Voluntary Standards for Sustainable Food Systems: Challenges and Opportunities

A Workshop of the FAO/UNEP Programme on Sustainable Food Systems

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Voluntary Standards for Sustainable Food Systems: Challenges and Opportunities

A Workshop of the FAO/UNEP Programme on Sustainable Food Systems

11–12 June 2013

FAO headquarters, Rome

Edited by

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and
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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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The joint FAO/UNEP Workshop on Voluntary Standards for Sustainable Food Systems: Challenges and Opportunities was organized by the Sustainable Food Systems Programme and held on 10–11 June 2013 at FAO headquarters in Rome, Italy.

We would like to extend our special thanks to all the participants for their contributions and papers. Our appreciation is also expressed to the organizers of this Workshop – Fanny Demassieux, James Lomax, Alexandre Meybeck, Suzanne Redfern, Pilar Santacoloma, Allison Loconto, Irene Hoffmann, Sandro Dernini and Maryam Rezaei. Particular thanks are extended to Ren Wang, FAO Assistant Director-General. In addition, we are grateful to the Swiss Federal Office of Agriculture for their generous support in the preparation of this document.

Agenda

The FAO/UNEP joint programme is catalysing partnerships among United Nations agencies, other international agencies, governments, industry and civil society whose activities, together, can promote the necessary transition to sustainability.

An Agri-food Task Force (ATF) on Sustainable Consumption and Production (SCP) has been established, comprised of representatives of Member States, United Nations agencies, the private sector and civil society, and clusters of activities are being designed in response to stakeholders' stated needs. In order to provide the members of the ATF with information for preparing the work of the various activity clusters, the FAO-UNEP Programme is organizing workshops on various technical issues.

As a topic in relation with all the activity clusters, a first workshop on voluntary standards for sustainability (VSS) will be organized on 10–11 June 2013 (one day and half), in the Iran room, at FAO headquarters, Rome. The aim of the workshop is to examine various types of standards and labels and to build upon lessons learned from concrete examples to identify issues and challenges to be addressed, discuss their potential contribution to improve sustainability of food systems, and propose measures in order to improve their effectiveness.

The workshop will try to answer five crucial questions that could facilitate the uptake and scaling-up of VSS: (1) how to make them work for farmers and small food producers; (2) how can VSS be used to enable green trade opportunities, particularly in agri-food products not currently using VSS; (3) how to make them work for consumers globally; (4) how to make it work for the private sector; and (5) what is the role for public actors.

Monday, 10 June 2013

09.30 – 10.00	Opening remarks FAO: Ren Wang, Assistant Director-General, Agriculture and Consumer Protection Department UNEP: Fanny Demassieux, Resource Efficiency Subprogramme Coordinator & Head, Responsible Consumption Unit, Division of Technology, Industry and Economics, United Nations Environment Programme
10.00 – 11.30	SESSION 1: OVERVIEW OF VSS Chair: Roberto Azofeifa, , Director of Sustainable Agriculture Department, Extension Head Office, Ministry of Agriculture and Livestock, Costa Rica • What are voluntary sustainability standards? • Definitions and meanings, diversity of standards • Targets and contribution to sustainable consumption and production

- Comparison and assessments of voluntary sustainability standards through examples from partner projects

10.00 – 10.15 Nexus between private and public food standards: main issues and perspectives (Pilar Santacoloma, FAO, Rural Infrastructure and Agro-Industries Division)

10.15 – 10.30 Objectives and challenges of the UN forum on sustainability standards (UNFSS) (Frank Grothaus, UNCTAD, on behalf of UNFSS)

10.30 – 10.45 Lessons from the past and the emergence of international guidelines on sustainability assessment of food and agriculture systems (Nadia El-Hage Scialabba, FAO, Department of Natural Resources)

10.45 – 11.00 Coffee break

11.00 – 11.15 Common metrics of sustainable food systems: issues and current developments in the livestock sector (Pierre Gerber, FAO, Livestock Information, Sector Analysis and Policy Branch)

11.15 – 11.45 Questions and Answers

11.45 – 13.00 SESSION 2: LESSONS FROM THE FIELD: PROJECTS RELATED TO FOOD VOLUNTARY STANDARDS
Chair: Li Xiande, Chinese Academy of Agricultural Sciences, Institute of Agricultural Economics and Development

- Success stories, challenges and areas needing specific actions that should be undertaken at various levels

11.45 – 12.15 Lessons learned from field projects on voluntary standards (Pilar Santacoloma, Allison Loconto, Nadia Scialabba, Carmen Bullon, Emilie Vandecandelaere, Cora Dankers and Anne Sophie Poisot, FAO).

12.15 – 12.30 Stories behind quality labels around the Mediterranean countries (Annarita Antonelli, International Centre for. Advanced Mediterranean. Agronomic Studies, CIHEAM-IAMB)

12.30 – 13.00 Questions and Answers

13.00 – 14.30 Lunch

14.30 – 15.30 SESSION 3: HOW TO MAKE SUSTAINABILITY STANDARDS WORK FOR FARMERS AND SMALL FOOD PRODUCERS
Chair: Sávio Jose Barros de Mendonça, Director for Production Systems and Sustainability, Ministry of Agriculture, Brazil

- How to make voluntary standards inclusive and efficient (ensuring social and economic sustainability) for smallholders? What is needed to facilitate the implementation of these tools, especially how to make them accessible to farmers and small-scale food producers, including possibilities to facilitate mutual recognition of schemes?

14.30 – 14.45 Voluntary standards: impacting smallholders' market participation (Allison Loconto, FAO, Agribusiness Economist, Rural Infrastructure and Agro-Industries Division).

14.45 – 15.00	Geographical indictions as a tool for sustainable food systems: importance of territorial approach (Emilie Vandecandelaere, FAO, Economic and Social Development Department. Food Safety Unit)
15.00 – 15.30	Questions and Answers
15.30 – 17.15	SESSION 4: WHAT INTEREST AND ROLE FOR THE PRIVATE SECTOR Chair: Sávio Jose Barros de Mendonça, , Director for Production Systems and Sustainability, Ministry of Agriculture, Brazil • What are the incentives for the private sector stakeholders to come on board. Examples of use of these tools by private sector or initiatives by private sector to optimise their use
15.30 – 15.45	FAO's vision on how to engage the private sector (Annamaria Pastore, FAO, Office of Communications, Partnership and Advocacy).
15.45 – 16.00	Development and use of FAO guidelines of eco labelling of fish and aquaculture certification (Iddya Karunasagar, FAO, Products, Trade and Marketing Service)
16.00 – 16.15	Survey on (private) voluntary standards in the livestock sector (Irene Hoffmann, FAO, Animal Genetic Resources Branch)
16.15 – 16.30	Coffee break
16.30 – 16.45	Sustainable nutrition and consumer communication (Anne Roulin, Nestlé)
16.45 – 17.15	Questions and Answers
17.15 – 18.15	SESSION 5: WHAT INTEREST AND ROLE FOR THE PRIVATE SECTOR Chair: Krishna Kumar Singh, Indian Council of Agricultural Research (ICAR), Department of Agricultural Research and Education, India • How to ensure the provision of reliable and valuable information to consumers in relation to the voluntary standards? • How to increase consumers' awareness and trust in voluntary standards and labels to foster more sustainable food consumption patterns?
17.15 – 17.30	PDOs' role in reassuring consumers: the "Parmigiano Reggiano Terremotato" (PR-T) case (Corrado Finardi, Coldiretti).
17.30 – 17.45	Voluntary standards and ecolabels as information tools for consumers (Alexandre Meybeck, FAO, Agriculture and Consumer Protection Department)
17.45 – 18.15	Questions and Answers

Tuesday, 11 June 2013

9.30 – 10.45	SESSION 6: WHAT IS THE ROLE OF NATIONAL AND INTERNATIONAL PUBLIC ACTORS? Chair: Unati Speirs, Director: Agro-Processing, Department of Trade & Industry, South Africa • Which role public (international and national) actors can potentially play in improving governance (two main of its principles transparency and participation) in the standards setting process • What can public actors do to improve impacts of voluntary standards? The enabling conditions necessary to allow voluntary sustainability standards to work and to facilitate stakeholders's engagement
9.30 – 9.45	How can voluntary sustainability standards play a role in South–South food commodity supply chains? The case of the rice sector (James Lomax, UNEP).
9.45 – 10.00	Ongoing experiences in Costa Rica: the Ecological Blue Flag Program (Roberto Azofeifa, Ministry of Agriculture, Costa Rica)
10.00 – 10.15	Sustainable public procurement and sustainability standards: challenges and strategies (Norma Tregurtha, ISEAL)
10.15 – 10.30	Roles of public actors in the voluntary standards (Dominique Barjolle, Research Institute of Organic Agriculture FiBL and Emilie Vandecandelaere, FAO)
10.30 – 10.45	Questions and Answers
10.45 – 11.00	Coffee break
11.00 – 12.30	Discussions on priority actions for sustainable food systems Chair: Erizal Jamal
12.30 – 12.45	Conclusions

Summary report and main conclusions

The sessions of the workshop considered voluntary standards from points of views in order to better understand and address the needs of the various stakeholders in order to facilitate the uptake and scaling up of voluntary standards for sustainable food systems. This approach is grounded on the idea that for voluntary standards to work for sustainability they have to work for all stakeholders.

The first session considered an overview of voluntary sustainability standards. Presentations stressed the multiplication of schemes, the growing importance of the private sector as a standard setter, increasing linkages between the private and public sectors and the need for more coordination including at international level. They also showed the need for an integrated holistic assessment of sustainability, including its three dimensions and backed up by strong evidence-based analysis, agreed upon by all stakeholders. The discussion focused on the standards adoption process and the need to involve all stakeholder and particularly smallholders. It also questioned certification procedures and ways to reduce costs, including by facilitating mutual recognition and self-certification. It finally recognized the need to better understand drivers of adoption and to assess the various impacts of the standards.

The second session was devoted to analyses of lessons learned from projects related to the implementation of voluntary standards. The session enabled to identify critical points for success with a focus on implementation and adoption of the standard by farmers. Identification of market opportunities is a crucial preliminary step. It should include local markets, often more easily accessible. Farmers capacity to engage in the process is key at every stage, from the initial design to implementation. It is facilitated by the existence of organisation of farmers and by appropriate training and capacity building. A bottom up approach, with a dialogue involving local stakeholders is essential as well as adaptation to local contexts. The discussion stressed the need to have a long term approach and to clearly identify support needs, which could include specific incentives. It was also mentioned that in some cases there is a need to include a food cost accounting analysis as a means to move forward and show that some actions and practices which could be perceived as costly, in the short run, also generate long term benefits, including for instance reduction of environmental impact and employment generation.

The third session considered relations between voluntary standards and smallholders. A literature review of the impact of voluntary standards on smallholders' ability to participate to markets found that most empirical evidence is limited to the analysis of mainly three standards GlobalGAP, fair trade and organic. Most studies focus on two commodities: coffee and horticulture products. While there is an acceptable range of geographic cover, the majority of studies focus on a handful of countries: Mexico, Kenya, Peru, Costa Rica and Uganda. The results can be summarized as follows: first, equitable and sustainable supply chain linkages, increased access to assets and support for cooperative development

are incentives for complying with standards. Second, both public and private actors have comparative advantages for supporting voluntary standards and are most effective when combined. Finally, governments can provide services, for example infrastructure and proper legislation, that facilitate the inclusion of smallholders in certified value chains. The example of geographical indications shows how a strong involvement of producers ad especially smallholders can enhance positive impacts and adoption. The discussion stressed that benefits of voluntary standards for smallholders are very much context dependant and that price effects are only part of them. Direct benefits of the implementation of the practices themselves have to be factored in. It also emphasized the need to involve producers in standard setting to have it fit their needs and capacities. A key question is then to have these national standards recognised by export markets. The contribution of geographical indications to sustainability was extensively discussed. There is no doubt that they are voluntary standards. Strictly speaking they do not present themselves as sustainability standards but generally encompass elements that are meant to preserve natural resources. Moreover, they explicitly involve producers in their design and implantation, which contributes to social and economic sustainability.

The fourth session was devoted to the interest and role of the private sector. It looked at the various incentives that encourage private sector stakeholders to participate and provided examples of the tools available. Session Four started with a presentation on UN Global compact on how to engage private sector. The presentations provided information with regard to the certification guidelines for the fish and aquaculture sector; they discussed surveys that have been conducted within the private sector on available standards in the livestock sector; and Nestle's tools on sustainable nutrition and consumer communication (RISE and ECODEX and QR code) and also provided detailed information with regard to databases that are available to try, by working together with suppliers, to share practices in sustainability and to ensure that the activity of long-term supply of agricultural materials is safe, quality tested and complies with rules and regulations. The discussion stressed the need to devise information tools which are adapted to the various stakeholders. For example how could the tools being designed by the European roundtable be used in other contexts. Interventions highlighted in particular the need to adapt the information given to consumers to enable them to use it.

The fifth session focused on the role of voluntary standards as information tools for consumers. It considered the drivers of consumer choices. Schemes focused on very diverse issues are opening choices for concerned consumers. But the multiplication of standards along with ambiguous information about them can be confusing. Therefore there is a need to provide reliable and usable information on standards and labels themselves to build trust and enable consumers to make effective choices. The discussion stressed the need to avoid multiplication of schemes and facilitate their convergence. It was mentioned that some retailers are creating their own sustainability labels. This could transform some schemes from business to consumer types of communication to business to business, retailers assuming the communication to consumers.

The sixth session considered the role of public actors in the design and implementation of voluntary standards for sustainability. Public actors can play a crucial role to provide an

enabling legal framework, convene stakeholders to initiate action, and provide support and incentives. Interventions highlighted the importance of a participatory approach supported by adequate capacity building. Public procurement can play a decisive role, directly as a form of incentive and also indirectly to recognize and promote specific schemes. The discussion mentioned the need to consider also other tools and incentives than voluntary standards. It emphasized the importance of policy congruence and public/private dialogue and approaches.

MAIN CONCLUSIONS:

The various sessions of the workshop considered voluntary standards for sustainability from different points of view. They enabled the identification of some major points:

- There is a multiplication of voluntary standards in the food sector. This multiplicity can be a source of additional costs and barriers to trade. It calls for greater coordination, including mutual recognition. Public actors, national and international, have a role to play to facilitate such coordination.
- Most of the voluntary standards labelled as "sustainability standards" include only some aspects of sustainability. There is a need to assess food chains more holistically. There is also a need to better understand and assess impacts of a specific voluntary standard in a specific context. The implementation of a specific voluntary standard has often other impacts, both positive and negative, than the one it is explicitly aiming for.
- In particular voluntary standards do not always provide positive economic and social impacts for smallholders. First of all it is not always the best tool to be used. It depends on products and contexts and requires analysis beforehand including the identification of potential markets. Their implementation then requires an enabling legal framework, capacity building and appropriate adapted support. A crucial element is the involvement of producers in the very design and implementation of the scheme. Key to it is organization of producers and smallholders, including women.
- Voluntary standards are key tools to share information with consumers in order to enable them to drive production by their choices. Their effectiveness depends on better understanding the drivers of consumers' choices and on providing consumers with clear information both through the schemes and about the schemes. It also very much depends on business models that are product and context specific.

Opening remarks

Ren Wang
Assistant Director-General
Agriculture and Consumer Protection Department, FAO, Rome

Excellencies,
Honorable Delegates,
Ladies and Gentlemen,

It is a great pleasure for me to open this first workshop organized by the FAO-UNEP Sustainable Food Systems Programme (SFSP).

As you know, sustainable food systems will be discussed next week during the FAO Conference, and it is also the theme of World Food Day this year. Last year, the Committee on World Food Security requested its High Level Panel of Experts to prepare a report on food losses and waste in the context of sustainable food systems.

FAO welcomes such a systemic approach of sustainability. Ongoing work in the various divisions of this department, on crops, on livestock, on food chains and food quality, shows how sustainable consumption can be a driver of sustainable production. It also shows how the various dimensions of sustainability – environmental, social and economic – interact, often in complex ways. Finally, it shows how multistakeholder approaches are crucial to understand and improve sustainability of food systems.

The SFSP is a unique collaboration between the leading intergovernmental agencies in the areas of food, agriculture and the environment. It highlights the catalysing role that UN agencies can play and the importance of UN interagency cooperation in promoting and implementing sustainable consumption and production (SCP) policies and initiatives.

The SFSP brings together a broad coalition of concerned stakeholders, including governments, food and fish producers, agro-industry, retailers and consumers. Activities are being designed by this Task Force in response to stakeholders' stated needs, and individual stakeholders and development partners will select in which activities they wish to engage.

The choice of this theme, "Voluntary standards for sustainability", as a first workshop is particularly significant. It stresses the importance of the link between sustainable consumption and sustainable production and the role of consumption as a driver.

Voluntary standards are very often seen as the solution, the tool to make consumption and production more sustainable. They can deliver positive economic, environmental or social impacts, but they can also present challenges, particularly for small-scale producers.

FAO has a long history of work on voluntary standards.

The aim of our work on voluntary standards is to contribute to mechanisms for ensuring that the interests of the public sector and smaller-scale stakeholders are addressed in the development and application of public and private voluntary standards.

FAO provides expertise on standards for food, agriculture, livestock, fisheries and forestry. It works with partners to benchmark, analyse, share knowledge and provide guidance on voluntary standards in the following ways.

Analysing trends in and impacts of voluntary standards.

Disseminating information about voluntary standards through online portals and other communication tools, including Web sites.

Building capacity of policy-makers and private stakeholders through field projects.

Setting up global tools, guidelines and benchmarking systems for use by the private and public sectors.

Providing policy guidance to member countries on identifying priorities related to voluntary standards through advice on national policies, regulatory frameworks and strategies that can enhance food quality.

Building partnerships.

FAO has a long experience in the preparation of standards in the World Trade Organizations' (WTO) Agreement on Sanitary and Phytosanitary (SPS) measures.

But most importantly this workshop is focused on lessons learned, on better understanding the needs of all actors, the challenges to be addressed to make voluntary standards work better for sustainability, and work better for all actors. It is a condition for success. I very much welcome the fact that this workshop directly feeds into the work of the Task Force, towards action.

