia.
**Based on available country-level sales and aggregate production data.
***Based on available country-level sales data. It is estimated that the sales are large relative to total production volumes (relative to other voluntary sustainability standards in sugar and other commodity sectors), at about 90 per cent (IISD, H. Willer, FiBL, personal communication, July 16, 2013).

Sources: FLO, 2012; IISD, H. Willer, FiBL, personal communication, July 16, 2013.

13.1 MARKET REVIEW

Market reach
Approximately 3.8 million metric tons of cane sugar were standard-compliant in 2012 (see Figure 13.3), equivalent to 2.7 of global production. Cane sugar sold as compliant accounted for 1 per cent of exports during the same year.

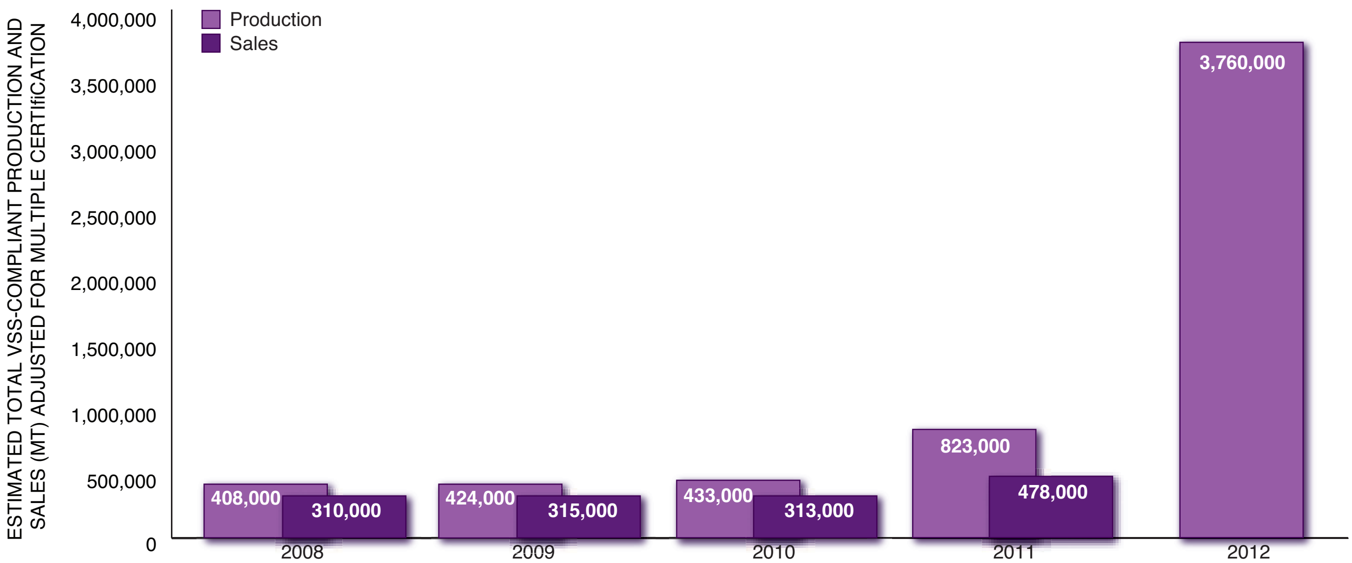
Growth
Standard-compliant cane sugar production grew at an average annual rate of 106 per cent from 2008 to 2012.

Regional importance
Brazil (75 per cent), Australia (5 per cent), and Belize (5 per cent) produce 85 per cent of the world's standard-compliant cane sugar

Pricing and premiums
Premiums range from 10 to 15 per cent for Organic sugar (International Sugar Organization, 2011) to 21 per cent for double-certified Fairtrade/Organic compliant sugar.

FIGURE 13.3 GROWTH IN STANDARD-COMPLIANT CANE SUGAR PRODUCTION AND SALES, 2008–2012.

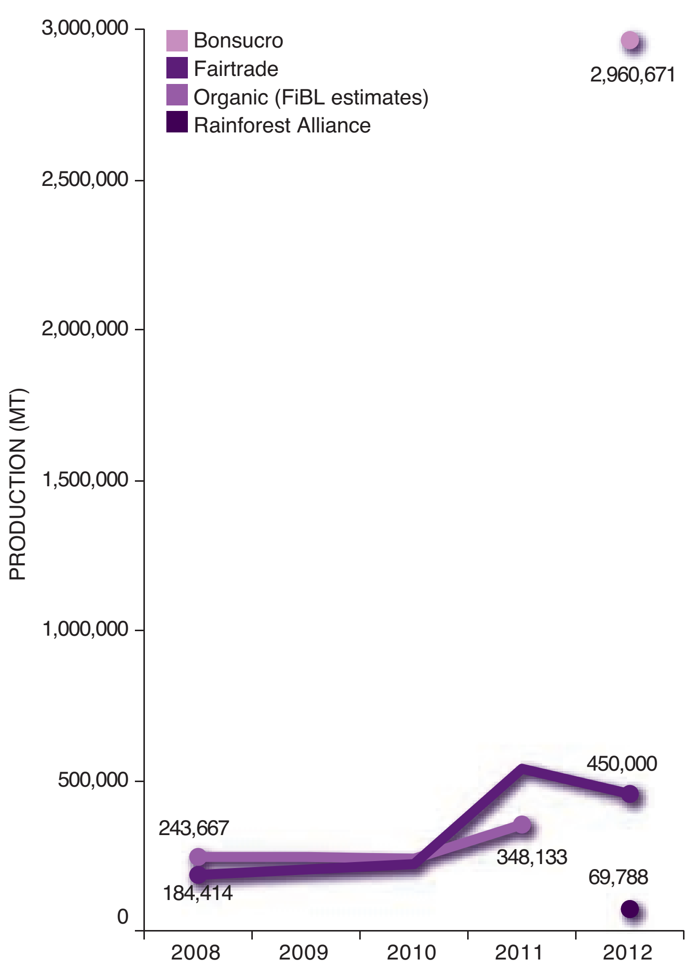
Standard-compliant sugar cane production has increased steadily from 2008, but increased 4.5-fold year over year from 2011 to 2012, reflecting the emergence of the Bonsucro standard.[4]



Sources: Bonsucro, 2013d; FLO, 2011b, 2012; C. Guinea, Rainforest Alliance, personal communication, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

4 Assumptions: sales remain the same for Organic and Fairtrade from 2011 to 2012; 2009 Fairtrade production volume is an average of 2008 and 2010 volumes; Organic sales volumes are 90 per cent of production volumes.

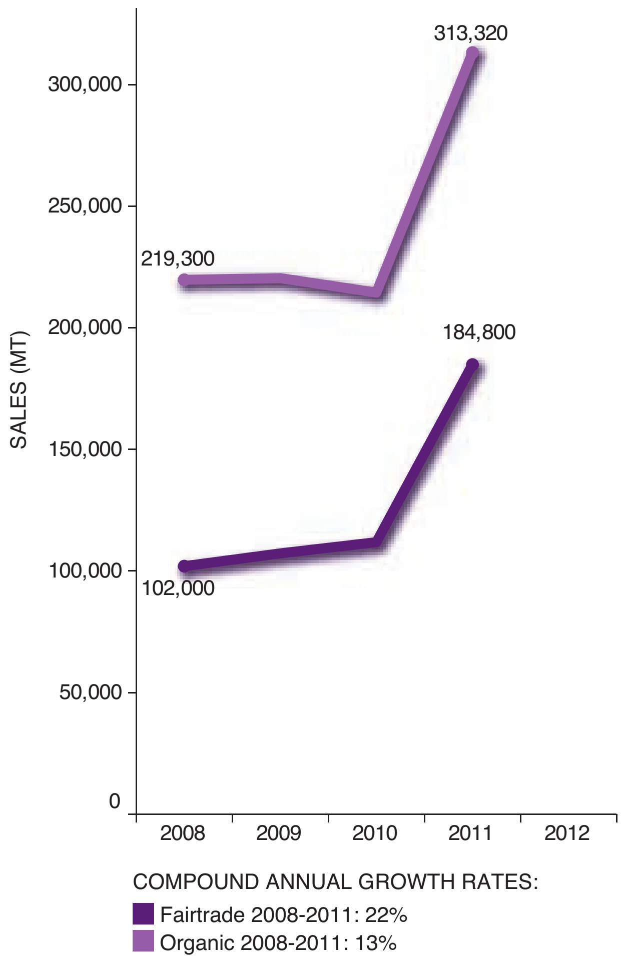
FIGURE 13.4 FAIRTRADE, ORGANIC, BONSUCRO AND RAINFOREST ALLIANCE CANE SUGAR PRODUCTION, 2008–2012.



*Based on available sales data. It is estimated that the sales are large relative to total production volumes (relative to other voluntary sustainability standards in sugar and other commodity sectors), at about 90 per cent (IISD, H. Willer, FiBL, personal communication, July 16, 2013).

Sources: Bonsucro, 2013d; FLO, 2011b, 2012; C. Guinea, Rainforest Alliance, personal communication, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 13.5 FAIRTRADE AND ORGANIC CANE SUGAR SALES, 2008-2012.



While Bonsucro had not reported any specific volumes of compliant sales at the time of writing, the potential market for Bonsucro compliant sugar is significant. Credits have been traded for Bonsucro sugar, although they represent a very small proportion of what has been produced.

Sources: Bonsucro, 2013d; FLO, 2011b, 2012; C. Guinea, Rainforest Alliance, personal communication, July 3, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

In 2012, 2.7 per cent (3.8 million metric tons) of the world's cane sugar was produced in compliance with a global sustainability standard, with 16 per cent of compliant production actually sold as compliant, equivalent to 0.3 per cent of global production and 1 per cent of exports (see Table 13.2). The cane sugar sector represents a relatively small but growing market for sustainability standards, and its recent expansion has been driven by several factors, including the following:

- Private sector commitments by companies like Tate and Lyle Sugars, which sources 100 per cent of its retail sugars as Fairtrade certified (Fairtrade sugar accounted for one-third of the British retail sugar market in 2011, largely a result of this commitment [Martin, 2012]). Growth in confectioners' commitments to source sustainable ingredients has also been a major impetus, with Ferrero Group purchasing Bonsucro cane sugar credits (Sunshine Sugar, 2013) and Cadbury Diary Milk committing to sourcing Fairtrade sugar (Martin, 2012).
- Access to trade quotas for certain countries (in the case of Fairtrade) or standard-compliant products (in the case of Organic) has also been a key factor in the development of voluntary sustainability standards within the market. Illustrating the former case, Fairtrade certification has generally occurred in countries that have access to EU sugar import quotas, and who were former beneficiaries of other preferential trade agreements under the African, Caribbean and Pacific (ACP) Sugar Protocol Programme, which ended in 2009; for a list of countries see European Commission (2013b). These ACP countries include Belize, Fiji and Zambia, which accounted for more than three-quarters of Fairtrade sugar sales in 2011. Illustrating the latter case, Organic certified sugar imports have access to U.S. specialty sugar tariff rate quotas.
- Risk management regarding labour practices has been a significant factor in the development of the Bonsucro standard, and the acceptance of the standard into the EU Renewable Energy Directive was also a leading factor in membership formation.[5]

Despite these drivers, the sustainable sugar market remains quite small relative to other sustainable commodity sectors.[6] Although the development of mainstream-oriented standards is a relatively new phenomenon within the sugar sector, the lower levels of developed economy consumption of sugar cane sugar offer a more systemic explanation for the relatively small size of the sustainable sugar market. Lower developed economy consumption of cane sugar relative to other commodities is partly the result of EU and U.S. domestic sugar beet production—the growth of which itself has been stimulated through developed country subsidies over the past several decades.[7]

Sugar cane production systems themselves are very diverse, however, and generalizations regarding their sustainability as a crop rarely hold across all producing countries. The crop is grown in many locations, in many climates, on many soil types, in both developed and developing countries, under a variety of business models ranging from small-scale single farms to multiple-unit managements (including large cooperatives and vertically integrated estates), and with varying levels of state support and control.[8]

The birth of modern voluntary sustainability standards within the sector can be traced back to the precursor initiatives of Fairtrade under the alternative trade movement, which were primarily motivated by poor working conditions and general poverty among sugar cane workers in the development of markets for Fairtrade sugar. Indeed, sustainability within the sugar sector has historically been defined in terms of poverty reduction, worker health and safety, and labour rights. Reports of child and forced labour by organizations including the U.S. Department of Labor (2012) in Bolivia, Brazil, Burma, Colombia, Dominican Republic, Pakistan and Paraguay, and Human Rights Watch (2004) in El Salvador continue to this day. Land tenure issues have also made international headlines on several occasions (see Hodal, 2013).

More recently, sugar cane production has been associated with a host of environmental challenges as well, most notably:

- Sugar cane's water requirements vary but generally are high. The crop has low resistance to drought, and in terms of intensity of rainfall over its growing period (1,500 millimetres to 2,500 millimetres over 270 to 365 days), on the whole requires a similar amount as cotton (700 millimetres to 1,300 millimetres over 180 to 195 days), and slightly more than bananas (1,200 millimetres to 2,200 millimetres over 300 to 365 days) (Food and Agriculture Organization of the United Nations (FAO), 1986). In Brazil, many plantations are rain fed, but in other parts of the world they rely heavily on irrigation, sometimes at the expense

5 Although the European Union Renewable Energy Directive applies to sugar-based ethanol production, Bonsucro's compliance with the EU Directive has facilitated overall growth of the Bonsucro initiatives.

6 For example, certified product accounts for over 20 per cent of total supply for both the coffee and cocoa sectors.

7 Subsidies for domestic sugar production have led to a persistent reduction in the levels of sugar imports by developed economies. One study suggested that elimination of the subsidies in the United States alone would have in 1998 increased imports by about 1.6 million metric tons (Beghin et al., 2003), which at the time was about 8 per cent of the global trade of sugar and more than 10 per cent of the cane sugar trade. Developed economy sugar imports dropped from nearly 52 per cent in 1992 to less than 24 per cent of global sugar trade in 2012 (S. Gudoshnikov, International Sugar Organization, personal communication, 2013). As a reference, 53 per cent of the world's coffee trade was imported by developed economies in 2012 (USDA, 2013b).

8 In the Philippines 67 per cent of sugar cane is produced on farms of five or fewer hectares, while in Brazil the majority of farms range from 20 hectares to 500 hectares. In Pakistan, most production is carried out on farms of 4.7 hectares or less.

of other crops in a manner that depletes aquifers and river environmental flows.[9]

- The area under sugar cane cultivation grew from just over 19 million hectares in 2000 to nearly 24 million hectares in 2010 (FAO, 2013). One of the major drivers of growth in sugar cane production comes from increased demand for ethanol as an alternative to non-renewable fuel sources. While there is little evidence that current expansion of sugar cane production (in Brazil or elsewhere) is a direct driver of deforestation, it is suspected by some of being an indirect driver, as it displaces land used for other purposes.[10]
- In addition to carbon release and climate change as a result of indirect deforestation, the burning of fields before manual harvesting is commonplace in many sugar cane producing areas in order to eliminate foliage and venomous snakes before harvesting. This represents another source of greenhouse gas emissions, not to mention local air pollution (Tsao et al., 2011). The elimination of this practice has been shown to reduce sugar's carbon footprint by over 20 per cent (Panosso et al., 2011).
- Sugar cane typically requires a nitrogen application of 75 kilograms per hectare, although this varies significantly by place, yield and production practices. Australia averages about 170 kilograms per hectare, while in India applications can reach 300 kilograms per hectare. Excessive application combined with poor irrigation practices can contribute to eutrophication of local water bodies.

Fairtrade and Organic certified sugar accounted for the entire supply of compliant sugar until mid-2011, which at that time was just over 800,000 metric tons.[11] From 2008 to 2011, average annual growth rates in production and sales of compliant sugar were steady, at 26 per cent and 16 per cent, respectively (see Figure 13.3).

In 2005, with the support of WWF, stakeholders were brought together under the auspices of the Better Sugar Cane Initiative, which subsequently became Bonsucro. Bonsucro represented a first effort to facilitate a mainstream transformation of the sugar cane sector. Actual implementation of the Bonsucro initiative has been delayed by the complexities of the sugar cane market, with the first Bonsucro-compliant production being made available to the market in 2012. Over the course of a single year, from 2011 to 2012, total standard-compliant volumes increased nearly five times, with Bonsucro certified sugar accounting for over 75 per cent of standard-compliant sugar production (see Figure 13.4).[12]

Rainforest Alliance also began certifying its first production in 2012 with a view to entering mainstream markets as well. The Rainforest Alliance sugar program, however, is only in its trial stages.

As of 2012, neither Bonsucro nor Rainforest Alliance has reported any formal sales volumes of compliant sugar, leaving any indication of the appetite for certified sugar on mainstream markets largely in question.[13] Coca-Cola, however, bought credits in Brazil in 2011, and in April of 2013 the confectioner Ferrero Group was the first company to purchase Bonsucro credits (5,000) from a certified mill in Australia. One industry expert noted that about 2 per cent of Bonsucro's production (roughly 60,000 metric tons) had likely been sold off as certified by mid-2013 (see Hills, 2011; Sunshine Sugar, 2013). While this represents a small amount relative to total certification, it is important evidence of the existence of demand, and the Ferrero purchase highlights that confectioners' general push toward sustainable sourcing will likely have a significant impact on the sugar sector as well as the cocoa sector.[14]

Using available hard data, however, as of 2012 only 16 per cent of total compliant production was actually sold as compliant (see Figure 13.5). While the sustainable sugar market is still largely "under construction," all signs point toward continued opportunity for growth. On the one hand, the overall percentage of both global exports and production that is currently standard-compliant is still very small. On the other hand, both the more mature and newer voluntary sustainability standards are continuing to experience growth in both production and sales. Moreover, the recent and rapid growth of Bonsucro certified production points toward a significant mainstream momentum behind the initiative. However, full success will clearly rely on the ability of the initiative to build the market for its certified supply within the coming years.

9 In Maharashtra, India, for example, sugar cane accounts for 4 per cent of the area under cultivation but 60 per cent of the state irrigation supply and has contributed heavily to groundwater depletion in the area (WWF, 2005).

10 A recent study in the Proceedings of the National Academy of Sciences of the United States of America found that planned ethanol expansions in Brazil will indirectly contribute to carbon emissions through their displacement of cattle ranchers: "Our simulations show that direct land-use changes will have a small impact on carbon emissions because most biofuel plantations would replace rangeland areas. However, indirect land-use changes, especially those pushing the rangeland frontier into the Amazonian forests, could offset the carbon savings from biofuels" (Lapola et al., 2010, p. 3388).

11 As opposed to coffee, for example, where multiple voluntary sustainability standards have been active in the sector for over a decade.

12 Assuming Organic volumes remained the same from 2011 to 2012.

13 This is not to say that Bonsucro and Rainforest Alliance certified sugar are not sold—they are, but in such a way that doesn't differentiate certified product from uncertified product.

14 In the cocoa sector, sales of compliant product were about 10 per cent of the export market, and standard-compliant production accounted for about 22 per cent of global supply in 2012.

TABLE 13.2 IMPORTANCE OF VOLUNTARY SUSTAINABILITY STANDARD (VSS) CANE SUGAR PRODUCTION AND SALES RELATIVE TO THE GLOBAL MARKET.

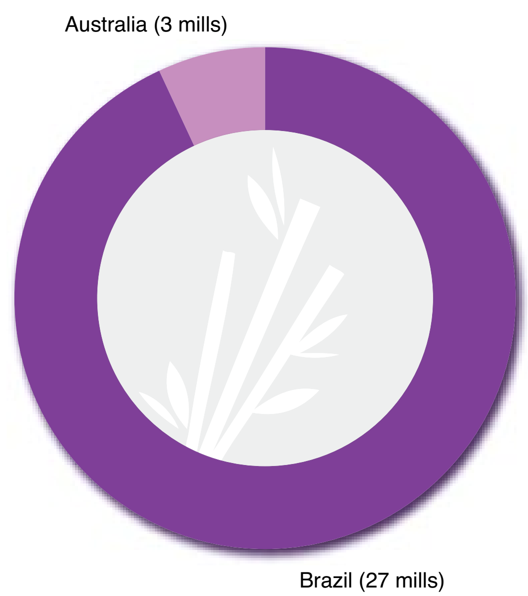
	VSS production (mt)	VSS production market share of global production	VSS production market share of global exports	VSS sales (mt)	VSS sales market share of global production	VSS sales market share of global exports
Bonsucro	2,960,000	2%	6%	n/a	n/a	n/a
Fairtrade	450,000	0%	1%	313,320	0%	1%
Rainforest Alliance	69,788	0%	0%	0	0%	0%
Organic	339,133	0%	1%	184,800	0%	0%
Global VSS production / sales (mt and %), adjusted for multiple certification	3,760,000	3%	8%	478,000	0%	1%

Sources: Bonsucro, 2013d; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

Bonsucro

Bonsucro was founded in 2007 and spent its first three years developing and revising its standard. Between 2010 and 2011, the organization worked on building certified supply, which was first available in 2012. Within the first year of launching Bonsucro certified production, Bonsucro certified cane sugar accounted for over 2 per cent of the world's cane sugar production, with 3 million metric tons of cane sugar certified,[15] and 30 mills achieving certification in both Brazil and Australia by mid-2013. Although the majority of these mills (27) are in Brazil (see Figure 13.6), the first Australian Bonsucro certified sugar was sold in April 2013, when the New South Wales Sugar Milling Cooperative Ltd and Manildra Harwood Sugar sold 5,000 credits to the confectionary group Ferrero under the brand name "Sunshine Sugar" (Sunshine Sugar, 2013). Although actual market recognition for Bonsucro certified sugar is still under development, the organization has established a target of reaching 20 per cent of global sugar cane production as Bonsucro certified by 2017.

FIGURE 13.6 BONSUCRO CERTIFIED MILLS, 2013.



Source: Bonsucro, 2013a.

15 Bonsucro's production is typically split between production for ethanol and sugar. The total certified area of Bonsucro in 2011/2012 was 685,589 hectares, which produced 3 million metric tons of sugar and 2.2 million cubic metres of certified ethanol.

Fairtrade International

Between 2008 and 2012, total Fairtrade sugar production volumes more than doubled, growing from 184,000 metric tons to 450,000 metric tons. From 2008 to 2011, sales volumes increased more than 1.5 times, from 102,000 metric tons to 184,800 metric tons, representing an average annual growth rate of 22 per cent (see Figure 13.8 and Table 13.4).

Fairtrade sugar production accounted for 0.3 per cent of all cane sugar production in 2011, at 450,000 metric tons produced on 79,000 hectares. In 2011, the five largest sources of Fairtrade cane sugar accounted for 92 per cent of total sales and came from what are relatively minor exporters globally: Belize (accounting for 38 per cent of global Fairtrade production), Fiji (22 per cent), Zambia (16 per cent), Paraguay (11 per cent) and Malawi (5 per cent) (see Figure 13.7 and Table 13.3).[16] Although Fairtrade certified sugar sales represent a relatively small percentage of global sugar cane exports, with 1 per cent overall market penetration, Fairtrade sugar nevertheless constitutes a major export market for the select countries where Fairtrade production has been concentrated.

A common thread observed among the larger Fairtrade sugar source countries is their shared heritage as former beneficiaries of the EU Sugar Protocol, as well as their continued access to EU sugar import quotas. While the European Union once guaranteed payments equivalent to European market prices for 18 ACP countries under the Protocol (sometimes at three times the international market price), the EU sugar market reform, which started in 2006, eventually led to a phasing out of the program, which was completely eliminated in 2009. The larger reform resulted in increased market access and competition among ACP countries and least developed countries and has been a stimulus for the adoption of Fairtrade by producer organizations in select countries that previously benefited from the EU sugar protocol and other policies (e.g., Belize, Fiji and Zambia), in an effort to maintain price stability[17] and allow for product differentiation on international markets.[18] Perhaps not surprisingly in light of this legacy, the vast majority of Fairtrade sugar is destined for the British market, where Fairtrade has one-third of the sugar consumer market (Martin, 2012).

Fairtrade's certified sales account for about 64 per cent of total Fairtrade cane sugar production, pointing toward a relatively robust demand to production ratio. One of the explanations for the high ratio of sales to production (higher than the average for voluntary sustainability standards in the sugar sector and higher than most other Fairtrade commodities available on the market) likely relates to the reliable demand from Tate and Lyle for the UK sugar market.

From 2013 to 2014, Fairtrade sugar will be rolling out a new business model that will continue to incorporate support growth from ACP countries and least developed countries and will work more closely with the private sector to help establish markets for their product. The organization is also in the process of rolling out programs in Mozambique, Jamaica and Swaziland. Of the 37,200 farmers with Fairtrade sugar certifications in 2011, 57 per cent were in Latin America and the Caribbean, 27 per cent in Africa and the Middle East, and 16 per cent in Asia and Oceania.[19]

16 These countries were ranked 16th, 17th, 9th, 26th and 11th, respectively, in terms of global export performance in 2012.

17 FLO (2012) stated, "Going forward, the Fairtrade sugar sourcing plan will aim to support growth from ACP (African, Caribbean and Pacific) and least developed countries, recognizing that sugar farmers in these countries experience very low prices and are not prepared for the challenges of operating in fully liberalized trade environments" (p. 84).

