SOCIAL AND ENVIRONMENTAL STANDARDS

FROM FRAGMENTATION TO COORDINATION

International Trade Centre

European University Institute

Social and Environmental Standards

From Fragmentation to Coordination

About the report

Voluntary standards have been rising fast, leading to similar standards operating in the same markets.

This study finds multiple standards in 86 of 90 markets it reviewed, which creates confusion for consumers and producers alike. This joint report with the European University Institute is the second of a series that goes from identifying social and environmental standards to outlining markets that are most fragmented. It offers recommendations for coordination for standard-setting organizations and policymakers.

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For more information on Standards Map, see: www.standardsmap.org.

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Foreword

The trade landscape of the 21st century is characterized by a growing ecosystem of standards and regulations. The increasing prominence of these social and environmental standards in regional and international value chains have made them a de facto form of international trade governance. Standards are applied at different levels of the value chain, from upstream farmers and traders to downstream processors and retailers.

While voluntary sustainability standards (VSS) can make trade more inclusive by addressing various critical issues related to environmental protection, employment conditions or product quality, their growing number can pose problems, especially for producers who often have to comply with more than one standard to sell their products to a variety of buyers. For micro, small and medium-sized enterprises (MSMEs) it has become increasingly challenging to identify and meet these standards, but it is clear that being able to do so is an important component of ensuring their competitiveness.

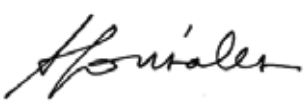
Standards also have different requirements and auditing processes, and complying with several of them calls for significant investments. Standard-setting organizations recognize this and have already started collaborating to resolve the issue.

The first joint report of the International Trade Centre (ITC) and the European University Institute (EUI) in 2016 explored the accessibility of standards to producers and their institutional design. This second report aims to shed light on the issue of VSS fragmentation and highlights differences between standards operating in the same markets and sectors.

The report examines the state of fragmentation across nine key agricultural commodity sectors in the 10 largest producer countries. Its findings are based on a comprehensive dataset compiled by ITC's Trade for Sustainable Development Programme (T4SD) in its Standards Map database, a one-of-a-kind online tool that makes it possible to analyse VSS from different angles. As with the first report, the experience of researchers from the Global Governance Programme at EUI's Robert Schuman Centre in international regulatory cooperation again complements ITC's data and expertise in the field of social and environmental standards.

Several important messages emerge from the research and analysis. The most critical is the importance of coordination between standard-setting organizations, whether they are non-governmental organizations, consortiums of companies or large brands. Better coordination is one solution to fragmentation and a way of increasing coherence among standards, audit procedures and management structures.

The report recommends a key role for international organizations and conventions in this regard, for example in the development and adoption of core, universally applicable environmental criteria. Its findings should help standard-setting organizations, producers, and retailers use standards coordination not only to create synergies and efficiencies, but also to pave the way for more sustainable production. Ultimately, it will also serve to level the playing field for MSMEs and provide more transparency for the consumer.



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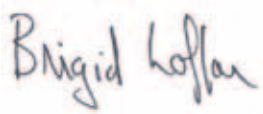

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Contents

Case studies, Tables, Figures

Acronyms

BCI	Better Cotton Initiative
BEMEFA	Belgian Compound Feed Industry Association
BRC	British Retail Consortium
BSCI	Business Social Compliance Initiative
CBD	Convention on Biological Diversity
CCC	Clean Clothes Campaign
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CmiA	Cotton made in Africa
ETP	Ethical Tea Partnership
EU	European Union
EUI	European University Institute
FEFAC	European Feed Manufacturers Federation
FSC	Forest Stewardship Council
GFSI	Global Food Safety Initiative
GlobalG.A.P. GRASP	GlobalG.A.P. Risk Assessment on Social Practice
GOTS	Global Organic Textile Standard
IFOAM	International Federation of Organic Agriculture Movements
IFS	International Featured Standards
ILO	International Labour Organization
ISEAL	International Social and Environmental Accreditation and Labelling
ISO	International Organization for Standardization
ISPO	Indonesian Sustainable Palm Oil Standard
ITC	International Trade Centre
IUCN	International Union for Conservation of Nature
MSC	Marine Stewardship Council
NGO	Non-governmental organization
PEFC	Programme for the Endorsement of Forest Certification
RA/SAN	Rainforest Alliance/Sustainable Agriculture Network
REDD+	United Nations' Reducing Emissions from Deforestation and Forest Degradation program
RSPO	Roundtable on Sustainable Palm Oil
RTRS	Round Table on Responsible Soy
SME	Small and medium-sized enterprise
SQF Institute	Safe Quality Food Institute
SSCT	Sustainability Standards Comparison Tool
T4SD	Trade for Sustainable Development
UNFSS	United Nation's Forum on Sustainability Standards
USDA	United States Department of Agriculture
VSS	Voluntary Sustainability Standards

Executive Summary

Standards growth increases sustainability, but also fragmentation

Voluntary sustainability standards (VSS) have long been an attribute of global value chains and markets. For consumers, they guarantee higher-level attention to environmental, social, managerial, ethical and/or quality concerns. For retailers and buyers, they ensure a network of recommended suppliers in keeping with their own values, and sustainability and quality benchmarks. For suppliers, they facilitate access to value chains and the learning and/or technologies related to sustainable production that go with them. As a result, suppliers' workers are often better placed to earn a living under decent conditions that also protect the land and heritage around them.

In other words, these standards create market incentives for more sustainable production and address serious sustainability issues, such as deforestation, child labour and basic livelihoods for producers.

It is thus not surprising that the past 20-odd years have seen a dramatic rise in voluntary standards, particularly in agriculture. The biggest jump took place between 1990 and 2010, as recorded in the ITC Standards Map database[1]. During this period, eight new standards were created per year, on average.

While this growth is a testament to success in sustainable value chain governance, it has also meant a proliferation and fragmentation of standards covering similar markets and products.

Multiple standards operate in 86 of the 90 markets of products and countries analysed for this report. Cocoa producers in Côte d'Ivoire, for example, contend with up to 10 different standards. Coffee producers in Honduras have nine standards from which to select.

Producers and small firms find themselves in a quandary. Because they often sell to different buyers, and have different products, they are obliged to comply with several voluntary standards and the audit processes that accompany them, which increases the transaction costs of complying with these standards.

Other risks associated with the proliferation of standards are:

- A race to the bottom in standards, as producers or buyers can opt for the most lenient among a plethora of standards.
- Consumer confusion, as the sheer breadth of the landscape can undermine consumer trust and can also lend itself to greenwashing.

Understanding fragmented markets

Differences between standards operating in the same market and sector – collectively referred to as fragmentation – are the focus of this report. Fragmented sustainable markets are perceived as a problem, but few studies analyse the issue.[2] Because ITC manages the world's largest database of voluntary standards – its Standards Map database covers 239 of them – it is well placed to provide a consistent, neutral and reliable source of data, verified by standard setters and experts.

For this report, EUI and ITC tapped into the database to conduct an econometric analysis of fragmentation among sustainability standards, initiatives and private codes of conduct. The study analyses overlaps and differences among nine agricultural and forestry sectors by country and type of sustainability concern.

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[1] Standards Map is part of ITC's Market Analysis Tools. Information on 239 voluntary sustainability standards is available at www.standardsmap.org.

[2] Fransen, L., & Conzelmann, T. (2015). Fragmented or cohesive transnational private regulation of sustainability standards? A comparative study. *Regulation & Governance*, *9*(3), 259-275.; Marx, Axel and Wouters, Jan, Competition and Cooperation in the Market of Voluntary Sustainability Standards (April 1, 2014). Available at SSRN: https://ssrn.com/abstract=2431191; Reinecke, J., Manning, S., & Von Hagen, O. (2012). The emergence of a standards market: Multiplicity of sustainability standards in the global coffee industry. *Organization Studies*, *33*(5-6), 791-814.

The sectors covered are bananas, cocoa, coffee, cotton, forestry products, palm oil, soy, sugarcane and tea. The analysis was done for the 10 largest producing countries in each sector. This created a sample of 90 country-product markets (e.g. coffee in Brazil).

Based on the analysis and case studies, the report looks at coordination as one of the most promising solutions to fragmentation. It describes the various forms that coordination can take in sustainability standards and the main characteristics of fragmented markets, identifying those markets and sectors where coordination is most needed. The report concludes with recommendations on how standard-setting organizations can coordinate better and on how to reduce fragmentation in sustainable markets.

Soy-producing countries, the most fragmented

When it comes to the standards' requirements, the most fragmented country-product markets are the soy-producing countries: China, Brazil, Canada, United States of America, Argentina, Ukraine, Uruguay, Paraguay and India. In Brazil, for instance, 21 voluntary standards certify and verify soy producers.

This is not surprising as soy production contributes largely to deforestation, among other concerns, and has been heavily criticized for this by non-governmental organizations (NGOs). Many soy-specific standards were created in response, addressing various levels of the supply chain, from upstream farmers to downstream traders and feed manufacturers.

Fragmented markets mean more requirements

When many standards operate in the same market, there is a tendency to differentiate by depth, or uniqueness of requirements and, often, auditing processes. Two trends stand out in fragmented markets:

- Highly fragmented markets have more voluntary standards in operation.
- Standards in fragmented markets have a broader range of requirements. Banana producers in Mexico, for example, where two standards are active, must comply with 263 requirements. Tea producers in China, where 13 such standards operate, are supposed to comply with 474 requirements. The larger scope of standards' requirements in fragmented markets can be explained by the competition among standards operating in the same sector, which leads to differentiation based on the depth or uniqueness of requirements and processes.

Fewer standards in non-food sectors

Non-food sectors, such as cotton and forestry, have fewer standards and fewer requirements than do food sectors. For instance, only six standards certify or verify cotton producers in the 10 largest cotton-producing countries. One possible explanation is that public discussion has focused on garment and textiles labour. Environmental concerns for cotton have begun to emerge more recently, and to be reflected in cotton farming standards.

Social standards: A model for environmental issues

The report also looks at requirements within different sustainability hotspots covered by standards: environmental, social, management, quality and ethical issues.

Social hotspots are the least fragmented. They cover such areas as child and forced labour, employment, and working conditions. The substantial overlap between social requirements is due in large measure to the International Labour Organization (ILO) Conventions, which have been ratified by countries worldwide. Many voluntary standards refer specifically to these conventions in their requirements. For example, 130 of the 210 standards covered in the report cite the ILO Forced Labour Convention, 1930 (No. 29).

As to environmental criteria, while there are numerous international conventions on environmental protection, voluntary standards do not often refer to them. Only 33 such standards mention the Convention on Biological Diversity, for example. One reason could be that there is less of an international consensus on environmental issues. In this regard one area worth exploring would be the development of core, universally applicable environmental criteria.

Coordination on the agenda

The findings of this report are interesting in light of recent coordination efforts among major standard-setting organizations. ProTerra and the Round Table for Sustainable Soy (RTRS), which together have the largest sustainably certified area of soy globally (1,810,000 hectares and 735,000 hectares, respectively, in 2015), are planning to benchmark their requirements and conduct joint audits. Rainforest Alliance and UTZ are merging, in part to reduce multiple farmer audits for coffee, tea and cocoa.

Better coordination is a solution to fragmentation. The aim is to enhance coherence in requirements among standards, audit procedures and management structures. This report recommends the following instruments of coordination:

- Information exchange, which can be an essential foundation for coordination. For instance, International Social and Environmental Accreditation and Labelling (ISEAL), a global alliance of standard setters, organizes the annual Global Sustainability Standards Conference.
- Benchmarking and mutual recognition of standards, which can be an important second step. One example is AIM-Progress, a forum of consumer goods manufacturers and suppliers that promotes responsible sourcing practices and sustainable supply chains, benchmarks audit protocols of major European brand manufacturers and facilitates mutual recognition agreements.
- Harmonization, which can be an even more forceful step towards streamlining processes and requirements.
- International policy frameworks**,** such as ILO Conventions, which can serve as a basis for designing sustainability requirements within VSS. Without such frameworks, there would not be enough incentive for either VSS or industry to engage in the costly, technical work of harmonization.

INTRODUCTION

The growth in voluntary sustainability standards (VSS)[3] has been significant over the past two decades, resulting in a myriad of different standards for specific commodity sectors and issues. From seas to forests and from clothing to agriculture, such standards include the Marine Stewardship Council (MSC), Forest Stewardship Council (FSC), the Global Organic Textile Standard (GOTS) and the Rainforest Alliance.

Addressing such issues as deforestation, overfishing and sustainable farming, these standards are a form of transnational trade governance that often involves certification by an independent third party to verify compliance with the standards' requirements. They create market incentives for more sustainable production. The Standards Map of ITC, a database and inventory of social and environmental standards, now includes 239[4] schemes, operating in a wide range of countries and industries.

While the rapid growth in the number of VSS is a testament to their success as a new mode of trade governance, it has also raised concerns. In many markets, several standards systems operate in the same country and product field. For example, there are currently 21 VSS in the Brazilian soy sector alone. For suppliers in these markets this can be very confusing, time-consuming and costly. The increasingly fragmented standards landscape can generate high research and information costs, as producers often struggle to identify the standard or standards that best serve their purpose.

Smallholders and small and medium-sized enterprises (SMEs) are particularly vulnerable to the problems posed by this fragmented landscape, as they frequently lack access to reliable information on sustainability standards and markets. There is also evidence that many producers must comply with multiple standards and their respective requirements and auditing processes, as they sell their products to different buyers. The result is a growing audit fatigue. In addition, VSS may become a de facto market access requirement for certain export markets. In the absence of harmonized standards and procedures, the added time and transaction costs entailed in complying with multiple schemes only widen the existing barriers to market entry.

The continuing proliferation of VSS and the resulting fragmentation of certification markets are increasingly perceived as problematic by suppliers, buyers and standard-setting organizations. In response to these developments, efforts are being intensified to better coordinate and integrate existing programmes. One recent example is the merger announced in June 2017 of UTZ Certified and the Rainforest Alliance, two well-known and consumer-facing certification programmes for agricultural commodities. Another example is Global Rules for Sustainable Farming, a project to enhance the interoperability of existing voluntary agricultural standards and the United Nations Reducing Emissions from Deforestation and Forest Degradation (REDD+) programme.