Nexus between public and private food standards: main issues and perspectives

Pilar Santacoloma
FAO Rural Infrastructure and Agro-industries Division

ABSTRACT

The governance of global food safety and quality, traditionally in the hands of intergovernmental agencies, is seen to be challenged by the relative importance and rapid proliferation of private food standards used in global supply chains. Concerns have been raised that this challenge may lead to the exclusion of smallholders and poor countries from market opportunities derived from globalization. However, research has shown that the governance mechanisms that rule private and public voluntary standards are not independent but rather are mutually entrenched as a response to policy, social and economic dynamics (Guldbrandsen, 2012; Bernstein and Cashore, 2007). This paper explores first how these entrenched mechanisms are related at a global level. It then discusses some evidence of the impacts of voluntary food standards on the inclusiveness of certified supply chains and the alternatives that developing countries have put in place to overcome exclusion impacts. The paper concludes with examples of governance interactions between private and public standards found at an international level.

INTRODUCTION

A better understanding of the interactions between public and private food standards requires an examination of the functions that make standards operational and the different governance mechanisms and actors involved in these functions (Henson and Humphrey, 2009). Before that, it will be useful to clarify the meaning of the term "standard", which may have multiple definitions. For the purpose of this paper, the relevant definition is related to a particular technical meaning: a normative document that lays down rules or guidelines that users must follow in international trade. So, according to the World Trade Organization (WTO) Agreement on Technical Barriers to Trade (the TBT Agreement), a standard is defined as a:

"Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method" (WTO, 2013).

In terms of the functioning of standards systems, the following functions are recognized: (i) standard-setting that relates to the formulation of rules and procedures; (ii) standard adoption meaning embracing the standard; (iii) implementation denoting application of

the rule, and; (iv) conformity assessment and enforcement to assure that the rule has been implemented (Henson and Humphrey, 2009). Characterizing these functions in a very restrictive way, public standards are those where all the functions – except for the implementation, which is always followed by private firms – are executed by public sector actors. With private standards, private sector actors perform all the functions. However, in the middle ground there is a range of options where adoption and conformity assessment can be done by both public and private actors. Table 1 shows the different functions with the different types of standards. It is clear that there is not a public/private dichotomy but rather a spectrum of different types of standards based on which type of actor does which type of function. Thinking about standards in this way also offers a variety of specific points where policy interventions may be made. These interventions should consider the particular roles and strengths of public and private actors. Some examples of possible interventions are put forward in the last section.

Furthermore, standards can migrate from the private to the public area and vice versa. An illustrative example is given by the organic standards. These were originally developed by non-governmental organizations or private companies such as the Soil Association in the United Kingdom or Demeter in Germany, and later promulgated by single governments or supranational governmental organizations such as the European Union (EU), inter-governmental organizations such as Codex Alimentarius or even the private sector.

In the following section, a short discussion of the governance mechanisms ruling public food standards is presented, followed by a description of the dynamics that prompted the appearance of private standards.

PUBLIC FOOD STANDARDS AND THE EMERGENCE OF PRIVATE VOLUNTARY STANDARDS

The rules for the operation of international markets are set by the WTO. Under the Sanitary and Phyto-Sanitary Measures Agreement (SPS), the WTO names the joint FAO/

Table 1: Functions associated with standards schemes

Function	Regulations	Public voluntary standards	Legally-mandated private standards	Private voluntary standards
Standard-setting	Legislature and/or public regulator	Legislature and/or public regulator	Commercial or non-commercial private body	Commercial or non-commercial private body
Adoption	Legislature and/or public regulator	Private firms or organizations	Legislature and/or public regulator	Private firms or organizations
implementation	Private firms and public bodies	Private firms	Private firms	Private firms
Conformity assesst	Official inspectorate	Public/private auditor	Public/private auditor	Private auditor
Enforcement	Criminal or administrative courts	Public/private certification body	Criminal or administrative courts	Private certification body

Source: Henson and Humphrey, 2009

WHO Codex Alimentarius as the relevant standard-setting organization for food safety. Other related measures considered under the SPS are those dealing with animal protection and plant health under the auspices of the World Organisation for Animal Health (OIE)) and the Secretariat of the International Plant Protection Convention (IPPC), respectively. Each of these organizations acts as an intergovernmental (public) standard-setter that creates standards, which can be adopted by national governments (public) and implemented by private companies. These standards remain voluntary until they are adopted by a national government, which determines how they will be enforced. If a country adopts a voluntary standard as the national food safety legislation, then it becomes a mandatory regulation with public conformity assessment and enforcement of the standard. If a country adopts the standard as a voluntary standard by a designated authority, and not as legislation through the legislature, then the conformity assessment and enforcement of the standard may take place through either public or private bodies.

Standards that are governed by the WTO agreements have two main characteristics that drive the way they are developed. First, they should be based on scientific evidence. This means that operationally, the organizations that promulgate them (e.g. FAO, WHO) should rely on advisory technical experts groups. Second, they should be approved by the consensus of the standard-setter's member countries in the attempt to ensure transparency and participation. Both of these procedures may imply a lengthy process that in turn impacts on another principle of governance such as prompt responsiveness to specific demands (Henson and Humphrey, 2009).

As explained above, these standards are the basis for establishing country-level standards and regulations, but more importantly are used as the main mechanisms for settling trade disputes. Basically, the WTO member countries have the right to take sanitary and phytosanitary measures necessary for the protection of human, animal or plant life or health, provided that such measures will not result in discrimination or a disguised restriction on international trade. Another recognized mechanism at the WTO is the TBT Agreement that ensures that regulations, standards, testing and certification procedures do not create unnecessary obstacles to trade (WTO, 2013). Given that there are well-established mechanisms in place for food safety-related standards, the immediate question is: why the emergence and proliferation of private food standards? In reality there are several reasons to explain this trend. The first has to do with the evolution of the international and national regulations system itself. The second emerges from the dynamics of globalized food systems and the third comes from a growing trend in consumer concern about environmental and social issues.

On the first driving force, stricter regulations have been the response to consumer response to food safety scares, particularly in industrialized countries, starting around the late 1980s and early 1990s (Henson and Humphrey, 2009). For instance, the food-borne disease outbreaks such as that caused by bovine spongiform encephalopathy (BSE) in the 1980s is thought to have prompted the setting of more stringent public sector standards in the United Kingdom (Pain, 1987). Furthermore, the new public standards and associated national food control systems developed into risk-based preventive systems with increased self-control rather than state control of food quality and safety (Reardon *et al.,* 2001). This

trend was further strengthened when the European Union's General Food Law legislation (EC 178/2002) passed the legal responsibility of food safety to private operators.

A second driver in the development of private standards, particularly related to food safety, is the greater internationalization and consolidation of retailer chains outsourcing globally (Hoejskov, 2008). The enlargement of global retailers and food industry chains sourcing from distant places has been translated into strengthening supply chain control by using standards as a tool for supply chain coordination (Burch and Lawrence, 2007). These standards tend to be more stringent, more rigorously enforced and wider in scope than public standards. Private standards are also more dynamic and responsive to changing demands than are the international standards, which are settled based on extensive expert consultations and consensus building from a large number of countries. The main interest of retailer chains in setting private standards is to enhance reputation and engage non-price competition through a risk management strategy (Henson and Humphrey, 2009). This way they also attempt to reduce transaction costs along the supply chain while maintaining quality and safety. As a net result, it also improves product image and consumer confidence. However, they often raise concerns related to equity and fairness in the distribution of the costs and benefits of standards implementation among the supply chain actors. This is a particular concern as the implementation costs are usually moved on to the producers rather than the retailers.

A third driver in the emergence of private standards relates to rising consumer concerns about animal welfare, the environment, labour rights and a range of other social issues. This driver is composed of two movements. On the one hand, professional lobbying institutions are strongly influencing political opinion on these matters, especially in developed countries. On the other hand, producer groups willing and able to distinguish the social and environmental characteristics of their products and position them in international markets are prompted to develop and/or implement private standards.

So in response to these main driving forces, two main types of private standards emerge: those dealing with food safety concerns and those that focus on the social and environmental interests of consumers (Henson and Humphrey, 2009). These two types of standards target different objectives and exhibit distinct structural and operational characteristics. For the former case – the food safety standards – the goal is risk management and therefore producers must comply with a minimum level of food safety conditions. Usually they do not imply a label and price premium to producers but, instead, they exhibit higher supply chain integration. Examples of this category are standards such as GlobalGAP, SQF 1000/2000 or BRC[1] Global standard. For the second type – the social and environmental standards – the goal is product differentiation in order to access higher value markets, and consequently there are labels and usually price premiums (Hatanaka, Bain and Busch, 2006). Some examples of differentiated standards are organic, geographical indications (GI) or fair trade standards.

Nonetheless, public and private standards are not working in isolation. Private food safety standards interact and overlap with several compulsory legislations that are regulated

[1] GAP stands for good agricultural practices, SQF stands for Safety and Quality Food, and BRC for British Retail Consortium.

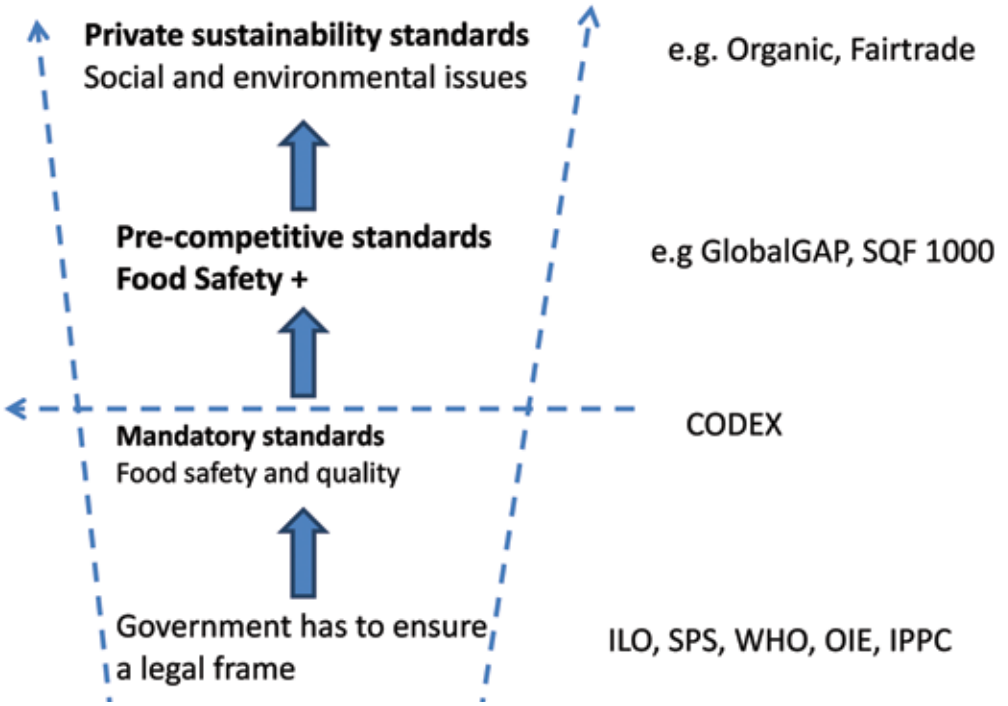

Figure 1. Interactions between public and private food standards
Source: Author, adapted from TSPN (2011).

at the national level following international standards such as Codex standards.[2] Such legislation may entail protecting food safety and hygiene, including labelling and claims, and traceability legislation. It also may consider consumer protection legislation including advertising and market/trade or requirements related to certification and accreditation.

Differentiated standards may also overlap with internationally developed standards, e.g. on labour rights or child labour such as those developed by the International Labour Organization (ILO) or environmental standards such as the FAO Code of Conduct for Responsible Fisheries. Above this level of legal compliance, private standards – food safety and social and environmental standards – can achieve their established goals. Furthermore, in some circumstances and as an increasing trend, firms or associations of firms establish private standards targeting both food safety and social and environmental issues blurring the boundaries between categories even further. Figure 1 illustrates these relationships schematically.

The above section outlines the landscape where interactions occur among private standards for food safety and social and environmental concerns, and between these private standards and public standards. The next section will focus on the impact of private standards on small-scale producers in developing countries and the institutional support

[2] International food safety standards developed at the Codex Alimentarius Commission are voluntary and become mandatory when adopted by governments and play a regulatory role in international trade.

that is needed to facilitate their compliance and integration into markets as another central way for public–private interaction.

IMPACT OF PRIVATE VOLUNTARY STANDARDS ON SMALLHOLDERS' INCLUSION

This section relies mostly on a literature review undertaken by Loconto and Dankers (FAO, 2013) that assessed the impacts of voluntary standards on smallholders' participation in markets. The full paper highlighting the study results is presented in these proceedings (Loconto, 2014), whereas here the focus is to link the main study findings to the institutional support that is required and the governance implications at a national level.

After analysing over 101 studies dealing specifically with the impacts of standards on market participation (23 of them highly rigorous), the authors conclude that the results are mixed.[3] Results are not conclusive as they support both claims that standards act as barriers to trade as well as catalysts for enhancing smallholders' skills and upgrading, which can facilitate smallholders' participation in markets. Factors influencing the outcomes of standard implementation are related to the type of standards involved, the contexts of smallholder production, the value chains involved and the institutional context. It is important to note that the majority of the reports focus on three main standards: GlobalGAP, Organic and Fairtrade.[4]

First, there are notable differences in the results depending on the characteristics of the standards. In addition to the technical requirements written in the standards, there are other elements of the standards systems such as verification (i.e. certification and accreditation systems), the presence or not of labels and premiums, and support services. Table 2 shows the standards systems characteristics in the most reported standards.

All of these characteristics condition the opportunities for smallholder inclusion in certified value chains. When there is a way of communicating the characteristics of a product to the consumers and there are service provision schemes in place to support smallholders' certification, there are usually more opportunities for smallholder participation. However, the evidence to support this statement is weak as many of the studies examined projects where the standards were a component within a broader support package of technical assistance and business services.

Second, following adoption theory, the study assesses the hypothesis that farm size and producer assets are determinant factors for certification. The implementation of standards requires investments for the adoption of improved farming practices and upgrading of farm facilities in addition to the payment of certification costs. All necessary initial investments may be prohibitive for smallholders. Effectively, farm size was found to be correlated to the smallholder's ability to become certified in several of the studies. For example, in a Guatemala project with the objective of linking producers to high-value product markets, only 19 percent of targeted producers were able to obtain GlobalGAP

[3] Most of the impact studies on standards focus on environmental and social outcomes.
[4] In this study Fairtrade refers to the standards developed by Fairtrade International, formerly known as Fairtrade Labelling Organizations International (FLO).

Table 2: Standards systems characteristics in the most studied standards

	Main Claim	Standards-setting	Verification	Label	Premium	Services
Global GAP	Food safety and quality	Private Sector	Accredited Third Party			
Fairtrade	Social equity	NGO, Producers	Accredited Third Party	✓	✓	✓
Organic	Environment Social equity	NGO, Public	Accredited Third Party; Second Party	✓	✓	✓

Source: Author adapted from FAO (2013).

certification. A feasibility analysis showed that a suitable farm size should be at least 12 ha to enable the farmers to undertake the necessary credit for investments; the average farm size in the project area was around 1.6 ha (FAO, 2011).

Third, it is stated that in certified value chains the buyers and traders are the drivers for incremental increases of consumption and production and therefore, depending on the type of organizational arrangements, they can be exclusive or inclusive of smallholders. In most of the analysed cases, smallholders are part of outgrower schemes. These schemes are created to complement the scale and quality of large-scale producers or to form the supply base of traders under contract farming schemes. Collective action through cooperatives and associations may increase the producers' bargaining capacities within these schemes. Nevertheless, the study rightly argued that the outcome of certified producers could be assigned more to the organizational arrangements rather than to the standard adoption per se. In most cases, there has been a trust-based producer–buyer relationship before the certification became a market requirement. In a case study review in four African countries, Jaffe, Henson and Diaz Rios (2011) confirm this conclusion by stating that "the participation of small-scale producers [in certified value chains] is more a function of the procurement decisions of buyers than the market choices of small-scale producers" (see also Loconto and Simbua, 2012).

Finally, the institutional setting can also enable or inhibit smallholders' inclusion in certified markets. Policy regulation and trade competitiveness, infrastructural development and/or national subsidy programmes for rural families are often the most relevant institutional determinants. Countries that adopted organic policies or national GAP programmes established the basis for strategic support to producers in markets where those standards dominate. For instance, worldwide there are 86 countries with organic regulations (IFOAM, 2013) and 18 national GAP schemes that are fully conforming to GlobalGAP[5] standards looking to position themselves strategically in these markets. Some of these GAP schemes are public–private alliances (e.g. ChileGAP), while others are only public (e.g. ThaiGAP) – and still others are purely private (e.g. KenyaGAP). When governments support these schemes – through financial, administrative or technical advice – they often take on the responsibility of standards and certification implementation and therefore provide legitimacy to the private certification initiatives.

[5] http://www.globalgap.org/uk_en/what-we-do/the-gg-system/benchmarking/BM-Equivalence/

However, policy measures alone may not make a difference in increasing the inclusiveness of private standards. Countries and firms must be competitive through accrued internal expertise and business networking, which allows them to enter into high-value markets. At times, this may be challenged by more basic infrastructural constraints. Development of specific infrastructure to support standards compliance – for instance testing laboratories, certification bodies and inspectorates, or more general infrastructure such as roads, telecommunications and energy – will facilitate smallholders' ability to meet market demands. So even in cases where producers and firms are able to meet certification and standards requirements, infrastructural shortages may constraint their capabilities due to high costs (Santacoloma and Casey, 2011). Subsidy programmes provided either by donors or national governments can compensate the initial investment costs for producers' certification and standards compliance, but institutional and infrastructural development will make it a sustainable business for small, medium and large producers alike.

As an illustration, FAO appraised the investments and capacity building required for complying with GAP standards in four countries and found the following common investments as the most relevant (Santacoloma and Casey, 2011):

- infrastructure for ensuring food safety (local accreditation or certification systems; laboratory analysis and its accreditation);
- traceability systems (documentation and record-keeping system);
- enabling business and technical services (business development services, inputs supply, technical assistance);
- support training to different actors – public and private – to upgrade technical and business skills.