18 Since 1975 the European Union has maintained guaranteed tariff-free market access at EU prices with 18 ACP countries under the Sugar Protocol, a part of a the larger Cotonou Agreement between the European Union and ACP countries. Under the Protocol, these countries were allocated 1.3 million metric tons of guaranteed tariff-free imports at prices equivalent to what was paid to beet farmers, which were often far above global prices, due to a series of domestic protectionist measures (import controls, price support and export subsidies) (Lorentzen, 2009). In 2002, Brazil and Australia filed a complaint to the World Trade Organization regarding the European Union's common market organization for sugar (notably that it was "dumping" subsidized sugar on the world market), of which the Sugar Protocol was an integral part. Thailand followed in 2003, and in late 2009 the Sugar Protocol expired in the context of a larger reform of the EU sugar market (see European Commission, 2012a; 2012b; 2013; Fairtrade Foundation, 2013; World Trade Organization, 2013).

19 21,100 certifications in Latin America and the Caribbean, 10,100 in Africa and the Middle East, and 6,000 in Asia and Oceania.

TABLE 13.3 FAIRTRADE CANE SUGAR SALES BY COUNTRY, 2011.

	Sales (mt)
Belize	69,900
Fiji	40,700
Zambia	30,000
Paraguay	20,700
Malawi	8,500
Other	15,000
Total	**184,800**

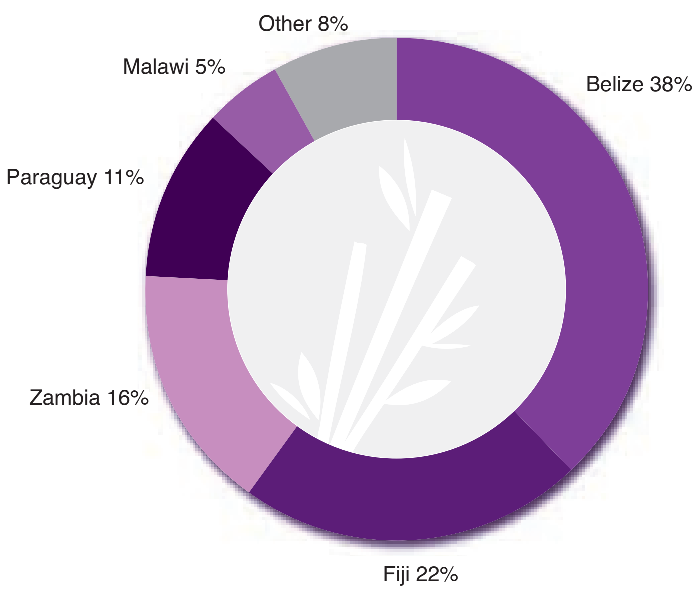
Source: FLO, 2012.

TABLE 13.4 FAIRTRADE CANE SUGAR AREA HARVESTED, PRODUCTION AND SALES, 2008–2012.

	Area harvested (ha)	Production (mt)	Sales (mt)
2008	--	184,000	102,000
2010	59,200	219,300	111,600
2011	79,300	533,900	184,800
2012	--	450,000	--

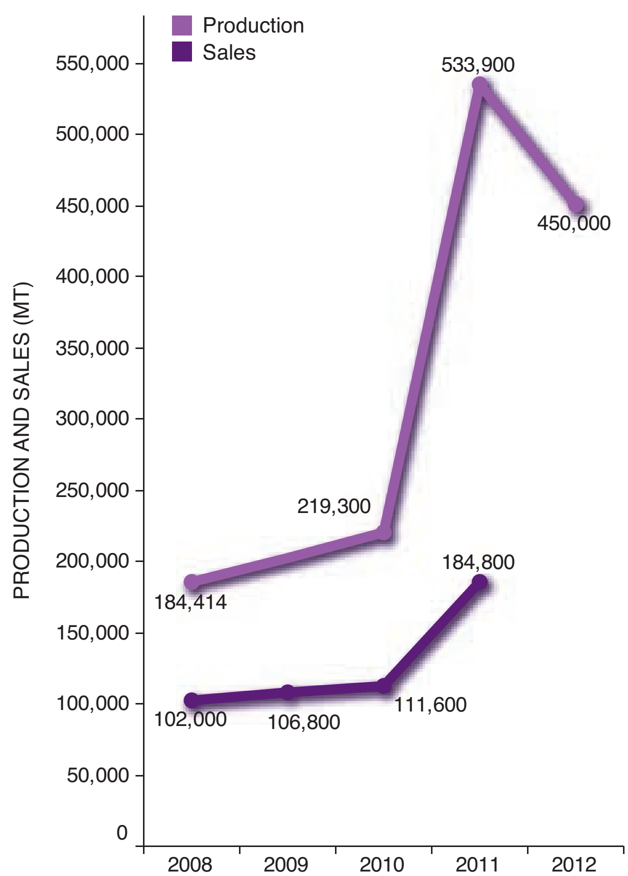
Sources: M. Berresheim, Fairtrade, personal communication, 2013; FLO, 2011b, 2012.

FIGURE 13.7 FAIRTRADE CANE SUGAR SALES BY COUNTRY, 2011.



Source: FLO, 2012.

FIGURE 13.8 FAIRTRADE CANE SUGAR PRODUCTION AND SALES, 2008–2012.



Source: M. Berresheim, Fairtrade, personal communication, September 10, 2013; FLO, 2011b, 2012.

Rainforest Alliance

Rainforest Alliance launched its sugar program in 2009 and is still considered to be under a trial phase. The organization first began certifying farms in 2011, and in 2012 production accounted for 0.05 per cent of global cane sugar production, with 70,000 metric tons produced. As of 2013, the organization actually only had two certified farms, one in Brazil (accounting for 35,000 metric tons) and one in El Salvador (accounting for 35,000 metric tons). Rainforest Alliance has not yet established a market for its product (see Figure 13.9) (C. Guinea, Rainforest Alliance, personal communication, 2013).

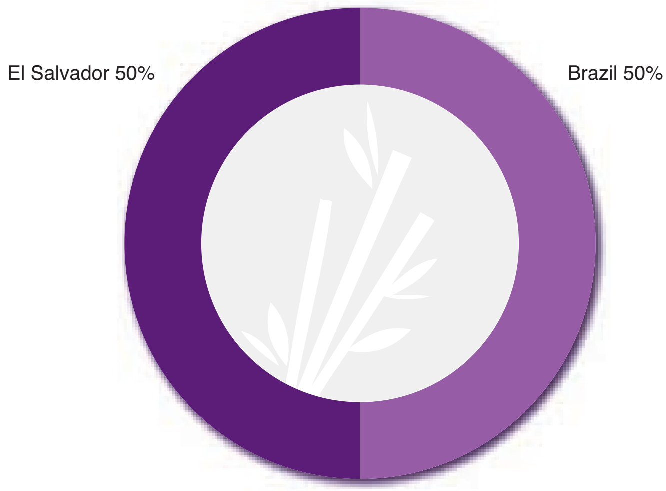
International Federation of Organic Agriculture Movements (IFOAM, or "Organic")

Organic cane sugar grew at an average of 13 per cent per annum between 2008 and 2011. Between 2010 and 2011, Organic cane sugar sales experienced single-year growth of almost 50 per cent (see Figure 13.11 and Table 13.6). Paraguay, which produces 85 per cent of all double-certified Fairtrade/Organic cane sugar, was a factor in this increase in production, which can also partly explain the similar trend in Fairtrade and Organic production volumes between 2010 and 2011.

By 2011, Organic production, at 339,133 metric tons certified on 59,140 hectares, accounted for 0.24 per cent of global production and 1 per cent of global cane sugar exports. Organic production, in contrast to Fairtrade production, is sourced from traditionally larger exporting countries. The top source countries for Organic sugar account for 68 per cent of global Organic sugar supply: Brazil (94,000 metric tons, or 0.5 per cent of exports), Paraguay (65,000 metric tons, or 82.3 per cent of exports), and Thailand (51,700 metric tons, or 1.3 per cent of exports) (see Figure 13.10 and Table 13.5).[20]

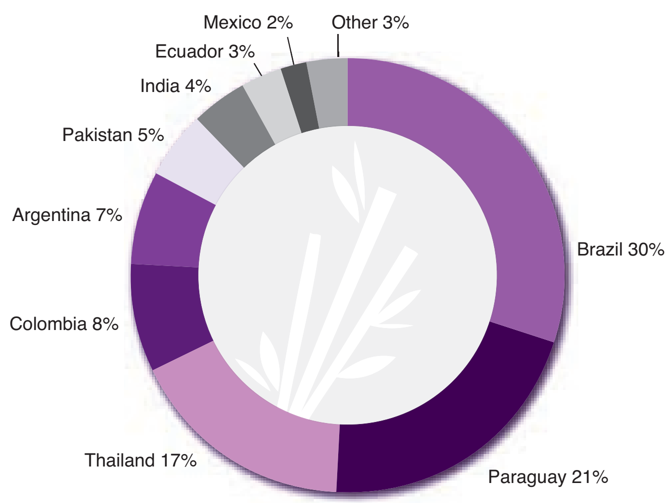
FiBL estimates that approximately 90 per cent of total organic certified production volumes are actually sold as certified (see Figure 13.11). Also regarding production, there is likely more sugar produced organically that is simply not certified as such. In India, for example, many producers implement organic practices such as permaculture and do not have access to synthetic pesticides (K. Ogorzalek, WWF, personal communication, September 14, 2013). Area harvested, a third indicator of scope, shrank slightly from the 2008–2009 season (51,288 hectares) to the 2009–2010 season (47,508 hectares) and jumped up to 59,140 hectares in the 2010–2011 season.

FIGURE 13.9 RAINFOREST ALLIANCE CANE SUGAR PRODUCTION BY COUNTRY, 2012.



Source: C. Guinea, Rainforest Alliance, personal communication, 2013.

FIGURE 13.10 ORGANIC CANE SUGAR SALES BY COUNTRY, 2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

20 Brazil and Thailand are the world's largest and second-largest cane sugar producers, respectively.

TABLE 13.5 ORGANIC CANE SUGAR SALES BY COUNTRY, 2011.

	Sales (mt)
Argentina	20,400
Bangladesh	30
Brazil	94,000
Colombia	25,000
Costa Rica	1,200
Cuba	4,500
Ecuador	9,000
Guatemala	1,000
Haiti	300
India	12,000
Madagascar	90
Mexico	6,000
Pakistan	17,000
Paraguay	65,000
Peru	3,600
Philippines	2,500
Thailand	51,700

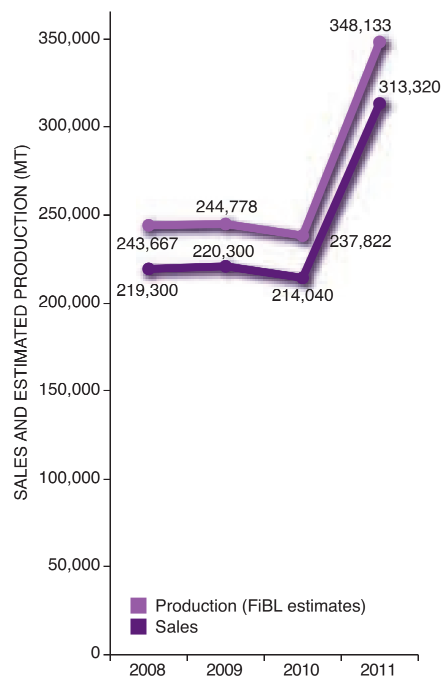
Source: IISD, H. Willer, FiBL, personal communication, 2013.

TABLE 13.6 ORGANIC CANE SUGAR AREA HARVESTED AND SALES, 2008-2011.

	Area harvested (ha)	Sales (mt)
2008	54,800	219,300
2009	53,650	220,300
2010	47,590	214,040
2011	58,840	313,320

Source: IISD, H. Willer, FiBL, personal communication, 2013.

FIGURE 13.11 ORGANIC CANE SUGAR PRODUCTION AND SALES, 2008–2011.



Source: IISD, H. Willer, FiBL, personal communication, 2013.

13.4 SUPPLY

In 2011 and 2012, Brazil, Australia, Belize, Paraguay and Fiji, accounted for 91 per cent of all production of sustainable sugar (see Figure 3.12). The top five cane sugar exporters during the same year were Brazil, Thailand, India, Guatemala and Cuba, which accounted for 89 per cent of all volume exported, revealing a similar concentration of supply for sustainable sugar than that observed in conventional global sugar cane markets.

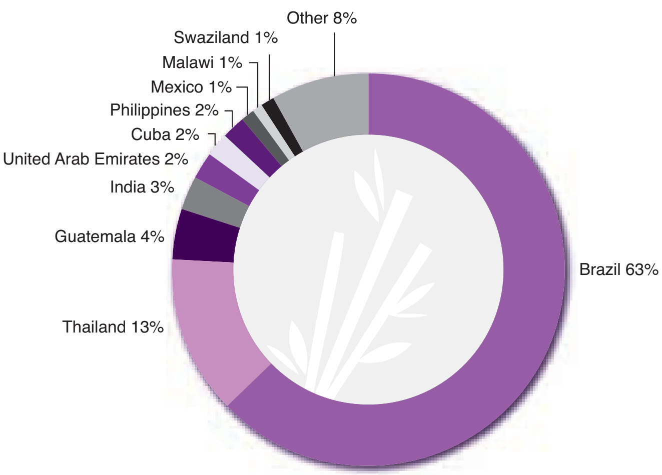
Table 13.7 shows the intensity of sustainable production, or percentage of total national production that comply with a voluntary sustainability standard. In Brazil and Thailand, the two largest cane sugar producers globally, 7 per cent and 1 per cent of production were standard-compliant in 2012, respectively. While Belize, Fiji and Paraguay aren't among the 20 largest producers, these export-based sugar markets (see Figure 13.13) supplied much of the Fairtrade market. In Belize, about 38 per cent of the cane sugar exported in 2012 was certified Fairtrade, and 27 per cent in Fiji. Rather remarkably, Paraguay, the largest producer of double-certified Fairtrade/Organic sugar, likely exported nearly exclusively standard-compliant sugar in 2012.

The lower intensity levels of the larger sugar production and exports globally is likely due to a combination of the early stage of development of the sustainable sugar market as well as the historical trade linkages between colonies and their former mother countries. Certainly in the case of Fairtrade, it is clear that these channels have been developed more readily than other sugar trade channels without this heritage.

While the historical distribution of supply of standard-compliant sugar didn't coincide much at all with the distribution of overall global sugar production or exports as recently as in 2011,changing supply patterns for the voluntary sustainability standard market as a whole are occurring as Bonsucro expands production and sales. Indeed, the distribution of standard-compliant sugar production has already begun to map more closely onto the distribution of global exports in 2012 (see Figure 13.13, Figure 13.14 and Figure 13.16).

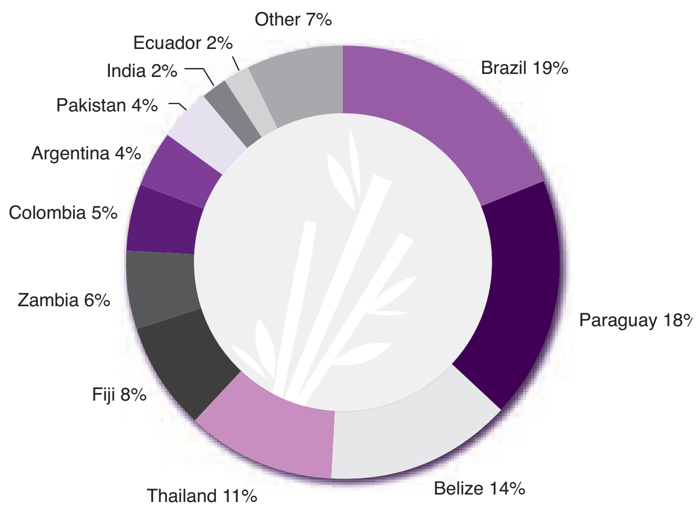
Figure 13.17 and Figure 13.15 highlight the importance of Bonsucro certified production relative to Fairtrade, Organic and Rainforest Alliance production. Bonsucro certification in Brazil was (likely) well over 2.5 million metric tons, although the breakdown of Bonsucro's certified volumes between Brazil and Australia was not available at the time of writing.

FIGURE 13.12 PRODUCTION OF CANE SUGAR (STANDARD COMPLIANT AND CONVENTIONAL), BREAKDOWN BY COUNTRY, 2013.



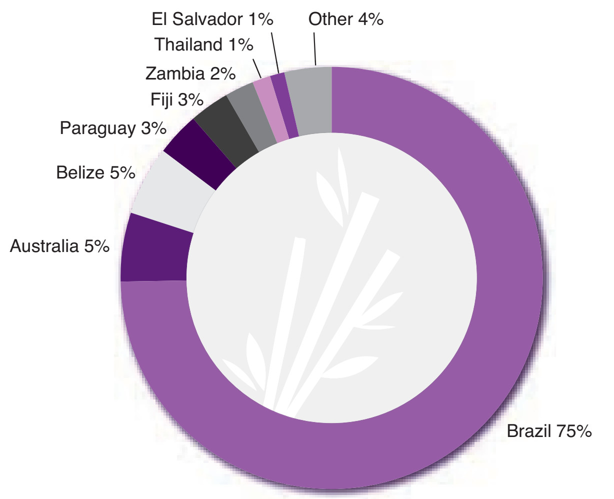
Source: IndexMundi, 2013b.

FIGURE 13.13 EXPORT VOLUMES OF CANE SUGAR, BREAKDOWN BY COUNTRY, 2012.



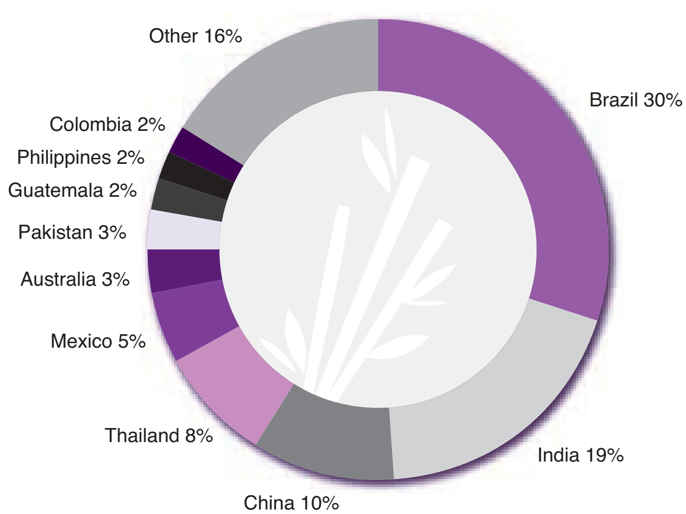
Source: International Trade Centre, 2013c.

FIGURE 13.14 SALES VOLUMES OF STANDARD-COMPLIANT CANE SUGAR BY COUNTRY (FAIRTRADE AND ORGANIC), 2011.



Sources: FLO, 2012; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

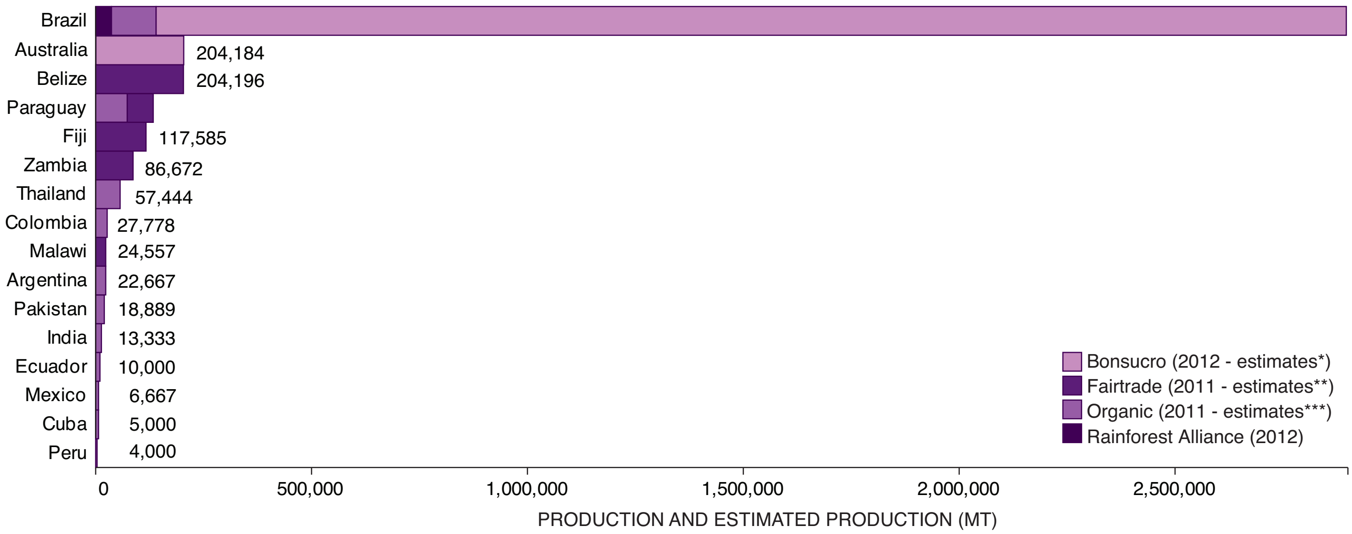
FIGURE 13.15 VOLUMES OF STANDARD-COMPLIANT CANE SUGAR BY COUNTRY, 2012.



Where space permits, data points are visible.

Sources: Bonsucro, 2013d; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

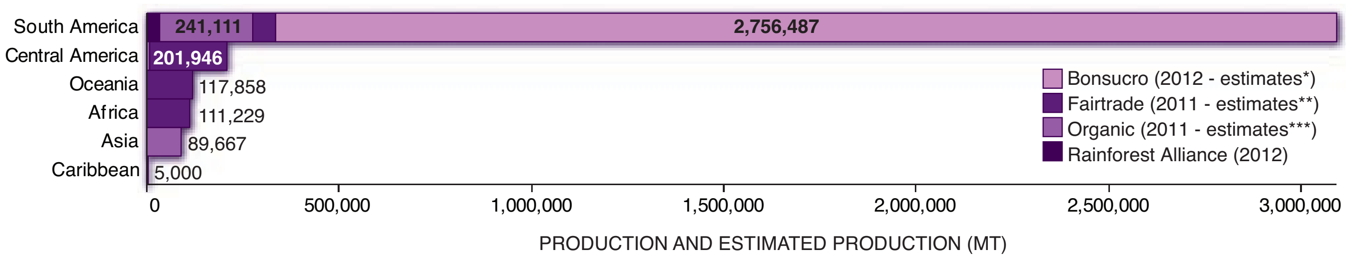
FIGURE 13.16 PRODUCTION VOLUMES OF STANDARD-COMPLIANT CANE SUGAR BY COUNTRY.



Where space permits, data points are visible.

Sources: Bonsucro, 2013d; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 13.17 PRODUCTION VOLUMES OF STANDARD-COMPLIANT CANE SUGAR BY CONTINENT.



Where space permits, data points are visible.

*Based on total production volumes allocated proportionately to 27 mills in Brazil and two in Australia.
**Based on available country-level sales and aggregate production data.
***Based on available country-level sales data. It is estimated that the sales are large relative to total production volumes (relative to other voluntary sustainability standards in sugar and other commodity sectors), at about 90 per cent (IISD, H. Willer, FiBL, personal communication, July 16, 2013).

Sources: Bonsucro, 2013d; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 13.7 STANDARD-COMPLIANT PRODUCTION AS A PERCENTAGE OF TOTAL NATIONAL PRODUCTION FOR THE 20 LARGEST CANE SUGAR PRODUCERS, 2012.

Dashes represent negligible or no standard-compliant production relative to national production. They may also reflect an absence of data.

	Bonsucro (2012*)	Fairtrade (2011 - estimates **)	Organic (2011 – estimates***)	Rainforest Alliance (2012)	Total (2011/2012)
Brazil	6.8%	-	0.3%	0.1%	7.2%
India	-	-	0.1%	-	0.1%
China	-	-	-	-	-
Thailand	-	-	0.5%	-	0.5%
Mexico	-	-	0.1%	-	0.1%
Australia	4.5%	-	-	-	4.5%
Pakistan	-	-	0.4%	-	0.4%
Guatemala	-	-	-	-	-
Philippines	-	-	0.1%	-	0.1%
Colombia	-	-	1.2%	-	1.2%
Argentina	-	-	1.0%	-	1.0%
South Africa	-	-	-	-	-
Indonesia	-	-	-	-	-
Cuba	-	-	0.3%	-	0.3%
Peru	-	-	0.4%	-	0.4%
Vietnam	-	-	-	-	-
Egypt	-	-	-	-	-
Sudan	-	-	-	-	-
Swaziland	-	-	-	-	-

*Based on total production volumes allocated proportionately to 27 mills in Brazil and two in Australia.
**Based on available country-level sales and aggregate production data.
***Based on available country-level sales data. It is estimated that the sales are large relative to total production volumes (relative to other voluntary sustainability standards in sugar and other commodity sectors), at about 90 per cent (IISD, H. Willer, FiBL, personal communication, July 16, 2013).

Sources: Bonsucro, 2013d; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, 2013; IndexMundi, 2013b; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

13.5 PRICING AND PREMIUMS

Sugar's role as an intermediary input into a wide number of processed products arguably reduces its ability to build significant consumer demand for standard-compliant products across the vast majority of global sugar consumption. Sugar is highly fungible, with a relatively small portion of production being amenable to a specialty sugar market.

Nevertheless, premiums for standard-compliant cane sugar range from about 10 per cent for Organic to 21 per cent for double-certified Fairtrade/Organic. The exclusive presence of Organic and Fairtrade in the sugar standards universe until 2011 has defined voluntary sustainability standard activity in the sugar sector as niche market oriented and allowed certification to operate as a market differentiator. This context has arguably supported the relatively high level of premiums offered across the sector thus far. Higher premium levels are also supported by the relatively high ratio of demand (sales) to supply (production) across these initiatives as well.