Nevertheless, coordination among VSS is still the exception rather than the rule. Identifying a need for more and better coordination in the governance of sustainable trade, this report analyses the structure of certification markets in key agricultural commodity sectors (bananas, cocoa, coffee, cotton, forestry products, palm oil, soy, sugarcane and tea). For each of these sectors, the 10 largest producer countries are analysed, creating a sample of 90 country-product markets.

The findings reveal significant variations in the features of the standards landscape across the target sectors. An important finding is that a few standards systems tend to dominate the markets for bananas, cotton and forestry products, whereas in other sectors the VSS landscape is much more fragmented. The sustainable markets for soy and coffee in particular are highly fragmented, with many standards systems operating. In addition, the analysis reveals an inverse relationship between the number of VSS and the

[3] In this report the vast array of sustainability standards, audit protocols, codes of conduct, initiatives, standards systems and schemes will be collectively referred to as "VSS", "voluntary sustainability standards", "voluntary standards", "sustainability standards" or "standards". The three terms are used interchangeably. The Standards Map database does not contain data on International Organization for Standardization (ISO) standards.

[4] The number of VSS in the Standards Map database is constantly increasing. See www.standardsmap.org for the most up-to-date information.

similarities or overlap in their requirements and processes. This means that the proliferation of VSS typically goes hand-in-hand with increasing differences between standards requirements and auditing processes.

Not only are there more standards, but they also do things very differently. This has significant implications for the prospects and challenges of VSS coordination. On the one hand, the need for better coordination will be greatest in the fragmented soy and coffee markets. On the other hand, the low level of requirement overlaps between VSS will make it even more challenging to achieve this objective.

A clear agenda for better coordination in the fragmented standards landscape is thus needed, and the report makes concrete recommendations in this regard. In addition, through brief case studies, it illustrates existing coordination initiatives that represent best practices.

The report has three chapters:

Chapter 1 describes the growth and fragmentation of VSS and discusses existing coordination initiatives.

Based on the Standards Map database, Chapter 2 presents the findings of the analysis on the structure of sustainable markets across the target sectors and the state of fragmentation in these markets.

Chapter 3 concludes with recommendations for moving from fragmented sustainable markets to more coordinated ones.

CHAPTER 1: TOWARDS COORDINATION: THE STANDARDS LANDSCAPE

Types of standards

Different types of VSS exist today. Most VSS systems are non-governmental and are categorized as private standards. This does not, however, mean that they compete directly with public standards. In fact, the opposite is often true, and VSS frequently reference international conventions, as this report will show.

In addition to the public–private distinction, it is possible to distinguish between single-actor and multi-actor systems on the one hand, and different sponsorship arrangements (e.g. private sector, civil society or collaborative sponsorship) on the other. Table 1 illustrates these different types of VSS using examples of standards systems covered in this report.

Table 1. Types of standards

Type of system/ sponsorship	Single-actor system	Multi-actor system
Private sector	Firm-level codes of conduct, e.g. McDonalds Supplier Workplace Accountability Audit System, Unilever Sustainable Agriculture Code	Standards systems created by industry consortiums, e.g. Programme for the Endorsement of Forest Certification (PEFC), GLOBALG.A.P.
Civil society	Standards developed and administered by a single non-governmental organization (NGO), e.g. the Rainforest Alliance	Standards systems created by alliances of civil society actors (e.g. NGOs, trade unions), e.g. Clean Clothes Campaign (CCC)
Collaborative arrangement	Not applicable	Standards systems that are jointly governed by business and civil society actors, e.g. FSC, Roundtable on Sustainable Palm Oil (RSPO) and other commodity roundtables

Source: ITC and EUI research.

Standards growing rapidly

In the 1990s and 2000s, the number and type of VSS has increased dramatically. One of the first systems with global reach was FSC. Created in 1993 by a coalition of environmental NGOs and firms, FSC sets standards for sustainable forestry management and operates a certification programme. Today, over 186 million hectares of forestland are certified by it (FSC International, 2017). Since the 1990s, VSS have been established in a wide range of sectors, including agriculture, mining, textiles, and consumer goods and services.

Figure 1 illustrates this trend, showing how the number of VSS rose substantially in the 1990s and 2000s. During this period, on average, eight new VSS were created per year, or 167 in all. This growth dynamic has slowed down more recently, but new VSS are still being developed, with the Standards Map recording six new entrants for 2015 alone.

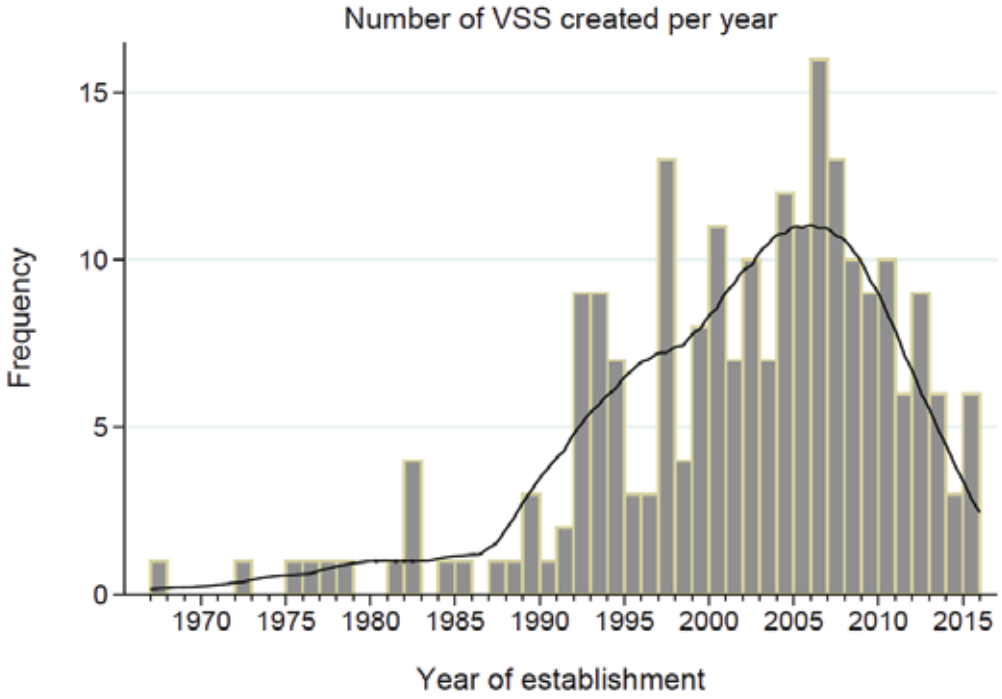
What explains this shift towards voluntary mechanisms in transnational trade governance? The existing academic literature on the topic identifies a confluence of factors, of which the most important are (Bartley, 2007):

- Economic globalization (the expansion of global value chains);
- Insufficient government-led regulation of transnational production;
- Developments in information technology (the Internet);
- The growing importance of environmental norms on the international agenda.

With regard to the last point, the 1992 United Nations Conference on Environment and Development – the

Earth Summit – had a catalysing effect. In Rio, world leaders embraced the concept of sustainable development and explicitly called on the private sector and civil society to contribute to the transition to sustainability. In combination, these factors are believed to have created an enabling environment for VSS to emerge as a new mode of transnational trade governance.

Figure 1. Yearly growth in standards



Source: ITC and EUI calculations based on ITC Standards Map.

Today, retailers, brand manufacturers and trading companies around the world employ VSS in their global value chains as tools for addressing sustainability issues. Many companies have also created their own firm-level sustainability standards, such as Unilever's Sustainable Agriculture Code. Others are collaborating to set up industry-wide programmes, such as International Featured Standards (IFS), developed by a group of leading German food retailers, or are working with civil society to establish multi-stakeholder initiatives like the Rainforest Alliance.

Proliferation, fragmentation raise concerns

VSS are now a significant tool for sustainability governance in the agricultural sector and other product fields. However, their rapid and continuing proliferation has also raised concerns. One major issue is the increasing fragmentation of the standards landscape, a situation of redundancies, gaps and contradictions between standards operating in the same markets and sectors.

Fragmentation of the standards landscape is a situation of redundancies, gaps and contradictions between standards operating in the same markets and sectors.

For example, the soy sector in Brazil currently has 21 active VSS. Recent studies suggest that this can create problems on various levels (Fransen, 2011). Highly fragmented certification markets can have negative socioeconomic consequences on suppliers in these markets, such as high transaction costs. The reason is that buyers often require different standards, thus making multiple certifications necessary. For smallholders and SMEs in developing countries in particular, this can create barriers to certain markets. The problem is exacerbated by the fact that in most cases, suppliers are bearing the costs of certification alone (Fiorini, et al., 2016).

In addition to these potential market access consequences, highly fragmented sustainable markets can indirectly undermine the effectiveness of VSS. The existence of multiple voluntary standards can, for

example, encourage value chain actors to shop for the most lenient standard. This can result in negative competition among VSS, putting downward pressure on them.

Recent developments in the European biofuel certification market illustrate the dynamic. In this case, the first-mover programme – the relatively stringent and comprehensive Roundtable on Sustainable Biomaterials – was outcompeted by a quickly growing number of industry-sponsored programmes with more lenient requirements. These programmes now account for the vast majority of certificates issued in this market, raising questions about the overall environmental effectiveness of voluntary regulation in the sector (Schleifer 2013).

Finally, the proliferation of VSS is making consumers more confused, which can undermine trust in the entire VSS governance mechanism. Sustainability certificates or labels function essentially as market signals. VSS contain information about how the certified product was produced, attributes that are otherwise unobservable by consumers. For example, they may signal that certified banana producers have received a price premium or that no dangerous pesticides have been used in their production. This signalling mechanism, however, works only if standards systems are considered credible and trustworthy voluntary instruments. VSS that are not just numerous but that also vary greatly in their stringency levels and in the robustness of their monitoring and verification mechanisms can further erode this trust.

Coordination tools

More and better coordination between private, national and intergovernmental frameworks is a possible solution to the problems caused by the increasing number of social and environmental standards and the resulting fragmentation of the VSS landscape. The main objective of coordination is to improve the interoperability of standards systems and thus reduce the burden of compliance for producers. Coordination and coherence would eliminate gaps and contradictions between standards while also harmonizing implementation procedures and management structures (Bouckaert, 2010).

Better coordination between VSS can also help to reduce the transaction costs of developing-country suppliers who often need to conform to multiple standards. In addition, it can cut down on the risk of adverse regulatory competition between standard-setting organizations. However, there is little systematic knowledge about the state of coordination in the field of social and environmental standards. Before providing a detailed analysis of the structure of sustainable markets across agricultural commodity sectors in Chapter 2, this section elaborates on the concept of standards system coordination. It provides an overview of instruments of coordination and illustrates this with examples.

On a very general level, coordination is a process of increasing the interoperability of standards systems in order to make them work together more smoothly and efficiently. But what does this mean in practice? Where does coordination happen, and which instruments are used? Table 2 introduces a simple typology of coordination in sustainable standards setting.

Coordination is a process of increasing the interoperability of standards systems in order to make them work together more smoothly and efficiently.

Key coordination instruments include information exchange, benchmarking, and recognition and harmonization. Information exchange constitutes a low level of coordination, with mutual recognition and harmonization representing the highest level. The use of these instruments is explored below in three different dimensions: coordination between VSS, coordination between VSS and national standards, and coordination between VSS and intergovernmental standards.

Information exchange

Information exchange in the present context includes all kinds of formal and informal interactions between VSS and national and intergovernmental regulators in which information about the content, setting, implementation and impact of sustainability standards is exchanged. Information exchange creates awareness, facilitates shared understanding and learning and can help to disseminate best practices.

Today there are many forums for information exchange on sustainability standards. One important annual event is the Global Sustainability Standards Conference of the ISEAL Alliance, an umbrella organization of leading VSS systems. Information exchange also occurs between VSS and national regulators. The joint study of the government-led Indonesian Sustainable Palm Oil Organization (ISPO) and the above-mentioned RSPO is another example. In the intergovernmental arena, the United Nations Forum on Sustainability Standards (UNFSS) has emerged as a leading forum for research and discussion on VSS.

Table 2. Instruments of coordination between standards

Degree of coordination	Type	Coordination between standards	Coordination with public standards	Coordination with intergovernmental standards
Low	Information exchange	Formal and informal interactions between VSS, e.g. ISEAL's Global Sustainability Standards Conference	Formal and informal interactions between VSS and national standards, e.g. joint study of ISPO and RSPO	Formal and informal interactions between VSS and international organizations, e.g. UNFSS
	Benchmarking	Instruments for comparing the content and processes of VSS, e.g. Sustainability Standards Comparison Tool (SSCT), ITC Standards Map, Seafood Watch benchmarking project	Instruments for comparing VSS and national standards, e.g. benchmarking of national farming standards through GLOBALG.A.P.	Instruments for comparing VSS and intergovernmental standards, e.g. Global Rules for Sustainable Farming project
High	Recognition and harmonization	Recognition and harmonization between VSS, e.g. recognition agreement between Seafood Watch and GLOBALG.A.P.	Recognition and harmonization between VSS and national standards, e.g. recognition of national farming standards through GLOBALG.A.P	Recognition and harmonization between VSS and intergovernmental standards, e.g. recognition of biomass VSS by European Commission under its Renewable Energy Directive

Note: ITC and EUI research.

Benchmarking sustainability standards

Stakeholders are increasingly seeking information on how sustainability standards perform and stack up against one another. A key instrument in this regard is benchmarking, a process in which the requirements and processes of sustainability standards are compared with one another or against a designated benchmark.

Governments, businesses and consumers often refer to external benchmarking tools that can help navigate the complex landscape of VSS. These tools are normally developed in a multi-stakeholder dialogue and can be publicly shared with users to help them better understand the commonalities and differences between standards and thus make more informed choices about which sustainability system to work with.

Benchmarking is a process in which the requirements and processes of sustainability standards are compared with one another or against a designated benchmark.