Given that the institutional setting is critical to enable or restrict smallholders' inclusion in certified value chains, then private standards implementation also plays a role in local level governance. Policy-makers may take decisions on the re-organization of institutions, investments and/or capacity development at different levels. Such support should respond to national priorities and be aligned to sustainable development policies, where inclusiveness is key, which represents a big challenge for policy-makers (Vorley, 2013). Strengthened collaboration and coordination among governments, private-sector, non-governmental organizations and universities is vital in ensuring basic principles of good governance such as transparency, participation, access to information and accountability.[6] This collaboration and coordination is fundamental at the local and national levels in terms of standards implementation and promotion, but cross-border collaboration is also important in order to address the global trade concerns that are raised by the interactions of public and private standards as explained above. The United Nations Forum on Sustainability Standards (UNFSS), with the participation of FAO, UNIDO, UNEP, ITC and UNCTAD, was formed to provide information and analysis on standards with the particular focus on their potential to help developing countries to achieve their sustainable

[6] UNDP and OHCHR (2013), the Global thematic consultation on governance in the post-2015 development agenda highlights accountability of the private sector and empowerment of those most excluded in society as thematic priorities for governance, besides those related to transparency, science-base, participation, rule of law and accuracy and access to information.

development goals[7] (Grothaus, 2014). This type of international collaboration is important for raising issues that cannot be dealt with at the national or local level.

GOVERNANCE INTERACTIONS BETWEEN PRIVATE AND PUBLIC STANDARDS AT INTERNATIONAL LEVEL

The previous discussion shows how the public and private rulemaking processes in food standards-setting and implementation are intertwined and are influencing each other in response to stakeholder dynamics at different levels, particularly in global supply chains. However, concerns related to the challenges that the private food standards pose to the current regulatory regime is still under discussion. In this regard, Vorley (2013) argues that *"governments may feel hostage to an external agenda set by a Northern elite that threatens national sovereignty and threatens standards reached through intergovernmental processes"*. In recent years, complaints have been raised to the WTO's SPS Committee by developing countries that make claims against the exclusionary nature of private standards and the additional burden they impose on small and medium producers and exporters in developing countries (WTO Sanitary and Phytosanitary Measures Committee, 2011). Many of these disputes have not yet been satisfactorily resolved, and thus in the interim public and private solutions have been proposed that attempt to better manage the dynamic interactions between public and private standards. The following are examples of these initiatives that require further exploration and analysis:

(i) GlobalGAP benchmarking: many countries have opted for GlobalGAP accreditation of their national GAP programmes and related certification schemes. These GAP programmes could be initiated by the public sector (e.g. Mexico) or private sector and then endorsed by government (e.g. Kenya or Chile). The benchmarking application may be set out to achieve different policy objectives. For example, in Mexico the aim is country competitiveness, therefore the GAP scheme is associated with a quality brand and targets domestic markets. In other cases (e.g. Chile and Kenya), the objective is to consolidate or expand export markets, so there is not a quality brand but a focus on GlobalGAP compliance (van der Valk and van der Roest, 2009). Usually the GAP programmes also take the national food safety and health legislation into consideration, making them robust and nationally appropriate systems. The benchmarking process may create opportunities for mutual recognition of locally adapted standards among countries. The challenges are related to the long and costly benchmarking process, which is compounded by the need to keep pace with the changing dynamics of the GlobalGAP standards.

(ii) Harmonization and equivalence in organic standards and certification processes: This initiative was promoted by IFOAM, FAO and UNCTAD in a project (GOMA Project, see http://www.goma-organic.org/; Scialabba, 2014) that aimed at lobbying governments for the harmonization and acceptance of each other's rules based on equivalence instead of harmonized compliance (IFOAM, 2013). In the project, 37 out

[7] See http://unfss.org/ for further information.

of 83 countries with organic regulations participated in the process. So far the EU, USA, Canada and Switzerland are reaching agreements on equivalence. Australia and the EU now accept imports based on equivalent systems from anywhere in the world. IFOAM argues this result shows shifts in attitudes of regulating countries but more shifts are still needed in order to make certification more affordable and organic farming more adapted to local conditions.

(iii) Engaging international and private standards organizations setting food safety standards: Henson and Humphrey (2009) argue that these entities should explore ways to hold formal and informal debates in order to better understand both the realities and implications that private standards have for international organizations such as Codex and in particular its operating procedures.

(iv) Efforts of private organizations of standards-setters such as the International Social and Environmental Accreditation Alliance (ISEAL) to promote inclusiveness are also be to mentioned. ISEAL – a non-profit organization – has facilitated over the last year a multistakeholders dialogue in order to develop credibility principles for setting standards for social and environmental sustainability. The credibility principles are rooted in the previously agreed ISEAL Code of Good Practices, which embedded governance principles such as transparency, participation, consensus building science-base and/or access to information. ISEAL claims that its code draws on international normative documents such as ISO/IEC or the WTO TBT agreement (ISEAL, 2006). According to ISEAL first principle, standards setters should establish the sustainability objectives and the approach to be followed to allow measurable progress toward these objectives (ISEAL, 2013).

(v) Interactions between International Guidelines and private voluntary standards: The example of the Marine Stewardship Council (MSC) is a very special case where we see a dynamic movement back and forth with standards and principles developed at the international level. In 1997 a non-profit organization (the MSC) was established by an international NGO (the World Wildlife Federation) and built on international guidelines, specifically the standards and principles established in the FAO Code of Conduct for Responsible Fisheries in 1995 (Guldbrandsen, 2012). Despite initial government scepticism that questioned the right of a non-governmental body to rule fish stocks, they participated in a long process of intergovernmental consultations within the FAO Committee on Fisheries (COFI) and ended up developing voluntary guidelines for the ecolabelling of fish and fisheries from wild captures. This was seen as an endorsement of ecolabelling as a tool for fisheries management, which in turn led to the recognition of MSC certification by a number of governments. After some adjustment of the MSC's internal procedures, it began to be seen by governments as a helpful supplement to international and national regulations and standards. During this period, a number of key buyers, such as McDonalds, also made public commitments, which increased the demand for certified fish. As a net impact, the number of certified fisheries has increased from 12 in 2005 to 135 in 2011, another 136 fisheries are currently in assessment and 40 in pre-assessment(Guldbrandsen, 2012).

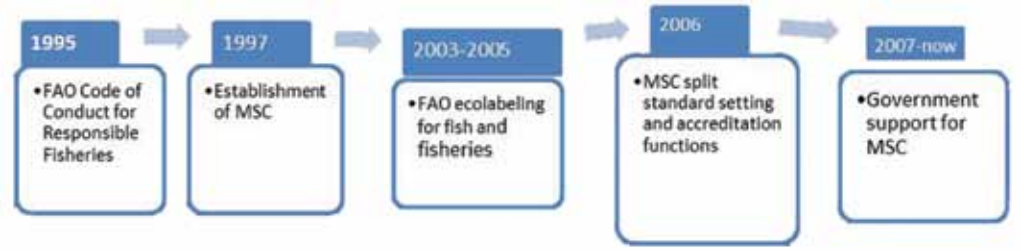

Figure 2. The Marine Stewardship Council and FAO voluntary guidelines for ecolabelling of fish and fisheries
Source: Author, based on Guldbransen (2012).

As of 2012, the certified fish market reached 9 million tonnes of seafood, which is around 10 percent of global fish captures (Guldbrandsen, 2012). The pathway of this case is shown in the Figure 2.

CONCLUDING REMARKS

The current regulatory setting on food safety and quality is challenged by the emergence and proliferation of private food standards. This challenge responds to trends at the level of global supply chains but also to dynamics in national and international regulations. Concerns have been raised that countries and actors in the value chain could be excluded if policies and resources are not in place and responding to a strategic decision. This requires that re-organization of institutions, investments and capacity development in the countries be aligned to national sustainable development priorities. Therefore, new governance mechanisms at global and national levels should be implemented. Several initiatives from private and public actors are proposed at international levels to manage the dynamic interactions between public and private standards. UNFSS as a policy forum can provide support to this endeavour. For national level, UNFSS is in the validation process of a policy guide to facilitate dialogue between private and public stakeholders about whether or not to promote standards in a given context based on market, institutional and standards scans.

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Objectives and challenges of the United Nations Forum on Sustainability Standards – the emerging Intergovernmental Forum of Dialogue on Voluntary Sustainability Standards, a joint initiative of FAO, ITC, UNCTAD, UNEP and UNIDO

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The health, social, economic and environmental impacts of production and consumption play an increasingly important role in shaping consumer preferences, particularly in developed countries. Governments have reacted by implementing policies and regulations relating mostly to product characteristics, while non-governmental organizations (NGOs) and private companies are developing voluntary sustainability standards (VSS) to inform consumers about production and processing methods. These standards have also become increasingly important tools that govern and shape international supply chains, and that ease or complicate access to and penetration of foreign markets, as well as possibly contributing to the achievement of sustainable development objectives.

VSS typically focus on social, occupational safety, environmental and economic aspects and are therefore of key importance for market entry and sustainable development. But unless pro-actively addressed, VSS can become a serious market entry hurdle and a key challenge, in particular for small-scale producers. These standards may, however, also offer real development opportunities in the light of strong dynamics in markets for sustainably produced products, which generally expand much faster than conventional markets. As illustrated in Table 1, sales of certified coffee, tea, cocoa and bananas increased with 2-digit, 3-digit and even 4-digit growth rates, while conventional food markets expanded on average by about 10 percent in the period 2005–2009. However, it also has to be acknowledged that the market shares of certified products – apart from bananas and coffee – are still rather small.

This rapid expansion of VSS is having a significant impact on developing countries, including through the emerging role of VSS as important supply-chain management

Table 1: Share and growth rates of sustainable produce

	Share in global supply, 2009 (%)	Sales growth, 2005–2009 (%)
Coffee	17	433
Tea	8	2 000
Cocoa	1	248
Bananas	20	(2007–2009) 63
Conventional fod		10–12

Source: IISD.IIED (2010).

mechanisms. Thus voluntary (i.e. private) sustainability standards, which are all too often viewed as a technicality, should be recognized as tools that can address important strategic policy issues and that can: (i) advance sustainable production and consumption methods (including opportunities for energy/material/resource efficiency and cost savings); (ii) promote competitiveness in the growing and lucrative "sustainability" markets with many job- and income-generating opportunities; and (iii) may lead to internalization of environmental and social costs.

Against this background, VSS have the potential to generate significant economic and social development *opportunities* and can help to mitigate economic, food, water and environmental risks in developing countries. However, key developing country decision-makers frequently express concerns about standards, including: the lack of credible information about standards; the marginalization of small-scale producers and less developed countries caused by stringent, complex and multidimensional standards compounding already existing capacity weaknesses; the lack of harmonization and equivalence, resulting in the need to comply with multiple standards for a single product bearing on compliance costs; and the lack of transparent governance of VSS and their conformity assessment systems.

Other key systemic *challenges* of VSS include the fear that VSS might (directly or indirectly) undermine the hard-won disciplines in the World Trade Organization (WTO) Agreements on Technical Barriers to Trade and on Sanitary and Phyto-sanitary Measures since such "private standards may not be based on science or risk analysis, and their adoption might neither be democratic nor transparent"(Mbengue, 2011); the risk of being used as anti-competitive instruments for achieving vested commercial interests; and the spate of VSS, which may jeopardize integrity of their sustainability objectives and fuel confusion at producers' and consumers' end ("green-washing"). Besides, many VSS tend to be one-dimensional on addressing risks, which is a direct challenge to a holistic approach, and many VSS are part of an export-led approach, which poses a challenge to reflecting national priorities and respecting appropriate trade intensity of exporting countries.[1]

While there are divergent views on the added value of VSS compared with existing government regulation (in particular in the area of food-safety standards) and on the

[1] For more information, see UNFSS, 2013.

impacts these standards have on trade and small-scale producers,[2] it is beyond doubt that VSS have become a reality in the global market. They are also a trendsetter for further standard development, including mandatory requirements. It is therefore essential that developing country decision-makers have access to adequate and relevant information, can exchange experiences and seek assistance on VSS in order to enable them to develop supportive national policies. The United Nations Forum on Sustainability Standards (UNFSS) can help achieve these goals and facilitate and strengthen the effective and active participation by developing countries in the international dialogue on VSS. This dialogue will inform developing country decision-makers about the strategic significance and key policy requirements of VSS. The dialogue will also help the decision-makers formulate strategies that address the potential negative impacts of VSS while maximizing the sustainable development benefits that VSS can offer.

The rational for creating UNFSS is to shift the focus from seeing VSS as ends in themselves or mere technical tools to recognizing them as a means to sustainable development and to contextualize them into the macro-economic development perspective (i.e. not only market access and market shares agenda). The UNFSS approach is to recognize VSS as a strategic policy issue (mitigating economic, food, climate and water crisis) and the Forum thus focuses on public interest and public goods related to VSS and the role of governments in making VSS work for public policy objectives. Besides, these standards are understood within the overall life cycle of products and related services (and within a context of avoidance, minimization and management of "real" risks) and UNFSS acknowledges their increasing importance for South–South trade and their relevance as a new meta-governance system for international supply chains, largely outside WTO rules.

BENEFITS AND COSTS OF VSS AND PROACTIVE GOVERNMENT ROLE

Benefits of VSS use may arise at different levels:

- *Enterprise level*: improve management capacities (farm/resource); improve productivity and product quality; reduce costs/receive premiums (sometimes); improve market access (and diversification); longer-term relationships (with buyers and other farmers).
- *Sectoral level*: create jobs on farms; enfranchise marginalized groups; improvements in processing and services.
- *National level*: positive spillovers – quality and safety in domestic markets and occupational health/welfare of farm workers; increase export revenues; improve public goods and services such as water, air and soil quality, biodiversity etc.
- *International level*: economies of scale and innovation; contribute to the mitigation of international environmental problems, such as climate change, biodiversity loss, desertification etc.

Since costs and benefits might arise at different points and levels (i.e. those bearing costs might not necessarily earn many of the benefits), there is a governmental task to even out interests.

[2] For a more in-depth discussion of the necessity of VSS, their potential positive and negative impacts on the participation of small-scale producers in international trade, how to address concerns and the potential role of UNFSS in this context, also see the article by Lunenborg and Hoffmann (2012).

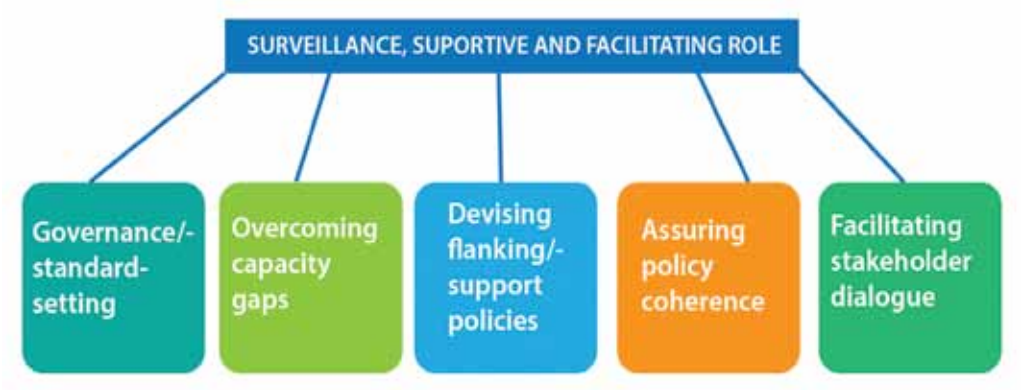

Figure 1: The five pillars of VSS-related government functions

Against this background, UNFSS sees *a proactive role of developing-country governments* related to VSS along five pillars (Figure 1).

Governance/standard-setting: Governments should ensure transparency, inclusiveness and legitimacy in standard-setting processes and need to make sure that VSS are not trade restrictive and not used as anti-trust tools so that competitiveness is guaranteed. Besides, coherence between mandatory technical requirements and VSS should be assured and interoperability between VSS should be facilitated.

Overcoming capacity gaps: In physical infrastructure, in standards, metrology, testing and quality (SMTQ) systems and institutions and directing donor funding accordingly.

Developing flanking/support policies: Awareness raising/training, financial support, information instruments/independent evaluation of VSS, support for small and medium-sized enterprises.

Developing flanking/support policies: Awareness raising/training, financial support, information instruments/independent evaluation of VSS, support for small and medium-sized enterprises.

Assuring policy coherence: Among governmental agencies dealing with VSS, between public and private requirements (e.g. perverse incentives), and also towards donors.

Facilitating stakeholder dialogue: Facilitating and engaging in (public–private) stakeholder dialogue on development and implementation of VSS.

UNFSS ADDED VALUE

UNFSS is an unbiased and credible policy-discussion forum that is structured to promote "ownership" and active engagement by developing countries assuring the "demand-driven nature" of UNFSS activities. The UNFSS intends to be primarily a *policy-discussion forum* on pro-active governmental approaches towards VSS so that the benefits of their use are maximized, while the costs and risk are minimized. It is the only intergovernmental (and multistakeholder) forum that deals with generic and strategic issues of VSS in a consistent and pro-active way. It seeks to harness the potential of VSS for achieving public policy objectives related to sustainable development.

The United Nations has the mandate and objective to promote sustainable development, and is a neutral, credible convener of governments, the business community and civil society representatives. Many VSS concern public goods or services, bear on development objectives and strategies as well as on market structures and market access.

The UNFSS is not a new forum, but is rooted in the existing mandates and activities of the Food and Agriculture Organization of the United Nations (FAO), the International Trade Centre (ITC), the United Nations Conference on Trade and Development (UNCTAD), the United Nations Environment Programme (UNEP) and the United Nations Industrial Development Organization (UNIDO). In this way, the Forum capitalizes on the strengths and specialization of each of the five UN organizations that partner on UNFSS. These five UN agencies are all actively working on VSS. They will aim at pooling resources, synchronizing efforts, and assuring policy coherence, coordination and collaboration among United Nations agencies and key stakeholder groups. The effort is thus a concrete and very practical example of the "UN acting as one" to maximize impact and efficiency.