Fairtrade is the only standard in the sugar sector that formally requires premiums. Unlike Fairtrade's flagship commodities, such as coffee and cocoa, the Fairtrade sugar standard does not stipulate a minimum price. However, it does require a fixed premium of US$60 per metric ton above world market prices, or approximately 17 per cent based on 2013 prices.[21]

There are no fixed premiums for Organic certified cane sugar, although Fairtrade requires that US$80 per metric ton of sugar be paid for Fairtrade-Organic certified production, or roughly 21 per cent above 2013 prices. Data on premiums for straight Organic certified cane sugar are largely anecdotal, although it has been reported that premiums paid for Organic sugar in Brazil range from 15 to 20 per cent (International Sugar Organization, 2011).

As of 2012, neither Rainforest Alliance nor Bonsucro had actually sold any certified production as certified, thereby eliminating the potential for generating a premium. Because these are mainstream-oriented initiatives, one can expect their premiums, if they exist at all, to be lower than those found in Fairtrade and Organic. An important question looking forward will be the expected impact of Bonsucro and Rainforest Alliance certified sales on the potential for premiums across both the Fairtrade and Organic markets.

From a supply perspective, with Bonsucro certified production currently coming only from Brazil and Australia, it is unlikely that these purchases will have a significant impact on Organic and Fairtrade supply in the medium term. From a demand perspective, the story may be different as potential buyers of Fairtrade or Organic sugar resolve to purchase Bonsucro (or Rainforest Alliance) certified sugar as an alternative approach to managing risk and sustainability along their supply chains.

21 Seventeen cents per pound in June 2013 (IndexMundi, 2013b). It should be noted that Fairtrade premiums are not necessarily cash premiums for the producers but are distributed democratically by the producer organizations. In Belize, for example, free inputs such as fertilizers were distributed, and in Fiji producers recently received what would be the equivalent of a first social security check (K. Ogorzalek, WWF, personal communication, 2013). Fairtrade's growth in sales over the past several years has resulted in a parallel growth in total value added through the Fairtrade premium. Fairtrade estimates total premiums received by producers through Fairtrade sugar in 2008 to be €4 million, which rose to an estimated €7.4 million in 2011.

13.6 CHALLENGES AND OPPORTUNITIES

Building demand represents the single biggest obstacle facing the sustainable sugar sector. While Fairtrade and Organic certification have managed to maintain relative robust levels of demand compared to overall supply, the more mainstream initiatives have built up supply without any clear evidence of market demand. Notwithstanding this general context, there are a number of indicators pointing toward the sugar sector's potential for rapid growth in the coming years.

Over the past several years the sustainable sugar market has experienced significant growth driven by major commitments from large chocolate manufacturers. If chocolate manufacturers were to extend their sustainable sourcing commitments to the sugar portion of their supply chains, one could expect significant demand growth for standard-compliant sugars in the relatively near future.[22] At the very least, major chocolate manufacturers with significant commitments for sustainable sourcing represent low-hanging fruit for the sugar sector. In the meantime, Bonsucro's existing partnerships with Coca-Cola, Cadbury Schweppes and Bacardi may play a significant role in moving standard-based cane sugar production beyond its current niche status.

The EU Renewable Energy Directive is also likely to operate as a positive driver for the sector, albeit an indirect one. The directive is expected to stimulate the adoption of standard compliance for sugar cane production feeding into ethanol production. Sugar cane production for food usage is likely to also move toward compliance as part of the biofuels certification process.

While there are a variety of signals pointing toward potentially rapid growth and uptake of standard-compliant sugar in the coming years, such growth cannot be taken for granted. The fungible nature of sugar, its use as an ingredient in other processed goods, and the relative absence of any major news media coverage on sugar sustainability issues in recent years may result in reduced downstream demands for compliant production.

22 Hershey's, Mars and Ferrero Group have all committed to source 100 per cent of their cocoa from sustainable sources by 2020 (see Halliday, 2009; Nieburg, 2012a, 2012b).

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14 TEA MARKET

Modern tea consumption is rooted in medicinal use in China five thousand years ago. Since, it has become the world's most popular drink (after water), whose industry employs more than 13 million people around the world. Tea grows well at high altitudes and in mildly acidic lands and can therefore be cultivated in areas unsuitable for other crops. Tea is primarily produced in Asia and Africa, with China, India, Kenya, Sri Lanka and Turkey accounting for 76 per cent of global production. Unlike coffee and cocoa, the majority of tea production is consumed locally, in domestic markets. Nevertheless, 44 per cent of global production was destined for export in 2011, worth US$6.6 billion (Food and Agriculture Organization of the United Nations (FAO), 2013). About one-quarter of trade is destined for Russia, the United States and the United Kingdom (FAO, 2013) (see Table 14.1).

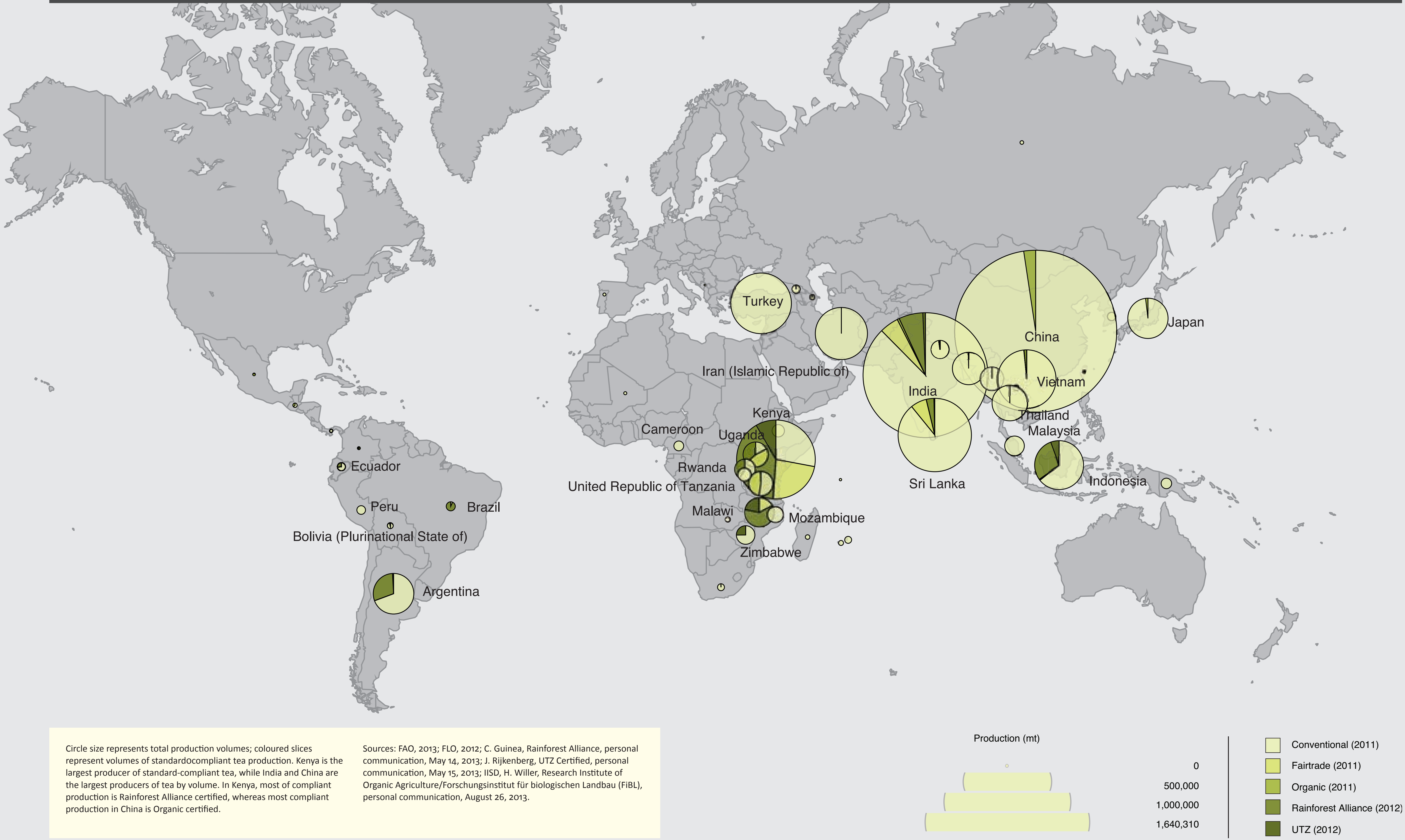
In 2011, 4.7 million metric tons of tea were produced in more than 45 countries on 0.07 per cent of the world's agricultural land.[1] Two million metric tons were exported during the same year through auctions (there is no stock and futures market for tea). The tea supply chain is characterized by vertical and horizontal integration, with a small number of companies controlling the entire tea supply chain, from packing to processing and consumer branding (Van der Wal, 2008).[2] About 85 per cent of global tea production is sold by multinationals, three of which control one-fifth of the market: Unilever (12 per cent), Tata Global Beverages (formerly Tata Tea, 4 per cent) and Twinings (3 per cent) (Groosman, 2011). As a result, individual tea producers and/or labourers typically have little influence over the conditions of trade. In addition to this disadvantage, other sustainability issues associated with tea cultivation include labour rights, poverty, soil erosion, water management, pest management and deforestation. Major sustainability standards active in the tea sector include Fairtrade International, Organic (International Federation of Organic Agriculture Movements [IFOAM]), Rainforest Alliance, the Ethical Tea Partnership (ETP) and UTZ Certified. Together,[3] these initiatives certified or verified 12 per cent of global production by 2011/2012 (see Figure 14.1). Approximately one-third of production is actually sold compliant with voluntary sustainability standards on the international market (or 4 per cent of global tea production and 9 per cent of exports). Kenya, India and Malawi were the biggest producers of standard-compliant tea by volume in 2011/2012. Figure 14.2 breaks this down by standard.

1 In 2011 the area under tea production was 4,911,622,000 hectares.

2 For example, of the main tea packers, Unilever owns brands Brooke Bond (United Kingdom) and Lipton (worldwide), and Tata Tea owns brands Tetley (United Kingdom, Canada, United States), Tata Tea (India) and JEMČA (Czech Republic), among others.

3 Excluding ETP.

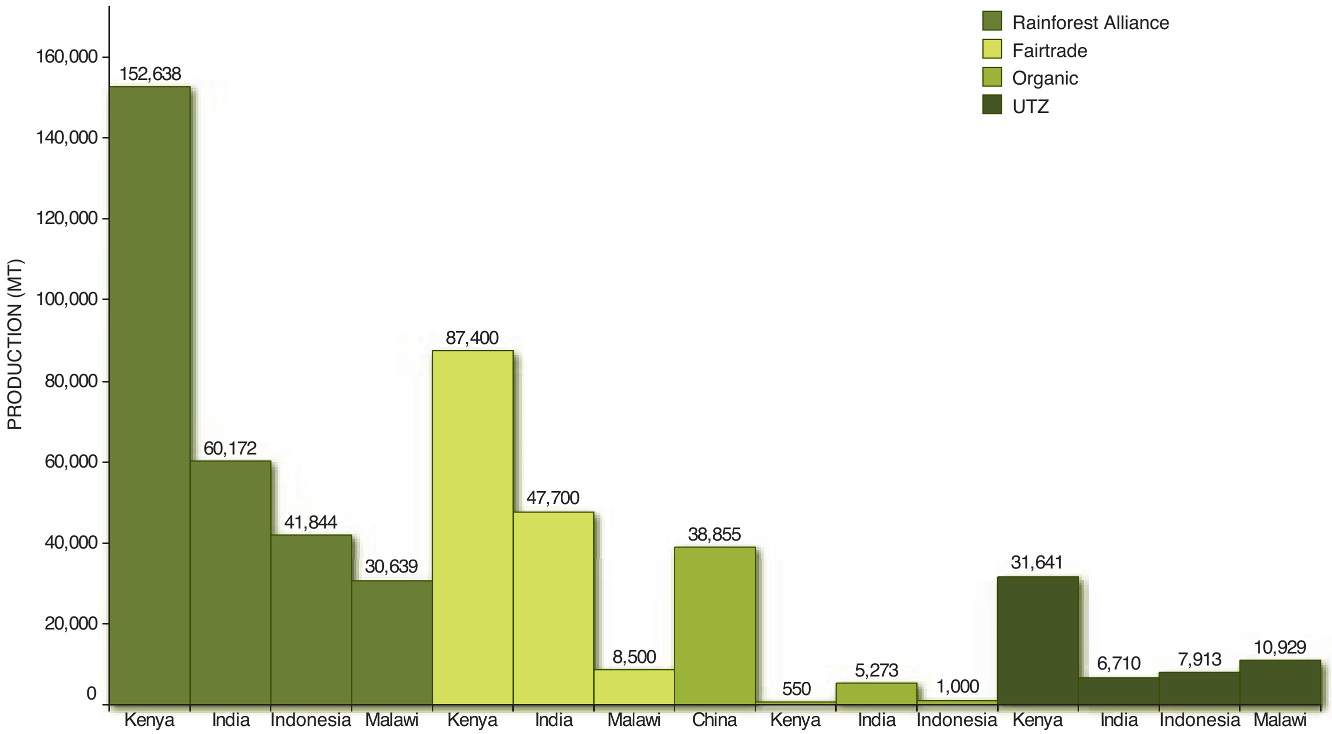
FIGURE 14.1 CONVENTIONAL VERSUS STANDARD-COMPLIANT TEA PRODUCTION, 2011/2012.



Circle size represents total production volumes; coloured slices represent volumes of standardocompliant tea production. Kenya is the largest producer of standard-compliant tea, while India and China are the largest producers of tea by volume. In Kenya, most of compliant production is Rainforest Alliance certified, whereas most compliant production in China is Organic certified.

Sources: FAO, 2013; FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, Research Institute of Organic Agriculture/Forschungsinstitut für biologischen Landbau (FiBL), personal communication, August 26, 2013.

FIGURE 14.2 LEADING PRODUCERS OF STANDARD-COMPLIANT TEA BY VOLUNTARY SUSTAINABILITY STANDARD, 2011/2012.



Sources: FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 14.1 STANDARD-COMPLIANT AND CONVENTIONAL KEY STATISTICS FOR TEA PRODUCTION AND TRADE.

KEY STATISTICS

Top 5 producers (76% of global) (2011)	China (35%), India (21%), Kenya (8%), Sri Lanka (7%), Turkey (5%)
Top 5 standard-compliant producers (81% of global) (2011/2012)	Kenya (40%), India (18%), Malawai (9%) Indonesia (8%), China (6%)
Top 5 exporters (70% of global) (2011)	China (16%), India (16%), Sri Lanka (16%), Kenya (15%), Vietnam (7%)
Top 5 importers (35% of global) (2011)	Russia (9%), United Kingdom (8%), United States (7%), Pakistan (6%), Egypt (5%)
Global production (2011)	4.7 million metric tons
Global exports (2012)	2 million metric tons (44% of production)
Trade value (2012)	US$6.6 billion
Global area harvested (2012)	3.2 million hectares (0.07% of agricultural area – compare to 25 million hectares for sugar cane, 163 million hectares for rice, 217 million hectares for wheat)
Number of people employed by the tea industry	13 million
Major international voluntary sustainability standards	Ethical Tea Partnership, Fairtrade, Organic (IFOAM), Rainforest Alliance, UTZ Certified
Standard-compliant production (2011/2012)	577.000 metric tons (12% of production)
Standard-compliant sales (2011/2012)	174,000 metric tons (30% of compliant production, 4% of global production, 9% of exports)
Key sustainability issues	Worker health and safety, labour rights, poverty, pest management, water management, soil erosion, deforestation, maintaining biodiversity

Sources: Top 5 producers, top 5 exporters, top 5 importers, global production, global exports, trade value: FAO, 2013; Number of people employed by the tea industry: Groosman, 2011; Top 5 producers of standard-compliant tea, standard-compliant production and sales (2011 data for Fairtrade and Organic, 2012 data for Rainforest Alliance and UTZ): FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

14.1 MARKET REVIEW

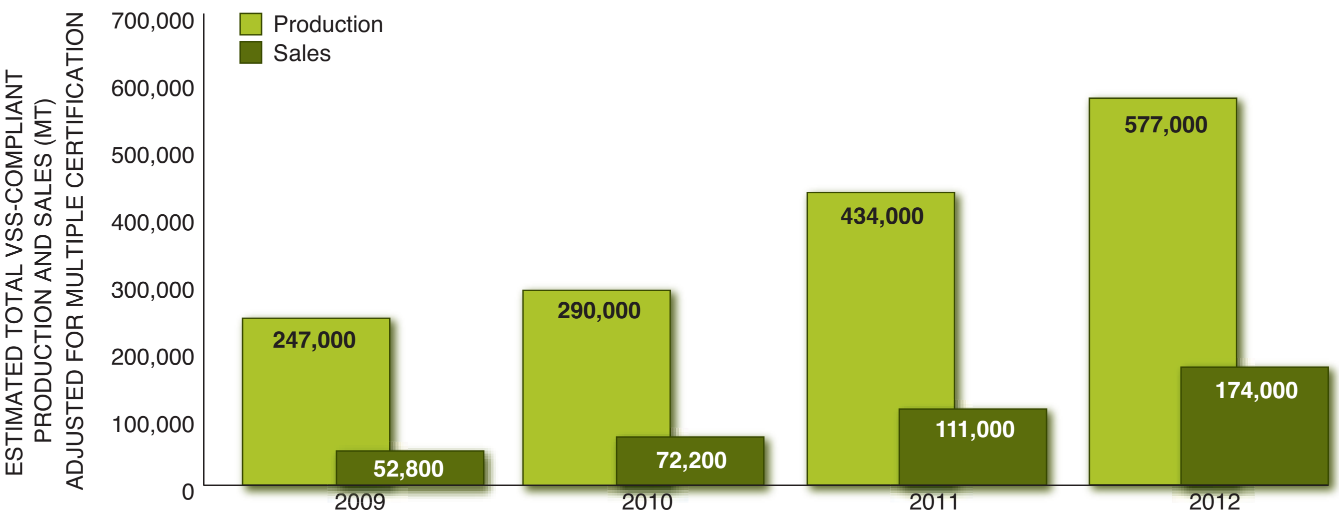
Market reach
Approximately 577,000 metric tons were standard-compliant in 2012, equivalent to 12 per cent of global production. Sales of compliant production accounted for 9 per cent of global exports during the same year (see Figure 14.3).

Growth
Standard-compliant tea production grew 33 per cent per annum from 2009 to 2012.

Regional importance
The most important producers of standard-compliant tea production in 2012 were Kenya (40 per cent) and India (18 per cent).

Pricing and premiums
Reported premiums for standard-compliant products range from 1 per cent to over 20 per cent. Lowest premiums have been reported for UTZ Certified tea, while highest premiums have been reported for Fairtrade certified tea.

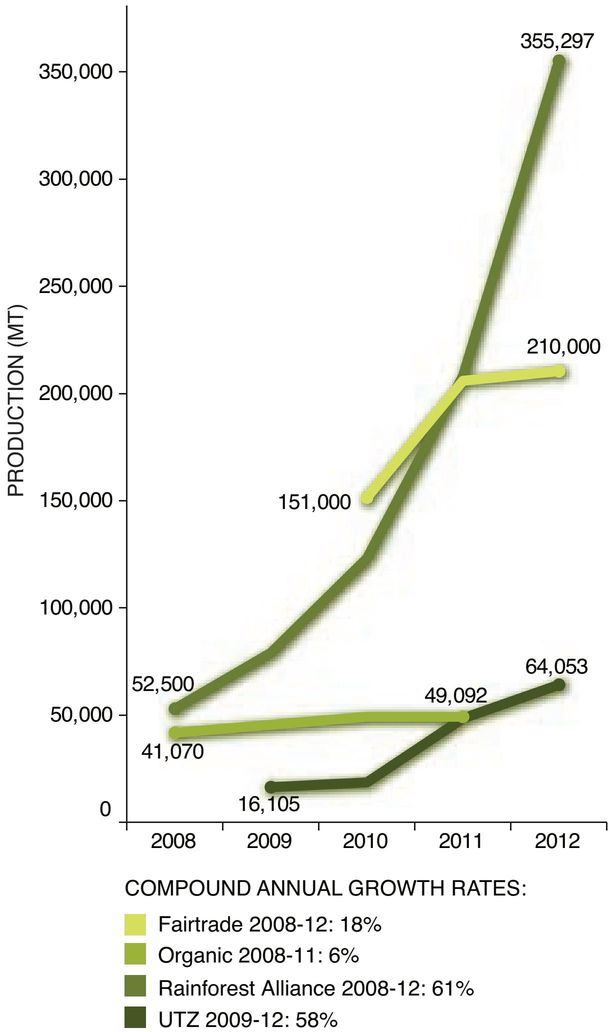
FIGURE 14.3 GROWTH IN STANDARD-COMPLIANT TEA PRODUCTION, 2009–2012.



Sources: FLO, 2011b, 2012; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

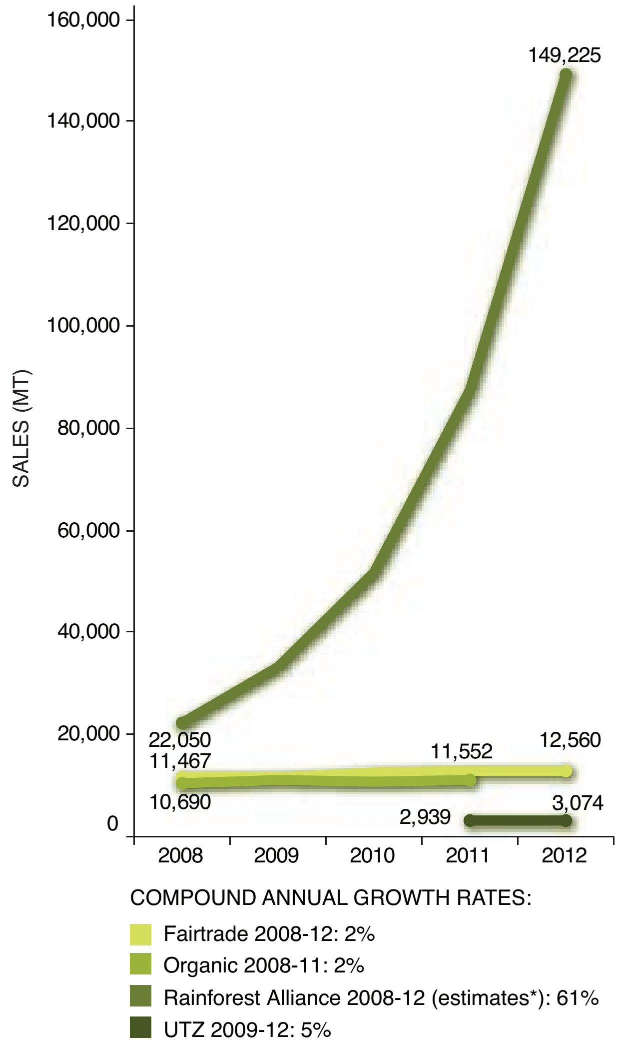
Photo: Neil Palmer (CIAT) / CC-BY-NC-SA

FIGURE 14.4 STANDARD-COMPLIANT FAIRTRADE, RAINFOREST ALLIANCE, ORGANIC AND UTZ CERTIFIED TEA PRODUCTION, 2008–2012.



Sources: FLO, 2011b, 2012; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 14.5 FAIRTRADE, ORGANIC, RAINFOREST ALLIANCE AND UTZ CERTIFIED TEA SALES, 2008–2012.



*Rainforest Alliance sales data estimated using a multisector, average sales-to-production ratio of 42 per cent.

Sources: FLO 2011b, 2012; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

14.2 MARKET DEVELOPMENT

In 2012, 577,000 metric tons, or 12 per cent of global tea production, was considered compliant with a global sustainability standard. Rainforest Alliance has seen the largest year-over-year increase in the last two years, with about 190 per cent growth in certified production volumes between 2010 and 2012 and 365 per cent growth in certified land area coverage. Fairtrade International and UTZ Certified have experienced double-digit growth, while Organic production has remained relatively stable over the last few years (see Figure 14.4).

While tea production can impact the environment in a variety of different ways, one of the most challenging issues historically has been that of habitat conversion related to the establishment of tea plantations and tea processing (Clay, 2004). Large areas of highly biodiverse forests have been replaced with single-species (monoculture) tea production over the course of tea's expanding production. Tea drying also requires significant amounts of fuel that in many cases relies on wood, which in turn can put additional pressure on local forests. Although the encroachment of tea plantations in some regions has slowed in recent years, it continues to be a major issue in East Africa today (McLennan, 2011). Aside from loss of biodiversity, such practices can also alter the flow of water, leading to an increase in soil erosion, the loss of wetland habitats and the pollution of rivers and lakes.

Because tea is typically grown using monoculture production systems in a plantation setting, vulnerability to pest infestation is also high, and pesticide application can play an important role in corresponding ecosystem health, as well as worker health and safety. Agrochemicals used in tea production have been specifically associated with respiratory and water-borne diseases (Sivaram, 2008). The drying of tea leaves is responsible for significant levels of energy consumption, especially where outdated machinery is used, as is the case in many developing-country settings (Sustainable Trade Initiative/Initiatief Duurzame Handel (IDH), 2010).

As with other major tropical commodities, the provision of decent wages and working conditions for workers and their communities represents a major issue for the tea sector. With production occurring predominantly on plantations, poverty is primarily an issue at the level of the individual tea worker. Although labour and pay conditions are usually regulated by government in such settings, tea work has historically been considered unskilled and therefore tends to pay lower wages, with reports of tea wages often below a living wage (Oxfam, 2013). As a result, many tea workers living on estates depend on the owners to meet their basic needs such as health care, housing, utilities, access to water and education for their children (Fairtrade Foundation, 2010). The ETP reports that estate workers may face discrimination, harassment, gender inequality, poor living conditions and poor access to health care (ETP, 2011a).