An example of an external benchmarking tool is the Sustainability Standards Comparison Tool (SSCT), which is an initiative of the ISEAL Alliance, the German International Cooperation Agency (GIZ) and ITC. Internal use of benchmarking, in other words a

comparison of different standards which is not publicly available or available on request, is often a necessary first step in the harmonization and mutual recognition process in order to identify any overlaps or gaps between different standards systems.

Other examples of benchmarking initiatives used to enhance harmonization and recognition between sustainability standards systems are the Global Food Safety Initiative (GFSI) and the Global Rules for Sustainable Farming project. GFSI is run by the Consumer Goods Forum, a global industry network of retailers and consumer goods manufacturers whose mission statement is "once certified, accepted everywhere".

To achieve this objective, GFSI has developed a benchmarking mechanism for private standards operating in the field of food quality and safety. The aim is to facilitate equivalency between food safety schemes. There are currently 13 schemes that have been benchmarked against the GFSI requirements. These schemes are now easily accepted by buyers without the need for suppliers to go through multiple audits (Global Food Safety Initiative, 2017).

Global Rules for Sustainable Farming is a benchmarking project of the Earth Innovation Institute. Together with its partners from industry and civil society, it compares the standards of voluntary agricultural commodity roundtables (e.g. the Roundtable on Responsible Soy (RTRS)) with the United Nations REDD+ Programme. The objective is to assess the intercompatibility of these processes so as to better address the problem of tropical forest conversion.

Benchmarking has also been used to align VSS and national standards for increased market access and reduced audit time and costs. Examples include the benchmarking of national farming standards in Mexico, Chile and China against the GlobalG.A.P. standard, a private farm assurance scheme operating globally. As a result, products that are certified under national schemes can now be sold more easily on international markets in which the GlobalG.A.P. standard is widely recognized.

Recognition and harmonization between standards

The foregoing discussion highlights the fact that the objectives and benefits of benchmarking often go beyond comparisons and can facilitate recognition and harmonization between VSS, a third key instrument of coordination. In this context, recognition means that standard-setting organizations recognize other standards as fully or partially equivalent. Typically, this is done through formal recognition agreements in which a standards system accepts other standards' requirements and assurance procedures as being fully or partially equivalent.

Recognition means that standard-setting organizations recognize other standards as fully or partially equivalent.

Recognition can also be mutual, in which case two or more standards recognize one another's criteria and processes as equaivalent and producers can be certified or verified against two or more standards simultaneously, thereby avoiding multiple audits.

The main objectives of recognition agreements are to seek efficiencies and respond to market demand. They can also increase the market access of certified producers, whose products can be sold to a larger customer base if their certificate is more widely recognized. As the following examples show, there are also recognition arrangements between VSS and national and intergovernmental frameworks. Harmonization, on the other hand, is a process in which some aspects of standards systems are purposely adapted to be more similar. Theoretically, recognition and harmonization are two different things. In practice, however, they often go hand in hand, as recognition typically requires a certain degree of harmonization.

Harmonization is a process in which some aspects of standards systems are purposely adapted to be more similar.

One example of recognition is Friend of the Sea, a VSS for sustainable seafood products. Friend of the Sea recognizes the GlobalG.A.P. aquaculture standard as equivalent. This means that GlobalG.A.P.-

certified producers can use the Friend of the Sea logo on their products after complying with a few additional criteria that are not included in the GlobalG.A.P. criteria set (Friend of the Sea, 2017).

Recognition arrangements are also promoted between firm-level standards and codes. One example is the mutual recognition of audit protocols between fast-moving consumer goods companies under the AIM-Progress initiative, the Program for responsible sourcing (AIM-Progress, 2017). The objective is to reduce the number and complexity of supplier audits by establishing mutual recognition agreements between different audit protocols. Retailers often buy from the same suppliers but use different methodologies for assessing sustainability.

The AIM-Progress process consists of several steps. The first step is to benchmark the audit protocols of participating companies against a set of common criteria. In the second step, participating companies recognize one another's audit protocols as equivalent. In the third step, they exchange information about their supplier networks.

In the intergovernmental arena, the European Union (EU) has created recognition arrangements for VSS in several areas, including organic agriculture and biofuels. For instance, EU recognizes United States Department of Agriculture (USDA) National Organic Program as equivalent to the EU Organic Program, which means that products certified to USDA National Organic Program can be sold to the EU countries without need to go through a separate EU Organic certification. Likewise, EU Organic certified products originating from EU can be exported to the United States without the need of a separate USDA National Organic Program certificate.

In the biofuel sector, the 2009 Renewable Energy Directive created a meta-standard for sustainable biofuel production. Under the scheme, the EU Commission has recognized several voluntary biomass standards as equivalent. Firms can now use them to gain access to the EU biofuel market (Schleifer, 2013).

CHAPTER 2: UNDERSTANDING FRAGMENTATION: THE MARKET LANDSCAPE

The previous chapter described the rapid increase in the number and type of VSS and the challenges posed by the resulting fragmentation of the sustainability standards landscape. This chapter uses the data contained in the ITC Standards Map to examine that fragmentation in nine key agricultural commodity sectors: bananas, cocoa, coffee, cotton, forestry products, palm oil, soy, sugarcane and tea.

These sectors comprise globally significant export products, many of them grown in developing countries. While VSS operate in a wide range of other sectors and countries, agricultural production has always been an important focus for them. One key reason is that as it expands to meet the demands of a growing world population and is used as a major economic tool for developing countries, it continues to pose major challenges to sustainability.

Environmental concerns (such as forest conversion, biodiversity loss, land degradation, water quality and scarcity) and social concerns (including forced labour and poor health and safety conditions) loom large in agriculture. The situation is severe, particularly in tropical countries. Between 1980 and 2000 more than 55% of new agricultural land in the tropics was exploited, at the expense of intact forest (Gibbs, 2010). In the face of these and other sustainability challenges, a large number of VSS have been developed by industry and civil society actors to address the specific issues surrounding agricultural production. However, without better coordination, the increasing fragmentation of sustainable markets risks undermining these voluntary efforts to wield an impact on the sector in which they operate.

Measuring fragmentation

As mentioned above, nine commodity sectors have been selected for analysis here, and the 10 largest producing countries were identified for each, using information from FAOSTAT (FAOSTAT, 2017).[5] This yielded 90 country-product pairs or markets, e.g. the country-product market of soy produced in Brazil or of tea in China.

A two-step approach was used to analyse the state of fragmentation in each of these markets. The first step was to simply calculate how many standards operate in each. The calculation was based on the data on geographical scope of certified or verified producers collected in the Standards Map database for each VSS, i.e. data on the countries where standards have certified or verified producers. The second step was to measure fragmentation levels in the 90 country-product markets.

Two indices were developed for this purpose. The first is the **requirement overlap index**, which shows how similar the requirements or criteria of different VSS operating in a given market and commodity are and shows what fragmentation looks like in that market. Data on the requirements come from the Standards Map database, which maps the requirements against 820 indicators covering environmental, social, ethical, management and product quality hotspots. The second measure of fragmentation is the **process overlap index,** which shows the similarities of the processes used by different VSS such as auditing, accreditation, labelling, traceability, producer support, standard governance processes. Some 30 process criteria were selected from a range of Standards Map data. The full list of processes criteria is presented in Annex III.

Both indices range in value from 0 to 1. An index value of 0 indicates zero overlap between the standards' requirements or processes and suggests high fragmentation between the standards in a given country-product market. An index value of 1 indicates absolute overlap between requirements or processes, and hence no fragmentation or differences between the standards.

[5] Production data from 2014 (the latest year available) have been used to identify the top 10 producers in each sector.

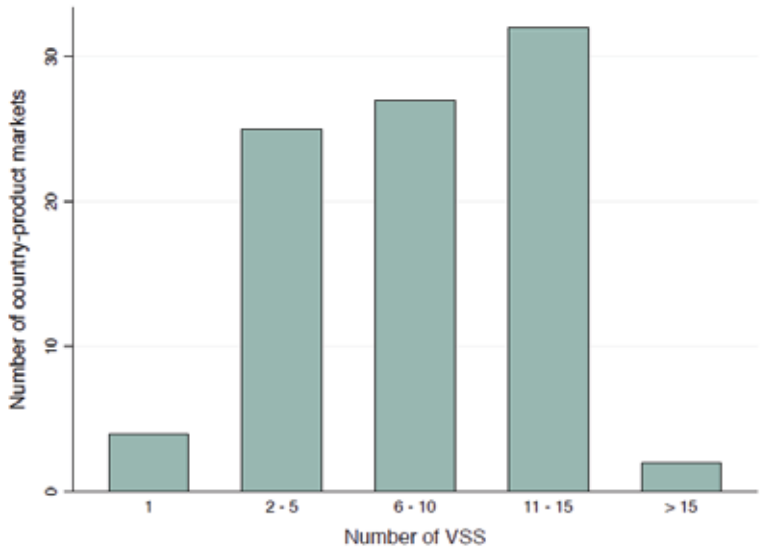
General trends

Following is a summary of the general findings and patterns across all country-product pairs for the fragmentation of requirements and processes.

A plethora of standards

Figure 2 below shows the number of VSS operating in the 90 country-product markets. It indicates that in more than 30 of these markets there are 11 or more VSS operating. For instance, cocoa producers in Côte d'Ivoire may have to contend with up to 11 different standards, while coffee producers in Brazil can be certified or verified to the 13 sustainability standards operating there. Two markets – the soy markets in Argentina and Brazil – have more than 15 VSS each.

Figure 2. Number of standards operating in different country-product markets

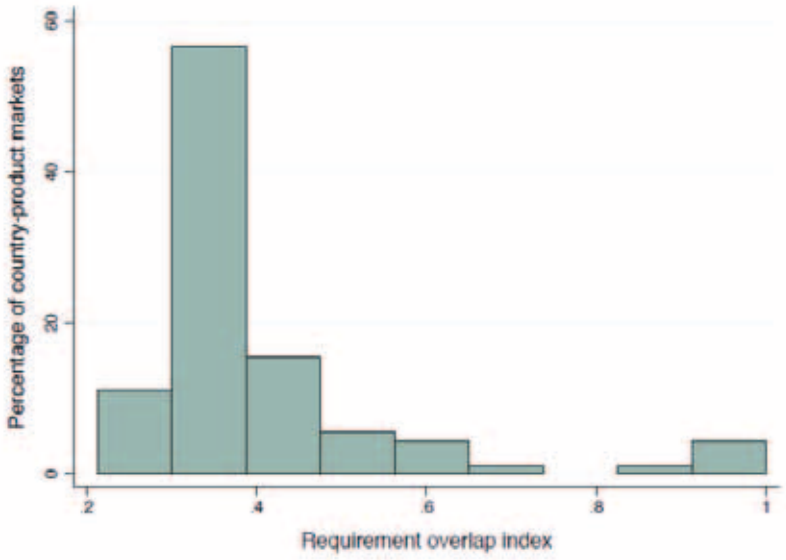


Note: The statistics are based on 210 standards. The bars show the number of country-product markets where standards operate, per group of standards (i.e. 2-5 standards).
Source: ITC and EUI calculations based on ITC Standards Map.

High fragmentation

Figure 3 illustrates the distribution of the requirement overlap index. It shows that in the vast majority (approximately 70%) of the country-product markets analysed in this report, the index value is less than 0.4. This means that, on average, a requirement is covered by less than 40% of the standards systems operating in these markets. In other words, VSS often differ substantially in the requirements they ask producers to comply with, which suggests a high level of fragmentation in terms of requirements in these markets.

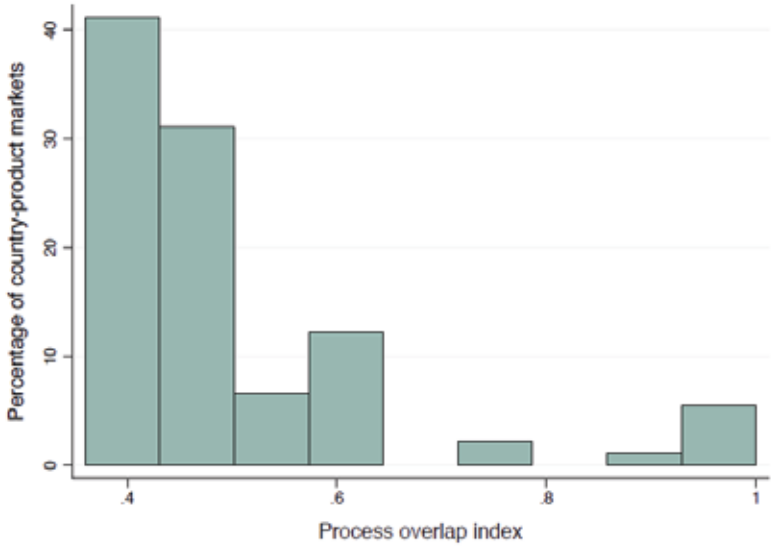
Figure 3. Requirement overlap index



Note: The bars show the percentage share of country-product markets with different values of the requirement overlap index.
Source: ITC and EUI estimates based on ITC Standards Map.

The level of fragmentation is also high when it comes to the processes applied by standards (figure 4). Here, the process overlap index indicates that in a high proportion (more than 40%) of the country-product markets analysed, the process overlap between VSS operating is less than 0.4. This means that standards systems often do things very differently. For example, while some of them offer group certification or require third-party monitoring, others do not.

Figure 4. Process overlap index



Note: The bars show the percentage share of country-product markets with different values of the process overlap index.
Source: ITC and EUI estimates based on ITC Standards Map.

Soy-producing countries, the most fragmented

Table 3 lists the most fragmented country-product markets in terms of the requirements of the standards, i.e. those markets where the overlap of requirements is the lowest and where the corresponding processes overlap. Soy-producing countries have a large number of standards certifying and verifying producers. The

requirements of the standards operating in these markets have a low overlap index; in other words, they are very different, hence there is high fragmentation. For example, 21% of the standards operating in the Chinese soy market cover on average the same requirement, while the remaining standards cover completely different requirements. The table therefore suggests there is a great need for coordination between standards operating in soy markets in China, Brazil, Canada, United States of America, Argentina, Ukraine, Uruguay, Paraguay and India, and in the tea market in China[6], as the requirements are considerably different in each.