UNFSS STRUCTURE

UNFSS is open to all Member States of the United Nations, but particularly seeks and facilitates participation by key public and private decision-makers from developing countries. The Forum will hold annual meetings, supplemented by issue-specific workshops and activities being implemented in specific working groups. UNFSS is facilitated by a

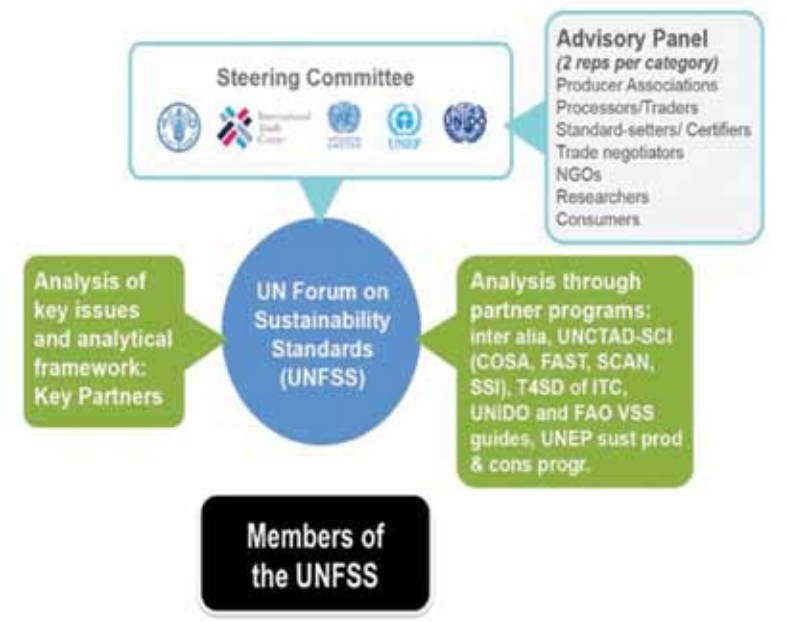

Figure 2: UNFSS structure

SCI = Sustainable Commodity Initiative, COSA = Committee on Sustainability Assessment, FAST = Finance Alliance for Sustainable Trade, SCAN = Sustainable Commodity Assistance Network, SSI = State of Sustainability Initiatives, T4SD = Trade for Sustainable Development Database of ITC.

Steering Committee consisting of the five United Nations agencies that partner on the Forum. UNFSS Steering Committee agencies are actively involved in VSS work, including support with formulating national strategies, developing standards, impact assessment, harmonization and equivalence, coordinated capacity-building, access to affordable finance, and trade aspects of VSS. A multi-stakeholder advisory panel of experts (that will hold bi-annual meetings) with appropriate developing country representation guides the UNFSS process. Analysis of key issues will be provided by the Steering Committee, key partners and related programmes.

CLUSTERS OF ACTIVITIES OF UNFSS

Since UNFSS is foremost a policy forum, among the three main activity clusters, policy dialogue is at the centre, underpinned by analysis and research to provide reliable and independent information on VSS and complemented by assistance to implement proactive VSS strategies at the national level (upon the request of developing country governments) and capacity-building pilot activities.

Analytical and empirical work includes:

- An *annual flagship report* (the first volume, which will be press-launched in October 2013, is a mapping exercise of key priority topics related to VSS that raises questions and outlines the complexity of this thematic area; the 2014 report will focus on the nexus between private and public standards and the role of governments in practical VSS usage).
- *A decision-making tool for policy-makers* on contextualizing VSSs within sustainable development strategies is being developed inter alia together with FAO, which should be a living document that will be field tested and validated in selected countries, further developed and locally adapted.

Figure 3: Activity clusters

- *A discussion paper series* focusing on the contribution of VSS to advance public policy objectives and contribute to public goods (individual authors write on specific topics under their name). The first issue of the UNFSS Discussion Paper will appear in September 2013, focusing on early experience on metagovernance in the realm of VSS.
- Policy briefs, a UNFSS newsletter and an interactive Web site are being developed to stimulate a thought-provoking dialogue (for more information, see www.unfss.org).

PRIORITY ISSUES AND ACTIVITY AREAS OF UNFSS

Based on a consultative process consisting of national and regional-level briefings in several countries, a series of briefing sessions held in Geneva, bilateral meetings, UNFSS Advisory Panel recommendations, Steering Committee members' related work and approved at the UNFSS launching conference, the following priority issues and activities were identified:

- *Analytical and informational tools* will be further developed (flagship report, decision-making tools, discussion papers).
- *Key commodity/products groups:* the initial focus is on agri-food standards, additional areas could include resource management, energy/ material efficiency and product carbon footprinting.
- *National- and regional-level VSS platforms* are being created following recent UNFSS briefing sessions in several countries to foster national/regional public–private dialogue on VSS and interface with UNFSS policy dialogue and analytical activities with a particular focus on how to harness the potential of VSS for meeting specific national or regional policy objectives.

UNFSS activities related to the following priority subjects will be carried out in **working groups**:

- *assessment of VSS impact* (UNFSS will not conduct impact assessment itself, but seeks to create linkages with existing impact-assessment programmes to assess their credibility and to facilitate dialogue on assessment methodologies, results and their interpretation while focusing on the provision of credible and independent information on VSS costs, benefits and challenges);
- e*nhancing interoperability among VSS* (including harmonization and equivalence), initially focusing on organic agriculture, good agricultural practice (GAP) and fair trade (both within these standard clusters and among them) aiming at simplification of procedures, cost reduction and more transparency of information for producers and consumers (particular emphasis will be paid to facilitating administrative procedures and reducing costs for smallholder farmers);
- *support to emerging standards initiatives* (initial support to schemes for natural rubber, natural fibres and cocoa at the request of stakeholders, UNFSS support is sought because of the key importance of governments in crafting the sustainability schemes and in providing support for their effective implementation).

For more information, contact the Web site: unfss.org, the current generic email (info@unfss.org) or through the Web site www.unfss.org/contact-us/

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Lessons from the past and the emergence of international guidelines on sustainability of assessment of food and agriculture systems

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ABSTRACT
The Guidelines on Sustainability Assessment of Food and Agriculture (SAFA) Systems provide an international reference for sustainable management, monitoring and reporting in food and agriculture at all levels of the supply chain. SAFA is not a sustainability index, nor a sustainability standard, nor a labelling tool. SAFA: (i) defines what sustainable food and agriculture systems are, including environmental integrity, economic resilience, social well-being and good governance; (ii) outlines a procedure for an integrated analysis of all dimensions of sustainability, including the selection of appropriate indicators and rating of sustainability performance (i.e. best, good, moderate, limited or unacceptable); and (iii) describes sustainability themes, subthemes and core indicators. A SAFA is an assessment of the sustainability performance of one or several entities forming part of a value chain rooted in agriculture, forestry, fisheries or aquaculture. It can address all entities from the site of primary production to that of final sales to the consumer, and can take the form of a self-evaluation for use by primary producers, food manufacturers and retailers in every part of the world. Running a SAFA results in a "sustainability polygon" that presents the performance of each of the 21 issues that are crucial to the environmental, social, economic and governance dimensions of sustainability. This "traffic light" representation highlights where an activity's performance is unacceptable (red), moderate (orange), limited (yellow), good (light green) or at best (dark green). The thick black line connects the scores between the sustainability issues, unlocking areas of weaknesses. Thanks to this representation, an entity can quickly understand where it stands in the sustainability landscape and where it may need to forge partnerships to improve its performance.

JUSTIFICATION
More than one hundred countries have established national sustainable development strategies and related sustainability reporting, as evidenced by national reports to the

Commission on Sustainable Development. Hundreds of sustainability frameworks have been developed in the last decade by universities, civil society and national and international institutions, ranging from environmental and social standards to corporate social responsibility and codes of good practices that apply either to operational units (e.g. farms) or to specific supply chains (e.g. fish, coffee, cotton, palm oil), with or without labelling. Most voluntary sustainability initiatives, which could include either environmental and/or social claims, have: predominant environmental criteria; social criteria related mostly to health, safety and employment conditions; and economic criteria limited to product quality and minimum wage requirements, or no economic criteria.

The expansion of sustainability tools and various claims place a burden on producers and traders and frustrate consumers in the market place. A tool that supports harmonization can help connect all those seeking to deliver sustainability.

LESSONS FROM ORGANIC STANDARDS

Sustainable development has numerous definitions and its environmental, economic and social principles received universal agreement at the 1992 Earth Summit. While the concept of interdependence among nature, people and the economy is universally shared, the implementation of an integrated approach to analysing all sustainability dimensions as a coherent whole and integrating them into business or development strategies remains a major challenge.

One of the most organized sustainability claims is organic agriculture: standards regulate production, processing and labelling and market access is subject to scrutiny. Other claims relate to single concerns such biodiversity-friendly, carbon-neutral or energy-smart products, but the guarantee system for such claims is not yet in place. With or without product labelling, voluntary standards are proliferating, gradually becoming supra-national forces in the global economy.

Organic standards offer decades of implementation successes and failures. FAO, together with UNCTAD and the International Federation of Organic Agriculture Movements (IFOAM), gathered public and private representatives that formed the International Task Force on Harmonization and Equivalence of Organic Regulations. This group worked between 2003 and 2008 on establishing international tools, which it started implementing between 2009 and 2012 through the Global Organic Market Access Project.

In 2012, 110 countries had an organic regulation, including: 66 fully implemented; 19 finalized regulations but not yet fully implemented; and 25 countries in the process of drafting a regulation. In addition, there are over 121 private organic standards of certification bodies. Globally, there are 549 organic certification bodies, originating in 85 countries, and certified organic operations are found in almost all countries of the world (UNCTAD, FAO and IFOAM, 2012a). The landscape for organic trade has changed drastically in the last decade, with a proliferation of standards and verification systems, North and South, East and West. There is need, in this global "chaos", to improve access of all countries' organic agricultural products to world markets. There is need to reduce administrative and financial costs and provide increased economic opportunities to producers, operators and consumers.

Through ten years of work, the International Task Force has established a number of international tools. The Guide for Assessing Equivalence of Organic Standards and Technical Regulations (EquiTool) is designed to determine equivalence between organic standards for organic production and processing (UNCTAD, FAO and IFOAM, 2012b). It contains procedures to use for the assessment, criteria to use for deciding if differences between different standards can be rationalized, and an Annex for determining common organic objectives. The ten organic objectives (e.g. soil fertility, animal welfare) defined for an organic operation were expanded in 2011 into a fully-fledged tool: Common Organic Regulatory Objectives, or COROS (UNCTAD, FAO and IFOAM, 2012c). COROS is being used for: development of the Asia Organic Standard (AROS); recognition of existing organic standards; bilateral and multilateral comparisons of organic standards and regulations (e.g. Indonesia and Philippines, East Africa with the European Union); and self-evaluation for future bilateral equivalencies (e.g. Canada for future negotiation with India).

COROS offers a unique experience (and a precedent) for moving standards towards common global objectives that can be met through a multitude of ways, thus preserving diversity and sovereignty.

VOLUNTARY SUSTAINABILITY STANDARDS

Global trade and governance of interstate externalities on public goods (e.g. climate, biodiversity, food safety, financial stability) have given rise to "transnational private regulation". The fastest growing phenomenon is the use of the supply chain as a regulatory vehicle (e.g. mitigation of GHG emissions), as rules have spillover effects along the chain.

In organic supply chains, proliferation and fragmentation were leading to overlapping of regulatory schemes, without real additional benefits for the final beneficiaries or the regulators themselves. As many private regimes are characterized by fragmentation, their cooperation has to be supported by "common rules", especially when cooperation is multiparty, involving many schemes. There is a need to reduce fragmentation, prevent conflicts, mitigate uncertainty and build capacities for effective sustainability.

SUSTAINABILITY ASSESSMENT OF FOOD AND AGRICULTURE SYSTEMS

The main objectives of SAFA are:

- to establish an international reference, based on common objectives (themes), for a multiplicity of uses and permitting differentiation of means to achieve the same objective;
- to consolidate sustainability reporting by assessing performance of ALL pillars of sustainability, including the environment, social, economic and governance dimensions;
- to offer a fair playing field, adaptable to ALL contexts and sizes of agriculture, livestock, forestry and fisheries operations;
- to allow self-evaluation, not needing a third party.

Thus, SAFA seeks harmonization and equivalency, holism, inclusiveness and accessibility. It is important to highlight that SAFA is not an index, standard or labelling tool. The main SAFA use is impact assessment of supply chains.

Table 1: SAFA sustainability dimensions, themes and subthemes

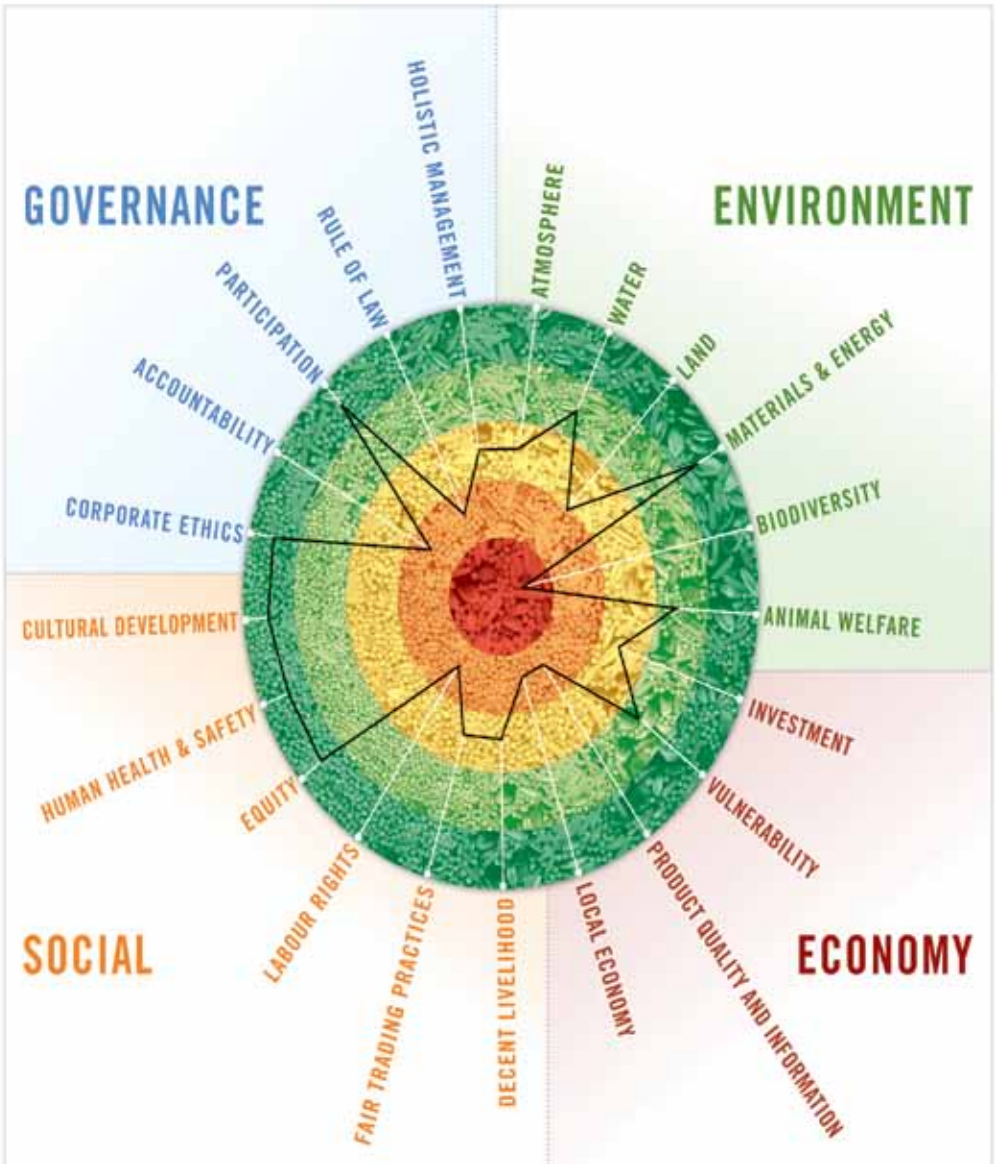
Dimension G: GOOD GOVERNANCE	
Themes	Subthemes
G1 Corporate Ethics	Mission Statement; Due Diligence
G2 Accountability	Holistic Audits; Responsibility; Transparency
G3 Participation	Stakeholder Dialogue; Grievance Procedures; Conflict Resolution
G4 Rule of Law	Legitimacy; Remedy, Restoration and Prevention; Civic Responsibility; Resource Appropriation
G5 Holistic Management	Sustainability Management Plan; Full-cost Accounting
Dimension E: ENVIRONMENTAL INTEGRITY	
E1 Atmosphere	Greenhouse Gases; Air Quality
E2 Water	Water Withdrawal; Water Quality
E3 Land	Soil Quality; Land Degradation
E4 Biodiversity	Ecosystem Diversity; Species Diversity; Genetic Diversity
E5 Materials and Energy	Material Use, Energy Use, Waste Reduction and Disposal
E6 Animal Welfare	Health and Freedom from Stress
Dimension C: ECONOMIC RESILIENCE	
C1 Investment	Internal Investment; Community Investment; Long-ranging Investment, Profitability
C2 Vulnerability	Stability of Supply; Stability of Market; Liquidity; Risk Management; Stability of Production
C3 Product Quality and Information	Food Safety; Food Quality; Product Information
C4 Local Economy	Value Creation; Local Procurement
Dimension S: SOCIAL WELL-BEING	
S1 Decent Livelihood	Right to Quality of Life; Capacity Building; Rights of Fair Access to Land and Means of Production
S2 Fair Trading Practices	Responsible Buyers
S3 Labour Rights	Employment Relations; Forced Labour; Child Labour; Employees' Freedom of Association and Right to Bargaining
S4 Equity	Non-discrimination; Gender Equality; Support to Vulnerable People
S5 Human Health and Safety	Workplace Safety and Health Provisions for Employees; Public Health
S6 Cultural Development	Indigenous Knowledge; Food Sovereignty

SAFA FRAMEWORK

SAFA was developed as an international reference document, a benchmark that defines the elements of sustainability and framework for assessing trade-offs and synergies among all dimensions of sustainability. There are several levels of SAFA, which are nested to enhance coherence.