These and other sustainability challenges in the tea sector have driven the development and adoption of various tea-specific standards by Fairtrade, Rainforest Alliance, UTZ, ETP and Organic standards bodies. Significant growth in standard-compliant production and sales in the tea sector is a relatively recent phenomenon (see Figure 14.4 and Figure 14.5), driven largely by large-scale commitments from major tea manufacturers. One of the advantages of the highly concentrated structure of the market has been the ability of major companies to transition supply to standard-compliant sources relatively rapidly.

As is the case in virtually all agricultural commodities, Organic certified tea has been available since at least the 1970s through a network of national Organic standards bodies. Between 1995 and 2008, Organic tea production and consumption grew between 10 per cent and 20 per cent per annum, arguably paving the way for other voluntary standards to enter the market; however, since 2008, Organic production and sales have tapered off significantly at levels well below 10 per cent per annum. As of 2011, Organic tea production had reached approximately 49,000 metric tons, making it the smallest supplier, by volume, of standard-compliant production. The recent performance of Organic tea is in stark contrast to overall market trends, where standard-compliant tea production and consumption has grown astronomically over the past several years.

Fairtrade certified tea first entered the market in 1993 when Transfair Germany certified its first tea plantation (Reed, 2008). In 1994, Clipper Tea introduced the first Fairtrade certified tea for sale in the United Kingdom (Fairtrade Foundation, 2008). The Fairtrade market has been defined by supply-led growth. While per-annum growth in production over the past several years has been 18 per cent, actual sales growth has hovered around 2 per cent. The mismatch between supply and demand is such that only 6 per cent of total Fairtrade production was sold as Fairtrade tea on the international market in 2012.

Although the markets for Fairtrade and Organic tea have stabilized in recent years, a series of major partnerships between some of the largest tea manufacturers and other voluntary sustainability standards have led to significant growth (see Box 14.1). Perhaps most notably, Unilever, owner of the Lipton brand and the largest tea company globally, has played a leading role in driving the market for certification by committing to source all of its tea products from Rainforest Alliance certified farms by 2020. Tata has committed to sourcing 100 per cent of its Tetley tea brand from Rainforest Alliance certified farms by 2016.

Recent growth in standard-compliant tea production and sales is almost entirely driven by large-scale corporate commitments to sustainable sourcing. Implementation of these agreements involves not only a commitment to source tea applying sustainable practices, but also an investment in capacity building so that sustainable supply is available.

Unilever has committed to source all the tea for its Lipton brand tea bags from Rainforest Alliance certified farms by 2015. By 2020, Unilever aims to have 100 per cent of the tea across all of its brands sustainably sourced.[4] In 2010, Unilever reached its interim target of sourcing all of its tea for Lipton Yellow Label tea bags sold in Western Europe from Rainforest Alliance compliant farms. As of 2013, 39 per cent of the tea purchased for all of Unilever's brands is Rainforest Alliance certified, and 75 per cent of Lipton tea bag blends contain Rainforest Alliance certified tea. In order to enable such widespread transformation, Unilever, in collaboration with other partners such as IDH, has also made significant commitments to investing in the transition to sustainable practices across its supply base.

Unilever's Sustainable Tea Agriculture project in Turkey is one noteworthy example. Being the third-largest producer of tea and the fourth-largest tea market, Turkey is one of Unilever's main centres for tea production and sales, with over 15,000 farmers in three factories based in the country. To help its producers in Turkey achieve Rainforest Alliance certification, Unilever's initiative aims to give one-on-one training to tea growers, assisting them in managing erosion control, waste management, work safety, record-keeping, biodiversity, fertilization and pruning. Unilever collaborates with the Regional Chamber of Agriculture in Turkey for performing soil analysis and corrective measures. Unilever also has plans to provide approximately 5,000 female growers with health services as part of its investment in Turkey.

At the same time, the second-largest tea manufacturer, Tata, has committed to sourcing 100 per cent of the tea under its Tetley Tea brand from Rainforest Alliance certified farms by 2016. By September 2012, Tetley had achieved Rainforest Alliance certification for 50 per cent of its tea (amounting to nearly 20,000 metrics tons in 2012). As part of the initiative, Tata foresees the training of over 82,000 smallholder farmers across its major tea growing regions. In 2010, Tetley's first products containing tea from Rainforest Alliance certified farms became available in the United Kingdom. Tata created the Tetley Farmers First Hand initiative, a Facebook-based social media campaign that encourages a group of smallholder farmers and estate workers who are working toward Rainforest Alliance certification to use their mobile phones to share aspects of their daily lives and give other people the chance to experience their journey to certification (Thorpe, n.d.). It is hoped that this initiative will help increase both tea consumer and producer awareness of tea sourcing and sustainability issues.

4 This percentage includes loose tea and tea from Unilever's other brands like PG Tips and Brooke Bond.

Company (brand)	Degree of commitment	Target Voluntary sustainability standard	Timeline for implementation
Tata (Tetley)	100% of Tetley branded tea (50% already certified by 2012)	Rainforest Alliance	2016
Unilever (Lipton)	100% of Lipton tea bags	Rainforest Alliance	2015
Unilever (All)	100% of all tea (including loose tea – 36% certified by 2013)	"sustainably sourced"	2020
DE Masterblenders 1753 (Pickwick, All)	40%	UTZ; all brands participate in ETP program	Current
Twinings (Everyday)	100% of Everyday brand	Rainforest Alliance; all Twinings brands committed to purchasing through ETP program	2015
Yorkshire Tea (All)	100% (75% already certified by 2013)	Rainforest Alliance	2015

Sources: DE Master Blenders 1753, 2012; Rainforest Alliance, 2013b; Tetley, 2012; Twinings, 2012; Unilever, 2013; Henderson & Nellemann, 2012.

Although Unilever and Tata have focused their commitments on Rainforest Alliance certification, other large companies such as Finlay, Van Rees, DE Master Blenders 1753 and Apeejay Group have targeted other voluntary sustainability standards such as ETP, Fairtrade and Organic. In 2010, Sara Lee (whose coffee and tea business is now called DE Master Blenders 1753) claimed to be the first company to source UTZ Certified tea, with a purchase of about 2,000 metric tons. The company now sources 40 per cent of its tea from UTZ Certified farms (DE Master Blenders, 2012). The Apeejay Group has had two Fairtrade certified tea plantations in India since 2009 (Apeejay Surrenda Group, 2013). Finlays advertises itself as the largest trader of Fairtrade tea in the world (Finlays, 2011a) and, in addition, has certified most of its farms and estates in Sri Lanka and Kenya according to Rainforest Alliance standards (Finlays 2011b, 2011c). Van Rees claims to ascribe to Rainforest Alliance, UTZ Certified, Fairtrade and Organic practices (Van Rees Group, 2011). In 2010, Twinings began to incorporate Rainforest Alliance–compliant tea into its Twinings Everyday brand, starting with 30 per cent certified content; Twinings has committed to working its way up to 100 per cent certified content by 2015 (Rainforest Alliance, 2013b; Twinings, 2012). Yorkshire Tea has made a similar commitment (Henderson & Nellemann, 2012). Major British supermarkets such as Marks & Spencer have also committed to sourcing all of their house brand teas from Fairtrade certified producers (Marks & Spencer, 2006).

Industry coalitions have played an important role in the sustainability transition of tea for several decades. In addition to ETP (see Box 14.2), another coalition, Tea 2030, was established more recently by a group of tea companies including Tata, Unilever, Yorkshire Tea and Finlay, and later joined by voluntary sustainability standards like Fairtrade International and Rainforest Alliance. The initiative aims to explore how the tea industry could change over the next 17 years and aims to use a collaborative systems approach to solve long-term problems like adapting to climate change, increased demand for water and energy, and competition for land use. The coalition is very young, running its first projects in 2011, but is another example of a collaborative approach to addressing sustainability problems in the tea sector. Given the level of corporate commitments, the market presence of sustainability standards in the tea sector is expected to continue to grow at a rapid pace. While it is clear that Rainforest Alliance will continue to strengthen its leadership position in the supply of sustainable tea globally as Unilever and Tata continue to roll out their programs, growth opportunities remain for other initiatives as well, such as UTZ Certified, ETP and Fairtrade. As a result, we expect total annual market growth to continue at over 20 per cent per annum for the coming several years.

BOX 14.2 THE ETHICAL TEA PARTNERSHIP

The Ethical Tea Partnership (ETP—formerly called the Tea Sourcing Partnership) was established in 1997 by large British tea companies including The Tetley Group, Twinings, Unilever and Finlay. ETP offers an eco-label program and monitoring and certification services for its ETP Global Standards, which are largely sourced from International Labour Organization standards but also include environmental criteria. The organization helps producers prepare for a third-party audit against its standard through monitoring self-assessments, hosting workshops, coordinating training on areas of difficulty, providing frameworks for organizational policies, and generally serving as a resource center for producers regarding the adoption of sustainability standards. The ETP Global Standards are particularly well aligned with the objectives of voluntary sustainability initiatives such as Fairtrade, Rainforest Alliance and UTZ, and often serve as a "step-up" to these standards. Producers can access the program free of charge, and ETP offers producers training on a number of issues, from improving on-site health and safety, to eliminating discrimination in the workplace, while also helping tea producers adapt to climate change and respond to other global issues such as energy efficiency and market access "for smallholders." Member companies have to declare all volumes for European, North American, and Australasian markets, paying a levy of 1p per kilogram, or £10 per metric ton (roughly 0.5 per cent over the November 2013 tea auction price in Mombasa of 2.16 per kilogram [IndexMundi, 2013c]).

Source: ETP, 2013.

TABLE 14.2 IMPORTANCE OF VOLUNTARY SUSTAINABILITY STANDARD (VSS) TEA PRODUCTION AND SALES RELATIVE TO THE GLOBAL MARKET.

	VSS production (mt)	VSS production market share of global production	VSS production market share of global exports	VSS sales (mt)	VSS sales market share of global production	VSS sales market share of global exports
Fairtrade	210,000	4%	11%	12,560	0%	1%
Organic	49,192	1%	2%	11,552	0%	1%
Rainforest Alliance	355,297	8%	18%	*177,649	3%	8%
UTZ Certified	64,053	1%	3%	3,074	0%	0%
Global VSS production / sales (mt, %), adjusted for multiple certification	577,000	12%	29%	174,000	4%	9%

*Estimates.

Sources: FLO, 2012; FAO, 2013; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

Fairtrade International

Fairtrade tea sales more than doubled in 2008, with Sainsbury's and Co-operative's own-brand ranges switching to 100 per cent Fairtrade. More recently, Waitrose and Super Unie have done the same; however, growth in overall sales of Fairtrade tea has been relatively tepid over the past four years, registering an annual sales growth of only 2 per cent per annum (2008–2012) (see Figure 14.7 and Table 14.4).

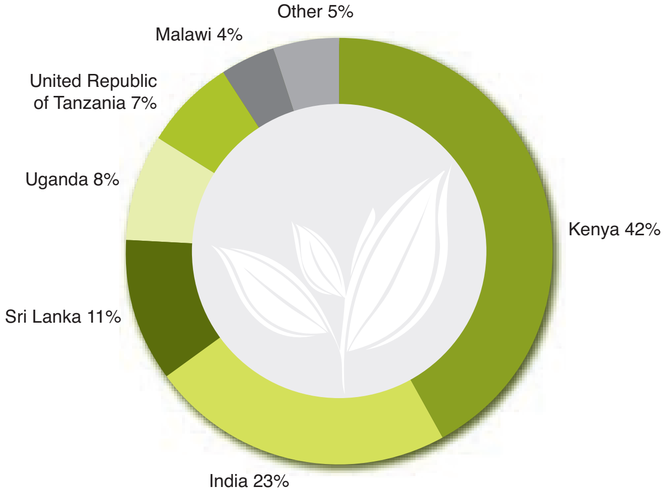
Fairtrade certification primarily occurs from Asian and African countries such as India, Kenya, Sri Lanka, Tanzania, China and Malawi, where over 93 per cent of total sales of Fairtrade tea are made (see Figure 14.6 and Table 14.3). Kenya and India alone account for over half of the total number of Fairtrade workers, production capacity and sales.

Currently, about 6 per cent of total Fairtrade certifiable production is being sold as Fairtrade produce on the market today, and Fairtrade sales volumes seem to have plateaued in the last few years despite substantial growth in total certifiable volumes in 2011 (33 per cent growth year over year). As of 2012, Fairtrade certified tea sales accounted for 0.6 per cent of global trade (see Table 14.2 for all standards' production and sales relative to global production and exports).

Although Fairtrade sales have slowed in recent years, looking ahead there may be opportunity for growth in specific countries or regions where major companies see Fairtrade as a useful tool to help improve livelihoods of workers and smallholders through minimum price mechanisms. Fairtrade is also attractive to companies wanting to deepen their commitment to tea supply chains and looking beyond certification to climate adaptation and mitigation, which are key issues in tea production.[5]

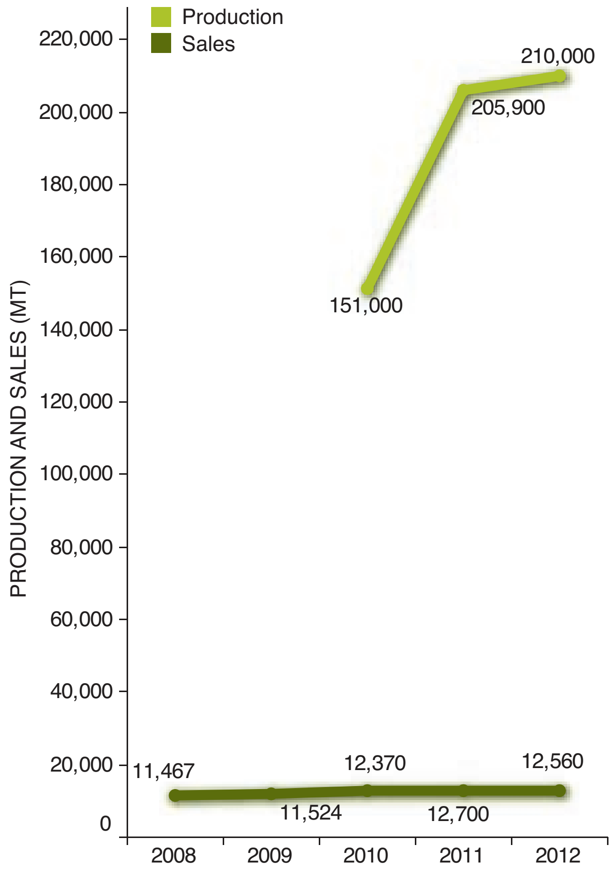
5 In 2013, Fairtrade began working on a project in East Africa with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and others to look at how tea companies can best respond to changes in climate. Fairtrade is also working on defining living wages in certain industries and countries via a partnership with Goodweave and SAI, and is also working with other voluntary sustainability standards. The organization hopes that these activities will allow it to take advantage of emerging sources of growth.

FIGURE 14.6 FAIRTRADE TEA PRODUCTION BY COUNTRY, 2011.



Source: FLO, 2012.

FIGURE 14.7 FAIRTRADE TEA PRODUCTION AND SALES, 2008–2012.



Sources: FLO, 2011b, 2012.

TABLE 14.3 FAIRTRADE TEA PRODUCTION AND SALES BY COUNTRY, 2011.

	Production (mt)	Sales (mt)
India	47,700	3,700
Kenya	87,400	4,200
Malawi	8,500	2,200
Sri Lanka	23,200	800
Tanzania	15,000	900
Uganda	16,100	no data
Other	8,000	900
Total	**205,900**	**12,700**

Source: FLO, 2012.

TABLE 14.4 FAIRTRADE TEA PRODUCTION, SALES AND AREA HARVESTED, 2008–2012.

	Production (mt)	Sales (mt)	Area harvested (ha)
2008	no data	11,467	no data
2009	no data	11,524	no data
2010	151,000	12,370	72,000
2011	205,900	12,700	83,300
2012	210,000 (est.)	12,560	no data

Source: FLO, 2012.

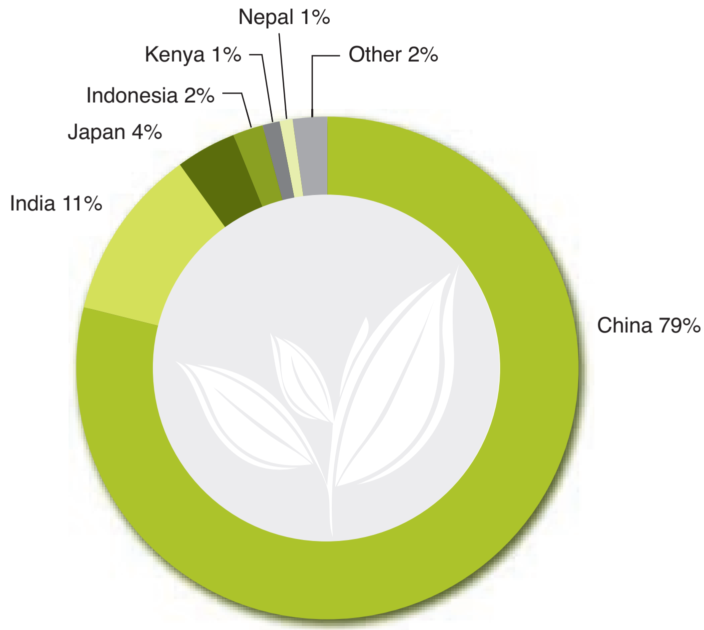
International Federation of Organic Agriculture Movements (IFOAM, or "Organic")

Organic certified tea is grown in 21 countries throughout Latin America, Africa and Asia, including Iran, and thus represents greater world coverage for certified tea production than the other voluntary sustainability standard (see Figure 14.8 and Table 14.5). However, Organic standards represent the smallest share of all sustainable tea production volumes certified on a global scale. In addition, the majority of Organic tea is produced in three countries: China (38,000 metric tons; only a small fraction for export and no data for the local organic market), India (5,200 metric tons) and Japan (1,800 metric tons), which together accounted for more than 90 per cent of total Organic production volumes in 2011.

Organic certified tea production grew 21 per cent per annum during the period from 2004 to 2009 (Potts et al., 2010). Since then, production has tapered off, growing at 6 per cent per annum over the last four years. Sales of Organic tea grew at an estimated 3 per cent per annum over the same time period (see Figure 14.9 and Table 14.6). As of 2012, global Organic tea production accounted for 1 per cent of global production and 2 per cent of global exports (see Table 14.2 for all standards' production and sales relative to global production and exports).

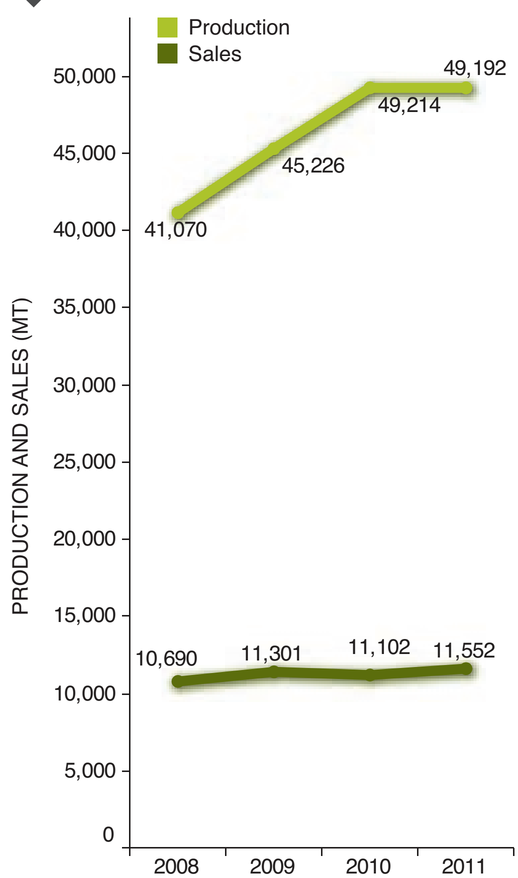
Notwithstanding the data constraints in the Organic tea sector, it is clear that both production and sales are not increasing on par with overall growth of sustainability standards on the market. The high level of concentration in tea manufacturing and the tendency for the major tea manufacturers to partner with more mainstream-oriented initiatives has left the Organic tea market with highly constrained market growth potential. As a result, we expect Organic tea sales to continue at the current and modest rates of 3 per cent per annum for the foreseeable future.

FIGURE 14.8 ORGANIC TEA PRODUCTION BY COUNTRY, 2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 14.9 ORGANIC TEA PRODUCTION AND SALES, 2008–2011.



Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 14.5 ORGANIC TEA PRODUCTION, SALES AND AREA HARVESTED, 2011.

	Production (mt)	Sales (mt)	Area harvested (ha)
Argentina	30	0	20
Azerbaijan	2	2	3
Bangladesh	250	200	500
Bolivia (Plurinational State of)	41.5	40	200
China	38,855	4,000	52,000
Georgia	10	10	10
Guatemala	180	150	360
India	5,273	3,000	10,000
Indonesia	1,000	900	1,700
Iran (Islamic Republic of)	20	20	10
Japan	1,810	1,600	1,500
Kenya	550	500	300
Mexico	80	70	80
Myanmar	10	10	20
Nepal	400	400	900
South Africa	10	10	10
Sri Lanka	100	100	200
Taiwan	100	100	200
Thailand	70	60	80
United Republic of Tanzania	200	200	300
Vietnam	200	180	200
Total	**49,192**	**11,552**	**68,593**

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 14.6 ORGANIC TEA PRODUCTION, SALES AND AREA HARVESTED, 2008–2011.

	Production (mt)	Sales (mt)	Area harvested (ha)
2008	41,070	10,690	69,504
2009	45,226	11,301	71,003
2010	49,214	11,102	67,833
2011	49,192	11,552	68,593

Source: IISD, H. Willer, FiBL, personal communication, August 26, 2013.

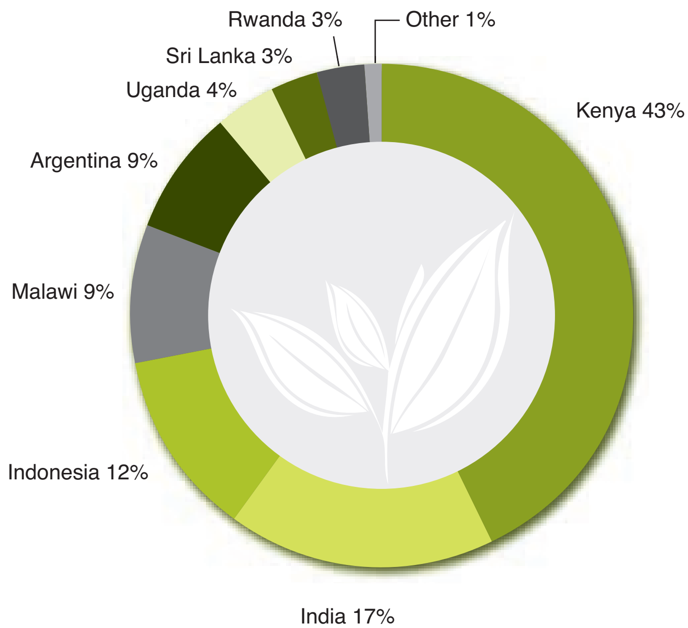
Rainforest Alliance

Rainforest Alliance, due largely to its partnership with Unilever, has undergone rapid growth in certified tea production and land area over the last few years, with annual production volumes growing by a factor of 10 from 2008 to 2012, and land area certified growing at an even faster rate during the same time period (see Figure 14.11 and Table 14.8).

In 2012, more tea was certified under the Rainforest Alliance standard than any other voluntary sustainability standard, with 355,297 metric tons of tea certified, representing 7.6 per cent of world tea production and 18 per cent of global exports. Its coverage in terms of volume produced is about 1.5 times that of Fairtrade, its closest competitor in the tea sector. Rainforest Alliance is active in 11 countries across Latin America, Africa and Asia but is concentrated in five countries, where 88 per cent of Rainforest Alliance tea is produced: Kenya (152,638 metric tons), India (60,172 metric tons), Malawi (30,639 metric tons), Indonesia (41,844 metric tons) and Argentina (28,772 metric tons). Kenya and India alone represent nearly two-thirds of total Rainforest Alliance compliant tea production and land area (see Figure 14.10 and Table 14.7).

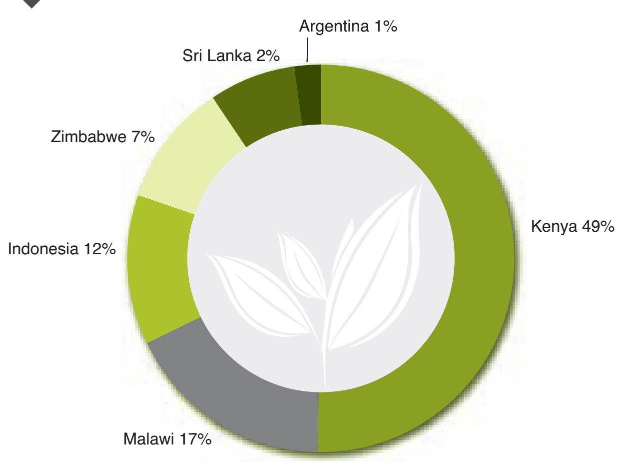
Rainforest Alliance has managed to negotiate partnerships with Tata, Unilever and Twinings, giving it a major platform for growth in the coming decade. Based on these commitments and current growth rates, we expect Rainforest Alliance certified tea production to reach more than 500,000 metric tons by 2015, equivalent to more than 10 per cent of global production and 25 per cent of global exports.