Table 3. Most fragmented country-product markets

Product (Standards Map category)	Country	Number of VSS	Requirement overlap Index	Process overlap Index
Soy	China	15	0.21	0.44
Soy	Brazil	21	0.21	0.44
Soy	Canada	10	0.22	0.44
Soy	United States of America	13	0.22	0.43
Soy	Argentina	17	0.22	0.43
Soy	Ukraine	9	0.23	0.43
Soy	Uruguay	10	0.25	0.48
Soy	Paraguay	13	0.25	0.40
Soy	India	12	0.26	0.42
Tea	China	13	0.29	0.39

Note: The table lists top ten most fragmented country-product markets based on the requirement overlap index starting from the lowest value of the index in the Chinese soy market.
Source: ITC and EUI estimates based on ITC Standards Map.

More standards more requirements

Figure 5 below plots the values of the four key data points of the analysis: the number of VSS operating in a country-product market; the requirement and process overlap indices; the number of requirements covered by standards[7]; all data are averaged per sector.[8]

The figure shows several patterns that can be confirmed by estimating correlations in the entire sample set of 90 country-product markets. The first pattern is higher fragmentation (or lower overlap) in terms of both requirements and processes in the country-product markets correlates with more VSS. In other words, the more standards operate in a product market, the greater are the differences in requirements and processes, such as audits, between standards.

The second pattern is that product markets that are covered on average by more VSS, tend to be associated with a higher number of standard requirements; for instance, banana producers in Mexico, where two VSS are active, have to comply with 263 requirements on average, whereas tea producers in China, where 13 VSS operate, have to comply with 474 requirements on average.

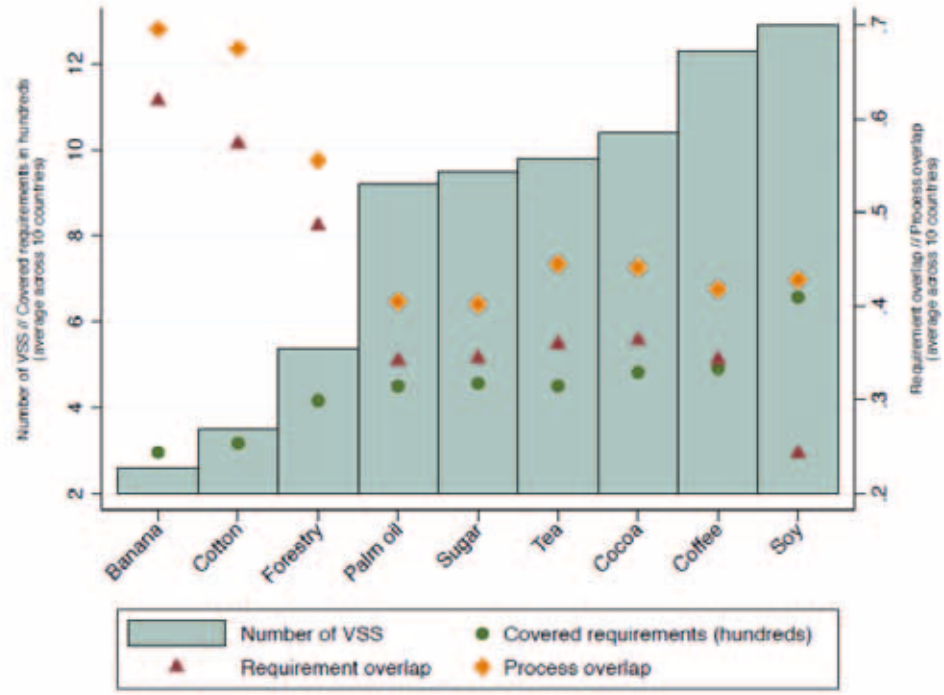
One of the possible explanations for this pattern is the competition between VSS operating in one product market, which can translate into a differentiated set of requirements and processes and a larger number of requirements to be met by the producers. Both factors make it more burdensome for producers to comply with several standards if they need to comply with a large and diverse set of requirements and go through different processes, as illustrated by the analysis.

[6] Countries are listed based on requirement overlap index starting from the lowest in the Chinese soy market

[7] The number of Standards Map indicators against which the requirements of standards were mapped

[8] Data averaged among 10 producing countries for a single commodity sector

Figure 5. Overlap across products



Note: The bars show the number of standards operating in each product The triangles show the value of the requirement overlap index in each product. The circles show the number of requirements (in hundreds) covered by standards operating in each product. The diamonds show the value of the process overlap index in each product. All varibles are averaged across ten countries where a given product is produced. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

More standards for food sectors

Figure 5 also shows that there are more standards operating in agricultural food sectors, such as soy, coffee, cocoa, sugarcane, tea and palm oil, than in non-food sectors, such as cotton and forestry. The exception is bananas, where only a few standards were identified: Fairtrade, GlobalG.A.P., Sustainable Agriculture Network (SAN) and Organic. The presence of a larger number of standards in the food sector can be attributed to the fact that food products have naturally received more attention from consumers and retailers alike, initially in terms of product quality and safety, and later in terms of sustainability issues.

In fact, the majority of VSS that emerged in the 1970s and 1980s, when the sustainability standards movement was just beginning, focused primarily on food products; examples are Naturland Standards for Organic Agriculture, Sustainably Grown and the International Federation of Organic Agriculture Movements (IFOAM) standards. Non-food products started gaining consumer and retailer traction much later. For instance, the Better Cotton Initiative (BCI) and Cotton Made in Africa (CmiA), two large programmes certifying cotton growers, were established only in 2005.

It should also be noted that a large number of standards apply to the downstream processing part of the textiles and garment supply chain, i.e. sewing, weaving and knitting, and not to the upstream production side, which is the main focus of this research. In fact, brands and retailers often use VSS for both the upstream cotton growers and the downstream processors and garment or textile manufacturers in order to manage sustainability-related risks in their supply chains.

The bananas sector has surprisingly few operational standards. Despite the fact that bananas are one of the most traded export fruit items and that many sustainability issues surface in banana farming, there is no product-specific sustainability standard for them. Rather, such standards as GlobalG.A.P., Rainforest Alliance, Fairtrade and Organic are the largest certifiers of bananas, although they also cover other

commodities and lack specific requirements or criteria specific to bananas. J.W.H. van der Waal and J.R.J. Moss (Van der Waal, 2013) claim that there is no shared understanding among different stakeholders as to what sustainability in bananas means throughout supply chains. As a result, a comprehensive banana-specific sustainability standard is missing, and market growth for sustainable bananas remains relatively low.

As can be seen in figure 5, the soy sector has the largest number of standards. It has been frequently associated with high negative environmental impacts, such as deforestation in the Amazon region of Brazil, which could account for the high number of VSS in the sector. RTRS, a civil society organization that promotes responsible production, processing and trading of soy, was one of the first to be established explicitly to mitigate the negative effects of soy production by certifying soy farmers to the RTRS standard.

Other standards were developed at different points on the soy value chain, including trader standards like ADM's Responsible Soybean Standard and Cargill's Triple S Program, and feed manufacturers' standards like that of the Belgian Compound Feed Industry Association (BEMEFA).

Case study 1: Benchmarking standards for sustainable soy

Benchmarking standards against industry guidelines can boost both market access and sustainable production, as soy suppliers to European market recently found.

The European Feed Manufacturers' Federation (FEFAC) represents the European compound feed industry in the European institutions and consists of 25 national associations in 24 EU member States and associations from five non-EU countries. Besides feed safety and quality, the Federation also has sustainability on its agenda.

In 2015 FEFAC developed its soy sourcing guidelines in order to streamline the sustainable soy production practices of suppliers to the European market given that soy is one of the main crops for feed production and is in high demand in the EU market. The streamlining process included benchmarking multiple VSS and codes of conduct for soy against the FEFAC guidelines. Schemes that complied with the guidelines as a result of the benchmarking are today considered acceptable for the European market based on the FEFAC criteria, and producers who are certified to these schemes have greater access to the European market, as the guidelines are widely recognized by European feed manufacturers.

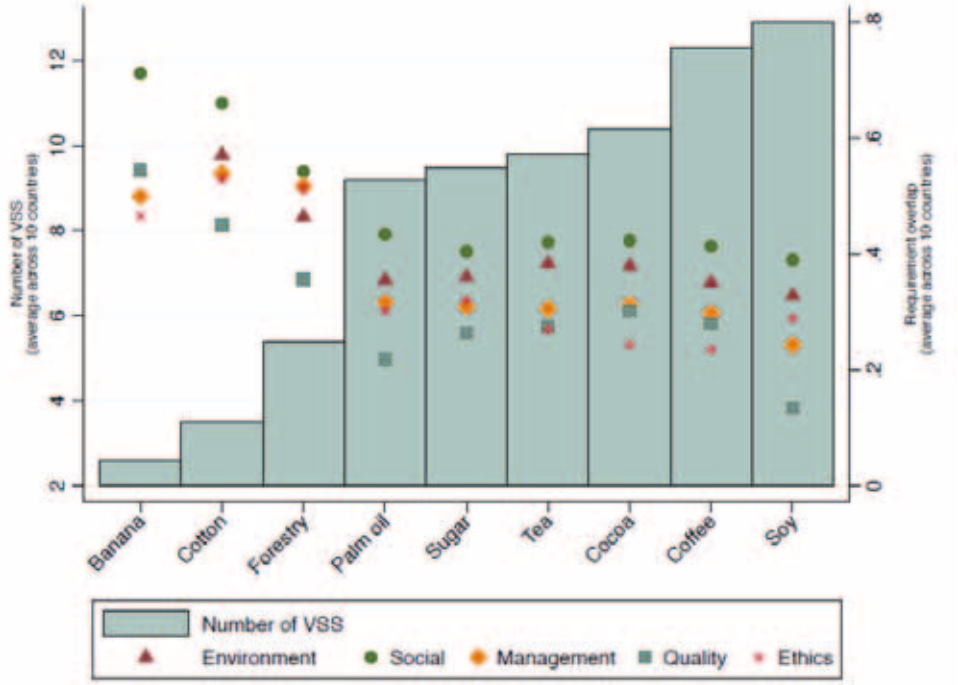
Throughout the benchmarking process, which was facilitated by ITC's T4SD programme, some standards needed to amend their criteria to bring them into line with the FEFAC guidelines and pass the benchmark. The exercise helped not only to identify those schemes that complied with the European market requirements for sustainable soy, but also to harmonize their requirements.

Overlapping social requirements

The main focus of VSS is environmental (e.g. pesticide use, soil conservation, and protection of biodiversity) and social issues (e.g. human rights, labour conditions and employment relations). However, many standards systems also include requirements concerning the economic viability of suppliers, such as price premiums, minimum prices for products, product quality and safety control, and anti-corruption and bribery measures.

The analysis conducted for this report also looked at the fragmentation of standards' requirements in sustainability themes or hotspots – such as environment, social, management, quality and ethical – to determine whether these requirements also vary across schemes.

Figure 6. Requirement overlap within sustainability hotspots



Note: The bars show the number of standards operating in each product. The triangles, the cirlcles, the diamonds, the squares and the crosses show the value of the requirement overlap index in environment, social, management, quality and ethics hotspots respectively, per product. All varibles are averaged across ten countries where a given product is produced. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

Figure 6 plots the requirement overlap index in different sectors with regard to the requirements grouped in five sustainability hotspots: environment, social, management, product quality and ethics. The figure shows that the social requirements of standards operating in all nine sectors overlap the most, which means that fragmentation occurs the least often in the social hotspot. This can likely be explained by the fact that VSS frequently refer to the International Labour Organization (ILO) Conventions, and specifically to the eight "fundamental" conventions[9]: Freedom of Association and Protection of the Right to Organise Convention, Right to Organise and Collective Bargaining Convention, Forced Labour Convention, Abolition of Forced Labour Convention, Minimum Age Convention, Worst Forms of Child Labour Convention, Equal Remuneration Convention and Discrimination (Employment and Occupation) Convention.

Figure 7 below shows the number of standards referring to the conventions. Interestingly, many countries, including the ones in the analysis, have ratified the fundamental conventions (ILO, 2017). However, their implementation is not always well monitored by governments, for a variety of reasons. VSS have become a tool for requiring the implementation of the core conventions by businesses, which is critical in the context of least developed countries with weaker enforcement mechanisms.

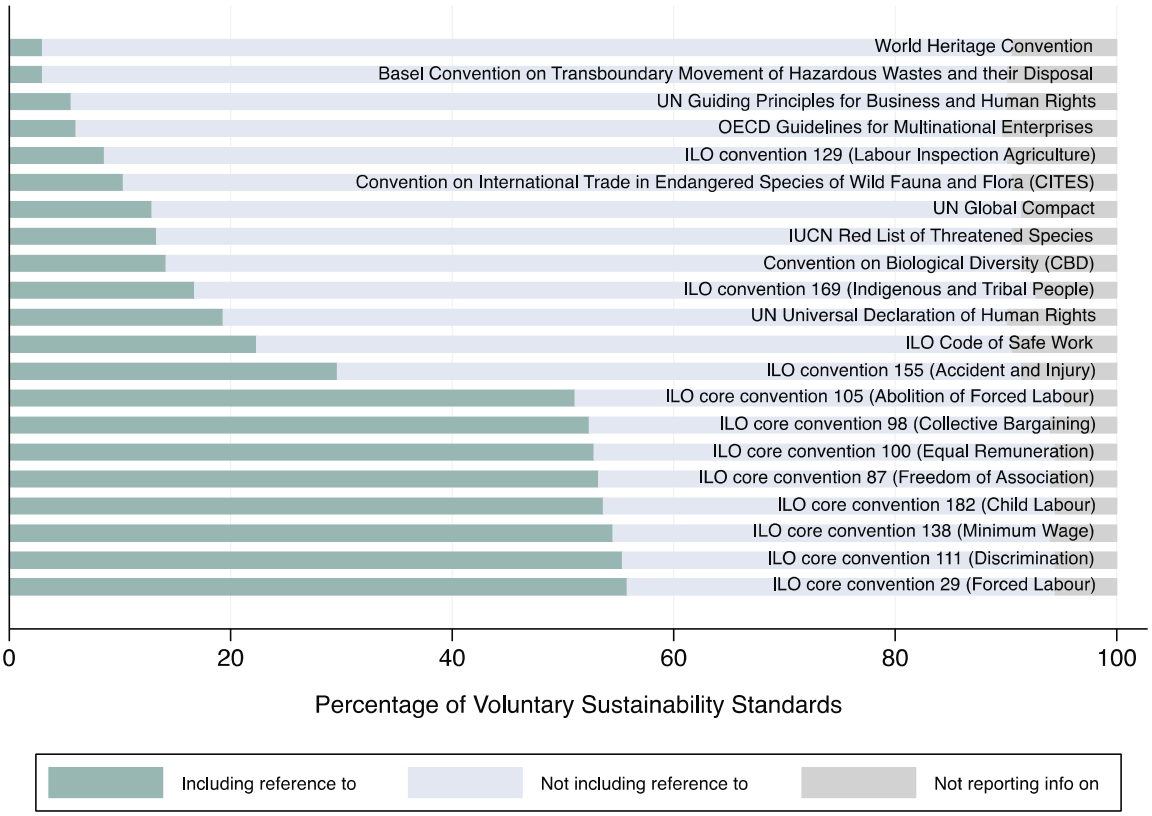
Environmental criteria are the second most overlapping category of requirements among the standards covering the nine sectors analysed. However, their overlap is not as high as that for social criteria. One possible reason is that social criteria are more universally accepted than environmental criteria. Moreover,

[9] The eight instruments identified by the ILO Governing Body as the fundamental principles and rights at work (http://www.ilo.org/global/standards/introduction-to-international-labour-standards/conventions-and-recommendations/lang--en/index.htm).

production of a given commodity in different countries is likely associated with varying environmental issues, depending on the developmental and geographical contexts as well as the intensity of production.