The SAFA framework begins with the high level, overarching dimensions of sustainability: good governance, environmental integrity, economic resilience and social well-being. It is recognized that these dimensions are broad and encompass many aspects. These are translated into a universally agreed definition of sustainability, through themes and subthemes for each of the sustainability pillars. These are measurable and verifiable

EXAMPLE VISUALIZATION OF THE SAFA CATEGORY SCORES OF A COMPANY



through a set of core indicators applicable to food and agriculture supply chains. The SAFA Guidelines provide the guidance for the application (calculation) of these indicators.

SAFA has a set of 21 core sustainability issues or universal "themes". These can be implemented at any level – national, supply chain or operational unit – and thus, provide a common understanding of what "sustainability" means in a practical context. These themes are thus considered universal. At the theme level, policy-makers and national governments

can work towards alignment and harmonization of a holistic scope of sustainability without defining the specific pathways. The SAFA framework and themes allow the design and promotion of an integrated approach.

Each of the 21 sustainability themes is detailed into subthemes, or individual issues within SAFA themes. This level, composed of 56 subthemes, is relevant for supply chain actors doing a contextualization analysis, which identifies risk or hot spot areas as well as gaps in existing sustainability efforts. Other sustainability metric initiatives, standards and benchmarking schemes can identify issues and gaps not covered by their systems and tools for convergence and alignment at the subtheme level.

SAFA has defined core indicators within each subtheme that identify the measurable criteria for sustainable performance for the subtheme. Core indicators are applicable at the macro level – meaning to all enterprise sizes and types, and in all contexts. Core indicators serve the purpose of providing standardized metrics to guide future assessments on sustainability. The core indicators' set is needed for a general level of reporting, as SAFA users do not necessarily have the knowledge to develop indicators themselves, without the risk of lowering the bar of the assessment. Core indicators provide ratings for the highest performance (green) and unacceptable practices (red). Customized indicators are developed by the assessor for determining performance between green and red, depending on context.

THE SAFA PROCESS

SAFA development started in 2009 through a partnership between the FAO Natural Resources Management and Environment Department and ISEAL. The ISEAL Alliance is the global membership association for sustainability standards with the mission to strengthen sustainability standards systems for the benefit of people and the environment. Its membership is open to all multi-stakeholder sustainability standards and accreditation bodies that demonstrate their ability to meet the ISEAL Codes of Good Practice and accompanying requirements, and commit to learning and improving. This FAO partnership with ISEAL culminated in an expert consultation that established the first SAFA framework.

Subsequently, FAO continued developing SAFA according to prevailing needs. During 2011 and 2012, cooperation with the Swiss College of Agriculture expanded efforts into targeted stakeholder surveys, including experts from the food and agriculture industry, public administrations, non-governmental organizations, multistakeholder roundtables and multilateral institutions, with a view to direct the purpose and contents of the SAFA initiative in a way that adds value to existing efforts. SAFA was further refined by the feedback received through targeted questionnaires, presentations to many international conferences and meetings with industry and science representatives, extensive screening and cross-comparisons of sustainability standards, indicator systems, initiatives and regulations, as well as scientific literature surveys.

The different iterations of the SAFA were discussed in expert consultations held in 2011 and 2012, as well as two rounds of public comments, with 410 people from 77 countries participating in electronic fora. The first version of the SAFA Guidelines was produced in

June 2012, on the occasion of the United Nations Conference on Sustainable Development, or Rio+20.

This test version of the Guidelines was put forward to an FAO interdepartmental task force entrusted to backstop the Guidelines' finalization by providing technical inputs. During this phase, SAFA was benchmarked against nine sustainability standards and pilot tested in 30 settings across all continents, including:

- retail companies with a diverse supply network;
- large food companies with an international supply network;
- medium-size processing companies in industrialized, emerging and developing countries;
- small-scale production enterprises focusing on agricultural food production; non-food production; fishery (both aquaculture and wild capture); forestry (both plantation and native forest); and wild harvest operations;
- food chains of the same commodity, comparing organic and GMO systems.

The SAFA Workshop of Practitioners and Partners, held in March 2013, guided the production of the draft SAFA Guidelines released in July 2013 (FAO, 2013). Currently, the Guidelines are being peer reviewed by the practitioners who participated in the pilots, as well as all experts (220 individuals) who participated into SAFA development over the past five years, including institutional representatives from:

- multistakeholders organizations, such as The Sustainability Consortium (with 48 members), the Sustainable Agriculture Initiative Platform (with 40 members), ISEAL Alliance (with 14 members), etc.;
- private organizations with public members, including People 4 Earth (with the Netherlands Government), Agros (with the New Zealand Government) and Sustainability Standards Transparency Initiative (with German Government);
- civil society organizations, such as the Committee On Sustainability Assessment the Global Social Compliance Programme, The International Federation of Organic Agriculture Movements, Marine Stewardship Council, Forest Stewardship Coucil, the Finance Alliance for Sustainable Trade, Rural Advancement Foundation International the Global Footprint Network, Global ID Group, Fair Trade International, the Rainforest Alliance, GlobalGAP, Soil&More, Better Cotton Initiative, etc.;
- private companies, such as Barilla, METRO Group, Rewe Group, Grupo Bimbo, Migros, Unilever, Cotton Inc., Eosta, BAT, etc.
- UN partners such as UNCTAD, ITC and UNEP.

THE WAY FORWARD

The finalized, tested and peer-reviewed SAFA Guidelines are expected to be ready in autumn 2013, and will be presented to FAO member countries on the occasion of the World Food Day in October 2013.

Once established, the SAFA Guidelines will require a governance structure to take them forward. In March 2013, UNCTAD, in cooperation with FAO, ITC, UNEP and UNIDO, launched the United Nations Forum on Sustainability Standards (UNFSS). The UNFSS is governed by an Advisory Board of 25 experts from various international sustainability platforms. UNFSS perceives SAFA as a unique impact assessment tool.

It is therefore planned to house SAFA under the UNFSS umbrella, while FAO will host the SAFA Secretariat, as human and financial resources exist to provide the following support services:

- Guidelines implementation though the provision of IT tools (end 2013);
- sector-specific customized indicators and maybe, further pilots (2013–14);
- networking and cooperation with practitioners and partners, with a view to continuously coordinate and update SAFA Guidelines, Appendixes and Tools.

Considering that FAO is the largest information repository for food and agriculture, the SAFA Secretariat has recurrently been asked to develop a database for SAFA indicators' benchmarking; this major undertaking could be considered only if extra-budgetary resources became available.

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Common metrics of sustainable food systems: issues and current developments in the livestock sector, with reference to the Livestock Environmental Assessment and Performance (LEAP) partnership

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ABSTRACT

Sustainability standards rely on indicators that allow the assessment of sustainability. The paper reviews some of the key sets of indicators underpinning existing voluntary sustainability standards and possible/current developments in the area.

BACKGROUND

With growing concerns about how food and other agriculture-based products are produced, the livestock sector is under particular pressure to assess, improve and communicate on its environmental performance, while coping with the increasing demand for animal products.

The natural resource base within which production must be accommodated is finite, so the continuing expansion of the global livestock sector will need to be accompanied by substantial efficiency gains. This need is increasingly recognized among producers, civil society and governments and initiatives have been put in place to effectively improve the efficiency of natural resource use.

A number of initiatives conducted at various scales and based on different approaches and methodologies are already under way to better understand the environmental performance of livestock food chains. The current approaches to environmental benchmarking in the livestock sector vary substantially and are often one-off evaluations. This variation, and the absence of agreed methodologies, impedes the possibilities for improvement and renders the task of addressing environmental and sustainability issues challenging. Monitoring performance is a key feature in evaluating and ensuring compliance of production processes.

ISSUES TO BE ADDRESSED

In general, measuring the environmental performance of food production is not straightforward. The current approaches to environmental benchmarking in the livestock

Box 1: Voluntary standards addressing biodiversity in the agriculture area

The *Standards Map* (Standards Map, 2013) lists 28 voluntary standards applicable to agriculture products and covering the biodiversity theme:

- 4 public voluntary standards: China GAP, Chinese National Organic Products Certification Program, OFDC Organic Certification Standards, US National Organic Program;
- 24 private voluntary standards: 4C Association, AFRISCO, Better Cotton Initiative (BCI), Bio Suisse, Bonsucro, Cotton made in Africa, Ethical Tea Partnership (ETP), Fair Trade USA, Fairtrade International, FairWild, Florverde Sustainable Flowers, IFOAM Standard, Naturland, NTA 8080 – Sustainability criteria for biomass for energy purposes, ProTerra Foundation, Rainforest Alliance – SAN, Round Table on Responsible Soy Association, Roundtable on Sustainable Biofuels (RSB), Roundtable on Sustainable Palm Oil – Principles and Criteria, Small Producers Symbol, Soil Association organic standards, Sustainable Agriculture Initiative (SAI) Platform, UTZ Certified, Verified Carbon Standard (VCS).

The standards were assessed and compared by the authors, based on criteria including: external review; level of details; citation of scientific literature; underlying quantitative indicators; measures of biodiversity management; and measures of the actual biodiversity state. The result showed great contrasts, in terms of scientific accuracy and acceptance by users.

sector vary substantially. This variation, and the absence of agreed methodologies, renders the task of addressing environmental and sustainability issues challenging (see Box1). This being the case, there is an urgent need for broadly accepted and compatible methodologies that allow monitoring of environmental issues. Moreover, selected parameters must be assessed consistently for informed decision-making and for providing incentives to improve performances across value chains.

FAO has been involved in the provision of such quantitative information, notably through life-cycle analyses of greenhouse gas (GHG) emissions arising from livestock production. This research revealed that a great deal of valuable work is being carried out within the livestock industry, government, academia and non-governmental organizations (NGOs). However, it also revealed that many uncoordinated studies were being undertaken, leading to inconsistencies in the methods used and much duplication of effort. This is a major constraint in designing and implementing efficiency gains strategies on a large scale and at a minimized cost. As a result of this realization, FAO and other stakeholders decided to develop a formal collaboration to improve the consistency, cost-effectiveness and relevance of their work in the area of benchmarking and monitoring environmental performance of livestock supply chains.

Common metrics of environmental performance are required to inform decision-making along the supply chains, from producers to users, but also to inform policy-makers and multistakeholder processes aiming at developing sector strategies. To be effective and used, common metrics need to be both scientifically accurate and accepted by users.

THE LIVESTOCK ENVIRONMENTAL ASSESSMENT AND PERFORMANCE (LEAP) PARTNERSHIP

In light of these challenges, FAO officers from the Animal Production and Health Division (AGA) met with a group of agriculture and food business representatives in October 2010. An outcome of the meeting was the decision to explore the possibility of developing a multistakeholder partnership on benchmarking and monitoring the environmental performance of livestock food chains. FAO acted on this decision and initiated facilitating the process, involving private sector representatives, government representatives, NGOs and academia.

The main focus of the Partnership is on the development of broadly recognized sector-specific guidelines (metrics and methods) for monitoring the environmental impact of the livestock sector that will result in a better understanding and management of the key factors influencing the sector's performance.

The Partnership was established for an initial phase of three years (2013 to 2015). During this period, the Partnership will undertake a programme of activities in order to achieve the outputs set out above. The work programme focuses on the main livestock sector commodities, systems and processes. It includes activities that are of common interest to the members of the Partnership and for which joint implementation is the most cost-effective approach. Activities are structured along four components, and carried out in five phases (see Figure 1).

Component 1: Sector-specific guidelines and methods for the life-cycle assessment of GHG emissions from livestock food chains

There is increasing interest among stakeholders in the livestock sector in using life-cycle analysis (LCA)_to improve their understanding of the sector's GHG emissions. Studies are being considered at national and supra-national scales. While this is to be welcomed and represents a valuable body of knowledge, a proliferation of studies based on different methods and assumptions runs the risk of presenting a confusing and inconsistent picture of each sector's performance. There is a need to bring all these together so as to propose a coherent and harmonized approach to assessing emissions related to livestock production.

The focus of this activity is to produce methodologies and sector-specific guidelines for the life-cycle assessment of GHG emissions from livestock supply chains. The methodologies

Figure 1. Implementation phases of the LEAP partnership

and guidelines are developed in collaboration with key stakeholders in the sector and aim for consistency with already existing standards and to build on relevant guidelines.

Component 2: Global database of GHG emissions related to feed crops

Emissions attributed to feed production are needed to compute any LCA of livestock food chains. There is, however, no global dataset available to the practitioner and available data are generally of limited geographical relevance and do not generally account for changes in carbon stocks related to land use and land-use change.

This component focuses on the development of a global database of GHG life-cycle inventory (LCI) data for major feed crop materials. The assessment encompasses the life-cycle emissions related to each feed material, with a particular focus on improving the methodologies for quantifying changes to carbon stocks associated with land use and land-use change.

Component 3: Development of indicators and methods for the evaluation of wider environmental performance of livestock

Livestock production is complex and interacts with the environment in many different ways, such as through the consumption of resources, alteration of ecosystems and emissions to air, land and water. Many of these impacts are not reflected in the GHG intensity of emissions. Measurements of GHG emissions are therefore partial metrics, and ones that can lead to misleading policy signals if not put in the proper context of the wider relationship between livestock and the environment.

The aim of this activity is to develop indicators and methods that can be applied to measure the wider performance of livestock on a global scale. Focus areas include impact on nutrient cycles and biodiversity, as well as on water resources.

Component 4: Development of communication strategy

An integral part of the Partnership includes the development of a communication and advocacy strategy to bolster its efforts towards benchmarking and monitoring of livestock food chains. Experience has shown that the livestock profile can be enhanced most effectively when all parties engage and share ownership of a collaborative process, which is underpinned by high levels of awareness and well-informed discussions.

The overall aim is to develop and implement a communication strategy with a focus on providing options for improvement and measuring progress, to inform on the implementation issues and assure maximum visibility of the project for support, credibility and ownership. The strategy is used to raise the profile of the Partnership's work programme and also ensure the creation of clear and consistent messages within the context of a balanced approach to all stakeholders.

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Lessons learned from field projects on voluntary standards: synthesis of results

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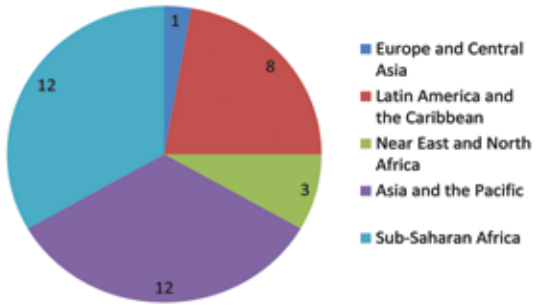
ABSTRACT

This paper synthesizes FAO's field experiences on voluntary standards (VS) through collective work across departments. Colleagues volunteered to provide information about their most recent field projects in order to draw out key lessons regarding the design, implementation and evaluation of projects that dealt with VS. Through this collective process, thematic good practices were identified related to the nature of support provided to small-scale producers, processors and decision-makers.

The first section provides a general overview of the selected case studies and the projects on which they report. In the following sections, lessons are collated following the project cycle, namely the design, implementation and evaluation phases. Finally, the paper concludes by discussing some of the trade-offs that VS require and proposes suggestions on the way forward.

OVERVIEW OF THE NATURE OF THE PROJECTS

The projects covered in this paper span the years 2004 to 2013, 17 projects and the eight case studies surveyed they cover the 36 projectscountries. Countries assisted include: Argentina, Benin, Bolivia, Brazil, Burkina Faso (2), Cameroon, Chile, Costa Rica, Croatia, Ecuador, Ghana, Guatemala, Guinea, Mali, Mauritania, Morocco, Niger, 12 Pacific island countries in the Pacific Community (PC) and territories, Peru, Senegal (2), Sierra Leone, the Syrian Arab Republic and Tunisia. The greatest number of projects were located first in the Pacific region where a series of projects focused on 12 Pacific Island countries, and second in sub-Saharan Africa, which was the focus of two large multicounty projects.



Geographic distribution of projects

FAO implemented projects that built the capacity of small-scale farmers, processors, producer organizations and public entities to deal with the following VS: Fairtrade, organic, good agricultural practices (GAP) and geographical

indications (GI). The voluntary standard was the main project focus for six of the eight case studies. It is important to mention that projects that focus on VS must also be accompanied by support for business development, production techniques, guarantee systems and other services that make VS credible and effective market tools. FAO has only supported projects where these additional activities were included.

The amount of investments ranged from USD2 000 to USD4 million with a number of projects funded around USD500 000. This range depended on the phase (pilot versus late phase) and the length of the project. Most projects were three years long, as is the norm for FAO projects; however, pilot phases were shorter and multiphase projects resulted in longer engagement. Most often the projects were funded through the Technical Cooperation Programme (TCP) facility (3), while the others came from bilateral support from member countries (e.g. Germany, Italy, Norway, Spain, Sweden), or the European Union, or multilateral donors (e.g. European Bank for Reconstruction and Development (EBRD) and the International Fund for Agricultural Development (IFAD). FAO Regular Programme funds were also used to provide support to one project.

The main objective of the majority of the projects was to improve institutional capacities to implement VS through policy support or training. Most projects focused specifically on building the capacity of public-sector institutions and farmers'/processors' organizations in order to enhance their income generation. Therefore, the main types of project activities were capacity development within the value chain, policy guidance and awareness-raising. For example, in Morocco and Tunisia, support was provided to producer organizations to assist them in the registration of a GI. In the Syrian Arab Republic, scientists, farmers and farmers' organizations, government officials and consumers were trained on all aspects of organic farming. In Burkina Faso, Cameroon, Ghana, Senegal and Sierra Leone, farmers' organizations and exporters were trained on internal control systems and market linkages. In Argentina, Brazil, Bolivia, Chile, Costa Rica, Ecuador and Peru, FAO provided support to the elaboration of legislation and guidance documents, as well as the setting and implementation of standards. Information dissemination and awareness-raising were also commonly part of project activities. This consisted mostly of document distribution, radio messages, conferences and seminars.

All projects (100 percent) were implemented with multiple stakeholders and a few through formal public–private partnerships at the local level. This means that FAO worked with ministry officials, either as beneficiaries of FAO interventions or as co-financers or facilitators of projects. The private sector was included in the similar roles through FAO's work with pProducers, producer organizations, exporters and certifiers were also included in projects as beneficiaries or as co-financers. Civil society collaborated in the form of rural and youth development non-governmental organizations (NGOs) that assisted in implementation or the provision of support services, or international NGOs associated with the standards (e.g. the International Federation of Organic Agriculture Movements [IFOAM]).