FIGURE 14.10 RAINFOREST ALLIANCE TEA PRODUCTION BY COUNTRY, 2012.



Source: C. Guinea, Rainforest Alliance, personal communication, May 14, 2013.

FIGURE 14.11 RAINFOREST ALLIANCE TEA PRODUCTION, 2008–2012.



*Rainforest Alliance sales data estimated using a multisector, average sales-to-production ratio of 42 per cent.

Source: C. Guinea, Rainforest Alliance, personal communication, May 14, 2013.

TABLE 14.7 RAINFOREST ALLIANCE TEA PRODUCTION AND AREA HARVESTED, 2012.

	Production (mt)	Area harvested (ha)
Argentina	28,772	6,356
Brazil	3,286	455
Ecuador	700	532
India	60,172	34,844
Indonesia	41,844	21,737
Kenya	152,638	64,988
Malawi	30,639	9,883
Rwanda	10,106	3,645
Sri Lanka	11,022	8,014
Uganda	13,018	3,292
Vietnam	3,100	1,165

Source: C. Guinea, Rainforest Alliance, personal communication, May 14, 2013.

TABLE 14.8 RAINFOREST ALLIANCE TEA PRODUCTION AND AREA HARVESTED, 2008–2012.

	Production (mt)	Area harvested (ha)
2008	52,500	no data
2009	78,500	no data
2010	123,007	33,345
2011	207,898	50,824
2012	355,297	154,911

Source: C. Guinea, Rainforest Alliance, personal communication, May 14, 2013.


Photo: Luke Mackin / CC-BY-NC-SA

UTZ Certified

Tea is a relatively new product area for UTZ. With the first UTZ Certified tea being produced for the market in 2009, the organization has yet to develop a significant market for its product. Although production has grown at a relatively fast pace since the 2009 launch, at an average of 58 per cent per annum, its sales have grown at a much more modest rate of 5 per cent per annum. As of 2012, less than 5 per cent of UTZ Certified production was actually sold as UTZ Certified on the market, signalling significant oversupply (see Figure 14.13 and Table 14.10).

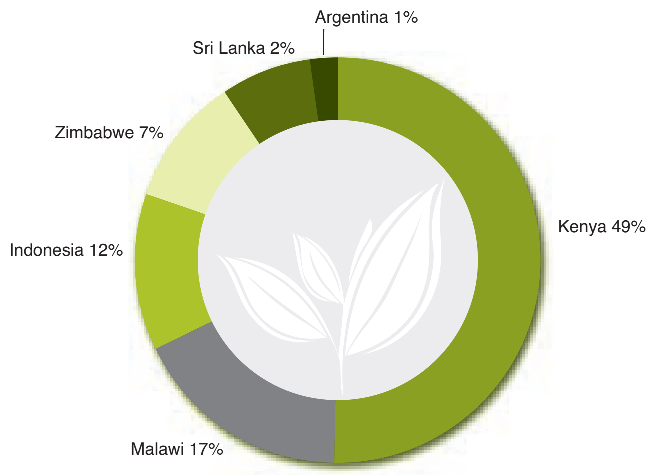
UTZ Certified tea is grown in nine countries across Africa, Asia and Latin America, with a particular concentration in Africa, where 47,147 metric tons were produced in 2012, accounting for 74 per cent of UTZ Certified tea production (see Figure 14.12 and Table 14.9).[6] However, in terms of nominal coverage, UTZ Certified accounts for a smaller fraction of total certifications made by other schemes. For example, whereas total UTZ Certified land under tea cultivation around the world accounts for 32,885 hectares, Fairtrade certified land area is about 1.5 times larger, while Rainforest Alliance's coverage is about 6.4 times larger. Nevertheless, the supply of UTZ Certified tea grew a total of 300 per cent between 2009 and 2012, reaching 64,053 metric tons.

According to UTZ's own estimates, the greatest demand opportunities for its tea program are for teas sourced from Kenya, Zimbabwe and Sri Lanka. Globally, UTZ estimates that demand for UTZ Certified tea will increase over 25 per cent by 2015, from 3,000 metric tons in 2012 to 4,000 metric tons in 2015.[7] Quantities demanded could be higher due to supply development opportunities in China, India and Japan, while demand for South African rooibos also appears to be rising.

6 By way of contrast, less than 66 per cent of Fairtrade certified tea and 58 per cent of Rainforest Alliance compliant tea were sold from Africa as a share of total produce sales.

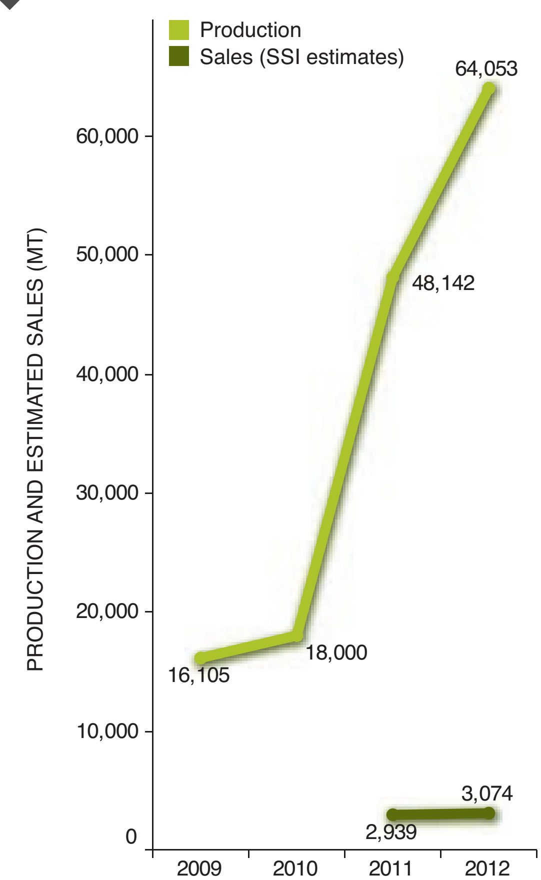
7 See UTZ Certified (2013e), which also provides a historical analysis of 2003–2012 sales and global market trends.

FIGURE 14.12 UTZ CERTIFIED TEA PRODUCTION BREAKDOWN BY COUNTRY, 2012.



Source: J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013.

FIGURE 14.13 UTZ CERTIFIED TEA PRODUCTION AND SALES, 2009–2012.



Source: J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013.

TABLE 14.9 UTZ CERTIFIED TEA PRODUCTION, AREA HARVESTED AND SALES, BY COUNTRY, 2012.

	Production (mt)	Area harvested (ha)	Sales (mt)
Argentina	810	205	259
Colombia	187	51	0
Kenya	31,641	16,404	24
Malawi	10,929	4,089	1,636
Sri Lanka	1,272	1,900	34
Vietnam	14	6	0
Zimbabwe	4,577	1,687	134
India	6,710	4,610	244
Indonesia	7,913	3,932	631
South Africa	no data	no data	112
Total	**64,053**	**32,885**	**3,074**

Source: J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013.

TABLE 14.10 UTZ CERTIFIED TEA PRODUCTION AND SALES, 2009–2012.

	Production (mt)	Sales (mt)
2009	16,105	--
2010	18,000	--
2011	48,142	2,939
2012	64,053	3,074

Source: J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013.

Table 14.11 shows the percentage of total national production produced in compliance with one or more major voluntary sustainability standard in 2012, for the world's 15 largest tea producers. The penetration of sustainability standards in the tea sector is relatively broad on a geographical basis, with each of the 20 top tea producing countries in the world producing tea in accordance with one or more voluntary sustainability standard. Moreover, three of the top six producing countries (India, Kenya and Sri Lanka[8]) have the presence of all four voluntary sustainability standards (see Figure 14.14; also see Figure 14.15 for largest standard-compliant production by continent). Notably, China, the largest tea producer, with annual production volumes representing 35 per cent of global tea production, is only covered by the Organic standard, which accounted for an estimated 0.3 per cent of the country's production in 2012. In contrast, Kenya, the third-largest producer in the world, has the largest certified production volumes, with 23 per cent of production certified Fairtrade, 40 per cent Rainforest Alliance and 8 per cent UTZ Certified. Approximately 0.2 per cent of Kenyan tea production is certified Organic.

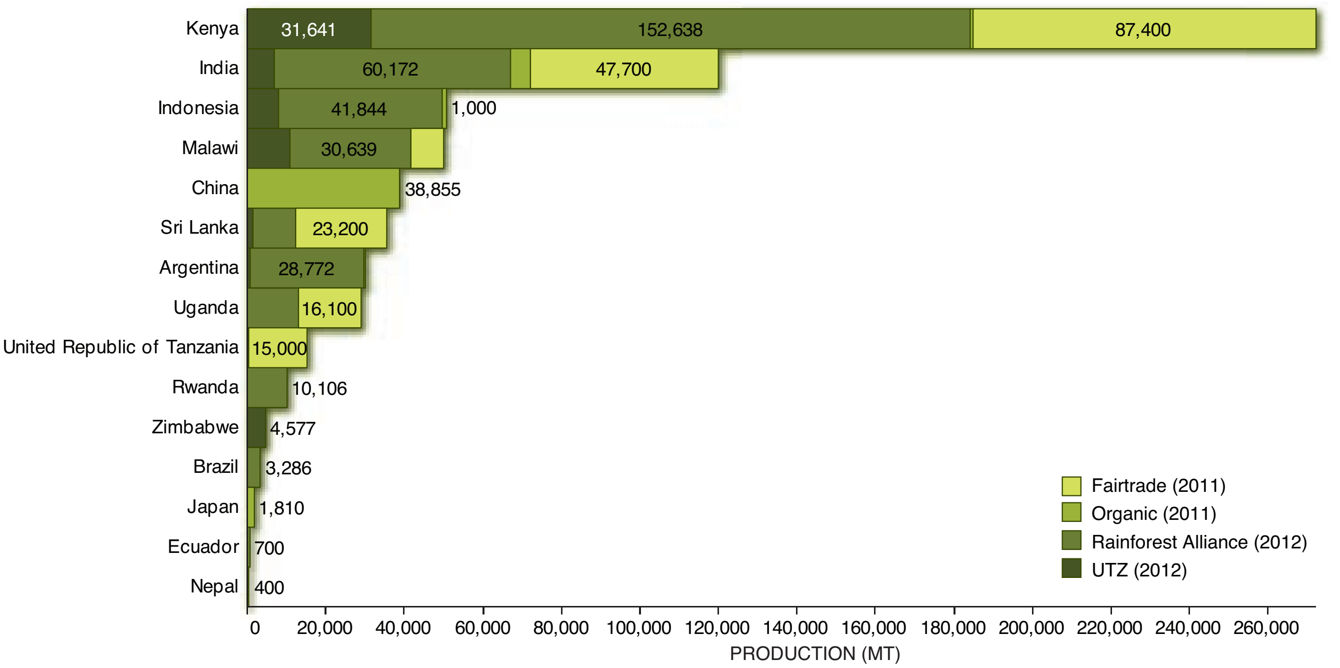
Rainforest Alliance's recent and rapid growth in tea certification has led to a remarkable transformation in the penetration of standard-compliant production across the tea sector more generally. As of 2012, Rainforest Alliance certified production represented over 25 per cent of total tea produced in the following major tea producing countries: Indonesia (29 per cent), Argentina (30 per cent), Malawi (59 per cent) and Uganda (37 per cent). Fairtrade has about 45 per cent penetration in both Uganda and Tanzania. Of all the voluntary sustainability standards, Organic has the widest geographical coverage but weakest penetration on a market-by-market basis. However, it has made inroads in three major top 10 producing countries (China, Japan and Iran) where no other voluntary sustainability standards have penetrated and thus presents the potential for greater market expansion in these countries, which together represent nearly 41 per cent of global tea production (see Figure 14.16). Rainforest Alliance also dominates in several countries where Fairtrade has little or no presence, including Argentina and Indonesia. Conversely, UTZ Certified has proportional penetration across countries, albeit smaller overall presence due to its relatively recent entry into the sustainable tea market.

As with most commodities, tea sustainability standards show the strongest presence in countries with significant tea exports. This explains the high penetration levels of voluntary sustainability standards across countries like Kenya, Sri Lanka, Vietnam, Indonesia, Argentina, Malawi and Uganda, where approximately 60 to 95 per cent of production is exported abroad. Other top 10 countries in terms of total production, such as China, Turkey, Iran, Argentina and Japan, export less than 20 per cent of their production and have a lower penetration of standard-compliant tea (see Figure 14.17).

Although a significant portion of the global export market for tea remains "uncertified" at present and therefore represents significant low-hanging fruit for the growth of the sustainable tea market, any hope of securing uptake of sustainability standards across the majority of production will almost certainly require strategies that build awareness and markets for domestic consumption of certified products. With the exception of Kenya, the market penetration of voluntary sustainability standards in the top 10 producing countries is low and suggests that there are significant opportunities for further expansion. In particular, major tea producers such as China, Turkey, Vietnam, Iran and Japan have voluntary sustainability standard penetration below 4 per cent and therefore represent major opportunities in this direction. Other top 20 tea producing countries like Thailand, Bangladesh, Myanmar and Malaysia have penetration rates lower than 1 per cent.

8 Sri Lanka's Organic production volumes are a mere 100 metric tons and are represented as "negligible" in Table 14.11.

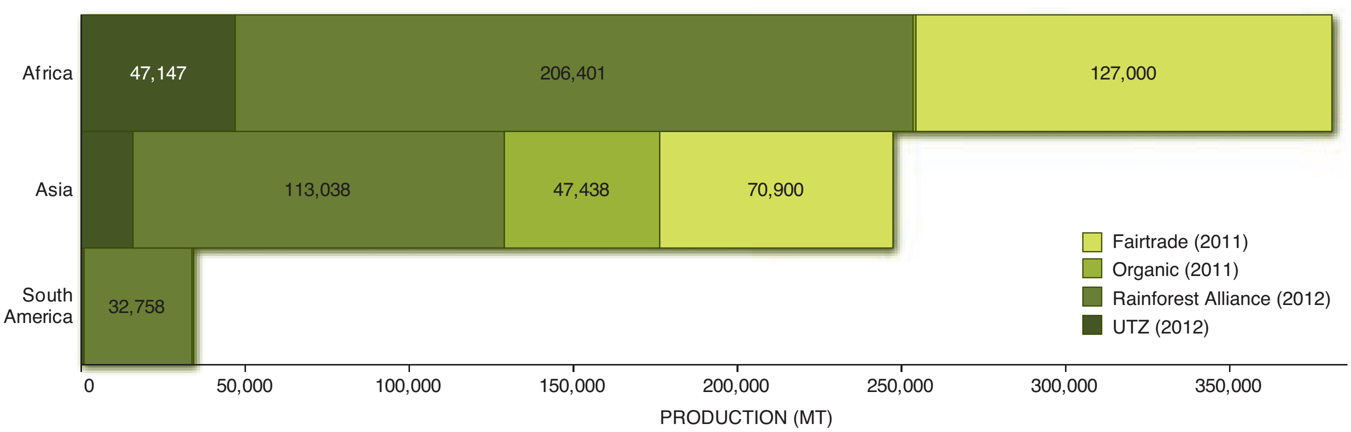
FIGURE 14.14 FIFTEEN LARGEST STANDARD-COMPLIANT TEA PRODUCERS BY COUNTRY, 2011/2012.



Where space permits, data points are visible.

Sources: FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

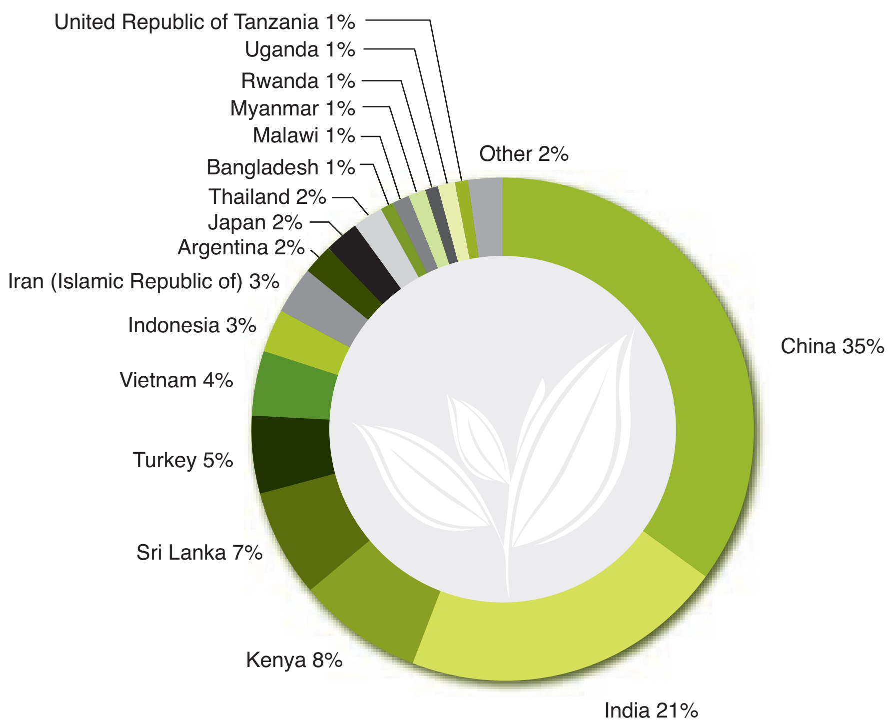
FIGURE 14.15 LARGEST STANDARD-COMPLIANT TEA PRODUCERS BY CONTINENT, 2011/2012.



Where space permits, data points are visible.

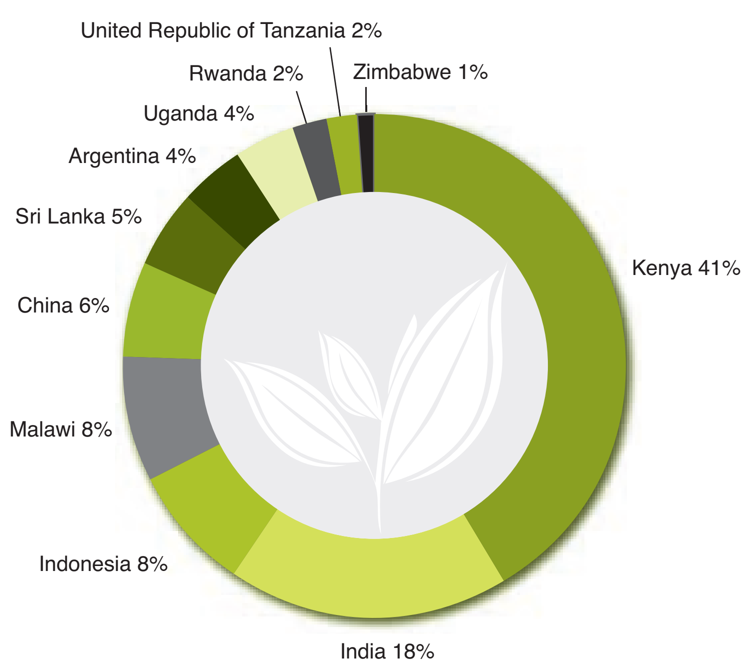
Sources: FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

FIGURE 14.16 TOTAL (STANDARD-COMPLIANT AND CONVENTIONAL) TEA PRODUCTION BY COUNTRY, 2011.



Source: FAO, 2013.

FIGURE 14.17 STANDARD-COMPLIANT TEA PRODUCTION BY COUNTRY, 2011/2012.



Sources: FLO, 2012; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

TABLE 14.11 STANDARD-COMPLIANT PRODUCTION AS A PERCENTAGE OF TOTAL NATIONAL PRODUCTION FOR 15 LARGEST TEA PRODUCERS, 2012.

Dashes represent negligible or no standard-compliant production relative to national production; they may also reflect an absence of data.

	Fairtrade International	Organic	Rainforest Alliance	UTZ Certified
China	-	0.3%	-	-
India	4.9%	0.4%	6.2%	0.7%
Kenya	23.1%	0.2%	40.4%	8.4%
Sri Lanka	7.1%	-	3.4%	0.4%
Turkey	-	-	-	-
Vietnam	-	0.1%	1.5%	-
Iran (Islamic Republic of)	-	-	-	-
Indonesia	-	0.8%	29.4%	5.6%
Argentina	-	-	29.8%	0.8%
Japan	-	2.4%	-	-
Thailand	-	0.1%	-	-
Bangladesh	-	0.4%	-	-
Malawi	-	-	58.9%	21.0%
Uganda	45.7%	-	37.0%	-
United Republic of Tanzania	46.9%	0.8%	-	-

Sources: FLO, 2012; FAO, 2013; C. Guinea, Rainforest Alliance, personal communication, May 14, 2013; J. Rijkenberg, UTZ Certified, personal communication, May 15, 2013; IISD, H. Willer, FiBL, personal communication, August 26, 2013.

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14.5 PRICING AND PREMIUMS

Premiums for standard-compliant tea have ranged from 1 per cent to over 20 per cent over the past several years. Fairtrade is the only standard within the tea sector that actually fixes price premiums. Perhaps not surprisingly, the premiums associated with Fairtrade tend to be higher than those associated with the other standards systems. In 2013 the Fairtrade price premium was set at US$0.50 per kilogram sold under Fairtrade terms for Crush, Tear and Curl (CTC) teas and Orthodox dust and fanning grades, which corresponds to a premium of about 20 per cent over mid-2013 prices.[9] Other Orthodox grade teas receive a price premium of US$1 per kilogram above the normal commercial price, or approximately 43 per cent over 2013 prices. In 2011, total Fairtrade tea premiums exceeded €6 million (US$8.3 million[10]). The Fairtrade standard dictates that the premium primarily is used for social, environmental or economic development projects, for example in funding schools, medical treatment and community halls. In Malawi, Fairtrade premium monies are used to buy bulk maize when market prices are low so that members can buy at a discount during the dry season when prices are often very high.[11] Fairtrade also guarantees a minimum price for tea producers as a safety net in the event of a collapse in market prices. Between 2008 and 2012, market prices were generally strong, but prices remain volatile (Blas, 2013).[12] Fairtrade minimum prices for tea vary by country, reflecting differences in auction prices and costs of production (see Fairtrade International, n.d.).

Henderson and Nellemann (2011) report that buyers like Unilever paid premiums around €0.08 (US$0.11) per kilogram of Rainforest Alliance certified tea in 2011, which corresponded to a 5 per cent premium over international prices at the time.[13] The same source reported that the organization paid premiums as high as 15 per cent for certified tea during the same year.

The global weighted average premium for UTZ Certified tea in 2012 was €29 per metric ton, with an average range of €20 to €59 per metric ton (UTZ, 2013e). This corresponds to a premium of about 1 to 2 per cent over global average tea prices during the same year.[14]

9 Based on international market prices of US$2.30 per kilogram in September 2013.
10 Based on 2011 USD/EUR exchange rate of 0.72 dollars (OANDA, 2013).
11 Thus, Fairtrade premiums may also multiply member benefits by enabling members to save money through bulk buying of fertilizer and foodstuffs (FLO, 2012).
12 For example, auction prices fell 30 per cent between November 2012 and 2013 in Mombasa, Kenya (Obulutsa, 2013).
13 Prices were at US$3.39 per kilogram (IndexMundi, 2013c).
14 Based on an average tea price in international markets of US$3.30 (FAO, 2013).

14.6 CHALLENGES AND OPPORTUNITIES

Standard-compliant tea production has grown an average of 33 per cent per annum between 2009 and 2012, reaching 577,000 metric tons in 2012, while sales grew 49 per cent per annum over the same period to reach 174,000 metric tons in 2012. This impressive growth has been driven by commitments from some of the largest tea companies, including Unilever, Tata, Finlay, Van Rees, DE Master Blenders 1753 and Apeejay Group, and various supermarkets.

Most voluntary sustainability standard market growth to date has been led by export-oriented markets. As a result, market penetration rates for sustainable sales have been higher for major tea exporting countries. Among the top five exporting countries, sustainability standards have significant market penetration across Kenya, India and Sri Lanka. China and Vietnam, on the other hand, represent significant untapped opportunities for expanded sourcing of sustainable teas for export markets. Based on current data and trends, we expect more than 80 per cent of global tea exports to be standard compliant by 2020.

With more than half of global tea production destined for domestic markets, building domestic markets for sustainable tea will be key to transforming global tea production toward sustainable practice over the longer term. Thus far, very little penetration has been observed in domestic markets, although Unilever's work in Turkey represents an important effort to break this pattern.

One of the major obstacles facing the transition to standard-compliant production across commodities more generally, but specifically within the tea sector, is related to the existence of local capacity for reaching compliance. As such, government initiatives and partnerships from both producing and consuming countries are playing important roles in facilitating the transition to sustainability in the tea sector. All three of the most important producers of standard-compliant tea, namely Kenya, India and Indonesia, which together account for 67 per cent of global standard-compliant supply, have had their market leadership catalyzed by explicit and intentional government programs (see Box 14.3). Government investment can be expected to continue to play an important role in enabling the transformation of tea production to standard-compliant practices.

Another of the deeper obstacles facing widespread penetration of standard compliance across the tea producing world relates to the high reliance of tea production on domestic markets. To date, very little progress has been made in the development of sustainable tea markets at the local level and therefore represents one of the most significant long-term challenges to the sector. Addressing this challenge will require significant repositioning of the voluntary standards in order to appeal to more local markets.

BOX 14.3 PUBLIC AND PRIVATE INVESTMENT INTO CAPACITY BUILDING ENABLES MARKET ENTRY

Investment by public and private entities into capacity building on the ground has allowed a select number of tea producing countries to gain exceptional access to the growing market for sustainable tea. Kenya, India and Indonesia represent 67 per cent of standard-compliant production but only account for 32 per cent of global tea production. Capacity building programs have played important roles in enabling these countries to take market leadership positions.