Another interesting observation is that VSS do not refer to international conventions on environmental issues as often as they do to social and labour conventions. Such instruments as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the International Union for Conservation of Nature (IUCN) Red List of Threatened Species and the Convention on Biological Diversity (CBD) are examples of environmental conventions whose principles or provisions have been incorporated into some of the standards. Figure 7 demonstrates how often VSS refer to such instruments and shows that those most frequently used are the ILO core conventions.

Figure 7. Standards referring to international conventions



Note: The bars show the percentage of standards referring to international conventions.
Source: ITC and EUI calculations based on ITC Standards Map.

When it comes to quality, management and ethics requirements, there is some overlap as can be seen in figure 6, but the incidence of overlap among these categories is lower than that for environmental and social issues.

Trends by product and country

The findings in this section focus on the analysis of VSS by sector and provide insights into the fragmentation of standards within the countries where the specific commodities are produced.

Bananas

Figure 8. Countries where standards operate and certify banana producers

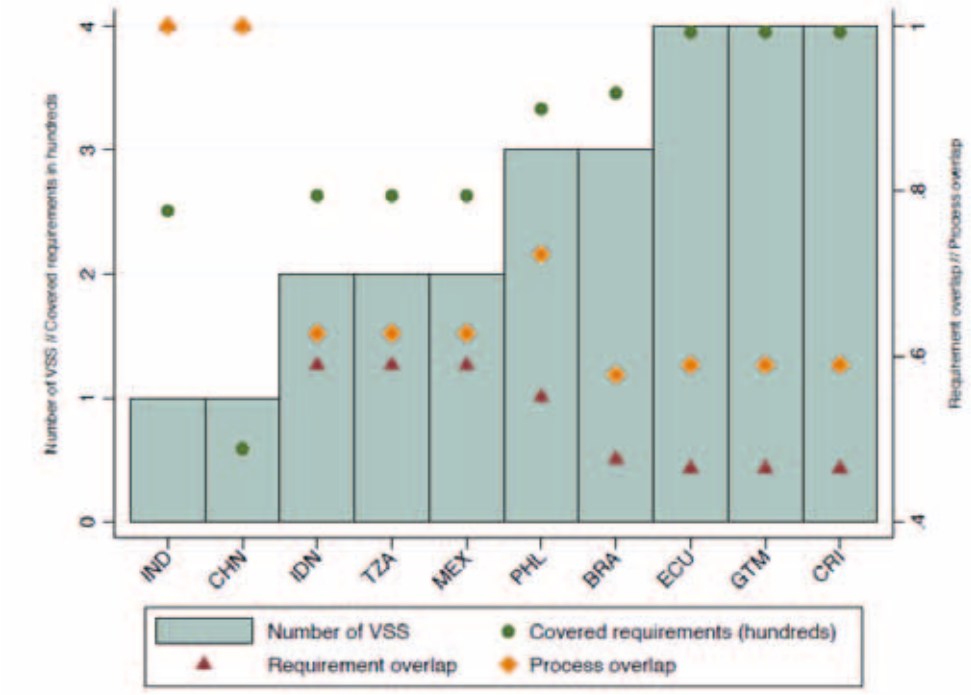
Source: ITC and EUI calculations based on ITC Standards Map. The software that generated this map does not apply the United Nations definitions of national borders.
Note: The relative darkness of the colour indicates a greater number of standards that operate in each country; that is, it has at least one producer certified to a standard.

Figure 8 shows the 10 largest producers of bananas in the world – India, China, Philippines, Brazil, Indonesia, Ecuador, Guatemala, the United Republic of Tanzania, Costa Rica, Mexico[10]– and the number of VSS operating in each country. A standard is considered operating in a country if it has at least one certified producer in this country. The data on standards operating in a country is based on an indicator of the current scope of certified/verified operations drawn from the Standards Map database.

The countries with the largest number of VSS, as reflected by the colour coding in figure 8, are Guatemala, Ecuador and Costa Rica, each of which has four standards operating (Fairtrade, GlobalG.A.P., Rainforest Alliance/Sustainable Agriculture Network (RA/SAN) and IFOAM Organic Standard).

[10] Sequence of countries is based on the production volumes of bananas, data comes from http://www.fao.org/faostat/en/#data/QC

Figure 9. Fragmentation of standards in bananas sector



Note: The bars show the number of standards operating in each country. The triangles show the value of the requirement overlap index in each country. The circles show the maximum number of requirements (in hundreds) covered by standards operating in each country. The diamonds show the value of the process overlap index in each country. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

Figure 9 shows the fragmentation of VSS operating in 10 focus countries. Guatemala, Costa Rica and Ecuador have the largest number of standards – four in each – and the largest number of requirements covered by the VSS (producers need to comply with maximum of 395 requirements in each country).

The requirement and process overlaps are also similar in these three countries: requirements have a low overlap index value of 0.46; processes, an index value of 0.50. The low overlap indices for requirements and processes could be indicative of greater competition among standards.

Cocoa

Figure 10. Countries where standards operate and certify cocoa producers

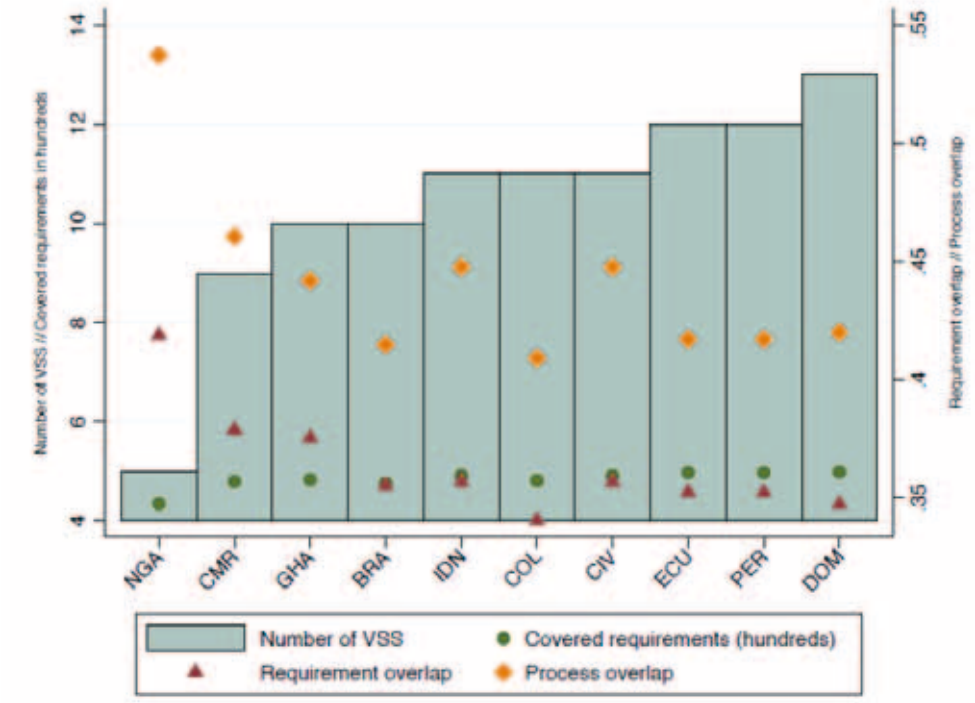
Source: ITC and EUI calculations based on ITC Standards Map. The software that generated this map does not apply the United Nations definitions of national borders.
Note: The relative darkness of the colour indicates a greater number of standards that operate in each country; that is, it has at least one producer certified to a standard.

Figure 10 shows the world's 10 largest producers of cocoa: Côte d'Ivoire, Ghana, Indonesia, Brazil, Cameroon, Nigeria, Ecuador, Peru, Dominican Republic, and Colombia. The colour coding shows the number of VSS operating in each country; Dominican Republic, Ecuador and Peru have the largest number (13 standards in Dominican Republic and 12 each in Ecuador and Peru).

The 13 standards in Dominican Republic are: HAND IN HAND – Rapunzel, RA/SAN, SAI Platform Farm Sustainability Assessment, IFOAM Standard, British Retail Consortium (BRC) Global Standard, UTZ, GLOBALG.A.P. Risk Assessment on Social Practice (GRASP), GLOBALG.A.P. Crops, Fair Trade USA, Naturland Standards on Production, Fairtrade, Business Social Compliance Initiative (BSCI) Code of Conduct and EU Organic Farming.

Most of these standards focus on production at the farmers' level (SAI Platform, UTZ, Fair Trade USA, RA/SAN). Some standards, such as BSCI and GlobalG.A.P. GRASP, focus mainly on social issues, while others focus on food safety and quality (BRC Global Standard).

Figure 11. Fragmentation of standards in the cocoa sector



Note: The bars show the number of standards operating in each country. The triangles show the value of the requirement overlap index in each country. The circles show the maximum number of requirements (in hundreds) covered by standards operating in each country. The diamonds show the value of the process overlap index in each country. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

Figure 11 shows the fragmentation of VSS operating in the cocoa sector in 10 focus countries. Dominican Republic again has the largest number – 13 – and the largest number of requirements with which producers need to comply (maximum 498[11]). Nigeria has the smallest number – five – and a smaller number of requirements (maximum 434).

As for the overlap of requirements, the highest overlap is in Nigeria (requirement overlap index value of 0.42), where five VSS operate, and the lowest is in Colombia (requirement overlap index value of 0.34) where 11 standards operate. The overlap is also low in Dominican Republic (requirement overlap index value of 0.35). The overlap of processes is the highest in Nigeria and the lowest in Colombia and Brazil.

[11] The number refers to the standards having the largest number of requirements; not all standards in a country-product group will necessarily have the maximum number of requirements.

Coffee

Figure 12. Countries where standards operate and certify coffee producers

Source: ITC and EUI calculations based on ITC Standards Map. The software that generated this map does not apply the United Nations definitions of national borders.
Note: The relative darkness of the colour indicates a greater number of standards that operate in each country; that is, it has at least one producer certified to a standard.

Figure 12 shows the countries with the largest production volumes of cocoa: Brazil, Viet Nam, Colombia, Indonesia, Ethiopia, India, Honduras, Guatemala, Peru, and Uganda. All have 11 or more VSS certifying producers, with the exception of Honduras and Viet Nam which have 9 and 10 standards operating in these countries respectively.

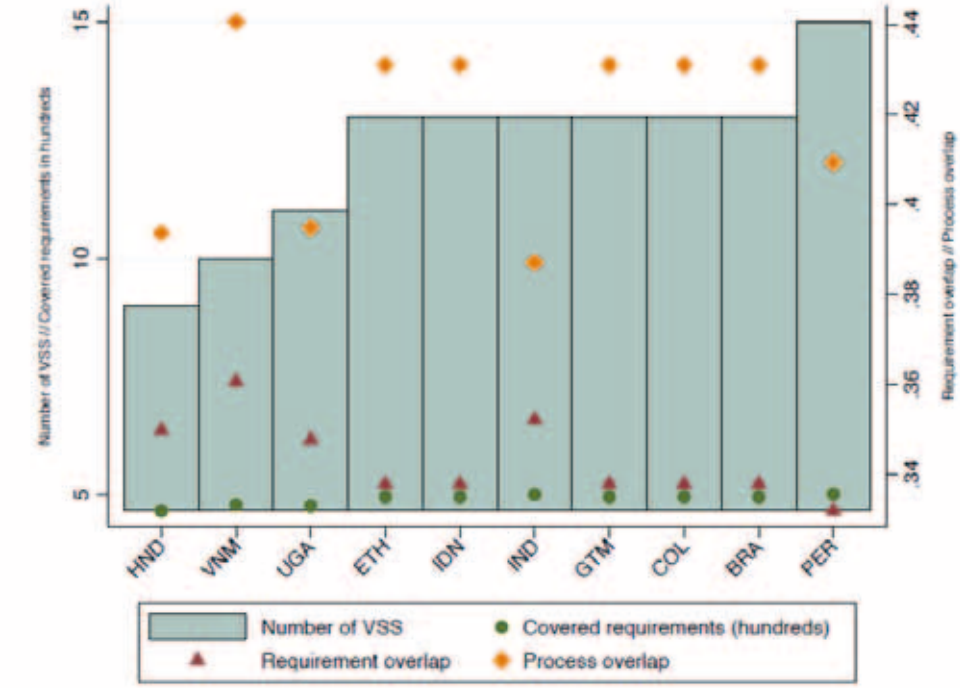
Peru has the largest number of standards (15). These are Fairtrade, RA/SAN, EU Organic Farming, SAI Platform Farm Sustainability Assessment, Fair Trade USA, IFOAM Organic Standard, Harvested by Women Norms and Standards, GlobalG.A.P. GRASP, BRC Global Standard, Hand in Hand - Rapunzel, UTZ, Naturland Standards on Production, GlobalG.A.P. Crops, 4C – Global Coffee Platform and BSCI Code of Conduct.