LESSONS LEARNED

In this section the lessons learned are analysed following the project cycle, thus comments are separated into the design, implementation and evaluation phases of the project.

Box 1: Pacific Islands: The need for continued support

Over seven years (2006–2012), FAO contributed to projects that tackled different aspects of the Pacific Organic Standard (POS) landscape:

- participative formulation of organic standard (adapted to SIDS climate change);
- stakeholders' meetings to build institutional capacity (i.e. public–private);
- training in certification of smallholder groups (i.e. internal control systems);
- exploring feasibility of complementary VS (i.e. fair trade);
- developing participatory guarantee systems (for local market development);
- alignment of POS to European Union and Australian regulations (for international market access);
- establishment of Pacific Organic Guarantee System and governance.

FAO found that this continued and incremental support contributed to mainstreaming the Pacific Organic and Ethical Trade Community (POETCom) into the Secretariat of the Pacific Community (SPC).

The importance of applying a holistic approach: In terms of project design, it was clear that a holistic approach (including production, organization, marketing, certification, finance and institutions) was important. For example, the results from the Pacific Islands projects showed that while the voluntary standard was the main focus of the project, governance and certification systems had to be developed in order to make the organic standard credible and effective in export markets **(Box 1)**. In other words, standards alone did not serve their purpose without also developing the guarantee systems that supported them. This was echoed in the Bolivia project, where the need to plan and invest in infrastructure at the outset of the project, along with capacity development activities throughout the project duration, was found to be essential for achieving the project goals. An important lesson from the Syrian project was that the project design should pay attention to the national legislation on labelling, cooperatives, marketing and trade of agricultural products **(Box 2)**.

Box 2: Syrian Arab Republic: Paying attention to legal frameworks

FAO provided technical assistance to the Syrian Government on the legal aspects of a national organic standard. Syrian law establishes an institutional framework and creates a system for certification, including group certification. However, Syrian legislation on farmers' organizations does not authorize the creation of nationwide organizations, which was found to impede the establishment of a national organic movement that could provide support to producers and consumers.

FAO also found that legal–technical collaboration is very important in some countries, as draft primary legislation can only be submitted to Parliament if it is accompanied by the draft regulations. There is a need to provide support for this type of project intervention that can help in building national level support services for voluntary standards.

Market identification should be ensured: The lessons learnt about project implementation point to the importance of sustained, market-focused support. First, the timeline of projects was directly related to the ability of project actors to reach their goals. In the GI projects (Argentina, Brazil, Chile, Costa Rica, Croatia, Ecuador, Morocco and Tunisia) and in the organic project in Bolivia, it was found that the identification phase was key to delivering the project outcomes. In the identification phase, the selection of products to be supported (e.g. native, traditional (typical), high-value horticulture), based on the identification of market opportunities and their specific requirements, was very important for ensuring project success. **All projects found that certification should not be the departure point for project support; rather, it should be the result of the identification and development of trading relationships that demand specific certified products.** This means that there is often a need for a pilot or multiphase project that can provide different types of support at different points in time. Indeed, the projects in the Pacific Islands lasted through five phases and it was found that one-off assistance is not sufficient to effectively build the local capacity to set up and maintain the VS and the certification systems that support them. Therefore, continued support is far more effective in ensuring that project beneficiaries are able to engage with VS over the long term.

Multistakeholder coordination is key to reduce implementation challenges: The second point that was raised on project implementation relates to the need to ensure local stakeholder buy-in and coordination from an early stage. All projects reported challenges in coordinating multiple stakeholders (e.g. farmers, producer organizations, exporters, scientists, NGOs) and often multiple departments of a single public partner. The lessons that were learned through the process highlight that clearly defining the roles and responsibilities at the beginning of the project can help to reduce administrative challenges **(Box 3)**. The GI projects found that it was imperative to ensure a means of coordination, through written agreements, between the different ministerial departments in order to increase project effectiveness. The Syrian and Bolivian projects highlighted the need

Box 3: Croatia: Coordination between stakeholders is a key to success

The establishment of standards at a national level requires the involvement of a number of public and private partners. FAO found that ensuring stakeholder involvement from the beginning of the project was fundamental to the project's success.

Stakeholder involvement was achieved through written agreements as part of the project planning. This helped to clarify who was responsible for different aspects of the creation and implementation of standards. In Croatia, FAO found that coordination between the Ministry of Agriculture and the intellectual property office was particularly important for the smooth registration of GIs.

Coordination between value-chain actors was also found to be important in increasing the uptake and compliance with standards. Specifically, lead companies were responsible for driving the uptake of standards by other value-chain actors, which brought benefits to all of them. This lesson from Croatia applies more broadly to all projects on voluntary standards.

for strong government commitment and coordination, particularly in the area of legal–technical collaboration. The West African project on organic and fair-trade certification also highlighted that similar coordination and commitment from the private sector are equally important, as these organizations need to be involved for the duration of the project in order for the project to reach its goals.

Understanding the costs and benefits of voluntary standards: Another point that became evident in project implementation is the need to carefully estimate and provide information on the economic implications of adopting standards both for producers and policy-makers. A cost–benefit analysis of VS implementation is essential to ensure the feasibility of project activities, but this is not always clear to project participants. In the Guatemala project, training was given to producer organizations to prepare business plans that helped them to understand investment requirements and income opportunities derived from adopting the technical requirements established in the VS. Skills were strengthened in production and business planning and accounting systems. Producer organizations were able to apply for financial support from donors external to the project. Similarly, in the Senegal and Niger River Basins project, the introduction of safety and good agricultural practices demanded understanding of the investment requirements and profit opportunities for upgrading their production systems.

The need to establish a baseline for future evaluation: The lessons on project evaluation are more broadly applicable beyond VS. The importance of establishing a baseline at the beginning of the project that can then be used to evaluate impact at the end of the project cannot be overstated. At present, this is not done consistently in projects on VS. In the Guatemala project, efforts were made to design a good baseline and conduct cost–benefit analysis, which enabled a rich evaluation at the end of the project. This approach should be encouraged, particularly given the concern over the increased costs incurred by the introduction of VS.

The results of the Bolivian project suggest a possibility for better linking the three aspects of project design, implementation and evaluation. This is the promotion of participatory monitoring. Participatory monitoring might be done through the establishment of local committees, composed of both public and private actors, which are charged with the decision-making, monitoring and reporting responsibilities for project activities.

TRADE-OFFS REQUIRED BY VOLUNTARY STANDARDS

Analysis of the opportunities and constraints to implementing the projects and achieving the project objectives highlighted a number of trade-offs that are important to consider.

Local versus export markets: a false dilemma? VS do induce significant costs both in terms of time and resources. These are related not only to the certification fees, but rather to the need to build infrastructure and institutions that can support VS systems. Those projects that dealt more directly with capacity building and technical support to small and medium producers and enterprises found that the development of local markets and infrastructure can provide a foundation upon which to scale up to certified export markets. FAO projects have often provided technical assistance to the development of guarantee systems that can support VS. Guarantee systems require public financial support as small-scale producers are

Box 4: Bolivia: Is it worth using participatory guarantee systems?

In an organic project in Bolivia, FAO provided support for the development of market linkages and certification practices. This case illustrates some of the challenges and opportunities related to the participatory guarantee system of certification:

Challenges

- Requires a lot of voluntary work
- High indirect costs to maintain support services, e.g. extension and marketing

Opportunities

- Less documentation and bureaucracy
- Low direct cost to farmers
- High transparency within the supply consumption network
- Appropriate for small producers and enterprises
- Stimulates local development

burdened by certification costs. However, over the long term, the establishment of these systems can help to reduce these costs. Moreover, the Pacific Island, West African organic and fair-trade, and Latin American projects reported that sustainable export of certified products can only prosper in the presence of a relatively well-developed domestic market – particularly a market that recognizes the need for improved product quality and safety. The Bolivian project illustrated how public procurement of locally guaranteed products played a large role in the development of the domestic market. Moreover, participatory guarantee systems (PGS) are influential in helping to build local markets and institutions first, as they rely upon the collaboration of local producers and local consumers **(Box 4)**.

Very small-scale farmers achieve higher income from improving farming practices but are hardly able to comply with VS: The preceding point suggests that there are trade-offs required by VS adoption that are yet to be resolved. The West African projects clearly showed that the benefits brought by the implementation of VS **(Box 5)** are most apparent in the poorest beneficiaries because they see drastic improvements in production practices. However, evidence shows that the poorest producers or exporters are often not included in VS as these markets typically select better-off producers who can consistently supply products that can meet high quality standards. Moreover, the poorest producers are often not prepared to deal with the quality and organizational requirements needed for certified export markets. This therefore highlights the existence of trade-offs between inequitable value-chain relationships and the identified market demand for products.

The standard that is promoted may not be the most demanded by markets. This trade-off is linked to another issue that was raised by the analysis of these projects: whether or not the voluntary standard promoted through the project is the right standard for the project beneficiaries. Some of the challenges encountered in the projects may have stemmed from the application of a standard that was not appropriate to the conditions (agro-ecological, geographic, market, social) of the beneficiaries. A number of projects learned this during the implementation and evaluation stages. One of the key lessons learned is the need for

Box 5: Senegal and Niger River Basins: Adoption of integrated production, pest and pollution management

This project aimed to improve the productivity, health and environment of farming communities by monitoring toxic pesticides and training farmers on integrated pest management as an alternative. It helped farmers access more remunerative markets thanks to quality and safety improvements.

As with other voluntary standards, there are costs to implementing improved practices. These include:

- clean water to rinse vegetables;
- less persistent/toxic pesticides might be more expensive, but farmers can make botanical pesticides;
- equipment and material (e.g. sanitation, harvest);
- handling and packaging equipment;
- others in the chain need to maintain safety and quality.

proper market analysis and informed decision-making around VS at the beginning of the project. Therefore, it is recommended that a strategic approach be used to help producers calculate the trade-offs needed to participate in certified markets and to discourage their participation if the costs outweigh the benefits **(Box 6)**.

Focus on supporting producer/trader certification in specific chains or improving overall governance and infrastructures? What is the trade-off between project efficiency versus sustainability in the long term? A broader question was raised in those projects where FAO

Box 6: West Africa: Supporting practices, not standards

Since 2009, FAO has worked on the integration of marketing basics and good agricultural practices (GAP) for food safety and quality into a pre-existing Farmer Field School (FFS) Programme in seven countries in West Africa. This case illustrates how the decisions to become certified depend on local contexts and must be based on farmers' capacities and market opportunities.

Triggers for wanting to comply with voluntary standards:

- Farmers requested support on production but also marketing.
- Traders and farmers: "Integrated pest management vegetables taste better, have better shelf life, our children get less sick".
- Farmers, extension workers and governments wanted "a label and shops".

Challenges for meeting voluntary standards:

- Certification costs, traceability and marketing costs were unaffordable.
- Farmer groups lacked organization.
- Decided on a "no label" strategy, targeting "local higher-end markets", with capacity development and farmer training.

provided direct support to producers who sought certification. This meant supporting only a fraction of producers for selected supply chains. Given the increasing importance of the role of the public sector in implementation of VS, more focused interventions on sustainable infrastructural, institutional and governance support for VS at the local and national levels may help to provide more equitable support to all stakeholders. Such institutional assistance could be supplemented with strategic partnerships that can capitalize on FAO's established best practices, such as the Farmer Field School methodology, to deliver more targeted producer training on VS. However, the results of these projects suggest that the long-term sustainability of the latter type of support is dependent upon the development of the institutional context.

WHAT IS NEXT?

- The implementation of field projects on VS requires a well-coordinated, progressive and pragmatic approach. Consideration should be given to applying a holistic approach where production, organization, marketing, certification, finance and institutional strengthening are included.
- The role of government should be clearly identified as institutional support (legal and infrastructural). This will help to reduce the burden of costs associated with the adoption of VS.
- Even in projects where the target markets are for export, enhancing local markets facilitates the creation of expertise and organizations needed for more demanding markets in terms of quality and consistency of supply. The role of participatory guarantee systems can be influential, as these are locally built-up schemes that imply the participation of consumers and producers in the verification process.
- Finally, as the VS define technical requirements for production, it is necessary to understand how much the standards act as incentives for implementation of best practices – social and environmental – that are sustainable.

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Annex: Project templates

Lessons learned from FAO field projects on voluntary standards

FAO Projects on quality standards linked to geographical origin			
Projects Code/Title	1) TCP/RLA/3211 – Calidad de los alimentos vinculada con el origen y las tradiciones en América Latina 2) IL 2/919 CRO – Support to quality food products in Croatia for improved backward linkages between local agrifood companies and farmers 3) TCP/MOR/3201 – Renforcement des capacités locales pour développer les produits de qualité de montagne – Cas du safran; TCP/MOR/3104 – Assistance technique pour la mise en place et le développement du système de reconnaissance des signes distinctifs d'origine et de qualité (SDOQ) des produits agricoles et des denrées alimentaires au Maroc; TCP/TUN/3202 – Appui au développement et à la mise en place d'un système de contrôle des produits de qualité liée à l'origine		
Countries	1) Argentina, Chile, Costa Rica, Peru, Brazil, Ecuador 2) Croatia 3) Morocco, Tunisia		
Funding source	1) Technical Cooperation Programme 2) FAO – European Bank for Reconstruction and Development (EBRD), through FAO Investment Centre (TCI) 3) Technical Cooperation Programme		
Objectives of the project	1) For each country: institutional capacity building (e.g. enhancing the role and the capacity of the local administration in supporting GI registration and protection in Croatia; support GI legislation development in Tunisia and Morocco) 2) For each country pilot product: building capacity of producers and other local actors involved for identifying, qualifying or marketing GI product 3) Knowledge shared among countries and tools disseminated		
Was the VS the main focus of the project or only a component?	Main focus		
Time frame	**Start date:** **1) 2010** **2) 2010** **3) 2008**	**End date:** **1) 2011** **2) 2013** **3) 2011**	**# Phases:** **1) 1 phase** **2) 2nd phase foreseen**
Amount of Investment	**1) USD 500 000** **2) USD 365 000** **3) USD 400 000 (ave)**		
Type of project activities			
Capacity development within the value chain	• CD for actors on production, marketing, certification and producers' organization in each pilot product • Support to setting up of the code of practice and submission for registration		
Information dissemination and awareness-raising	• Seminars and information dissemination (brochures, radio messages and contribution to festivals in some cases) in order to sensitize: consumers, civil society, producers, NGOs, policy-makers • In Croatia, participation in an international fair to promote the products (e.g. The Terra Madre Event in Italy)		
Policy guidance and capacity building	• Institutional capacity building, including: support for elaborating legislation, producing guidance documents and a CD on setting (evaluation of registration request) and implementing standards including the certification and control systems		
Partners involved in implementation			
Who are the partners? What roles do they have in the project?	Ministry of Agriculture – beneficiary Farmers, SMEs and Cooperatives – beneficiaries NGOs – implementer and beneficiaries Private company – co-financer, implementer and beneficiary (Croatia) Intellectual property institutes – beneficiaries (Morocco and Tunisia) Certifiers – beneficiaries (Morocco and Tunisia)		
Which standards were relevant for the project?	GI: protected geographical indication and protected denomination of origin		
What were the target markets?	Export, regional and national markets		

Outputs that have been effectively delivered	For all projects: • Policy-makers and public implementers trained, national coordination mechanism improved (national commission for evaluation, certification and controls), promotion and information to consumers • Enhanced public–private dialogue and improved backward linkage in the value chains • In the pilot products: producers' organization set up, producers trained in marketing and GI control; promotion and practical tools developed; product and strategies well identified • Products registered/certified: o Croatia: two products about to be registered with their specific code of practice: the first ones under the new legislation (in line with EU regulation) o Morocco: saffron of Taliouine, olive oil Tyout Chiadma, Clementine de Berkane o Tunisia: apple of Sbiba, pomegranate of Gabes
Lessons learned	
About the voluntary standard	
Objective of the standard(s)	Specific food quality
Target audience for standard(s) compliance	Producers, processors
Conformity assessment system	1st party (Chile) 1st party system with public control (Tunisia) 2nd party participative system to be developed in Brazil – some of the systems still in process of elaboration 3rd party and public control (Argentina, Croatia, Ecuador, Morocco)
Opportunities and constraints for implementing the project and achieving the project objectives	
From the beneficiaries point of view	Value chain actors: **Constraints:** time needed to set up and implement the scheme (especially with regard to control plan and certification), costs; need for external support (academics, public actors); direct sells (that can bring even more benefits) or involvement of sellers **Benefits:** producers and processors placed at the centre of the process and certification (possibility to balance the power, direct benefit from adding value)
From a market point of view	**Benefits:** access and adding value from EU market (e.g. grenade Gabès on French market) and direct registration (protection) in the EU (e.g. argan oil applied for EU protection to stop misuses of the name by EU companies).
From a legal/institutional point of view	**Constraints** at institutional level: resources needed (time, people), funds (or else cost will fall on producers) **Benefits:** contribute to various policies: agricultural (economic development), heritage/culture aspects, biodiversity, consumers (protection and food diversity)
Key factors of the project design to take into account in further similar activities	Consider two dimensions of GI system in defining objectives and planning activities: • need to have participation by value-chain actors (private sector) in setting up and implementing the standard; • public sector: government level for regulation aspects, setting up and control; and local/regional authorities that play a major role in supporting setting up and promotion For developing a GI product: • ensure participative approaches: o all value-chain stakeholders should be represented and taken into consideration o conflicts not to be avoided but addressed and solved • identification phase is key: o well assess the potentials (strengths and weaknesses to address) of the product (generic and specific quality) o value chain and market to design adequate strategy **At the institutional level:** • ensure means of coordination (and agreements) between ministerial departments (especially agriculture and intellectual property offices); • synergies to generate by involving other sectors (tourism, culture, environment, etc.)