In Kenya, for example, the global leader in the supply of standard-compliant tea, the Kenya Tea Development Agency (KTDA) has played a major role in building local capacity for serving the growing sustainability market. The KTDA teamed up with Unilever and the UK's Department for International Development for its Farmer Field School project, running the pilot phase from 2006 to 2008. It then worked with Unilever, Rainforest Alliance and IDH in the first phase ("upscaling," from 2009 to 2012), to further transform the Kenyan tea sector through training and certification of 560,000 smallholders toward sustainable production. The program is now in a second phase ("embedding," 2012 to 2015) aimed at embedding sustainability standards across the country in organizational structures by combining Rainforest Alliance training with the Farmer Field School training to maximize impact. The program aims to have a self-sustainable tea economy in Kenya after 2015, including strong market access through Rainforest Alliance (IDH, 2013b; KTDA, 2013).

In India, the UK's Department for International Development has promoted the sustainable livelihoods for Indian smallholder tea growers and tea workers to achieve fairer terms of trade in their industry in response to a state of oversupply in the tea market and resulting low prices. This initiative aimed to achieve a better understanding of the national and international forces influencing the sustainability of the Indian tea industry.

The Lestari Standard was developed by the IDH Solidaridad and local partner Business Watch, and based on the UTZ standard. The Lestari Standard targets tea production destined for domestic Indonesian consumption, while also helping producers ramp up to international standards like Rainforest Alliance, UTZ or Fairtrade. While national standards are present in other commodity industries, tea presents a particular case. The tea universe is characterized by a global production that is more than double the size of the export market (4.7 million metric tons versus 2 million metric tons in 2011), in contrast to other commodities where voluntary sustainability standards have a strong presence (roughly 15 per cent of coffee and cocoa produced is consumed domestically).

Although not currently an area of major voluntary sustainability standard activity, in Vietnam, the Ministry of Agriculture and Rural Development has signed an agreement with Unilever to create a public-private partnership called the Vietnam Tea Initiative that aims to promote and accelerate sustainable tea production in the country. The initiative aims to raise Unilever's tea procurement from Vietnam from 25,000 metric tons to 30,000 metric tons of Rainforest Alliance certified tea by 2015.

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15 CONCLUSION

Voluntary sustainability standards are, perhaps, the quintessential example of the green economy in action. On the one hand, they have the potential to enable more accurate full-cost accounting, while stimulating investment in newer, more efficient, "green" technologies. By leveraging existing supply chain infrastructures and relationships, sustainability standards hold the unique promise of more efficient, integrated approaches to sustainable development than those offered by traditional command-and-control policy measures.

The rapid growth in the number and market share of sustainability standards over the past decade is a vindication of the potential of such initiatives to bring about real and meaningful transformation across economic production. As sustainability standards find their way into the mainstream, they have the potential to set ground rules for entry into global markets, and, in so doing, "require" production to meet globally recognized standards for sustainable production.

The potential efficiency gains and regulatory power of voluntary standards suggests that they may offer one of the most accessible and wide-reaching vehicles for implementing sustainable development today. In light of this potential, there is a growing imperative to ensure that this opportunity is leveraged appropriately.

To date, voluntary sustainability standards have grown principally as a result of market forces. Whether motivated by environmental, labour, supply, reputational or other risks, sustainability standards have been driven by market imperative. Reliance on the market for their existence has resulted in the development of initiatives with a high degree of flexibility and pragmatism—hallmarks of the voluntary sector more generally. The basic features of market responsiveness and market ownership are key characteristics that allow standards to deliver beyond regulatory action alone.

But if the organic growth of sustainability standards allows them to move beyond regulatory regimes, they nevertheless face challenges by virtue of the imperfect nature of the markets within which they operate. Where the adoption of sustainable practices implies higher costs, the market will seek ways to avoid those costs by any variety of means including, at the limit, avoiding the adoption of such practices. Similarly, to the extent that the effectiveness of voluntary standards revolves around enabling more effective communication in the market place and the provision of such information represents a cost, the very premise upon which voluntary standards promise to operate may be threatened by market forces. Finally, even without considering the potential challenges created by market interests, it is a plain fact that voluntary standards have developed in an entirely unconstrained and open-ended environment. While this has helped foster innovation within the sustainability standards sector, it is also leading to reduced ability for clear market communication and strategic policy intervention. Based on our review, some of the more persistent "high-level" challenges facing the effective use of sustainability standards include:

Diversity of governance regimes: One accomplishment of voluntary standards to date has been the establishment of more accessible and inclusive governance regimes for select supply chain stakeholders across international borders. Where participatory governance is recognized as a pillar of sustainable development, this can be considered a key feature of sustainability standards. However, there is currently no clarity on how different governance regimes operate, nor procedures for ensuring that they recognize basic due process and democratic principles within them. Moreover, the combined outcome of "democratic" process with "market-based interests" remains deeply vulnerable to bias in the governance process in favour of organizations with significant market authority.

Inconsistency of conformity assessment systems: Our review has documented the many ways in which voluntary sustainability standards are improving the ability of supply chains to bring increasingly objective and reliable means for verifying the application of sustainable practices. However, our review has also documented a great diversity of approaches, including a high level of discretionary decision making. Meanwhile, the availability of information related to past and present audit processes related to specific production sites is typically not available. As with governance systems, there is a general lack of consistency in the application or understanding of conformity assessment processes.

Absence of trade and consumption data: Market data on initiatives are largely limited to data provided by standards bodies themselves. Limited budgets, as well as limited access to supply chain data by such organizations, reduce their ability to report on the broad spectrum of market data. At present, most available data tends to be limited to production data. There is a deep need for better trade and consumption data in order to gain a fuller understanding of the drivers and distribution of sustainable production and consumption.

Absence of impact data: Although the importance of field-level impact data is becoming increasingly recognized,[1] addressing the challenge remains monumental. The diversity of initiatives, combined with the diversity of production systems across any given initiative, points toward the need for common metrics as a starting point for understanding impacts. Common metrics need to be applied across a wide spectrum of producing regions, over time and with counterfactuals, to gain a meaningful understanding of

1 In addition to growing investment to the Committee on Sustainability Assessment, the number of complementary multi-year, multi-country research programs are on the rise such as work being done on poverty reduction under the ISEAL Alliance and work recently completed by the Natural Resources Institute for DFID (during its most recent summit, members of the Sustainable Food Lab agreed that an aligned strategy for data collection among different private sector players was needed (D. Boselie, IDH, personal communication, December 15, 2013; see www.sustainablefoodlab.org).

Private/voluntary initiatives

The growing recognition of the role of voluntary sustainability standards as important instruments for implementing sustainable development has given rise to a number of voluntary NGO initiatives. These initiatives can provide important support and infrastructure to multilateral, intergovernmental approaches. Some leading initiatives include:

International Social and Environmental Accreditation and Labelling Alliance (ISEAL): The ISEAL Alliance is an association of "mission oriented" voluntary sustainability standards that, in addition to providing a forum for collaboration and information exchange among sustainability standards organizations and other stakeholders, manages a series of "Codes of Good Practice" designed to set benchmarks and criteria for determining credible standard-setting and management processes. The ISEAL Alliance also facilitates data collection on impacts and other data parameters among its members. See http://www.isealalliance.org/ for more information.

Committee on Sustainability Assessment (COSA): The Committee on Sustainability Assessment is an independent grouping of researchers and development institutions that have come together to establish common methodologies and parameters for measuring field level impacts of sustainability standards and related supply chain initiatives. As of 2012, COSA had completed more than 15,000 field-level surveys compiling some million data points across its generic indicators. See http://thecosa.org/ for more information.

Sustainable Commodity Assistance Network (SCAN): The Sustainable Commodity Assistance Network is a grouping of standard-setting organizations and technical assistance organizations seeking to develop harmonized training tools and processes for streamlining smallholder entry into sustainable supply chains. As of 2012, SCAN had 17 members, including representatives from five standard-setting bodies, and operations in five countries. See http://scanprogram.org/ more information.

Sustainable Trade Initiative (IDH): The Sustainable Trade Initiative is a global initiative founded by the Dutch Government aimed at stimulating private sector investment into sustainable supply chains through a matching funds model. IDH-associated projects totalled €49 million in 2012, applied to programs in 15 sectors. See http://www.idhsustainabletrade.com/about-idh for more information.

Finance Alliance for Sustainable Trade (FAST): The Finance Alliance for Sustainable Trade is an association of financial service providers committed to providing loans and other investment to sustainable small and medium enterprises in the South. FAST focuses on streamlining access to finance by providing SME training, FAST Financial Fairs, and streamlining access to information on lender portfolios, as well as small and medium enterprise requests and performance over time. FAST members represented a total "green lending" activity of approximately US$440 million in 2011. See https://www.fastinternational.org/ for more information.

Multilateral/intergovernmental

Three intergovernmental initiatives are leading the way in building understanding among policy-makers at the multilateral level. These represent an important starting point for further action by the multilateral community.

International Trade Centre—Trade for Sustainable Development (ITC-T4SD): The ITC manages a database of more than 100 voluntary sustainability standards. The database houses information related to the systems, governance and criteria of different standards as a means for improving private sector and policy-maker decision making related to voluntary sustainability standards. The ITC provides back-end services to, among others, the SSI, COSA, Kompass, and the Sustainability Standards Resource Center. See http://www.standardsmap.org/ for more information.

Donors Network on Sustainability Standards (DNSS): the Donors Network on Sustainability Standards is a group of more than 15 donor agencies with significant investments in sustainability standards and related supply chain initiatives. The objective of the Donors Network is to maximize impact of individual donor interventions through enhanced information exchange and collaboration. For more information, communication with the secretariat can be had through Christine Carey at christine.carey@iprolink.ch.

United Nations Forum on Sustainability Standards (UNFSS): The United Nations Forum on Sustainability Standards is the only multilateral institution with an explicit mandate of facilitating discussion and strategic policy guidance related to voluntary sustainability standards. One of the core missions of the UNFSS is to provide developing country governments with an open space for expressing concerns and elaborating a positive agenda with respect to voluntary sustainability standards. See http://unfss.org/ for more information.

the impacts of voluntary sustainability standards. Impacts need to be considered not only at the field level but also at the landscape, regional and global levels to ensure that standards are succeeding and prioritizing where sustainability issues are most pressing within any given sector and across sectors more generally. Achieving this objective will require considerable investment.

Promotion of positive poverty reduction impacts of voluntary sustainability standards: Although our review has not aimed at directly understanding field level impacts, it has revealed a clear concentration of standard-compliant production in more developed, export-oriented economies. To a large extent, this result is expected—one of the purported advantages of market-based instruments is their ability to select for the "most efficient" means of compliance. Clearly, producers that already comply with a given standard will be the least costly (i.e., most efficient) to certify. But this outcome also suggests the systemic challenge (and importance) of facilitating less-prepared producer entry into sustainable supply chains. Given the prominence of poverty reduction as a sustainability parameter in commodity production, the importance of ensuring appropriate access among less-developed sources of production is critical. Financing and technical assistance will be key inputs to facilitating access to sustainable markets among poorer producers.

As sustainability standards become increasingly important determinants of the modes of production and trade, it becomes increasingly important to ensure that these and other gaps are addressed in a manner that promotes desired outcomes over the long term.

Although the voluntary sector has demonstrated a degree of capacity and interest in building more clarity in the sector through a number of leading meta-initiatives, and an innovative foundation has been laid at the multilateral level (see Box 15.1), there is still a general absence of coordinated engagement at the political level. Given that the most persistent information and rule-making gaps appear to be the result of market forces, there remains a specific role for greater public policy engagement in complementing these forces to ensure that they optimally serve the public good. This context provides the basic rationale for a more coordinated public policy approach to voluntary sustainability standards. Although the different roles and provisions of an "international framework on sustainability standards" warrant further independent investigation (not to mention political dialogue), based on our survey of the current landscape, some of the most immediate opportunities for public policy action include:

International framework on sustainability standards: Ad Hoc list of policy opportunities

1. Defining the sector:

Although various efforts have been made (*inter alia* through the SSI, ISEAL, COSA and the ITC) to define key performance characteristics within the sector, these have not, as of yet, received confirmation or adoption at the political level. Reaching agreed terminologies could help forward political discussions toward increased predictability and the promotion of best practices within the sector. Some key areas where agreed definitions of different modalities and corresponding best practices include:

a. Governance: Agreed definitions related to different governance structures and best practices for governance.
b. Conformity assessment: Agreed definitions related to different conformity assessment systems and best practices for conformity assessment.
c. Impacts: Agreed indicators and best practice methodologies for impact assessment.

2. Reporting rules/guidelines:

Access to information about the characteristics and performance of voluntary sustainability standards represents a key building block for more efficient market activity. Ensuring equitable opportunity across voluntary sustainability standard markets requires special attention to ensuring availability of information to less developed economies. Traditional and specialized market analysis services cannot provide accurate analysis where the data are fundamentally lacking. Some key areas where public policy could facilitate better analysis and strategic decision making related to voluntary sustainability standards include:

a. Notifications on new standards and revisions to existing standards: Under the TBT Agreement, WTO member countries are obliged to provide notifications related to the development of non-governmental standards (TBT Code of Good Practice). Although private voluntary standards are typically not included within the ambit of TBT Agreement notifications, a more regular and prevalent notifications system for sustainability standards (either under the WTO or elsewhere) could facilitate more transparent operation of the market.
b. Trade data: Most trade data relies on voluntary reporting from standards setters who themselves have only partial access to such data. Currently there is no system in place for gathering and reporting accurate trade data at the international level. In order to do so, some agreement on the appropriate international infrastructure will be required including, *inter alia,* the development of HST codes for "recognized" sustainability standards. A system similar to FAOStat could also be implemented.

3. Communications/claims guidelines and rules:

Voluntary sustainability standards revolve around the development and implementation of "credible" market claims related to sustainable practices. Different governance, conformity assessment and criteria can be expected to result in different impacts at the field, regional and global levels. Most national governments regulate claims made in the market to ensure honest and fair representation in a manner that promotes free and fair competition. Common definitions and reporting guidelines could help inform national policy design to promote fair competition.

a. National packaging regulations: Integration of agreed definitions and possibly even impact assessment requirements into national packaging claims regulations could promote market predictability and efficiency at the international level.
b. Application of competition policy: Most national competition policies prohibit false advertising. Agreed definitions and best practice guidelines could allow for more predictable and transparent judgments related to claims involving sustainability standards.

4. Technical assistance:

One of the pillars of a green economy relates to explicit efforts to stimulate investment in green production practices and related technologies. One of the enduring challenges associated with such efforts relates to the determinations on what could or should qualify as investment for a green economy. Moreover, evidence on current market trends within the voluntary sustainability standard sector suggests a need for more explicit investment in ensuring access for poorer rural producers. Common standards established at the multilateral level could help ensure technical assistance is linked to the most promising vehicles for sustainable development and those in most need.

a. Eligibility requirements for accessing funds from national and international sources: International definitions could be used in setting national or international benchmarks for qualifying for technical assistance funds (for example, under "Aid for Trade," "Global Environment Facility" or special dedicated sustainability standards technical assistance fund).
b. Sustainability standards technical assistance fund: A multilateral framework outlining definitions and best practice could provide the requisite foundation for a dedicated facility for technical assistance associated with entering into credible, standards-based sustainable supply chains.

5. Tariff relief:

Although voluntary sustainability standards provide tools for correcting market imperfections, they must still operate in an imperfect market which may favour "unsustainable" production practices. Tariff relief offers a vehicle for levelling the playing field to counterbalance pressures from the market. Agreed definitions and best practices within the context of an international framework could also provide a foundation for distributing tariff relief for goods and services produced in compliance with recognized standards.

a. Environmental goods and services: The 2001 Doha Ministerial declaration instructs WTO members to negotiate the reduction or elimination of tariff and non-tariff barriers for environmental goods and services. Acceptance of select products on such a list could be predicated on meeting certain internationally recognized governance, conformity assessment and/or reporting requirements.
b. Green public procurement: Baseline rules for qualification as green public procurement could be established based on recognized governance, conformity assessment and/or reporting requirements.

The bullets above provide a high-level list of some areas where international consensus on best practices and corresponding policies could facilitate increased effectiveness in the use and implementation of voluntary standards.

Regardless of the specific items that might be included within such an international framework, it is clear that if the main assets of voluntary standards are to be preserved, any eventual public policy instruments will need to maintain sufficient flexibility to allow the market to operate freely and efficiently. With this in mind, public policy efforts are most likely to succeed to the extent they focus on roles related to ensuring *efficient operation of the market* through the promotion of more accurate, harmonized and credible communication related to initiatives within the marketplace. Following such an approach, progress toward an international framework could, arguably, offer voluntary sustainability standards the foundation that they need to deliver on their deepest sustainability promise—namely, the facilitation of market efficiency through improved market information.

Of course, public policy should not be considered a panacea for the sector either. The vibrancy of sustainability standards is deeply rooted in their ability to respond to individual perspectives and to leverage those perspectives towards innovation. The private sector, NGOs and standard setters themselves must, therefore, remain the *owners* of the development and implementation of sustainability standards. At the same time, private actors need to continue to take direct responsibility for the performance of such initiatives through ongoing monitoring, enforcement and continual improvement efforts.

At the end of the day, a shared vision implies shared responsibilities. In the words of Yeats, "in dreams begin responsibility." The reverse is also true: recognizing our responsibilities, both public and private, will be the necessary foundation to realizing our dreams.

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17 APPENDICES

APPENDIX I | SSI CONTENT CRITERIA INDICES AND INDICATORS

SSI Social Indices

1. **Community involvement:** Companies and supply chains draw from community resources while directly impacting community relations. As a result they also bear responsibility to the communities within which they operate. Increasingly, companies are attaching importance to communication with, loyalty to, and the involvement of, communities, in their own decision making. The SSI project monitors VSS criteria coverage for community involvement along the following categories:
   a. ***Community consultation***: Standard addresses consultation with the community regarding changes or impacts from business activities on local resources and communities;
   b. ***Local hiring and purchasing***: Standard includes criteria promoting preference policies for local hiring and purchasing.
2. **Employment benefits:** Employers seeking to ensure the long-term well-being of their employee base will often invest directly in additional nonwork-related benefits. The SSI project monitors the presence of criteria related to the following employment benefits:
   a. ***Paid leave*** (sick/maternity and/or paternity): Standard includes criteria related to leave days, including maternity/paternity leave, as well as special leave days, including sickness, marriage, family leave;
   b. ***Pension and security benefits***: Standard addresses issues related to pensions and social security benefits.
3. **Employment conditions:** The conditions and treatment of employees is governed by employers. Poorer employees or those associated with minority groups may be subject to discrimination or inequitable treatment due to their unequal bargaining power or status among other employees. VSSs can play a role in ensuring fair working conditions and employer treatment through their rules processes. The SSI project's employee conditions index monitors VSS criteria coverage with respect to:
   a. ***Treatment of contract workers:*** Standard addresses issues related to seasonal labour;
   b. ***Transparency of employment practices***: policies and practices are written, accessible and understandable to all workers; standard addresses employment conditions;
   c. ***Written contracts for employees*** (rather than verbal agreements);
   d. ***Timely payment of wages:*** Standard requires wage payment is made without delays;
   e. ***Maximum number of working hours***: Standard explicitly sets maximum number of working hours.
4. **Gender:** Gender equality and opportunity is recognized as a leading indicator of sustainable development and livelihoods. The SSI project monitors the existence and extent of obligations related to:
   a. ***Gender in governance:*** The initiative promotes and monitors women in Board and management positions;
   b. ***Women's labour rights:*** The initiative includes explicit criteria to protect women employees' rights (e.g., pregnancy testing);
   c. ***Women's health and safety:*** The initiative includes explicit criteria for women employee health and safety issues.
5. **Health and safety:** Worker health and safety represents a core responsibility of employers and is directly linked to human well-being. VSS can monitor and enforce practices related to investments and protections for employee health and safety. The SSI project monitors criteria coverage on:
   a. ***Safety at work:*** Standard addresses requirements for safety at work (ILO 184);
   b. ***Healthy work conditions:*** Standard includes criteria relating to healthy work conditions;
   c. ***Access to safe drinking water:*** Standard includes criteria relating to workers' access to safe drinking water;
   d. ***Access to sanitary facilities at work:*** Standard includes criteria relating to sanitary facilities in the workplace;
   e. ***Access to medical assistance:*** Standard addresses requirements for access to medical assistance/insurance in the workplace;
   f. ***Access to training:*** Standard addresses requirements for worker training requirements.
6. **Human rights:** The United Nations Declaration on Human Rights (UNDHR) sets the foundation for internationally recognized human rights. The SSI project tracks key themes contained within the UNDHR by tracking the degree of obligation to protect rights to:
   a. ***Education:*** Standard includes criteria related to the promotion/enhancement of education;
   b. ***Housing and sanitary facilities***: Standard includes criteria related to housing and sanitary facilities;
   c. ***Medical care:*** Standard includes criteria related to the promotion/enhancement of medical care.
7. **Humane treatment of animals:** The humane treatment of living and/or sentient creatures is commonly regarded as a human ethical responsibility with implications for the health and well-being of society more generally. The SSI project monitors criteria coverage related to:

a. ***The humane treatment of animals***

8. **Labour rights:** ILO Core 8 convention requirements are explicitly written into organizational documents: #29-Forced Labour (1930), #87-Freedom of Association and Protection of the Right to Organize (1948), #98-Right to Organize and Collective Bargaining (1949), #105-Abolition of Forced Labour (1959), #138-Minimum Age (1973), #182-Worst Forms of Child Labour (1999), #100-Equal Remuneration (1951), and #111-Discrimination (1958). The SSI project tracks VSS criteria coverage on the following issues:
   a. ***Equal remuneration:*** Standard includes criteria related to equal remuneration, as defined by ILO 100;
   b. ***Freedom of association:*** Standard includes criteria related to freedom of association, as defined by ILO 87;
   c. ***Collective bargaining:*** Standard includes criteria related to collective bargaining, as defined by ILO 98;
   d. ***Non-discrimination:*** No discrimination due to race, religion, social, cultural, age, gender or other factor, as defined by ILO 111;
   e. ***Worst forms of child labour:*** As defined by ILO 182;
   f. ***Forced labour:*** Standard prohibits use of forced labour, as defined by ILO 29;
   g. ***Minimum age:*** Standard sets a minimum age for workers with ILO 138 as minimum threshold.

SSI Environmental Indices

1. **Soil:** Soil is a key environmental resource of agricultural systems and ecosystems. The SSI Soil Index records criteria coverage with respect to:
   a. ***Soil conservation (erosion prevention):*** Management plan and practices to conserve soil and avoid soil loss through erosion, such as contour ploughing and reforestation;
   b. ***Soil quality maintenance:*** Soil quality reflects how well a soil performs the functions of maintaining biodiversity and productivity, partitioning water and solute flow, filtering and buffering, nutrient cycling, and providing support for plants and other structures.
2. **Biodiversity:** Biodiversity has long been recognized by the international community as a key variable in ensuring ecosystem resilience and integrity. Drawing from the framework of the Convention on Biological Diversity, the SSI Biodiversity index monitors criteria coverage with respect to:
   a. ***Habitat set-asides:*** Standard document requires areas not to be used for production/extraction in order to conserve, protect and restore habitat areas for wild plants and animals;
   b. ***Flora densities/diversity:*** Standard document addresses plant genetic density (space) and diversity;
   c. ***Land conversion:*** Standard document prohibits conversion of high conservation value land.
3. **Genetically modified organism prohibition:** Although the use of Genetically Modified Organisms (GMOs) in agricultural production remains an issue of considerable controversy from a sustainable development perspective, consumers and other stakeholders have displayed strong positions either in favour of, or against, the use of GMOs in production. At the same time, the inclusion of GMO-related criteria within a VSS can have wide-reaching impacts on the supply chain. As a result, the SSI project monitors criteria coverage with respect to:
   a. ***Prohibition of genetically modified organisms***
4. **Waste:** Waste production from primary production and industrial processes represents a major source of environmental pressure in many product and commodity supply chains. The SSI Waste Index monitors criteria coverage with respect to:
   a. ***Waste disposal:*** Standard addresses disposal of waste (including solid waste, non-solid waste, hazardous waste…);
   b. ***Waste management:*** Includes the control of the collection and treatment of different wastes;
   c. ***Pollution:*** Minimizing the introduction of contaminants into an environment that would cause instability, disorder, harm or discomfort to the ecosystem in the form of chemical substances, or energy, such as noise, heat or light.
5. **Water:** Water is a major resource for agricultural production, ecosystem sustainability and human well-being. The SSI Water Index measures the existence of criteria related to the following categories:
   a. ***Water practices in scarcity (dependencies):*** Requirement to address water use in areas of scarcity or high risk;
   b. ***Water use management plan:*** Requirement of a plan that includes planning, developing, distributing and optimal use of water resources under defined management strategies;
   c. ***Water reduction criteria:*** Water conservation management plan to reduce water use;
   d. ***Wastewater disposal:*** Requirement of appropriate wastewater disposal.
6. **Energy:** Energy use can affect waste generation more generally, as well as climate change-related impacts of production. The SSI Energy Index monitors the existence and degree of criteria related to:
   a. ***Energy use and management:*** Criteria relating to the application of a set of "clean production principles";
   b. ***Energy reduction:*** Standard addresses issues related to reducing energy use.
7. **Greenhouse gas:** Greenhouse gas (GHG) reduction and management is a core strategy for reducing global pressures on climate change. The SSI project tracks criteria coverage related to:
   a. ***Greenhouse gas accounting:*** requirement to measure carbon emissions;
   b. ***Greenhouse gas reductions:*** requirement to manage greenhouse gas emissions;
   c. ***Soil carbon sequestration:*** Standard includes a general principle on the sequestration of greenhouse gases.
8. **Synthetic inputs:** Synthetic inputs can have important implications for energy use, waste generation, worker health and ecosystem health. As a general rule, good agricultural practices prescribe methods for ensuring that the potentially negative impacts arising from the use of synthetic chemicals are minimized. The SSI project monitors the level of constraint

placed on the use of synthetic according to the following categories:

a. ***Integrated pest management:*** Synthetic inputs may be used but within defined limits under an IPM system;
b. ***Enforcement of a prohibited list:*** Synthetic inputs are allowed but only those that do not appear on a list of prohibited materials;
c. ***Complete prohibition of synthetics:*** No synthetic inputs may be used.