Case study 2: Merger of UTZ and Rainforest Alliance

Not just coordinating standards' procedures, but merging the standards themselves, can simplify paperwork, create efficiencies and help streamline sustainable production, as shown in this case study.

UTZ and Rainforest Alliance, two of the largest voluntary sustainability schemes certifying coffee, tea and cocoa, in June 2017 announced their intention to merge. The two schemes combined have certified around 182,000 cocoa, tea and coffee producers in a wide range of countries and are showing steady growth in both their certified area and the number of certified producers. The merger was driven mainly by the desire to reduce audit fatigue and the administrative complications of certifying against two standards and audit systems. It will result in a single certification standard and auditing process that combines the requirements of both schemes, and should speed up the process of streamlining the three commodities' production towards sustainable production methods.

Figure 13. Fragmentation of standards in the coffee sector



Note: The bars show the number of standards operating in each country. The triangles show the value of the requirement overlap index in each country. The circles show the maximum number of requirements (in hundreds) covered by standards operating in each country. The diamonds show the value of the process overlap index in each country. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

Figure 13 shows that Peru has the largest number of standards operating in the coffee sector (15) and Honduras has the smallest (nine). The 10 countries shown here have a similar number of requirements covered, ranging from 467 in Honduras to 502 in Peru. The requirement overlap is the highest in Viet Nam and the lowest in Peru, while the process overlap is the highest in Viet Nam and the lowest in India.

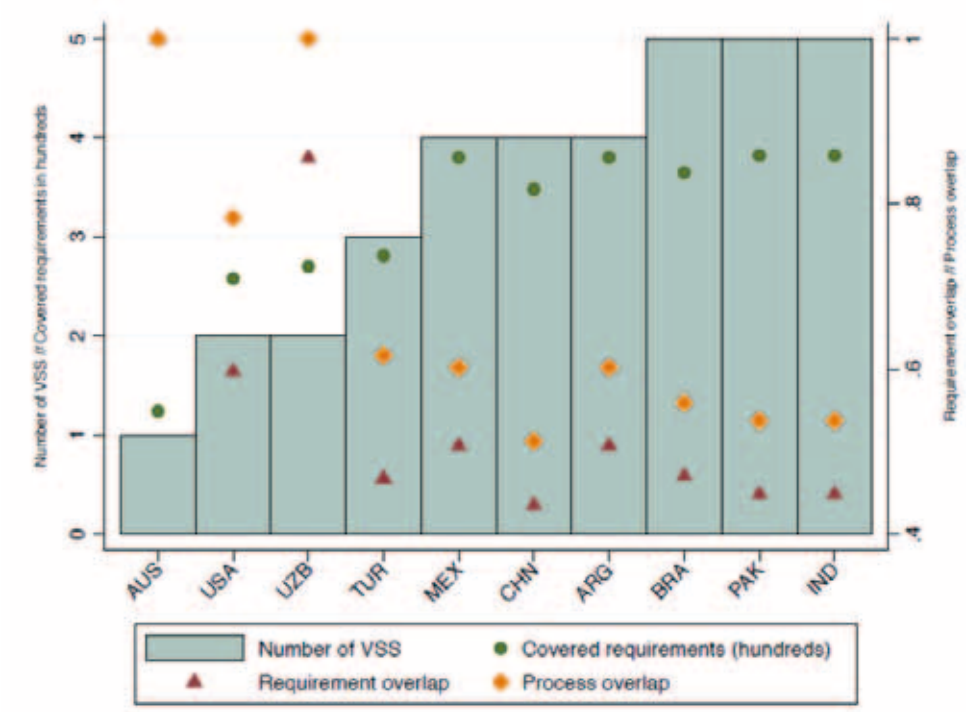
Cotton

Figure 14. Countries where standards operate and certify cotton producers

Source: ITC and EUI calculations based on ITC Standards Map. The software that generated this map does not apply the United Nations definitions of national borders.
Note: The relative darkness of the colour indicates a greater number of standards that operate in each country; that is, it has at least one producer certified to a standard.

As shown in Figure 14, the largest cotton producers are India, China, United States of America, Pakistan, Brazil, Uzbekistan, Australia, Turkey, Argentina, and Mexico. Australia has the lowest number of VSS (just one standard) certifying producers. The countries with the highest number of standards in this market (five) are Pakistan, Brazil and India. These standards are Fairtrade Hired Labour and Small Producers Organizations Standards, IFOAM Organic Standard, BCI and GOTS.

Figure 15. Fragmentation of standards in the cotton sector

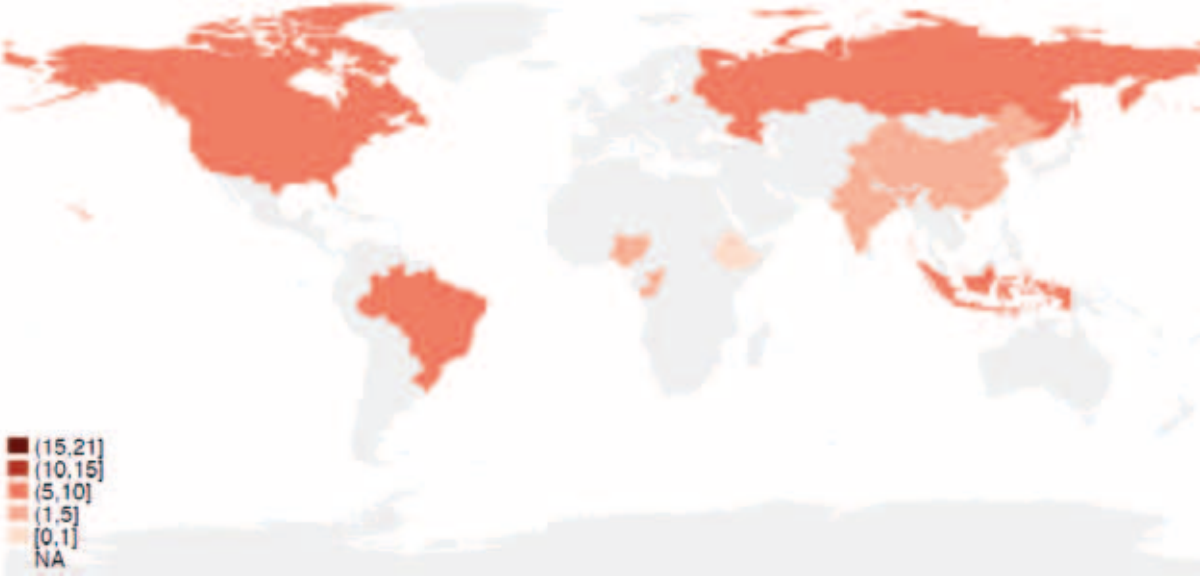


Note: The bars show the number of standards operating in each country. The triangles show the value of the requirement overlap index in each country. The circles show the maximum number of requirements (in hundreds) covered by standards operating in each country. The diamonds show the value of the process overlap index in each country. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

As shown in Figure 15, the greatest need for coordination among standards in this sector is in India, Pakistan and Brazil, the countries with the highest number of standards operating. China also has considerable need for coordination, as the requirement overlap index is quite low (the index value of 0.43), which means that on average; a given requirement will be covered by 43% of the standards operating in the Chinese cotton market.

Forestry

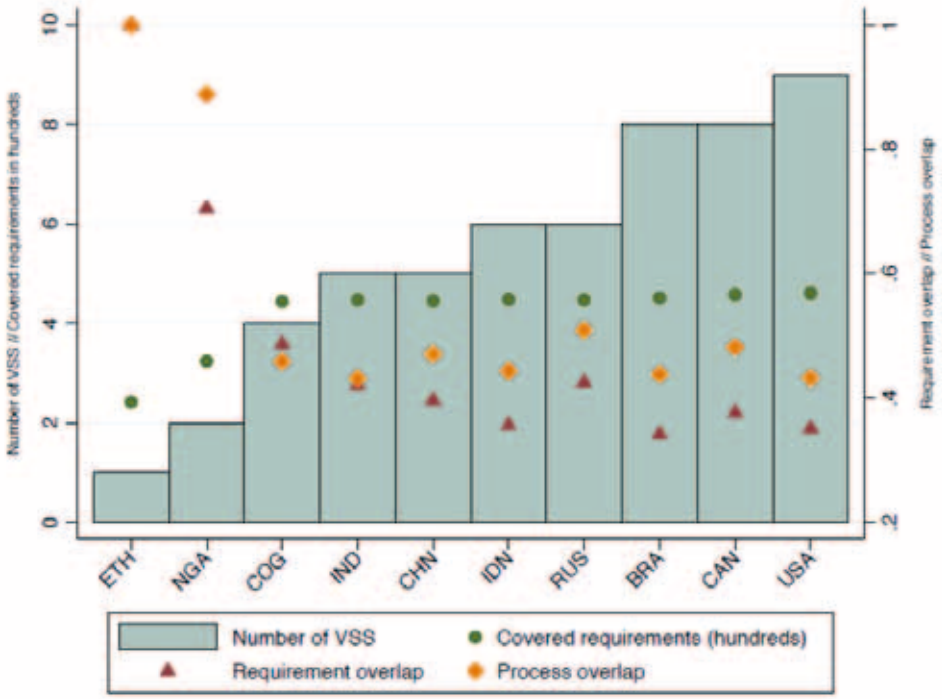
Figure 16. Countries where standards operate and certify producers in forestry sector



Source: ITC and EUI calculations based on ITC Standards Map. The software that generated this map does not apply the United Nations definitions of national borders.
Note: The relative darkness of the colour indicates a greater number of standards that operate in each country; that is, it has at least one producer certified to a standard.

Figure 16 shows the world's 10 largest forestry product producers – China, United States of America, India, Brazil, Russia, Canada, Indonesia, Ethiopia, Nigeria, Congo – and the number of VSS operating in these countries.

Figure 17. Fragmentation of standards in the forestry sector



Note: The bars show the number of standards operating in each country. The triangles show the value of the requirement overlap index in each country. The circles show the maximum number of requirements (in hundreds) covered by standards operating in each country. The diamonds show the value of the process overlap index in each country. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

Ethiopia has the smallest number of standards certifying producers in this sector – just one – as depicted in Figure 17. United States of America has the largest number – nine. The requirement overlap index is the highest in Nigeria (the index value of 0.71), where only two VSS operate, and the lowest in Brazil, United States of America and Indonesia (the index values of 0.34, 0.35 and 0.36, respectively), which thus have the greatest need for coordination.

Palm oil

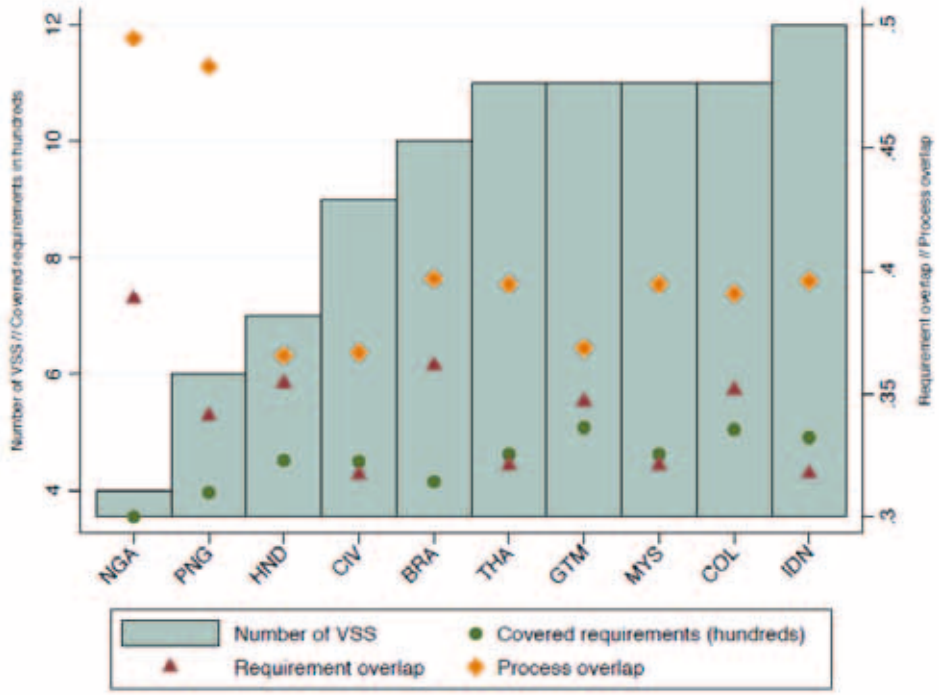
Figure 18. Countries where standards operate and certify palm oil producers

Source: ITC and EUI calculations based on ITC Standards Map. The software that generated this map does not apply the United Nations definitions of national borders.
Note: The relative darkness of the colour indicates a greater number of standards that operate in each country; that is, it has at least one producer certified to a standard.

As shown in Figure 18, the world's largest producers of palm oil are Indonesia, Malaysia, Thailand, Colombia, Nigeria, Papua New Guinea, Honduras, Guatemala, Brazil and Côte d'Ivoire. The countries with the highest number of standards active are in South-East Asia: Indonesia (12 VSS), followed by Malaysia and Thailand with 11 standards operating in each. Colombia and Guatemala also have 11 standards certifying or verifying producers in these countries.

The standards operating in Indonesia are: Rainforest Alliance/Sustainable Agriculture Network, Global G.A.P. GRASP, Fair for Life, BRC Global Standard, Unilever Sustainable Agriculture Code, SAI Platform Farm Sustainability Assessment, RSPO, Safe Quality Food Program–Safe Quality Food Institute (SQF), EU Organic Farming, BSCI Code of Conduct and IFOAM Organic Standard. Some standards focus on social issues (e.g. BSCI and Global G.A.P. GRASP); some cover farming processes (e.g. Unilever Sustainable Agriculture Code and SAI Platform Farm Sustainability Assessment); and others focus on food safety and quality issues (e.g. SQF and BRC Global Standard).