Key lessons learned from the project that can help to formulate better projects related to VS
• Raising awareness and training farmers and processors on VS they could implement to add value to their products (advantages and constraints of the different existing standards), needs and partners to consider, etc., and alternatives to develop ... disseminate toolkits with this view.•Raising awareness and training public stakeholders, especially policy-makers, on their role in VS development and regulation. • Training institutional actors to define adequate VS policies and strategies and implement adequate standards accordingly. • Helping farmers/processors to be part of (even lead) setting up and implementation of standard. • importance of regional coordination (in a some parts of the world, ensure sharing knowledge among countries and, as possible, mutual recognition between regulations (e.g. objective of the regional project in Asia). • The Croatia project highlighted the importance of improved backward linkages between agrifood companies and farmers: from one side it provides important marketing channels to specific quality products and so income for small-scale producers on a territory (including visibility and support offered by the company). On the other side, it improves reputation and image of the company involved owing to social/environmental benefits for small-scale producers. Such a situation could be foreseen at the beginning of a project to ensure immediate success. • Given that the standard and its benefits were collective, there was motivation for a large company to support other producers to develop a GI in the area. In this way, the standard acted as a mechanism to strengthen the solidarity among value-chain actors and as an incentive for producers to help each other to reach the requirements and obtain the right to use the standard.
Additional comments
There is a need to keep supporting marketing and promotion and extend benefits to other value chains in the country. Depending on the country, some follow-up projects are considered (e.g. Tunisia, Morocco, Algeria).

The integration of indigenous Andean producers into new national and international value chains			
Project Code/Title	UNJP/BOL/044/SPA – **The integration of indigenous Andean producers into new national and international value chains (MDGF-2093)**		
Country	Bolivia		
Funding source	MDG-Spain Fund (Spanish Cooperation)		
Objectives of the project	1. Increase ecological production and productivity by smallholders 2. Enhance market linkages 3. Enable a regulatory and financing environment for organic production		
Was the VS the main focus of the project or only a component?	The organic component was the main focus and should be implemented through a holistic approach (production, marketing, organization, certification and regulation).		
Time frame	**Start date:** 01/2010	**End date:** 06/2013	**# Phases:** I
Amount of Investment	Total USD 8 million – FAO components USD 3 484 121		
Type of project activities			
Capacity development within the value chain	Capacity development for indigenous producers including strengthening skills on good practices, organization, certification and marketing		
Information dissemination and awareness-raising	Awareness is raised through encouraging consumers and other stakeholders as members of the Participatory Guarantee Systems (PGS)		
Policy guidance and capacity building	Capacity development for national, provincial and local authorities on organic sector legislation, market linkages and financing mechanisms		
Partners involved in implementation			
Who are the partners? What roles do they have in the project?	Ministry of Agriculture – through UC-CNAPE (Coordinating Unit of the National Council of Ecological Production) Local and provincial authorities – co-implementers NGOs – support organizations and co-implementers Producers' associations – beneficiaries		
Which standards were relevant for the project?	National Organic Standards		
What were the target markets?	Export and local markets		

Outputs that have been effectively delivered	6 000 farmers assisted in good ecological practices, participatory certification systems, legislation, organization and marketing - Approval of organic legislation and procedures (PGS, organic seal) - Validation and endorsement of PGS system at local level (16) - Strengthened capabilities of supportive organizations (8) - Strengthened capabilities on legislation and its implementation - Public procurement of ecological products for schools (6)
Lessons learned	
About the voluntary standard	
Objective of the standard(s)	Organic production and transformation
Target audience for standard(s) compliance	Producers and processors
Conformity assessment system	3rd party and PGS
Opportunities and constraints for *implementing the project and achieving the project objectives*	
From the beneficiaries point of view	**Opportunity:** the producers are indigenous people who have ancestral knowledge on production systems that are de facto ecological. **Opportunity**: the producers are used to working in organizations.
From a market point of view	Public procurement is seen as the main market that is an opportunity for the expansion of the ecological production – however, there are some technical constraints in the transformation of the raw materials and the production of the final product (mostly related to infrastructure (power, water) and technical services.
From a legal/institutional point of view	**Opportunity:** the participation of different stakeholders at local level – local authority, teacher and consumers – in the PGS represents a great opportunity to build sustainable markets. **Opportunity:** the existence of organic law facilitates further legislation development. **Constraint:** lack of expertise in ecological production.
Key factors of the *project design* to take into account in further similar activities	– Selection of native products for implementing good practices – Strong government commitment in the project implementation – Holistic approach (production, organization, marketing, certification, finance, and institutions)
Key lessons learned from the project that can help to formulate better projects related to VS	
– Put strong emphasis on the identification of the market opportunities and their specific requirements – Plan and execute investment in infrastructure since the project start – Plan sharing knowledge events during the project implementation instead of when the project ends – Set-up of local ecological committees (public and private actors) as the main instance of decision-making for project activities	
Additional comments	

Increasing incomes and food security of small farmers in West and Central Africa through exports of organic and fair-trade tropical products			
Projects Code/Title	GCP/RAF/404/GER – **Increasing incomes and food security of small farmers in West and Central Africa through exports of organic and fair-trade tropical products**		
Countries	Burkina Faso, Cameroon, Ghana, Senegal, Sierra Leone		
Funding source	Germany		
Objectives of the project	Increasing income and food security of small farmers		
Was the VS the main focus of the project or only a component?	Main focus		
Time frame – 4-year projects	**Start date: 2005**	**End date: 2009**	**# Phases: 2 (formulation phase in 2004)**
Amount of investment	Formulation phase (GCP/RAF/389/GER): USD 146 781 Phase 2: RAF/404/GER: USD 2 389 332		

Type of project activities (choose one and qualify)	
Capacity development within the value chain	Of farmers to adhere to standard and produce quality product Of farmer organization (FO) boards and leaders in management and internal control system. Of exporters in internal control system
Information dissemination and awareness-raising	
Policy guidance and capacity building	
Partners involved in implementation (list each of the partners and their roles in project implementation)	
Who are the partners?	FOs: main beneficiaries but also executing project activities through service contracts. Exporters (Burkina and Ghana only): executing project activities and also beneficiaries, but mainly to create more opportunities for small farmers to supply them. NGOs and consultants as service providers to beneficiaries and to the project (implementation of capacity building activities). Government (Ministry of Agriculture for Cameroon, Chana, Senegal and Sierra Leone, Ministry of Trade in Burkina Faso): focal point for coordination, and assist in implementation National organic movements: Ghana Organic Agriculture Network (GOAN) and in Senegal Fédération Nationale pour l' Agriculture Biologique (FENAB)
What roles do they have in the project?	
Which standards were relevant for the project?	Organic and fair trade
What were the target markets?	International markets (e.g. Germany, France, Europe)
Outputs that have been effectively delivered	• Training took place in all farmer groups. The project trained in total: o 2 078 farmers in organic agriculture and fair trade, o 229 shea nut collectors in organic requirements for collection o 108 shea butter producers in organic requirements for butter production o 68 produce agents/harvesters in quality requirements and record keeping/ traceability requirements o 36 ICS managers/field officers/internal inspectors on their role in the internal control system o 4 documentation officers in record keeping, filing and administrative management o 16 executive and board members of farmer associations in the running of their organization including development of sales to exporters (1 group) or in direct exports (2 groups) o 5 managers of exporting farmer organizations and 1 exporter in development of their export businessThe training material that was developed and used in these training sessions was gathered into a tool box, together with other lessons learned during project implementation. All groups were certified as planned. In terms of export development, results are as follows: • Burkina Faso: o BurkiNature increased exports of organic and organic-fair-trade mangoes by 40% from 2005 to 2006, and between 2006 and 2008 by another 50%. o CPBKB increased exports of organic shea butter five-fold in the course of the project. • Cameroon: o UNAPAC increased exports of pineapples by 40% from 2005 to 2008. • Ghana: o WAD Ltd has increased sales of dried and fresh pineapple, and now buys 2.5 times more pineapples from the farmers than at the start of the project (increase of 170%). o VOMAGA started selling mangoes to processors. • Sierra Leone: o KAE exported its first container of fair-trade certified cocoa in January 2009.

Lessons learned	
About the voluntary standard	
Objective of the standard(s)	Provide clear definition of organic agriculture and which production methods are used in organic agriculture
Target audience for standard(s) compliance	Farmers and processors Audience for organic labels is consumers
Conformity assessment system	For farmer groups: and internal control system (ICS) 3rd party certification of the ICS, the certifier is accredited
Opportunities and constraints for *implementing the project and achieving the project objectives*	
From the beneficiaries point of view	**Opportunities:** The impact survey concluded that the new organic production methods have resulted in improved quality of the products. The majority of respondents also observed an increase in production, which was due to a combination of higher yields and increases in cultivated areas or, in the case of shea butter, an increase in collection efforts of shea nuts and subsequent increased transformation of nuts into shea butter. Whether this increase in production and exports has resulted in reduced poverty and food insecurity is more difficult to ascertain for two reasons. First, the impact of the adoption of the new agricultural and processing methods on the total costs of production varies considerably from one subproject to the other. Second, the starting situation of each subproject varied considerably as well as the level of poverty and food insecurity of the group members. Concerning the cost of production, it is clear that the implementation of the organic methods generally results in an increase in labour costs and a decrease in the costs related to the purchase of agrochemicals. Group marketing reduces the transportation costs of the products to the market. Regarding the variations in the living conditions at the start of the project, it can generally be concluded that the poorer the producers, the more the project's impact manifested itself in terms of poverty alleviation and food security. In general, the project has resulted in an increase in the incomes of its participants as a result of the increase in the production volumes or the price paid to the producers. The additional income generated through the sale of certified products is mainly used for purchasing food or clothing, for paying school fees and for medical expenditures, thereby improving the living conditions and the food security of the participants. Five out of the seven subprojects led to the marketing of certified products at the moment of the impact survey. The producers of these groups confirmed nearly unanimously the positive impact of the marketing of the certified products by the producer groups; no disadvantageous aspects were mentioned. The impact survey also confirmed the project's impact on employment through the creation of jobs for workers directly involved in the production of certified products, as well as for workers and administrative staff involved in production supporting services. **Constraints:** Increased labour demands.
From a market point of view	One constraint related to the market was that especially the organic market demands high-quality products, and much project effort had thus to go into increasing/ensuring quality, whereas this was originally not such a focus of the project and thus project activities and budget had to be adapted to this. But this was not difficult as it was clearly in line with project objectives and some activities in this regard had already been foreseen, so it was merely a shift in focus rather than a completely new approach. Another constraint was that the project was set up for FOs that had already minimal export experience or were exporting through an exporter. In Sierra Leone this was not the case. There was a lack of literacy and financial management skills in the FO and a loan was not well handled by them leaving the FO with a debt. Also In Senegal, export operations had to be set up from scratch and the project tried to link the groups to an exporter, but this exporter walked out of the project with some of the best farmers as his own suppliers. After that experience, the groups no longer trusted the exporter and insisted on setting up their own export organization, but during the course of the project could not attract any buyer. However, it is understood that after the project closed they managed to receive support from ITC and finally exported in 2012.

From a legal/institutional point of view	The project assisted FENAB with the development of a national organic standard and certification system. One of the leaders wanted a state-of-the-art system with accreditation, etc. like the European Regulation. From FAO point of view, this did not make sense because it would be too bureaucratic and costly for smallholder groups wanting to sell on the local market, and exporting groups would anyway have to be certified against the European standard, so for them it did not have an added value. But we were not able to convince him to develop a cheaper participatory system for the nascent local market.
Key factors of the *project design* to take into account in further similar activities	FAO administrative rules make it difficult to work with exporters to improve the functioning of the supply chain. There is also a fundamental question whether FAO should support specific chains at all, which may favour a certain exporter over another. Therefore better to develop a project that will in principle support all supply chains in a country that fulfill certain criteria (e.g. have a smallholder supply base).
Key lessons learned from the project that can help to formulate better projects related to VS	
Based on reflections following the project and more work in the area, the following lessons might be appropriate. Give more attention to the role of government in VS and how FAO can support the government in that, because that is the intervention area where FAO has comparative advantage. And in setting up a sustainable business support structure from which all private sector players and FOs can benefit, instead of supporting one specific chain that is not really the role of FAO.	
Additional comments	
For more information see project Web site: http://www.fao.org/organicag/organicexports/oe-results/en/	

Strengthening local agri-food system dynamics with an emphasis on intensive commercial and artisanal agricultural production			
Projects Code/Title	GCP/GUA/012/SPA – **Fortaleciendo las dinámicas locales en la cuenca el río Naranjo y cuenca del lago de Atitlán con énfasis en la producción intensiva agrícola y la producción artesanal, II Fase**		
Countries	Guatemala		
Funding source	AECID (Spanish Cooperation)		
Objectives of the project	1. Enhancing productive strategies of smallholders through technical assistance on good agriculture practices (GAP), better input use and capacity development 2. Improved market linkages 3. Increased food security through improved family production systems		
Was the VS the main focus of the project or only a component?	There was a component for one thousand commercial farmers that implied implementation of VS. Although it comprised only 10% of the project activities, it leveraged and helped to coordinate other components such as producers' organization, infrastructure development and market linkages. There were different project strategies for subsistence farmers (2 000).		
Time frame – 4-year projects	**Start date:** 04/2010	**End date:** 06/2012	**# Phases:** II
Amount of investment	USD 4 407 772		
Type of project activities			
Capacity development within the value chain	CD for commercial producers and their producer organizations on production, business management, marketing and certification		
Information dissemination and awareness-raising			
Policy guidance and capacity building	CD for local authorities on local development management		
Partners involved in implementation			
Who are the partners? What roles do they have in the project?	Ministry of Agriculture – co-financer Local authorities – co-implementers SMEs – commercial partners BDS – co-implementers Cooperatives – beneficiaries		
Which standards were relevant for the project?	GlobalGAP		
What were the target markets?	Export and national markets		

Outputs that have been effectively delivered	1 000 farmers certified and linked to export and domestic markets through: – Co-financing productive infrastructure needed for certification – Capacity development on GAP, business planning, management and marketing – Market linkages
Lessons learned	
About the voluntary standard	
Objective of the standard(s)	Food safety
Target audience for standard(s) compliance	Producers (GlobalGAP) and processors (British Retail Council [BRC])
Conformity assessment system	3rd party
Opportunities and constraints for *implementing the project and achieving the project objectives*	
From the beneficiaries point of view	**Constraint:** Investments required (fences, toilets, fertilization stores, etc.). Additionally, to maintain consistent supply, they should install irrigation system. **Opportunity:** The producer's sites were very close to Guatemala City and to the packing houses that procure their products for export . **Opportunity:** A strong export promotion board (AGEXPORT) with long experience in exporting fresh vegetables facilitates market access.
From a market point of view	Several processers (packing houses) were interested to link with these producers and to buy their certified products. A good offer of business development services is available in the project region
From a legal/institutional point of view	The local associations – Mancomunidades (Municipalities) – were very supportive of the project. A local certification supported implementation of standards and certification.
Key factors of the project design to take into account in further similar activities	– Well-designed baseline that allows evaluating the impact of project activities after project finalization. – Engaging local authorities in the project formulation – Market feasibility analysis.
Key lessons learned from the project that can help to formulate better projects related to VS	
– Validation of good practices and a cost-benefit analysis of them are critical to up-scaling. – Partnering with local business providers to supply specific inputs and services to producers. – Partnering with buyers since the beginning to identify the specific market demands. – Organization of producers (in this case they did already exist) and enhancing their business planning and management skills. – Engaging and establishing shared responsibilities with local authorities.	
Additional comments	

Continued support for the Pacific Organic Standard landscape	
Projects Code/Title	1.IFAD/IFOAM project with FAO technical advice: **to establish Pacific organic standards** (2006–12) 2.Letter of Agreement between NRD and ICEA: **support to Pacific Island countries for organic and fair trade certification** (2008) 3.FAO/IFOAM/UNCTAD ITF project: **alignment of Pacific organic standard with EU organic regulation** (2009) 4.FAO/IFOAM/UNCTAD GOMA project: **equivalency of Pacific organic standard with Australia organic regulation** (2012) 5.TCP/RAS/3301: **Development of effective governance structures for the Pacific Organic and Ethical Trade movement and establishment of the Organic Guarantee System for the Pacific Organic Standard** (November–December 2010)
Countries	12 Pacific island countries and territories
Funding source	1. IFAD Grant, including NRD backstopping and annual guidance to regional stakeholders (POETCom meetings) 2. FAO/NRD Regular Programme 3. SIDA trust fund 4. NORAD trust fund 5. FAOSAP TCP Facility

Objectives of the project	1. Participative formulation of organic regulation 2. Training in certification of smallholder groups 3. Alignment of organic regulation with EU 4. Alignment of organic regulation with Australia 5. Establishment of organic guarantee system		
Was the VS the main focus of the project or only a component?	Voluntary standard was the main focus but, to make it credible and effective in export markets, governance and certification systems had to be developed. Standards alone cannot serve their purpose without guarantee systems attached to them.		
Time frame	**Start date: 2006**	**End date: 2012**	**# Phases: 5**
Amount of investment	**1. USD 500 000** **2. USD 50 000** **3. USD 2 000** **4. USD 2 000** **5. USD 200 000**		
Type of project activities (choose one and qualify)			
Capacity development within the value chain	Annual meetings for private–public stakeholders group (called Pacific Organic and Ethical Trade Community - POETCom) in order to establish regionally-adapted organic standards and develop both third-party certification partnerships and PGS + training national operators in smallholders' group certification		
Information dissemination and awareness-raising	Information materials in English and French on the Pacific Organic Standards targeting consumers, civil society, producers, NGOs and heads of state and governments.		
Policy guidance and capacity building	Institutional capacity building		
Partners involved in implementation			
Who are the partners? What roles do they have in the project?	POETCom composed of: farmers organizations, Small and Medium Enterprises (SME), Secretariat of the Pacific Community (SPC), rural development and youth NGOs, Ministries of Agriculture – as well as organic and fair trade certification bodies from New Zealand.		
Which standards were relevant for the project?	Organic agriculture and fair trade standards		
What were the target markets?	Australia, New Zealand, EU		
Outputs that have been effectively delivered	• Stakeholders trained in standard implementation • POETCom formally mainstreamed within SPC • Pacific Organic Standards, now eligible for export to EU and Oceania countries, endorsed by Pacific heads of state • Pasifika certification developed		
Lessons learned			
About the voluntary standard			
Objective of the standard(s)	Organic management aligned to export market requirements		
Target audience for standard(s) compliance	Producers, processors, chain of custody		
Conformity assessment system	3rd party certification by foreign bodies Participatory Guarantee System		
Opportunities and constraints for *implementing the project and achieving the project objectives*			
From the beneficiaries point of view	Grassroot actors proud to have their own organic standards, adapted to local conditions (e.g. climate change) and recognized by policy-makers at the highest level, with continuity ensured by SPC		
From a market point of view	Export volumes not yet there for export markets		
From a legal/institutional point of view	Voluntary standards triggered the development of organic agriculture for local markets but volumes and trading relationships not mature for such exports		
Key factors of the *project design* to take into account in further similar activities	Public–private cooperation was key to success and buy-in by stakeholders		

Key lessons learned from the project that can help to formulate better projects related to VS
Punctual assistance is not sufficient; there is need for continued support to effectively build capacities (it takes time). Certification should not be the departure point but first trading relationships and demand for specific products. Guarantee systems require public financial support, as small-scale economies (typical of certified produce) are burdened by certification costs. Also, sustainable export of certified products can only prosper in presence of a domestic market; thus, PGS are key towards building local markets first.
Additional comments
Now that the standard is established, capacity-building is crucial to build up good production, processing and marketing strategies, for products of high quality, sufficient quantity and regular supply.