SSI Economic Criteria

1. **Living wage:** The Standard requires minimum levels of wages that cover basic human needs, as defined locally by public authorities;
2. ***Minimum wage:*** Requirements related to compliance with local minimum wage laws as defined by local, regional or national law—must be paid to workers in certified / verified operations;
3. **Premiums:** As part of the standard, a premium over the conventional price of the product is required for the producer;
4. **Product quality requirements:** Specifications for minimum physical product quality are explicit within standard document;
5. **Written contracts between buyers and sellers:** Criteria for setting up contracts with traders.

APPENDIX II | THE SSI INDICATORS AND DEFINITIONS

The following table lists the core indicators—characteristics and vital statistics of voluntary sustainability initiatives—that the State of Sustainability Initiatives project seeks to monitor on a regular basis. The definitions below provide high-level descriptions of each indicator. The non-market indicators in the list are also found within the International Trade Centre's T4SD (Trade for Sustainable Development) database.

Systems information indicators can be found within the text and tables of Sections 1.0 and 2.0 of this report, while market indicator data can be found in the commodity-specific market subsections of Section 3.0.

INDICATOR NAME DEFINITIONS/DESCRIPTIONS

GENERAL INFORMATION

Activities monitored	The activities that the organization oversees in one of the following categories: **Production/extraction**: Standard system coverage is limited to the first stage of the supply chain and primary products: changing or extraction of natural resources into primary products including agriculture, forestry, mining, petroleum, hunting and fishing. **Conversion**: The standard system focuses on the next stage of the supply chain, taking raw materials and natural resources as inputs for conversion or processing into a higher value product. **Trade and retailing**: The standard system focuses on the purchase and sale of the product to an end consumer. **Chain of Custody**: The standard system focuses on Chain of Custody: documentation of product control, transfer and processing throughout the supply chain. **Communication claims/labelling**: The standard system coverage focuses on verifying claims and labelling.
Geographic restriction	The geographic scope of the initiative. If the organization operates on a global level, the geographic restriction is classified as "unrestricted." If the organization operates only within one region or country, the geographic region is identified.
Industry restriction	Identification of the industries to which the initiative pertains. If the organization operates across a range of industries, it is classified as "unrestricted." If the organization specifically operates only within one industry, such as forestry, it is classified as "restricted." This category also refers to potential industries, not only the current industry for which a standard has been developed.
Legal form of organization	Either profit or not-for-profit. In a for-profit organization, the profits that are not re-invested in the organization are distributed to the owners/shareholders of the corporation as cash. In the case of a non-profit organization, the profits are used to provide goods or services to the group or groups the non-profit was formed to help. A for-profit is legally owned and controlled by the investors, where a not-for profit has no legal owners.
Main activities	Defines the main activities of the organization in the following subcategories: **Standard setting**: The initiative develops a standard that sets requirements to be followed by program participants (e.g., Fairtrade). **Certification**: The organization acts as a third party and gives written assurance that a product, process or service is in conformity with certain standards (e.g., ProTerra). **Accreditation:** The organization acts as an authoritative body that evaluates and formally recognizes a certification program (e.g., IFOAM). **Marketing and labelling:** The primary business of the organization is marketing and/or labelling (e.g., Rainforest Alliance).
Organization type	The type of the sustainability initiative is private or public. A public organization is an organization that has been established and has a mandate set out in law as a government or intergovernmental body. A private organization is any organization that does not fall into one of those categories.
Percentage of expenditures for administration	The percentage of total annual expenditures used for administrative purposes, as reported on legal tax documents.

Performance-based standard	Standard criteria are results based or performance criteria, (e.g. water use reduction by 10% per year over 5 years) (T4SD).
Process-based standard	Standard includes criteria based on production processes, also known as compliance or management system criteria, (e.g., water management plan); they do not set performance criteria based on results to be reached (T4SD).
Product standard	Standard that specifies requirements to be fulfilled by a product or a group of products, to establish its fitness for purpose. Note 1: A product standard may include in addition to the fitness for purpose requirements, directly or by reference, aspects such as terminology, sampling, testing, packaging and labelling and, sometimes, processing requirements (ISO/IEC Guide 2:2004).
Standard system type	Identification of the coverage of an organization into one of the following categories: **Generic system**: The initiative is not limited to any particular product or process. The criteria/indicators remain the same for all products/processes. **Integrated system**: The initiative can certify an entire enterprise as a system. There are different criteria/indicators for each product/process. **Product/process-specific**: The initiative pertains to one or more products or processes.
Target constituent focus	The constituent focus provides an indication of the target of the initiative (individual, group or cooperative).
Target constituent size	Identification of whether the initiative's target constituents are microenterprises/businesses, small and medium sized enterprises, or large multinational enterprises/businesses. Categories were defined through local thresholds based on various factors, including sales and number of employees.
Total annual expenditures	The total amount of money that the initiative spends during one fiscal year.
Total annual income	The organization's annual budget. The total annual income is calculated by adding the annual income brought in by grants, membership fees, services and other income sources (before tax deductions).

SYSTEMS INDICATORS

Accreditation	Third-party attestation related to a conformity assessment body conveying formal demonstration of its competence to carry out specific conformity assessment tasks (ISO/IEC 17000).
Administration expenditure	The percentage of total annual expenditures used for administrative purposes as reported on legal tax documents.
Audit	A systematic and functionally independent examination to determine whether activities and related results comply with planned objectives (FAO).
Audit costs	The examination costs incurred from internal auditors and/or independent auditors visiting the site to determine whether activities and related results comply with planned objectives.
Audit sampling method	Percentage or formula for calculating the number of sites, producers or businesses within a group that must be physically audited in any given assessment.
Board member selection	Board members selected by stakeholders/individuals and institutions interested and involved in the initiative, recognized members of the initiative, established board members, or other stakeholders.
Board representation by region	Percentage of total board members who are from developed countries or developing countries.
Board representation by type	Percentage of total board members who represent producers, who are part of the industry or private sector (e.g., traders), who represent workers' associations or unions, who belong to a civil society organization and/or who are fall under the category of other (consultants, lawyers, financial institutions).
Certification audit	Third party attestation related to products, processes, systems or persons (ISO 9000/2005).
Certification fee	Costs made by the body certifying a producer group.
Chain of Custody	Documentation of product control, transfer and processing throughout the supply chain.

CoC model	CoC model based on: **Identity preservation**: The identity preservation model requires physical separation, tracking and documentation at every stage of the supply chain. **Segregation**: The segregation model ensures that compliant products are kept segregated from non-compliant products during all stages of the supply chain. **Mass balance**: The amount of certified product sourced and sold by each supply chain actor is tracked. However, the certified product and "sustainable" certificates do not need to be sold together (for example, FSC mixed sources). **Book and claim**: "Sustainable" certificate granted based on the application of sustainable practices, but certificate is completely decoupled from the product and transferable on the market.
Code of Conduct	Guidelines advising stakeholders on how to behave in an environmentally responsible manner. Recommended practices based on a system of self-regulation intended to promote environmentally and/or socio-culturally sustainable behaviour (GRDC).
Complaints-related indicators	Public access to policy and procedures for complaints on certification decisions. Complaint procedures made available in a local language. Ability to launch complaints at local level (processes in place that enable complaints to be received through informal channels that take into consideration language and/or literacy barriers or lower access to formal means of communication). Acceptance of complaints launched by informal means (processes in place that enable complaints to be addressed regardless of language and/or literacy barriers or lower access to formal means of communication).
Conformity assessment	Any activity concerned with determining directly or indirectly that relevant requirements are fulfilled. Note: typical examples of conformity assessment activities are sampling, testing and inspection; evaluation, verification and assurance of conformity (supplier's declaration, certification); registration, accreditation and approval as well as their combinations (ISO Guide 2, 12.2).
Continual improvement requirement	A defined continual improvement requirement is explicitly written into organizational documents.
Criteria	The standards, measures or expectations used in making an evaluation and/or verification (TSPN).
Disadvantaged or vulnerable groups	Individuals or groups within the project area of influence who could experience adverse impacts from the proposed project more severely than others based on their vulnerable or disadvantaged status. This status may stem from an individual's or group's race, colour, sex, language, religion, political, or other opinion, national or social origin, property, birth or other status. In addition, other factors should be considered such as gender, ethnicity, culture, sickness, physical or mental disability, poverty or economic disadvantage, and dependence on unique natural resources (IFC).
Distribution of income	**Public grants**: The percentage of total income from public grants and donations, including loans (e.g., soft loans at low interest rates). **Private grants**: The percentage of total income from private grants and donations. **Other**: The percentage of total income brought in by other income sources (i.e., other than grants, membership fees, services or government). **Membership fees**: The percentage of total income brought in by membership fees. **Fees and services**: The percentage of total income from fees for services.
Externally managed funds	Funds that are managed and implemented by another organization.
Formal monitoring and evaluation system	The initiative adheres to an accredited standard's M&E systems, such as those defined by ISO or ISEAL.
Frequency of audits	Frequency of full assessment as required by standard.
Independent dispute settlement body	A dispute settlement body that is not made up of the organization's board members has been established and formally recognized in writing.

Independent evaluator	An evaluation carried out by entities and persons free of the control of those responsible for the design and implementation of the development intervention. **Note**: The credibility of an evaluation depends in part on how independently it has been carried out. Independence implies freedom from political influence and organizational pressure. It is characterized by full access to information and by full autonomy in carrying out investigations and reporting findings (OECD, 2000).
Indicator	The measure that is used to demonstrate the change or the result of a programme (OECD, 2000).
ISEAL's Impacts Code	Specifies general requirements for the development and implementation of monitoring and evaluation programs by social and environmental standards systems.
ISO 17065	ISO 17065, replacing ISO 65 in 2012, sets quality and independence requirements for certification bodies, and offers an internationally recognized instrument for assessing the strength of the conformity assessment process.
ISO 17021	ISO 17021 sets requirements for bodies providing audit and certification of management systems. It is the base standard used by accreditation bodies when assessing the competence of management systems certification bodies. It replaced two previous ISO/CASCO Guides (ISO/IEC Guide 62 and ISO/IEC Guide 66) (ISO, n.d.-a).
Licensing fee	Fees paid by retailers and/or other supply chain actors in order to make on package or product claims of supply chain compliance with the initiative.
Local auditors engaged in the verification process	Initiatives draw on expertise of local auditors who are familiar with local contexts for verification process.
Localized indicators	Initiative allows for adaption of indicators to local contexts.
Membership fee	Costs incurred to members for participatory rights, services and discounts associated with membership within the initiative.
Monitoring	A management function that uses a methodical collection of data to determine whether the material and financial resources are sufficient, whether the people in charge have the necessary technical and personal qualifications, whether activities conform to work plans, and whether the work plan has been achieved and has produced the original objectives (OECD, 2000).
Non-recurring revenue	Income of an infrequent nature unlikely to occur again in the normal course of business, such as grants/donations.
Outcome	Results of a program or project relative to its immediate objectives that are generated by the program or project outputs. Examples: increased rice yield, increased income for the farmers (UNDP-defined under "results": OECD, 2000).
Percentage of content requirements	Percentage of compliant product to be included in finished package for labelled product—necessary for the product to be labelled compliant—is specifically set out in the standard.
Producer fee	Registration fee that is typically paid according to certificate cycle
Public disclosure indicators	Public access to lists of decision-makers including Board members and Committee members, lists of certified enterprises, and complaints/appeals/resolutions/certification decisions. Additional components include minutes of Board and committee meetings available online or upon request, and public access to important documents such as financial statements and annual reports. **List of Board members**: Lists of decision-makers including Board members available online. **List of committee members**: Lists of decision-makers including Committee members available online. **List of compliant enterprises**: Lists of certified / verified enterprises available online. **Certification decisions**: Decisions made on certification audits available online. **Meeting minutes and records**: Minutes of Board and committee meetings available online. **Standard setting and review procedures**: Procedures on standard setting and review of standards available online. **Independently audited full financial statements**: Online access to financial statements that have been independently audited. **Annual report**: Online access to the organization's annual reports.
Random field checks / surprise audits	Auditor visits the producer to verify and monitor the ongoing fulfillment of the standards and to identify any corrective actions necessary to maintain compliance.

Recurring revenue	Segment of an organization's revenue that occurs frequently, regularly or periodically, such as membership fees. This is revenue that is predictable and relied upon in the future with a high degree of certainty.
Regional standard development	Initiative allows for adaption of standards to regional contexts.
Relationship to ISEAL	The initiative is a full or associate ISEAL member (including compliance with the ISEAL Impacts Code).
Self-assessment	The execution of an audit by the administrative unit being audited (internal audit as defined by OECD).
Separate Chain of Custody	Adherence to separate standard that defines the principles, criteria and (CoC) standard indicators for CoC.
Scope of CoC requirements	Scope of CoC requirements based on: **Traceability**: CoC requirements ONLY address traceability of product within supply chain. **Environmental**: CoC standard contains environmental criteria for supply chain actors, such as energy use, water use and carbon emissions. **Social**: CoC standard contains social criteria for supply chain actors, such as labour rights, human rights, and local community issues.
Separate standards and/or processes for smallholders	Standards and/or processes have been written specifically for smallholders and differ from the standards/processes for large producers.
Stakeholder	Individuals, groups of individuals or organizations that affect and/or could be affected by a standards systems' activities, products, services or associated performance (ISEAL).
Stakeholder participation on Boards and committees	Stakeholders are asked their opinions on decisions made by boards and committees.
Stakeholder participation in dispute resolution	Level of participation in dispute resolution **Consultation**: Stakeholders are asked their opinions pertaining to dispute resolution. **Decision-making**: Stakeholders have the power to reject/accept/influence the decisions made during the dispute resolution process.
Stakeholder participation in standard development	Level of participation in standard development **Consultation**: Stakeholders are asked their opinions pertaining to standard development. **Decision-making**: Stakeholders have the power to reject/accept/influence the decisions made during the standard development process.
Supply chain	Sequence of activities and/or parties that provides products or services to the receiving organization. In a supply chain, different production processes can be distinguished. Quality assurance of the final product requires that all previous production processes in a chain be certified (HIVOS).
Surveillance audit	Auditor visits the producer to verify and monitor the ongoing fulfillment of the standards and to identify any corrective actions necessary to maintain compliance.
Types of conformity assessment	The types of audits required by the initiative to ensure continuous compliance within the certificate/verification validity time period as well as for complete reassessment.
Verification audit	Confirmation through the provision of objective evidence that specified requirements have been fulfilled (ISO 9000/2005).
Voting members	Members of the organization who vote at the AGM.
Voting member constituency	Individuals and/or groups to which voting membership is open.

MARKET INDICATORS

Production volume ("production")	Production volume that is VSS-compliant, even if not sold as compliant at the first point of sale.
Production volume sold ("sales")	Volume of VSS-compliant product that is sold as compliant at the first point of sale (e.g., from cooperative to trader).
Production value	Value of VSS-compliant product that is sold as compliant at the first point of sale (i.e., total producer revenues from compliant product).

Production market share - value	VSS-compliant production value as a percentage of global production value.
Production market share - volume	VSS-compliant production volume as a percentage of global production volume.
Area fully converted (“area harvested”)	Total hectarage of land on which VSS-compliant product is produced; this refers to area actually being cultivated, not total farm area.
Area under conversion	Total hectarage of land that is in the process of being converted for VSS-compliant production; this refers to areas actually being cultivated, not total farm area.
Yield	Yield in volume per hectare of VSS-compliant production.
Number of enterprises and producers / operators covered by the standard	Total number of enterprises and individual producers or operators meeting requirements of the standard. This includes the producers/operators organized under a group, resource manager, community, or cooperative certificate, and/or those producing, collecting, or gathering for a supply chain covered by a standard.
Number of farmers in small producer organization (“smallholders”)	Total number of farms organized into certified SPO production units - production unit defined as: operating under a single management for the purpose of producing agricultural product (Eurostat definition); Small Producer Organization (SPO): The majority of the members of the organization must be smallholders who don’t depend on hired workers all the time, but run their farm mainly by using their own and their family’s labour.
Number of full and part-time employees covered by the standard	Number of full-time / part-time employees of the certificate holder and all enterprises or individual farms, operators, etc., covered by the standard, disaggregated by gender. Report maximum number during year. Exclude family labour. Full-time employees work year round and typically work 35-50 hours per week. If local definitions of full-time equivalency differ, use appropriate standard. Part-time employees work year round but do not meet full-time equivalency standards (typically less than 35 hours a week).
Number of hired temporary workers covered by the standard	Number of temporary hired workers working for certificate holder and all enterprises or individual farms, operators, etc. covered by the standard. Temporary workers are defined as seasonal, contract, and/or migrant workers. Seasonal and migrant workers are primarily used in agriculture or fisheries. Contracted workers are generally hired for the completion of a specific task.
Export volume	Volume of VSS-compliant product that is exported, excluding the volume of compliant product exported as conventional produce.
Export value	Value of VSS-compliant product that is exported, excluding the value of compliant product exported as conventional product.
Export market share - value	VSS-compliant export value as a percentage of global exports.
Export market share - volume	VSS-compliant export volume as a percentage of global exports.
Import volume	VSS-compliant import volume.
Import value	VSS-compliant import value.
Import market share - value	VSS-compliant import value as a percentage of global imports.
Import market share - volume	VSS-compliant import volume as a percentage of global imports.
Multiple certification - production	Percentage of VSS-compliant production that is compliant under more than one VSS; if an actual measurement is not available, an estimate will be accepted so long as it is specified as an estimate.
Multiple certification - area harvested	Percentage of VSS-compliant area harvested that is compliant under more than one VSS; if an actual measurement is not available, an estimate will be accepted so long as it is specified as an estimate.
Multiple certification - production volume sold	Percentage of compliant production volume sold that is compliant under more than one VSS; if an actual measurement is not available, an estimate will be accepted so long as it is specified as an estimate.
Multiple certification - trade	Percentage of compliant trade that is compliant under more than one VSS; if an actual measurement is not available, an estimate will be accepted so long as it is specified as an estimate.

Multiple certification - producers	Percentage of compliant producers that are compliant under more than one VSS; if an actual measurement is not available, an estimate will be accepted so long as it is specified as an estimate.
Farm gate /Business gate prices	The farm gate/business gate price per product unit of the VSS-compliant product. If the price is not recorded in USD or Euros, the exchange should be calculated using oanda.com's exchange rate from the date on which the report was released.
Reported premiums	Estimated additional dollar value per volume paid for VSS-compliant product at farm gate and strictly on account of certification (i.e., not for physical quality differences).
Certification fees	The explicit fees of a VSS-compliant product, per product unit, calculated across the entire certification scheme (i.e., Total certification costs received/charged + estimated auditing costs for the full assessment/ total traded volume).
Number of operators (exporters)	The number of natural or legal person within the Community who exports to a third country sustainably compliant products with a view to the subsequent marketing.
Number of operators (importers)	The number of natural or legal persons within the Community who presents a consignment for release for free circulation into the Community, either in person, or through a representative.
Number of operators (processors)	Number of operators who preserve and/or process sustainably compliant agricultural products (incl. Slaughtering and butchering) and aquaculture products; Packaging and labelling as VSS-compliant is also considered as processing.
Major private sector purchasers	Amount of product currently being sourced (regardless of conventional/VSS-compliant status).
Private sector sustainable sourcing volume	Amount of VSS-compliant product purchases.
Private sector sustainable sourcing percentage	Amount of VSS-compliant product purchases as a percentage of total purchases.
Private sector commitment to sustainable sourcing	Percentage of purchases that companies commit to source as VSS-compliant, and date by which commitment will be fulfilled.
Retail sales volume	VSS-compliant retail sales volume.
Retail sales value	VSS-compliant retail sales value.
Retail sales market share - value	Share of VSS-compliant sales value as a percentage of global sales value.
Retail sales market share - volume	Share of VSS-compliant sales volume as a percentage of global sales volume.

APPENDIX III | VSS LABELLING POLICIES[1]

VSS	Policy for labelling claims	Policy for single products	Policy for composite products[2]	Explicit policies regarding content requirements for labelling
4C Association	✓	✓		When referring to a specific coffee as "4C Coffee," it has to be 100% 4C compliant coffee. Claims to this effect can only be made with the approval of the 4C Secretariat and must be approved by verifiable traceability mechanisms.
BCI	✓			100% of the product must be certified.
Bonsucro	✓	✓	✓	**Policy for both single and composite products**: a. In case the product contains at least 90% of certified sugar cane (segregation): The sugar in this product is responsibly produced. b. In case the product contains at least 30% of certified sugar cane (mass balance of segregation): The percentage of sugar in the product that comes from mixed responsible sources is to be defined, along with the percentage of commitment for responsible sourcing by specified target year.
CmiA	✓			No percentage requirements (ITC, 2013b). Cotton sold under the Cotton made in Africa (CmiA) label will remain entirely free of genetically modified plants (CmiA, 2012b).
ETP[3]	✓			100% of the tea within a pack has to come from estates engaged in ETP's monitoring programme. 100% of the tea (*Camellia sinensis*) must be from ETP monitored estates. The use of the logo can only be used on products that contain at least 55% *C. sinensis* by weight.
Fairtrade	✓	✓	✓	**Single products**: In the case of single ingredient products like coffee, 100% of the coffee must be Fairtrade certified to carry the label. **Composite products**: At least 50% of the volume of liquid composite products must be Fairtrade certified. For all other composite products the significant ingredient (for example cocoa in chocolate, sugar in conserves) must be Fairtrade certified, and must be at least 20% of the products' dry weight.

1 All information extracted from ITC Standard Map (ITC, 2013b) unless otherwise specified.
2 Composite products refer to products containing multiple ingredients.
3 Information provided directly to SSI from ETP.

VSS	Policy for labelling claims	Policy for single products	Policy for composite products[2]	Explicit policies regarding content requirements for labelling
FSC[4]	✓	✓	✓	**Single products:** There are three categories of FSC labels and five possible variations of the on-product claim: A)'FSC-pure label': Product groups manufactured with 100% FSC certified material. B)'FSC-mixed label': Variation i. Mixed sources: Product groups from well managed forests and other controlled sources. Variation ii. Mixed sources: Product groups from well managed forests, controlled sources and recycled wood or fiber. Variation iii. Mixed sources: Product groups from well managed forests and recycled wood or fiber. C) 'FSC-recycled label': Product groups manufactured with 100% recycled content. **Composite products**: There are three categories of FSC labels and five possible variations of the on-product claim: A)'FSC-pure label': Product groups manufactured with 100% FSC certified material. B)'FSC-mixed label': Variation i. Mixed sources: Product groups from well managed forests and other controlled sources. Variation ii. Mixed sources: Product groups from well managed forests, controlled sources and recycled wood or fiber. Variation iii. Mixed sources: Product groups from well managed forests and recycled wood or fiber. C) 'FSC-recycled label': Product groups manufactured with 100% recycled content.
GLOBALG.A.P.	✓			
IFOAM	✓	✓	✓	**Single products**: Processed products shall be labeled according to the following minimum requirements: a. Where 95 to 100% of the ingredients (by weight) are organic, the product may be labeled as "organic." **Composite products**: Where less than 95% but not less than 70% of the ingredients (by weight) are organic, these product cannot be labeled as "organic," but phrases such as "made with organic ingredients" can be used, provided the proportion of organic ingredients is clearly stated. c. Where less than 70% of the ingredients (by weight) are organic, the product cannot be labeled as "organic."

4 Information provided directly to SSI from FSC.

VSS	Policy for labelling claims	Policy for single products	Policy for composite products[2]	Explicit policies regarding content requirements for labelling
PEFC	✓	✓	✓	**Single products**: No minimum requirement: The percentage that indicates the content of the PEFC certified raw material in the product can be used as a part of the "PEFC certified" label. **Composite products**: No minimum requirement: The percentage that indicates the content of the PEFC certified raw material in the product can be used as a part of the "PEFC certified" label.
ProTerra	✓			
RSB	✓	✓	✓	**Single and composite products**: Participating operators that use the claim defined in 3.1.1. for their off-product communication shall provide to the public, upon request, the following information: 3. 3. 1. The RSB compliant product as a portion of the total product handled by the participating operator, [i.e., x% of the total product handled by the participating operators complies with the RSB standards] 3. 3. 2. The portion of the RSB compliant products as a percentage of total biomass/biofuel products handled (i.e., portion of the RSB compliant products in relation to biomass/biofuel products that were not compliant with the RSB standards or that have not been evaluated for compliance with RSB standards).
RSPO	✓	✓	✓	**Single product**: At least 95% (for Identify Preserved (IP), Segregated (SG) and Mass Balance (MB)). **Composite product**: % content must be specified.
RTRS	✓			

VSS	Policy for labelling claims	Policy for single products	Policy for composite products[2]	Explicit policies regarding content requirements for labelling
SAN/RA	✓	✓	✓	**Single products**: Single ingredient products must contain a minimum of 30% Rainforest Alliance Certified™ content in order to bear the seal on product packaging, though these products must include a qualifying statement on pack that discloses the percentage of certified content. Companies requesting to use the RAC seal on single ingredient products with less than 90% certified content must also agree to scale up the percentage of certified content over time with specific benchmarks and timelines (see http://www.rainforest-alliance.org/sites/default/files/site-documents/marketing/seal-guidelines-agriculture.pdf). **Composite products**: 100% of the named core ingredient is sourced from certified farms, and the final product contains at least 90% certified content for that ingredient. This is the recommended and most straightforward way to use the RAC seal on a composite product, and it requires no special disclaimers on the package (see Section 3). – OR – B. MINIMUM CERTIFIED CONTENT WITH SCALE UP PLAN At least 30% of the identified core ingredient is from certified farms, and the company has a Rainforest Alliance approved SmartSource Plan for scaling up supplies from certified farms of the named ingredient(s) to 100% content over time. With Option B, the percentage of certified content for the named ingredient(s) must be disclosed on the package until it reaches more than 90% certified content (see Section 3 of http://www.rainforest-alliance.org/sites/default/files/site-documents/marketing/seal-guidelines-agriculture.pdf).