Figure 19. Fragmentation of standards in the palm oil sector

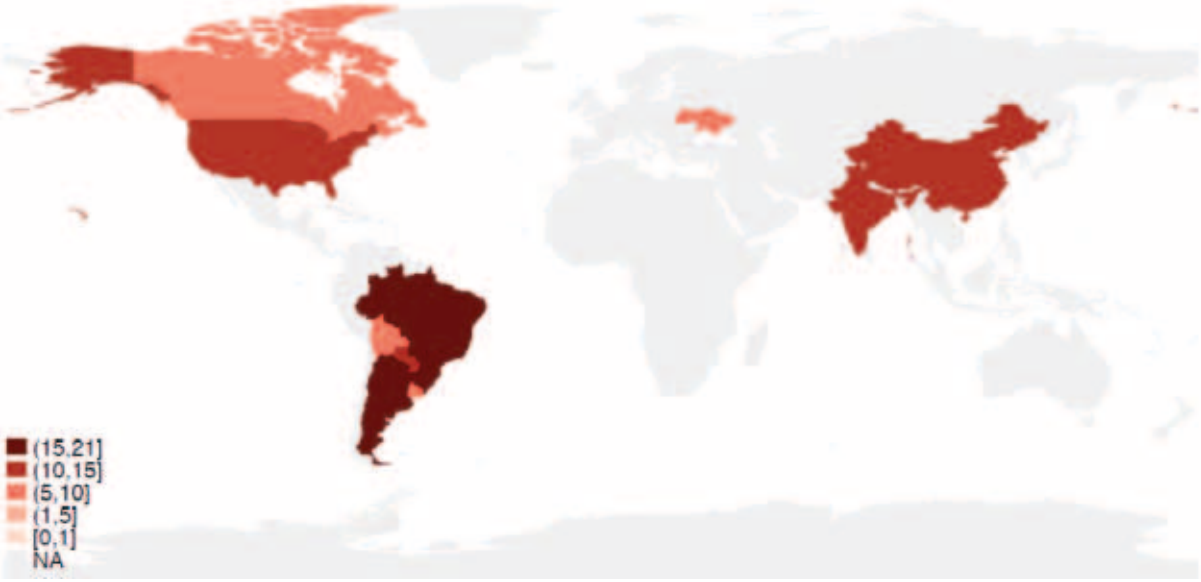


Note: The bars show the number of standards operating in each country. The triangles show the value of the requirement overlap index in each country. The circles show the maximum number of requirements (in hundreds) covered by standards operating in each country. The diamonds show the value of the process overlap index in each country. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

Figure 19 shows that Thailand, Malaysia, Indonesia and Côte d'Ivoire, the countries with more than nine standards operating in the palm oil sector in these countries, have the greatest need for coordination, as the fragmentation of requirements in these markets is relatively high (at 0.32, the requirement overlap index is the lowest in these countries).

Soy

Figure 20. Countries where standards operate and certify soy producers



Source: ITC and EUI calculations based on ITC Standards Map. The software that generated this map does not apply the United Nations definitions of national borders.
Note: The relative darkness of the colour indicates a greater number of standards that operate in each country; that is, it has at least one producer certified to a standard.

The world's 10 largest soy-producing countries are United States of America, Brazil, Argentina, China, India, Paraguay, Canada, Ukraine, Uruguay and Bolivia. Figure 20 shows that the countries with the largest number of VSS certifying producers in this sector are Brazil and Argentina, with 21 and 17 VSS, respectively. The countries with the lowest number of active standards are Bolivia and Ukraine, with nine standards in each.

Case study 3: ProTerra and RTRS to conduct stacked audits

A win–win undertaking – creating synergies and reducing costs – can achieved by combining the audit criteria and certification procedures of the world's two largest soy certifiers.

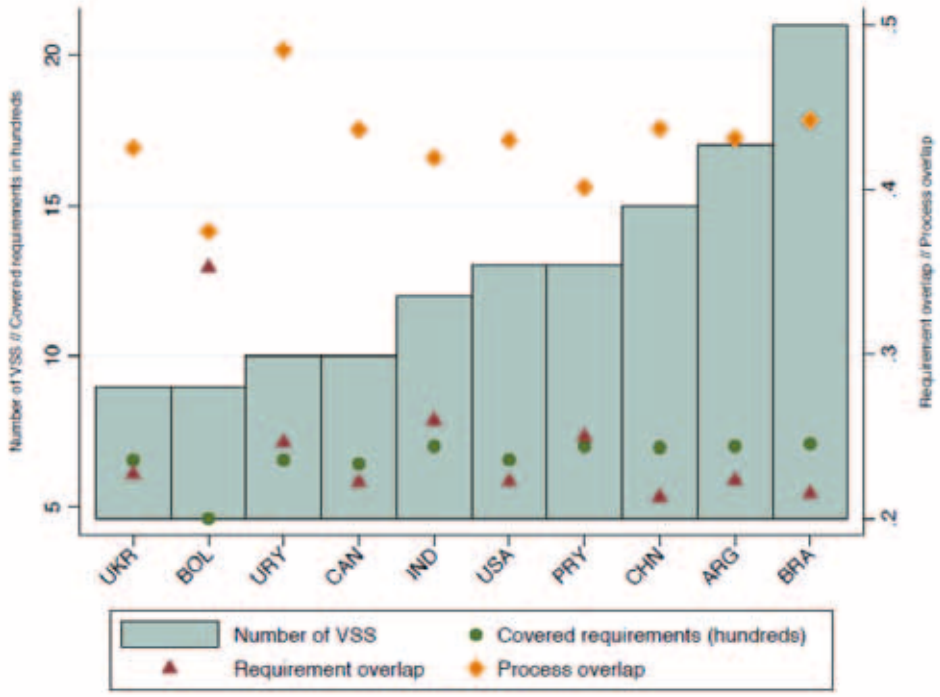
ProTerra and RTRS boast total certified areas of 1.8 million hectares (2015) and 716,000 hectares (2015) respectively. The two schemes intend to start conducting stacked audits under the two standards and to grant double certification in one go. Having stacked audits will accelerate the certification process whereby producers will not have to go through two separate audits. The process will ultimately, help to increase the certified volumes of soy and to satisfy the growing demand for sustainable soy.

The main purpose of the initiative is not to harmonize the requirements of standards or to merge two standards systems, but rather to audit the same farms based on the criteria of RTRS and ProTerra, which are similar. They both address the issues of High Conservation Value Areas[12], smallholders' land use rights, worker protection, biodiversity, pesticides management and application, and good agricultural practices.

Stacked audits will help players in the value chains, such as farmers, traders, processors, food and feed manufacturers, to source sustainable soy by reducing audit costs, conducting joint training sessions for farmers, increasing transparency in the marketplace and reducing confusion.

[12] An area designated on the basis of High Conservation Values (HCVs) which are biological, ecological, social or cultural values considered outstandingly significant at the national, regional or global level http://www.biodiversitya-z.org/content/high-conservation-value-areas-hcva

Figure 21. Fragmentation of standards in the soy sector



Note: The bars show the number of standards operating in each country. The triangles show the value of the requirement overlap index in each country. The circles show the maximum number of requirements (in hundreds) covered by standards operating in each country. The diamonds show the value of the process overlap index in each country. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

As can be seen in Figure 21, the lowest requirement overlap index in the soy sector is in Brazil and China and has a value of 0.21, meaning that a requirement on average is covered by 21% of VSS operating in the market. The Brazilian soy market in particular, where 21 VSS operate, is largely fragmented.

The standards operating in this market are: EU Organic Farming, BRC Global Standard, Bunge Pro-S, Amaggi Responsible Soy Standard, ProTerra, IFS Food, ADM Responsible Soybean Standard, Retailer Soy Group Requirements, Cargill Triple S, BEMEFA, Cefetra Certified Responsible Soy Standard, BSCI Code of Conduct, RTRS, Fairtrade–Hired Labour and Small Producers Organizations standards, Fair Trade USA, GMP+, Sustainable Feed Standard, SAI Platform Farm Sustainability Assessment, IFOAM Organic Standard and GlobalG.A.P. GRASP.

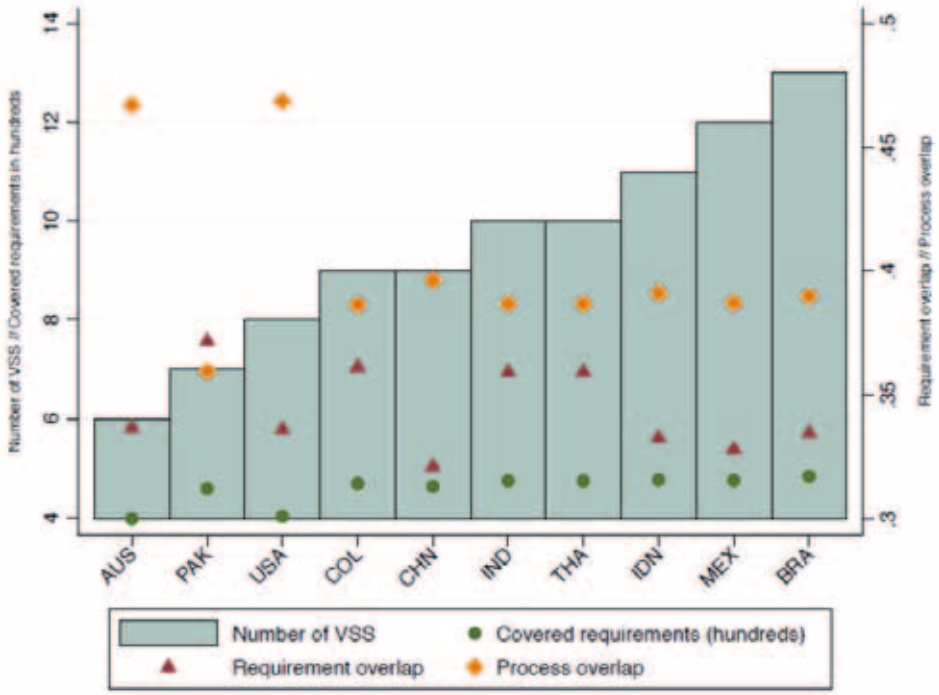
Sugarcane

Figure 22. Countries where standards operate and certify sugarcane producers

Source: ITC and EUI calculations based on ITC Standards Map. The software that generated this map does not apply the United Nations definitions of national borders.
Note: The relative darkness of the colour indicates a greater number of standards that operate in each country; that is, it has at least one producer certified to a standard.

Figure 22 shows that the 10 countries with the largest sugarcane production are Brazil, India, China, Thailand, Pakistan, Mexico, Colombia, Australia, Indonesia and United States of America. The largest number of VSS certifying producers is observed in Brazil, with 13 such standards.

Figure 23. Fragmentation of standards in the sugarcane sector



Note: The bars show the number of standards operating in each country. The triangles show the value of the requirement overlap index in each country. The circles show the maximum number of requirements (in hundreds) covered by standards operating in each country. The diamonds show the value of the process overlap index in each country. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

As shown in Figure 23, the greatest need for coordination is in China, where the requirement overlap is the lowest, at 0.32. The countries with the highest number of standards are Brazil and Mexico, where the requirement overlap is also low – 33%. These markets are highly fragmented, and thus also have a great need for coordination between standards operating within each of these countries.

For instance, Brazil has 13 standards operating in its sugarcane sector, namely: Fairtrade USA, EU Organic Farming, Hand in Hand - Rapunzel, IFOAM Organic Standard, SAI Platform Farm Sustainability Assessment, ProTerra, IFS Food, Fairtrade - Hired Labour and Small Producers Organizations standards, BRC Global Standard, BSCI Code of Conduct, Bonsucro and Bunge Pro-S.

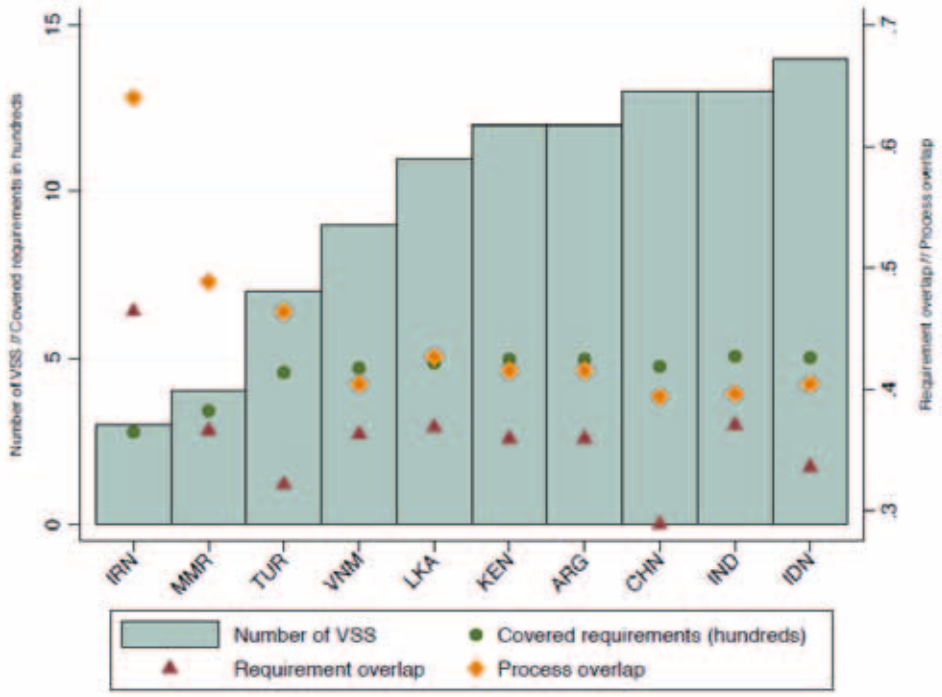
Tea

Figure 24. Countries where standards operate and certify tea producers

Source: ITC and EUI calculations based on ITC Standards Map. The software that generated this map does not apply the United Nations definitions of national borders.
Note: The relative darkness of the colour indicates a greater number of standards that operate in each country; that is, it has at least one producer certified to a standard.

As can be seen in Figure 24, the countries with the largest volumes of tea production are China, India, Kenya, Sri Lanka, Viet Nam, Turkey, Indonesia, Iran, Myanmar and Argentina. The country with the largest number of standards operating is Indonesia (14 VSS).

Figure 25. Fragmentation of standards in the tea sector



Note: The bars show the number of standards operating in each country. The triangles show the value of the requirement overlap index in each country. The circles show the maximum number of requirements (in hundreds) covered by standards operating in each country. The diamonds show the value of the process overlap index in each country. This analysis includes both product-specific standards (i.e. standards focusing on specific products) and generic standards (i.e. standards addressing all products); a separate analysis was performed for product-specific standards but showed the same pattern.
Source: ITC and EUI estimates based on ITC Standards Map.

Figure 25 shows that the countries with the greatest need for coordination in the tea sector are China and Turkey, where the requirement overlap index is the lowest, at 0.29 and 0.32 respectively. China is also the country with a large number of standards operating. The 13 standards certifying tea producers in China are: SQF, Ethical Tea Partnership (ETP), IFS Food, BSCI Code of Conduct, GLOBALG.A.P., China GAP, Fairtrade – Small Producers Organizations, EU Organic Farming, BRC Global Standard, Fair Trade USA, Green Food, IFOAM Standard and SAI Platform Farm Sustainability Assessment.

CHAPTER 3: CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Fragmentation is perceived as an issue in expanding sustainable markets. The report identifies the main characteristics of the fragmented markets, namely the large number of VSS operating and the broad scope of the requirements; in other words producers in fragmented markets are exposed to far more standards and need to comply with a higher number of standards' requirements than do their counterparts in less fragmented markets. The latter feature can perhaps be explained by the competition among VSS operating in a given sector and country, where each standard distinguishes itself by depth or uniqueness of its requirements and processes. All this can significantly increase transaction costs of complying with standards for producers, especially SMEs, who often need to comply with more than one VSS in order to access a market or a buyer.

Research findings also show that the most fragmented country-product markets are the soy-producing ones: China, Brazil, Canada, United States of America, Argentina, Ukraine, Uruguay, Paraguay and India. The Chinese tea-producing market is also in top ten most fragmented markets along with the soy ones.

When looking only at products as opposed to country-product markets, the analysis shows that the most fragmented in terms of VSS requirements are soy and coffee. This finding is particularly interesting when considered in the context of recent coordination efforts announced by large standard-setting organizations, such as the merger of Rainforest Alliance and UTZ, schemes that certify coffee, and the intention of RTRS and ProTerra (two large schemes for certifying sustainable soy) to conduct joint audits.

Recommendation

The need for coordination among standard-setting organizations as a solution to fragmentation is the highest in the markets and products listed above. The aim of coordination is to enhance coherence in requirements, audit procedures and management structures. This report recommends the following instruments of coordination:

- Information exchange through conferences, roundtables to facilitate discussions between standard setters.
- Benchmarking and mutual recognition between standards.
- Harmonization of requirements and processes such as, for instance, audits and traceability.

Conclusion

Another finding of the report concerns fragmentation within two different sustainability hotspots: environmental and social. The analysis makes clear that the requirements of VSS are the least fragmented, or the most overlapping, in social hotspots. This suggests that standards and industry alike value the contributions made by relevant international conventions in the social, labour and human rights fields, such as the fundamental ILO Conventions. Environmental requirements, however, are less overlapping.

Recommendation

While it is foolhardy to think that, left to their own devices, VSS and industry would coalesce around core environmental criteria, one recommendation drawn from the analysis is the development and adoption of core environmental criteria similar to those developed by ILO. International organizations could play a particularly important role in developing such a framework. This recommendation is of particular relevance given the ever-greater urgency of dealing with environmental issues in global value chains.

Having a comparable reference set of environmental indicators that could be codified into national law would go a long way towards creating a common understanding whilst engaging in a race to the bottom and sacrificing environmental sustainability for competitive reasons. With a common set of environmental

criteria, VSS and industry could then establish targeted and calibrated requirements based on the capacity of the companies adopting the standards, the intensity of the hotspots in the market and the overall commitments and capacities of national governments to enforce environmental policies. At the same time, this would help maintain the diversity and innovation of VSS under common labour and environmental frameworks.

The report shows that fragmentation is present in many sustainable markets and there are several ways of tackling this issue, which standard setters could apply. These are information exchange, benchmarking and mutual recognition, and harmonization between voluntary sustainability standards.

International organizations could also play an important role in this field, particularly through developing universal sustainability frameworks and criteria on sustainability issues, such as the ones developed by the ILO.

ANNEX I. METHODOLOGY FOR ANALYSING FRAGMENTATION

This Annex contains the mathematical definitions of the two indices used in the analysis.

Requirement overlap index

The requirement overlap index is constructed by means of a simple two-step formula:

1. For each individual requirement (denoted by r) and each country (c) product (p) pair (c,p), the first step in the formula is to compute the share (from 0 to 1) of VSS active in the respective country-product field that covers requirement r. This share is denoted by the expression $share_{r;(c,p)}$. All those requirements which are not covered by any VSS (those for which $share_{r;(c,p)} = 0$) are then removed from the database.
2. For each cell, the second step in the formula is to take a simple average of $share_{r;(c,p)}$ across the requirements that are covered by at least one VSS in that cell.

The resulting indicator is the requirement overlap index, which can have values between 0 (excluded) and 1. It takes a value of 1 by construction in all country-product fields where there is only one VSS, but also in those fields where all VSS cover the same set of requirements. For cells with at least two VSS, an index value of 1 means full overlap in term of requirements: all (at least two) VSS in the field are covering the same requirements. The lower the value, the less of an overlap.

Process overlap index

The concept behind the process overlap index is simple: it captures how many VSS in a country-product field undertake processes in the same way. Processes are denoted by i. The total number of processes considered in the analysis is represented by N. Processes can be undertaken in alternative ways, and this is reflected in the database. Alternative ways of undertaking process i are indexed by w^i. The total number of alternative ways of undertaking process i is indicated by N^i. The number of VSS active in a specific country-product field and reporting their choice on process i is denoted by VSS^i, while the total number of VSS among them that choose to undertake i as w^i is represented by $\mathrm{VSS}^{\mathrm{w}^i}$.

The country-product field-specific value of the process overlap index is obtained from the following formula:

$$\frac{1}{\mathrm{N}}\sum_{i}\frac{\mathrm{N}^i}{2(\mathrm{N}^i-1)}\sum_{\mathrm{w}^i=1}^{\mathrm{N}^i}\left|\frac{\mathrm{VSS}^{\mathrm{w}^i}}{\mathrm{VSS}^i}-\frac{1}{\mathrm{N}^i}\right|$$

This measure takes a value of 0 if, for each process, the choices of VSS performing that process are equally distributed across the available alternative ways of undertaking the process. It takes a value of 1 if all VSS make the same choice for each process.

ANNEX II. LIST OF COUNTRY-PRODUCT MARKETS AND OVERLAP INDICES FOR REQUIREMENTS AND PROCESSES[13]

Product (Standards Map category)	Country alpha-code used by the World Bank	Country	Requirement overlap	Process overlap
All forestry products	BRA	Brazil	0.34	0.44
All forestry products	CAN	Canada	0.38	0.48
All forestry products	CHN	China	0.40	0.47
All forestry products	COG	Congo	0.49	0.46
All forestry products	ETH	Ethiopia	1.00	1.00
All forestry products	IND	India	0.42	0.43
All forestry products	IDN	Indonesia	0.36	0.44
All forestry products	NGA	Nigeria	0.71	0.89
All forestry products	RUS	Russian Federation	0.43	0.51
All forestry products	USA	United States of America	0.35	0.43
Banana (fresh)	BRA	Brazil	0.48	0.58
Banana (fresh)	CHN	China	1.00	1.00
Banana (fresh)	CRI	Costa Rica	0.46	0.59
Banana (fresh)	ECU	Ecuador	0.46	0.59
Banana (fresh)	GTM	Guatemala	0.46	0.59
Banana (fresh)	IND	India	1.00	1.00
Banana (fresh)	IDN	Indonesia	0.59	0.63
Banana (fresh)	MEX	Mexico	0.59	0.63
Banana (fresh)	PHL	Philippines	0.55	0.72
Banana (fresh)	TZA	U. R. Tanzania	0.59	0.63
Cocoa	BRA	Brazil	0.36	0.41
Cocoa	CMR	Cameroon	0.38	0.46
Cocoa	COL	Colombia	0.34	0.41
Cocoa	CIV	Côte d'Ivoire	0.36	0.45
Cocoa	DOM	Dominican Republic	0.35	0.42
Cocoa	ECU	Ecuador	0.35	0.42

[13]Countries are listed in alphabetical order per product

Cocoa	GHA	Ghana	0.38	0.44
Cocoa	IDN	Indonesia	0.36	0.45
Cocoa	NGA	Nigeria	0.42	0.54
Cocoa	PER	Peru	0.35	0.42
Coffee	BRA	Brazil	0.34	0.43
Coffee	COL	Colombia	0.34	0.43
Coffee	ETH	Ethiopia	0.34	0.43
Coffee	GTM	Guatemala	0.34	0.43
Coffee	HND	Honduras	0.35	0.39
Coffee	IND	India	0.35	0.39
Coffee	IDN	Indonesia	0.34	0.43
Coffee	PER	Peru	0.33	0.41
Coffee	UGA	Uganda	0.35	0.39
Coffee	VNM	Viet Nam	0.36	0.44
Cotton	ARG	Argentina	0.51	0.60
Cotton	AUS	Australia	1.00	1.00
Cotton	BRA	Brazil	0.47	0.56
Cotton	CHN	China	0.43	0.51
Cotton	IND	India	0.45	0.54
Cotton	MEX	Mexico	0.51	0.60
Cotton	PAK	Pakistan	0.45	0.54
Cotton	TUR	Turkey	0.47	0.62
Cotton	USA	United States of America	0.60	0.78
Cotton	UZB	Uzbekistan	0.86	1.00
Palm oil	BRA	Brazil	0.36	0.40
Palm oil	COL	Colombia	0.35	0.39
Palm oil	CIV	Côte d'Ivoire	0.32	0.37
Palm oil	GTM	Guatemala	0.35	0.37
Palm oil	HND	Honduras	0.35	0.37
Palm oil	IDN	Indonesia	0.32	0.40
Palm oil	MYS	Malaysia	0.32	0.39
Palm oil	NGA	Nigeria	0.39	0.49
Palm oil	PNG	Papua New Guinea	0.34	0.48
Palm oil	THA	Thailand	0.32	0.39
Soy	ARG	Argentina	0.22	0.43
Soy	BOL	Bolivia	0.35	0.37
Soy	BRA	Brazil	0.21	0.44
Soy	CAN	Canada	0.22	0.44
Soy	CHN	China	0.21	0.44
Soy	IND	India	0.26	0.42
Soy	PRY	Paraguay	0.25	0.40
Soy	UKR	Ukraine	0.23	0.43
Soy	USA	United States of America	0.22	0.43

Soy	URY	Uruguay	0.25	0.48
Sugarcane	AUS	Australia	0.34	0.47
Sugarcane	BRA	Brazil	0.33	0.39
Sugarcane	CHN	China	0.32	0.40
Sugarcane	COL	Colombia	0.36	0.39
Sugarcane	IND	India	0.36	0.39
Sugarcane	IDN	Indonesia	0.33	0.39
Sugarcane	MEX	Mexico	0.33	0.39
Sugarcane	PAK	Pakistan	0.37	0.36
Sugarcane	THA	Thailand	0.36	0.39
Sugarcane	USA	United States of America	0.34	0.47
Tea	ARG	Argentina	0.36	0.42
Tea	CHN	China	0.29	0.39
Tea	IND	India	0.37	0.40
Tea	IDN	Indonesia	0.34	0.40
Tea	IRN	Iran (Islamic Republic of)	0.46	0.64
Tea	KEN	Kenya	0.36	0.42
Tea	MMR	Myanmar	0.37	0.49
Tea	LKA	Sri Lanka	0.37	0.43
Tea	TUR	Turkey	0.32	0.46
Tea	VNM	Viet Nam	0.36	0.40

ANNEX III. LIST OF PROCESSES CRITERIA USED FOR PROCESS OVERLAP INDEX

Under processes criteria Standards Map database contains all the information on standards besides requirements. This is the information on auditing and certification, accreditation, traceability, labelling, monitoring and evaluation, governance and standard-setting processes. For the analysis the following list of processes criteria has been selected:

Count	Name	Missing values[14]
1	Party initiating the process of certification/verification	24
2	Requirements for external audits	8
3	Explicit written procedure for monitoring and evaluation	12
4	Audit policies are process-based	5
5	Audit policies are performance-based	5
6	Certification body must meet specific quality requirements (e.g. ISO 65/17065)	10
7	Certification body has no affiliation with governance mechanism of standard-setting organization	9
8	Certification body has no affiliation with governance mechanism of accreditation body(ies)	13
9	External assessment of certification bodies	17
10	Clients prepare corrective action plan	19
11	Auditors prepare corrective action plan	17
12	Grace period for implementing corrective action plan	19
13	Auditors verify corrective actions through additional on-site audit	24
14	Auditors verify corrective actions through additional documentation	29
15	Auditors verify corrective actions during next audit	29
16	No sanctions during implementation of corrective actions	24

[14] Number of VSS for which data on a particular processes criterion in the list is missing

17	Suspension of certificate during implementation of corrective actions	24
18	Recertification starts again after implementation of corrective actions	24
19	Verification process involves local auditors	30
20	Local indicator development – national/regional standards	22
21	Group or multi-site certification requirements	20
22	Existence of a written policy/procedure for sampling (for group certification)	30
22	Identity preservation	12
23	Segregation	12
24	Mass balance	43
25	Book and claim	18
26	Support through documents, interpretation and guidance tools	6
27	Technical assistance to meet standards requirements (certification/verification)	10
28	Technical assistance that goes beyond the standards' requirements (productivity, efficiency, access to markets)	11
29	Financial assistance	11
30	Existence of publicly available complaints and dispute resolution policy	7

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