VSS	Policy for labelling claims	Policy for single products	Policy for composite products[2]	Explicit policies regarding content requirements for labelling
UTZ[5]	✓	✓	✓	**Coffee:** At least 90% UTZ certified coffee content required for content claim. Which logo can be used depends on % of coffee content in product. >60%: flag only logo; <60% (composed products): logo with product specification. **Cocoa:** A content claim can be made in case of Segregation or Identity Preserved. At least 90% UTZ certified cocoa content required for content claim. Exception for seasonal products only: in 2013 claim also possible with at least 60% UTZ certified segregated cocoa content. This percentage must be clearly indicated on the package. (Exception expires in 2014.) Which logo can be used depends on % of cocoa content in product. >60%: flag only logo; <60% (composed products): logo with product specification. **Tea:** At least 90% UTZ certified coffee content required for content claim. If this is not possible due to the limited availability of certified tea, it is currently allowed to use the logo when at least 30% of the blend is UTZ certified. (This percentage will be reviewed early 2014.) The percentage must be specified on-pack. Which logo can be used depends on % of tea content in product. >60%: flag only logo; <60% (composed products): logo with product specification. **Rooibos:** At least 90% UTZ certified rooibos content required for content claim. Which logo can be used depends on % of rooibos content in product. >60%: flag only logo; <60% (composed products): logo with product specification.

5 Information provided to SSI directly from UTZ

APPENDIX IV | VOTING MEMBER CONSTITUTION OF VSSs[6]

Voluntary Sustainability Initiative	Number of voting members	Voting members constituency
4C Association	269	Membership in the 4C Association is open for producers, coffee associations, organizations, civil society groups, coffee trade and industry, public institutions, standard setting organizations, research institutes or for individuals or other chain members of the coffee supply chain.
BCI	250	Members within the Civil Society, Producers, Retailers and Brands, and Suppliers and Manufacturers categories have the opportunity to be elected on the Council. Each category of organization has three seats on the Council for a total of 12 seats. Once elected the Council has the option to appoint up t three additional people to the Council.
Bonsucro	96	Voting member constituency is made up of farmers, industry, intermediaries, end-users and civil society. All Bonsucro members have voting power.
CmiA	No voting members	The partners of Cotton made in Africa come from a range of different sectors – from government and private-sector funding organisations, from cotton companies and consulting organizations, and from partners in the Demand Alliance (ITC, 2013b).
ETP	12	From ETP member companies.
Fairtrade	27	Producer Networks, National Fairtrade Organizations, Fairtrade Marketing Organizations.
FSC	819	The General Assembly is composed of all 819 members (429 organizational members, 390 individual members) originating from 85 countries. Members are associated to chambers and subchambers. When voting, each subchamber has the same voting power. Individual members per subchamber have 10% of the entire voting weight of their subchamber.[7]
GLOBALG.A.P.	Information not available	The Board constitutes an equal number of elected producer and retailer representatives and is chaired by an independent chairperson.
IFOAM	750-800	The General Assembly is composed of approximately 800 member organizations originating from almost 120 countries.
PEFC	54	While PEFC standards target by default all stakeholders, emphasis is given to forest-based stakeholders, specifically small-scale producers.
ProTerra[8]	5 voting members on the Board of Directors of the Foundation; 3 voting members on the Board of Governors of the ProTerra Certification Program	Membership is open to all stakeholders in the food and feed systems, and support industries that service these sectors. Membership categories include the following: Agricultural operations, including Agricultural producers, Agricultural cooperatives; Industry, including but not limited to Processors, Trading and brokering organizations, Distributors, Manufacturers, Food retailers, Food service; Industry support companies including but not limited to Financial institutions, Consultancies, Certification bodies, Surveillance organizations, ProTerra Certified organisations, Trade associations, Civil society organizations, Government agencies, Academic and research institutions, and Individuals (ProTerra, 2012).

6 Information provided by VSSs directly unless otherwise stipulated.

7 Information provided by FSC in reference to FSC n.d.-b, n.d.-c.

8 The ProTerra Certification Program has its own separate governance structure within the ProTerra Foundation, which is virtually identical to that of an association. An association has a board of directors and a membership. The members each have a vote in advising the board of directors. Similarly, the ProTerra Certification Program has a board of governors and a membership, and each member has one vote in advising the board of directors. There is a separate Board of Governors of the Certification Program (See ProTerra, 2013).

Voluntary Sustainability Initiative	Number of voting members	Voting members constituency
RSB	21	The Roundtable on Sustainable Biomaterials (RSB) is a membership-based initiative open to farmers, companies, NGOs, experts, governments and inter-governmental agencies (ITC, 2013b). Representatives come from the 11 stakeholder chambers. To ensure equal representation, most chambers are required to elect one of their representatives on the Steering Board from a country in the global North (developed) and one from a country in the global South (developing) (ITC, 2013b). Each RSB Chamber can elect up to 3 delegates to seat in the Assembly of Delegates. Delegates represent their chamber's position, not their personal position or their company's (SSI correspondence with RSB).
RSPO	869	7 membership categories. 1) Grower, 2) Consumer Goods Manufacturing, 3) Banks/investors, 4) Environmental NGOs, 5) Social NGOs, 6) Processors & Traders, 7) Retailers. The minimum to meet quorum during RSPO GA is 80 ordinary members. Currently RSPO has a total of 869 ordinary members. RSPO also has more than 300 supply chain associates and close to 200 associate members, but these two category of members are not eligible to vote at the GA.
RTRS	162	Producers, industry and CSOs. Each constituency has same voting power on Board.
SAN/RA[9]	9	The General Assembly is made up of all Network members and is the supreme authority of the Sustainable Agriculture Network. It is composed of one representative from each of the member organizations and presents motions to the Board of Directors. All decisions made by this body are considered official with votes of at least 50% of the Assembly's members. Meetings are held at least once every two years.[10]
UTZ[11]	5 - 13, currently 9	At least one member from each of the following groups: - production - supply chain (including brands, processors, trade, retailers) - civil society/non-governmental organizations (NGOs) - trade unions Membership is also open to independent individuals with required skills, expertise and experience.

9 SAN, 2010b.
10 As noted in SSI correspondence with Rainforest Alliance.
11 UTZ, 2013.

APPENDIX V | SOCIAL CRITERIA COVERAGE OF VOLUNTARY SUSTAINABILITY STANDARDS BY COMMODITY

	Labour rights	Health and safety	Employment conditions	Community involvment	Human rights	Gender	Employment benefits	Humane treatment of animals	Total average
Biomass	100%	83%	80%	100%	100%	67%	0%	NA	76%
RSB	100%	83%	80%	100%	100%	67%	0%	NA	76%
Cocoa	94%	82%	86%	23%	65%	57%	43%	50%	66%
SAN/RA	100%	80%	80%	90%	80%	53%	90%	100%	84%
Fairtrade	91%	100%	100%	0%	67%	73%	80%	NA	73%
UTZ	100%	93%	84%	0%	93%	33%	0%	NA	58%
IFOAM	86%	53%	80%	0%	20%	67%	0%	100%	51%
Bananas	74%	83%	70%	23%	50%	53%	53%	75%	62%
SAN/RA	100%	80%	80%	90%	80%	53%	90%	100%	84%
Fairtrade	91%	100%	100%	0%	67%	73%	80%	NA	73%
IFOAM	86%	53%	80%	0%	20%	67%	20%	100%	53%
GLOBALG.A.P.	20%	100%	20%	0%	33%	20%	20%	100%	39%
Tea	81%	86%	68%	15%	52%	48%	42%	50%	59%
SAN/RA	100%	80%	80%	90%	80%	53%	90%	100%	84%
Fairtrade	91%	100%	100%	0%	67%	73%	80%	NA	73%
UTZ	100%	93%	84%	0%	93%	33%	0%	NA	58%
IFOAM	86%	53%	80%	0%	20%	67%	0%	100%	51%
ETP	89%	87%	44%	0%	20%	40%	60%	NA	48%
GLOBALG.A.P.	20%	100%	20%	0%	33%	20%	20%	100%	39%
Soy	76%	77%	74%	34%	43%	45%	46%	40%	59%
RTRS	100%	80%	92%	80%	67%	67%	50%	NA	76%
Fairtrade	91%	100%	100%	0%	67%	73%	80%	NA	73%
ProTerra	83%	50%	76%	90%	27%	0%	80%	NA	58%
IFOAM	86%	53%	80%	0%	20%	67%	0%	100%	51%
GLOBALG.A.P.	20%	100%	20%	0%	33%	20%	20%	100%	39%
Palm Oil	76%	80%	54%	45%	33%	46%	38%	75%	57%
SAN/RA	100%	80%	80%	90%	80%	90%	90%	100%	89%
IFOAM	86%	53%	80%	0%	20%	67%	0%	100%	51%
RSPO	97%	87%	36%	90%	0%	7%	40%	NA	51%
GLOBALG.A.P.	20%	100%	20%	0%	33%	20%	20%	100%	39%
Coffee	80%	77%	67%	15%	57%	46%	32%	50%	56%
SAN/RA	100%	80%	80%	90%	80%	53%	90%	100%	84%
Fairtrade	91%	100%	100%	0%	67%	73%	80%	NA	73%
UTZ	100%	93%	84%	0%	93%	33%	0%	NA	58%
IFOAM	86%	53%	80%	0%	20%	67%	0%	100%	51%
GLOBALG.A.P.	20%	100%	20%	0%	33%	20%	20%	100%	39%
4C Association	83%	37%	40%	0%	47%	27%	0%	NA	33%
Sugar	79%	75%	62%	28%	40%	43%	38%	60%	56%
SAN/RA	100%	80%	80%	90%	80%	53%	90%	100%	84%
Fairtrade	91%	100%	100%	0%	67%	73%	80%	NA	73%
IFOAM	86%	53%	80%	0%	20%	67%	0%	100%	51%
GLOBALG.A.P.	20%	100%	20%	0%	33%	20%	20%	100%	39%
Bonsucro	100%	40%	32%	50%	0%	0%	0%	NA	32%
Cotton	70%	66%	65%	10%	32%	32%	20%	40%	45%
Fairtrade	91%	100%	100%	0%	67%	73%	80%	NA	73%
IFOAM	86%	53%	80%	0%	20%	67%	0%	100%	51%
GLOBALG.A.P.	20%	100%	20%	0%	33%	20%	20%	100%	39%
CmiA	60%	30%	48%	50%	40%	0%	0%	NA	33%
BCI	94%	47%	76%	0%	0%	0%	0%	NA	31%
Forestry	100%	50%	0%	100%	0%	0%	0%	NA	36%
PEFC	100%	50%	0%	100%	0%	0%	0%	NA	36%
FSC	100%	50%	0%	100%	0%	0%	0%	NA	36%

APPENDIX VI | ENVIRONMENTAL CRITERIA COVERAGE OF VSSs BY COMMODITY

	Soil	Waste	Synthetic inputs	Water	GMO prohibition	Biodiversity	Energy	Greenhouse gas	Total average
Bananas	85%	78%	70%	80%	75%	82%	65%	40%	72%
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
SAN/RA	80%	60%	60%	70%	100%	93%	80%	47%	74%
Fairtrade	60%	53%	53%	50%	100%	60%	60%	47%	60%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
Palm Oil	80%	87%	72%	75%	67%	75%	60%	45%	70%
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
SAN/RA	80%	60%	60%	70%	100%	93%	80%	47%	74%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
RSPO	40%	87%	60%	30%	NA	33%	40%	67%	51%
Biomass	100%	100%	40%	85%	0%	67%	50%	100%	68%
RSB	100%	100%	40%	85%	0%	67%	50%	100%	68%
Soy	90%	88%	69%	75%	60%	65%	44%	48%	67%
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
ProTerra	90%	87%	67%	80%	100%	27%	40%	67%	70%
Fairtrade	60%	53%	53%	50%	100%	60%	60%	47%	60%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
RTRS	100%	100%	60%	45%	0%	67%	0%		54%
Tea	87%	74%	68%	86%	50%	62%	70%	28%	66%
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
SAN/RA	80%	60%	60%	70%	100%	93%	80%	47%	74%
ETP	100%	100%	67%	100%	0%	33%	100%	7%	63%
Fairtrade	60%	53%	53%	50%	100%	60%	60%	47%	60%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
UTZ	80%	33%	60%	95%	0%	13%	60%	0%	43%
Cocoa	84%	69%	68%	83%	60%	68%	64%	32%	66%
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
SAN/RA	80%	60%	60%	70%	100%	93%	80%	47%	74%
Fairtrade	60%	53%	53%	50%	100%	60%	60%	47%	60%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
UTZ	80%	33%	60%	95%	0%	13%	60%	0%	43%
Sugar	86%	73%	56%	68%	60%	72%	60%	44%	65%
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
SAN/RA	80%	60%	60%	70%	100%	93%	80%	47%	74%
Fairtrade	60%	53%	53%	50%	100%	60%	60%	47%	60%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
Bonsucro	90%	53%	0%	20%	0%	33%	40%	60%	37%
Forestry	100%	83%	67%	50%	100%	100%	0%	0%	62%
PEFC	100%	67%	67%	75%	100%	100%	0%	0%	64%
FSC	100%	100%	67%	25%	100%	100%	0%	0%	61%
Coffee	73%	62%	64%	74%	67%	59%	60%	27%	61%
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
SAN/RA	80%	60%	60%	70%	100%	93%	80%	47%	74%
Fairtrade	60%	53%	53%	50%	100%	60%	60%	47%	60%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
UTZ	80%	33%	60%	95%	0%	13%	60%	0%	43%
4C Association	20%	27%	47%	30%	100%	13%	40%	0%	35%
Cotton	70%	59%	77%	58%	60%	51%	36%	23%	54%
IFOAM	100%	100%	100%	100%	100%	100%	100%	67%	96%
Fairtrade	60%	53%	53%	50%	100%	60%	60%	47%	60%
GLOBALG.A.P.	100%	100%	67%	100%	0%	73%	20%	0%	58%
CmiA	30%	20%	67%	15%	100%	0%	0%	0%	29%
BCI	60%	20%	100%	25%	0%	20%	0%	0%	28%

APPENDIX VII | ECONOMIC CRITERIA COVERAGE OF VSSs BY COMMODITY

	Minimum wage	Living wage	Written contracts between buyers and sellers	Product quality requirements	Price premiums	Total average
Cocoa	100%	35%	25%	25%	50%	47%
Fairtrade	100%	40%	100%	0%	100%	68%
IFOAM	100%	100%	0%	100%	0%	60%
UTZ	100%	0%	0%	0%	100%	40%
SAN/RA	100%	0%	0%	0%	0%	20%
Bananas	80%	40%	25%	25%	25%	39%
Fairtrade	100%	40%	100%	0%	100%	68%
IFOAM	100%	100%	0%	100%	0%	60%
SAN/RA	100%	0%	0%	0%	0%	20%
GLOBALG.A.P.	20%	20%	0%	0%	0%	8%
Soy	84%	52%	20%	20%	20%	39%
Fairtrade	100%	40%	100%	0%	100%	68%
IFOAM	100%	100%	0%	100%	0%	60%
RTRS	100%	100%	0%	0%	0%	40%
ProTerra	100%	0%	0%	0%	0%	20%
GLOBALG.A.P.	20%	20%	0%	0%	0%	8%
Tea	87%	43%	17%	17%	33%	39%
Fairtrade	100%	40%	100%	0%	100%	68%
IFOAM	100%	100%	0%	100%	0%	60%
ETP	100%	100%	0%	0%	0%	40%
UTZ	100%	0%	0%	0%	100%	40%
SAN/RA	100%	0%	0%	0%	0%	20%
GLOBALG.A.P.	20%	20%	0%	0%	0%	8%
Sugar	84%	32%	20%	36%	20%	38%
Fairtrade	100%	40%	100%	0%	100%	68%
IFOAM	100%	100%	0%	100%	0%	60%
Bonsucro	100%	0%	0%	80%	0%	36%
SAN/RA	100%	0%	0%	0%	0%	20%
GLOBALG.A.P.	20%	20%	0%	0%	0%	8%
Palm Oil	80%	55%	20%	25%	0%	36%
IFOAM	100%	100%	0%	100%	0%	60%
RSPO	100%	100%	80%	0%	0%	56%
SAN/RA	100%	0%	0%	0%	0%	20%
GLOBALG.A.P.	20%	20%	0%	0%	0%	8%
Coffee	77%	27%	17%	17%	33%	34%
Fairtrade	100%	40%	100%	0%	100%	68%
IFOAM	100%	100%	0%	100%	0%	60%
UTZ	100%	0%	0%	0%	100%	40%
SAN/RA	100%	0%	0%	0%	0%	20%
4C Association	40%	0%	0%	0%	0%	8%
GLOBALG.A.P.	20%	20%	0%	0%	0%	8%
Cotton	68%	32%	20%	32%	20%	34%
Fairtrade	100%	40%	100%	0%	100%	68%
IFOAM	100%	100%	0%	100%	0%	60%
CmiA	60%	0%	0%	60%	0%	24%
BCI	60%	0%	0%	0%	0%	12%
GLOBALG.A.P.	20%	20%	0%	0%	0%	8%
Biomass	100%	0%	0%	0%	0%	20%
RSB	100%	0%	0%	0%	0%	20%
Forestry	0%	0%	0%	0%	0%	0%
FSC	0%	0%	0%	0%	0%	0%
PEFC	0%	0%	0%	0%	0%	0%

APPENDIX VIII | DESCRIPTION OF DATA SOURCES AND REPRESENTATIONS BY COMMODITY SECTION

The following provides an overview of the data sources, methods and purpose of calculations and graphics presented in each commodity section, organized by section sub-titles.

Introduction

Conventional versus standard-compliant production (map)

The market sections are introduced using a map showing the general distribution of conventional and standard-compliant production volumes within the commodity sectors. All the maps depict the latest data available for each voluntary sustainability standard in the commodities examined (i.e., the coffee map uses data from 2012 (4C Association and country totals, Rainforest Alliance and UTZ Certified) and 2011 (Fairtrade and Organic)). The sizes of the circles on the map are determined by each country's total production volumes and the grey areas in the circles correspond to conventional figures. Across commodities, the conventional and sustainable market data used to compile the maps differed and are referenced in detail for each map.

Leading country producers of standard-compliant production by initiative (bar chart)

The bar chart depicts the top five producing countries for standard-compliant commodities by metric tons disaggregated by standard. Readers can quickly identify the countries supplying the most standard-compliant commodities and what standards account for this production.

Standard-compliant and conventional key statistics for production and trade (table)

This table shows high-level statistics for both conventional and standard-compliant production and sales. It aims to provide the reader with a quick snapshot of the state of play of voluntary sustainability standards within the sector.

1. Market Review

Commodity sector highlights

All aggregated production and sales data presented in this section of the commodity sector is adjusted for multiple-certification using the methodology described above.

Growth in standard-compliant production and sales (bar chart)

The chart shows the aggregation of the sustainable production volumes and sales over time for the commodity sector adjusted for multiple certification. The adjustment was calculated based on the most recent data set available and then applied consistently across all years for both production and sales.

This approach was applied to all sectors, with the exception of the palm oil and the soybean sectors, where double counting for multiple certification is negligible. Within the palm oil sector, the Roundtable on Sustainable Palm Oil represents the lion's share of standard-compliant production as compared to International Federation of Organic Agriculture Movements ("Organic") and Rainforest Alliance, the only other notable voluntary sustainability standards operating in the sector. Within the soybean sector, ProTerra represents the vast majority of compliant production while Round Table on Sustainable Soy and Organic make up the rest of the market share. In the cane sugar section, production and sales estimates were adjusted by existing data on multiple certification for Fairtrade/Organic cane sugar recorded and reported by Fairtrade in its "monitoring" reports (FLO, 2011, 2012).

Compound annual growth for production and sales (line charts)

The CAGR for production volumes and sales in metric tons for each voluntary sustainability standard operating in the commodity sector is shown from 2008 to the most recent year of available data. The time series line charts provide the reader with a quick overview of how the standard is growing in terms of both production and sales from year to year relative to one another within the commodity sector examined.

The first line chart shows the relative growth in production by initiative over the last five years (or nearest corresponding data set). The second line chart shows the relative growth in sales by initiative over the last five years (or nearest corresponding data set). Sales are defined as the volume of product that was purchased "as" standard compliant and not otherwise sold on conventional markets.

2. Market Development

This section contains an overview of the history of the development of standards within the specific commodity sector.

3. Market Performance

Market data are provided for the individual voluntary sustainability standards operating within the commodity sectors.

Importance of standard-compliant production and sales relative to the global market production and sales

The table shows total production and sales in metric tons by standard for the most recent market data available relative to the global voluntary sustainability standard production adjusted for multiple certification.

Individual voluntary sustainability standard sales by country

The breakdown of standard-compliant sales by country is provided in a donut chart.

Individual voluntary sustainability standard sales and area harvested by country

The breakdown of standard-compliant sales and area harvested by country is provided in a table.

Individual voluntary sustainability standard production and sales time series

The discrepancy between standard-compliant production and sales in metric tons is shown as a time series line chart for 2008 to 2012 where the data is available. The data used to compile the line chart are shown in a subsequent table. The total production and sales in metric tons is shown broken down for the years shown in the line graph.

4. Supply

Understanding where commodities are being produced can assist with strategically sourcing a particular commodity as well as determining where new opportunities for market entry exist.

Total (standard-compliant and conventional) production breakdown by country

A donut chart depicting distribution of total global production of the commodity in question provides a reference for understanding the relative distribution of standard-compliant production.

Total (standard-compliant and conventional) export breakdown by country

A donut chart depicting distribution of total exports of the commodity by country provides a reference for understanding the relative distribution of exported standard-compliant production.

Standard-compliant production by country

A donut chart depicts distribution of total standard-compliant production for understanding the relative distribution of standard-compliant production.

Standard-compliant production as a percentage of national production for the largest producing countries

A stack bar chart depicts the top producing countries for standard-compliant commodities by metric tons disaggregated by standard. The stack bar chart provides the relative importance of individual initiatives in major standard-compliant producing countries.

Standard-compliant production by continent

A stack bar chart depicts the relative distribution of standard-compliant production by initiative within each continent. The chart depicts the relative importance of individual initiatives in different continents. Continents with minimal production volumes have been excluded.

Top 20 largest sellers of the standard-compliant production as a percentage of total exports

The percentage of the standards supplying compliant product relative to total national production is shown for each of the producing countries.

5. Pricing and Premiums

The data presented for prices and premiums were collected primarily in published documents and anecdotal information. High quality prices and premium information are difficult to collect as they are not currently captured by the vast majority of the voluntary sustainability standards, with the exception of UTZ and Fairtrade. Premiums generally correspond to those at the farm gate (e.g., cooperatives), unless otherwise indicated.

6. Challenges and Opportunities

This section summarizes the market trend, as well as expected market growth moving forward. The section also provides a high-level summary of the some of the main challenges and opportunities facing market growth moving forward, as well as for ensuring sustainability within the sector more generally.

"THE STATE OF SUSTAINABILITY INITIATIVES OFFERS AN INVALUABLE PERSPECTIVE ON THE DEVELOPING WORLD OF SUSTAINABILITY STANDARDS.

The sector needs it, since we must be well informed in order to help design sustainable supply chains. The review's coverage of market performance across initiatives offers an important starting point for more strategic market development. The effort to compare standards and put them in perspective may lead to a useful debate about quality, standard collaboration and targeted delivery of impacts through such initiatives."

—Han de Groot, Executive Director, UTZ Certified

"The *State of Sustainability Review 2014* offers the most comprehensive and detailed analysis on systems and market trends of prominent sustainability standards available in the public sphere today. The report explores, at length, the extent to which these standards are contributing to the development of more transparent, efficient and sustainable supply chains, whilst also highlighting some key challenges for the future.

THIS EXCELLENT REVIEW IS ESSENTIAL READING FOR ANYONE SEEKING TO MANAGE COMMITMENTS TO SUSTAINABLE SOURCING."

—Paulo Barone,
Green Coffee Sustainability Operations Manager,
Nestlé Nespresso S.A.

"The SSI Review's analysis and market data offer an essential resource for developing economies seeking to play a stronger role in global green markets.

AS THE MOST COMPREHENSIVE BODY OF WORK OF ITS KIND, THE REVIEW PLAYS AN IMPORTANT ROLE IN MOVING THE INTERNATIONAL DIALOGUE ON VOLUNTARY SUSTAINABILITY STANDARDS FORWARD."

—Ulrich Hoffmann, UNFSS Coordinator