Institutional development of organic agriculture in Syria			
Projects Code/Title	GCP/SYR/011/ITA – **Institutional development of organic agriculture in Syria**		
Country	Syrian Arab Republic		
Funding source	Extra-budgetary Italian Cooperation		
Objectives of the project	• To establish the proper institutional framework for a coordinated and integrated development of organic farming in the Syrian Arab Republic including legal aspects, capacity-building and institutional build-up. • To achieve an adequate number of properly informed and well-trained technicians, scientists, decision-makers and leader farmers, with full knowledge of all aspects of organic farming. • To initiate a knowledge-based and market-oriented research programme, that in a short time could provide useful guidelines to farmers wishing to adopt organic farming techniques.		
Was the VS the main focus of the project or only a component?	The main focus was strengthening national capacities for adopting and implementing standards.		
Time frame	**Start date: 2005**	**End date: 2010**	**# Phases: 2**
Amount of Investment	USD 1 999 823		
Type of project activities			
Capacity development within the value chain	The project dedicated time and resources to stakeholders all along the production chain (scientists, farmers and farmers' organizations, government officials and consumers).		
Information dissemination and awareness-raising	A very structured programme of training, capacity-building activities and workshops was implemented in different pilot areas.		
Policy guidance and capacity building	The project included specific training activities for scientists, farmers and farmers' organizations, government officials and consumers.		
Partners involved in implementation			
Who are the partners? What roles do they have in the project?	Ministry of Agriculture, farmers' organizations. The legal component also established a working group including the ministries in charge of health, rural development, trade, chamber of commerce and chamber of agriculture, peasants' organization and private stakeholders.		
Which standards were relevant for the project?	IFOAM		
What were the target markets?	Internal and external trade (Arabic countries, Europe)		
Outputs that have been effectively delivered	1 Law and 4 regulations. Syrian organic standards		
Lessons learned			
About the voluntary standard			
Objective of the standard(s)	Organic production		
Target audience for standard(s) compliance	Producers, processors, consumers		
Conformity assessment system	(3rd party – government certification – group certification)		
Opportunities and constraints for *implementing the project and achieving the project objectives*			
From the beneficiaries point of view			
From a market point of view			

From a legal/institutional point of view	The Syrian Government decided to approve a law on organic production to prohibit the marketing of products as organic unless they meet the organic standards. The law establishes an institutional framework and creates a system for certification, including group certification. The main challenge was coordination among all the ministerial departments involved. In addition, Syrian legislation on farmers' organizations did not admit the creation of nationwide organizations, which impeded the establishment of a national organic organization. A different project proposal to modify the Law of Peasants was approved and subsequently closed due to the political situation.
Key factors of the *project design* to take into account in further similar activities	Legislation is necessary to create obligations, prohibit the misuse of a mark, standard or claim and regulate the provision of certification services. Projects involving the implementation of VS should pay attention to the national legislation on labelling, producers' organizations and the marketing and trade of agricultural products.
Key lessons learned from the project that can help to formulate better projects related to VS	
• Importance of coordination among departments. • The relevance of producer organizations' legislation in the implementation of VS. • The relevance of legal–technical collaboration • In some countries (such as the Syrian Arab Republic) the draft primary legislation can only be submitted to the Parliament if it is accompanied by the draft regulations.	
Additional comments	

Stories behind quality labels around the Mediterranean countries

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ABSTRACT

The rural areas of the Mediterranean countries – in particular mountain and marginal areas – have always been the geographical and symbolic locations where a local development process favouring the existence of a variety of systems and farm products of high quality took place. At the beginning, these systems and products first of all assured food safety for a demanding and constantly growing population, but they also contributed to make known territories, knowledge, traditions and culture. The populations of these zones picked, collected, cultivated and ate essentially generic products assuring their nutrition needs, but they learned to develop techniques and, little by little, specific products started to contribute to their reputation and economic development.

The experience shows that new dynamics linked to the valorization of natural, economic and social resources of a territory are often launched by actors of the field who are able to give a new vision of the territory and innovative perspectives.

Several local and regional initiatives supported by different actors (ministries, regions, development agencies, non-governmental organizations, farmers, cooperation projects, etc.) can be listed as very successful in different areas of the Maghreb countries, especially in Morocco, where the valorization of typical local products is one of the pillars of the new agricultural policy undertaken by the government, the "*Maroc vert*" plan.

Within the framework of a FAO Regional Bureau of North Africa and IAMB project *Valorisation des produits agricoles locaux du Maghreb à travers la labellisation*, a number of interesting experiences on the capacity that a process of valorization of local products may have on the development of a community – in terms of improvement of livelihoods, creation of employment and preservation of natural resources – have been identified, together with the potential, not yet fully exploited, that the region presents in terms of valorization of such products.

The project has been also the occasion to confirm the commitment of the different actors involved in following and enhancing this kind of process, considering all the different situations, levels of awareness and the political and legal situations of each country.

QUALITY AND VALORIZATION OF LOCAL PRODUCTS IN THE MEDITERRANEAN CONTEXT

Quality voluntary standards (VS), which are intended to reassure consumers, formalize the stages of the value chain by means of specifications. Third-party certifying bodies and monitoring procedures guarantee that these private standards, which actually function as world market norms, are complied with.

Since the beginning of the 1990s, the southern and eastern Mediterranean countries have been creating national mechanisms in line with the standards that have been constructed by the European Union and world markets. This legal framework is guided by governments that are bringing their regulations in line with global standards in order to meet the requirements for accessing international markets; marks, geographical indications (GIs), labels and prestige-enhancing statements are being established by the national authorities. The introduction and application of these standards have not yet taken local contexts into due account, generating crucial difficulties in the broad participation of producers.

Moreover, the need to protect the reputations of goods is combined with the political will to supply public goods, such as rural and regional development, the protection of biodiversity and heritage, measures to highlight the traditional knowledge and the products of specific areas, social responsibility and food security. As vectors of these changes, GIs become both market tools (to combat counterfeit products) and levers in the political, social, economic and environmental contexts (FAO, 2009–2010).

Numerous projects have been launched in Maghreb countries to develop GI products and have concerned mainly the producers' organization and the drawing up of specifications, the GI governance, the role of public policies, etc. Projects for developing traditional products in the Mediterranean region are presented as an essential tool for agricultural and local development. With the support and the aid of international bodies, many initiatives are being launched to set up systems for protecting and developing traditional products and regional specialties by means of GIs.

Most of these initiatives concern the upstream stages – the organization of production, the identification of a product's potential, the negotiation of specifications or the drafting of national and international regulatory instruments, and communities are often not fully involved in these dynamics. However, experience shows that new dynamics linked to the valorization of natural, social and economic resources of a territory are often launched by actors of the field who are able to give a new view of the territory as well as innovative perspectives (Antonelli, Pugliese and Bessaoud, 2009).

Several local and regional initiatives supported by different actors (ministries, regions, development agencies, non-governmental organizations [NGOs], farmers, cooperation projects, etc.) present very successful results, which have contributed to the progress of the quality sector in different areas of the Maghreb. At the same time, it should be noted that coordination is sometimes poor and the development of market and institutional dimensions is not always equally developed and fully integrated.

Within the framework of an FAO Subregional Office for North Africa and IAMB project, *Valorisation des produits agricoles locaux du Maghreb à travers la labellisation*, a number of interesting experiences on the capacity that a process of valorization of local

products may have on the development of a community – in terms of improvement of livelihood, creation of employment and preservation of natural resources – have been identified, together with the potential, which is not yet fully exploited, that the region presents in terms of valorization of such products. The project has also provided the opportunity to depict the situation in the three Maghreb countries with regard to the institutional and legal framework of local products and the different signs of recognition of quality. This has led to:

- identification of the potential to be valorized and the opportunities useful to improve the livelihoods of local populations through a better valorization of local agricultural products;
- identification of the key actors, whether public or private, in the production and marketing of labelled agricultural products and the drafting of a programme to reinforce actors' capacities.

The rural areas of the Mediterranean countries – in particular mountain and marginal areas – have always been the geographic and symbolic places where a local development process favouring the existence of a variety of systems and farm products of high quality has taken place. At the beginning, these products and systems assured food safety for a demanding and constantly growing population, but they also contributed to make territories, traditional knowledge, traditions and culture well known. Populations living in these areas picked, collected, cultivated and ate generic products essentially, thereby assuring their nutrition needs, but they also learned to develop techniques and, little by little, specific products started contributing to their reputation and their economic development.

The origin-based products represent the achievement of the agricultural vocation and of the gastronomic heritage of the Maghreb countries. They may also represent a good tool in order to preserve biodiversity and to ensure quality to consumers.

The development and valorization of these products generates a new dynamic leading towards the renewal of small-scale agriculture, in particular in mountain areas and oases where agriculture presents strong specificities and products with unique quality features of long tradition and local expertise.

GIs have been considered as factors of development of the rural world, as well as management tools of the biodiversity that favour the strengthening of local communities, for about fifteen years. The convergence of environmental concerns and of the evolution of food-processing markets concerned about quality and origin places the traditional knowledge and the tools of protection and differentiation at the heart of the action of the economic and political players. Within the voluntary initiatives of specific quality, the identity of products in connection with their origin generates interesting specificities: thanks to the link established between the product and its territory, the quality simultaneously allows for product differentiation, organizing the actors at territorial level, protecting local resources and therefore contributing to the fight against rural abandonment. Indeed, the institution and development of these signs will have positive consequences for the national economy, particularly for the protection of the rural world.

Strengthening relationships among local actors, their territories and products is a step towards sustainable rural development. Such relationships are based on the local capacities

to create some value within a world market while remaining anchored in a given territory. Local products present specific quality attributes that are inseparable from the places where they are produced and, eventually, they build up a reputation associated with a geographical indication that identifies them. This is how differentiated products can meet a specific and remunerative demand.

COUNTRY PERSPECTIVES

Algeria: local products searching for protection

In Algeria, the food-processing system is characterized by a still poorly productive but fast-changing farming sector, a low rate of food consumption, the national production

Organic date production: a successful challenge in a country where organic is not yet legally recognized

In the territories of Tolga, Borg ben Azzouz, Foughala and Laghrouss, a private company set up in 2003 and led by a young entrepreneur produces and exports some of the best quality Deglet Nour dates. The aim of this promising company is to reintroduce the superior quality Algerian date on the international market in general, and on the organic market in particular, by protecting the original taste of a soft and sweet date naturally, without additives. The company strives to develop five objectives:

- to promote organic farming in Algeria and worldwide;
- to deliver a homogenous, high-quality product with superior packaging and improved delivery speed;
- to introduce the superior quality Algerian date into the United States of America's (US) commercial circuit of the organic date;
- to promote strict adherence to the requirements of international standards;
- to develop a business that is respectful of nature and humanity.

These objectives are a way to reach foreign markets and start the labeling process in the country.

In 2007, *Biodattes Algerie* was awarded the trophy for the entrepreneur France-Maghreb, which promotes economic initiatives between France and the Maghreb countries.

The company achieved good results: 300 ha cultivated with a production of 700 tonnes of organic dates mainly exported on International markets (France, US). It gave work to around 90 people including many women, aged and handicapped persons, especially for sorting activities.

Thanks to the success of this company, the process for attributing a GI to Deglet Nour of Tolga has already started and is being promoted by producers, even with some difficulties, such as: the lack of control and certification bodies; the absence of ecological concern in the code of practice; a legal framework that is not well defined; the informal market, which is very developed; and the lack of participation of consumers in the process.

Source: Marsaud (2011).

and a strong food dependence. Different food chains have not yet become integrated and the agricultural and food-processing markets are more markets of demand than markets of offer. Apart from certain privileged urban categories, most of the time consumers express quantitative needs only. They have "primary" dietary habits that seem to leave less room for the latest quality notions as compared with conventional ones based on organoleptic, nutritional standards as well as standards of safety.

Over the last few years, public authorities have been entrusted with conventional initiatives about quality and quality products targeted to food safety and consumers' protection. These initiatives have mainly been concerned with products for regular consumption, whereas the notion of specific products having a reputation and a specific quality or region of origin to be valued is still hardly known.

The farming sector has been restructured and largely reformed. Thanks to the 2008 *Loi d'Orientation Agricole*, a new view of development resulted in a new model of agricultural economic development. This view is centred on the national Programme of Agricultural and Rural Development (PNDAR) with the main objective of sustainable improvement of food security of the country through "the increase of the vitality of the agricultural and rural economics, the consolidation of the essential role of the farmer as economic player and the reduction of the regional disparities by the promotion and the development of social, economic and environmental activities". This plan was afterwards included in a more global initiative called *Politique de Renouveau agricole et rural* (PAR), based on three main axes:

1. The development of the agricultural chains, in particular those concerning typical products.
2. The valorization of the agro-processing activities by encouraging the creation and consolidation of agro-industrial units.
3. The launch, at the level of the rural world, of a vast programme supporting projects of integrated rural development having the following objectives: "the improvement of the population's living conditions and its access to the basic services, the valorizsation of local products and the research for markets, the valorization of the economic, cultural and environmental heritage without degrading it" (Sahli, 2012).

Morocco: a promising market for local products

2008 was a crucial year for local products in Morocco because of the launch of the Morocco Green Plan. Through its second pillar, this strategy placed, once again, both small-scale agriculture and the valorization of local products at the heart of the debate and of rural development programmes.

By developing this new approach, the Ministry of Agriculture and Fisheries frames a clear position, in a global perspective, of rural development, promotion of quality products and consumer's protection by proposing a system accessible to all producers and transformers of farm products, in particular to small producers. Therefore, labelling proves to be of major importance for the recognition and development of quality farm products.

Law No 25-06, relative to the distinguishing features of origin and quality of foodstuffs and farm products, created the essential legal framework allowing for the recognition and protection of the specific quality of local products and deals with three distinguishing

A successful experience for improving women's conditions through quality local products: the GIE Femmes du Rif

In the regions of Ouezzane and Chefchaouen, characterized by soil poverty, desertification, loss of biodiversity and difficult access, fruit crops, in particular olives and olive oil production, may be a viable alternative for regenerating the socio-environmental ecosystem. Some 192 women from around ten associations and cooperatives merged into a federation entitled *Fédolive,* and then turned into a partnership business group **(GIE Femmes du Rif),** which currently counts more than 300 women for the production and commercialization of olive oil thanks to the *Programme Intégré et Modulaire du Maroc* (PIM).

Before the creation of *Fédolive*, women used the traditional *mâasras* method to crush olives, which resulted in large losses of oil and affected the oil's quality. In fact, the product obtained was "lampant oil", which is inedible and has an acidity level of over 3 percent. The crushing season lasted seven months, from November to May, and a large proportion of the output was for their own use. Women sold the remainder in recycled cans during the weekly *souks* in Ain Béida, Mokrissat and Brikcha at relatively low prices, i.e. 20–25 dihrams (DH) per litre. Nowtheir olive groves cover a total of 400 hectares and they market their extra-virgin olive oil at both national and international levels.

The aim is to become the leading group in Morocco for the promotion of typical local produce of the Rif region with a focus on quality. The policy is mainly based on the creation of a regional label, the development of customers' trust and satisfaction, the increase in productivity and the improvement of production processes, and the development of human potential.

Since the group was turned into a GIE, a new phase of development has started. It now operates in a very wide field of activities such as production of olive oil, beekeeping, fruit drying, production of couscous, salt, etc.

The idea of diversifying its activities was imposed by a combination of factors related to its new structure and to the particular characteristics of the olive-oil sector, i.e. its seasonal nature, its dependence on the region's uncertain climatic conditions, etc.

The group has put a great deal of effort into marketing, and the same is true of all the other stages of its valuable olive-oil chain, though different results were achieved. Efforts have also been made to penetrate national modern markets, especially large-scale retail chains.

From the start, several marketing methods have been adopted, such as kiosks in many towns targeting rural tourism; open days with tasting sessions and door-to-door days, but most of these attempts have failed to produce any satisfactory results either in the medium or the long term. In fact, the group had to close its kiosks for lack of sales.

The group production has received several certifications: the **organic** one by *Ecocert* and *Alter Eco* **fair trade label,** which allows entry into the European market, especially the French one, which is very promising due to the very high demand for organic olive oil.

The future perspectives of this experience are characterized by some barriers to further development:

- Women are scattered in the region and far from the crushing centres.
- Regular maintenance of the equipment turns out to be very difficult.
- Some problems related to transport (overuse of their two pickups) are emerging.
- Some organizational problems result from the fact that the group's president has been entrusted with too much decision-making power.
- A strong relation/dependence on funders.

Nevertheless, the experience shows some undoubted impacts on the community:

1. A net improvement of women's traditional knowledge.
2. A significant improvement in women's living standards with an increase in their financial independence and repercussions on their families and changes in men's behaviour.
3. Support in kind or cash from the local authorities to secure an enabling environment for the success and perpetuation of the project, and to encourage the local populations to develop similar projects.
4. Installation of modern technologies to obtain quality products in line with international norms and standards – particularly the use of cold pressure for olive crushing, the introduction of hybrid drying techniques for drying pears and prunes/plums and of crafts.

Nowadays, this project is a point of reference and a model to adhere to for the purpose of developing similar projects.

Source: Hamimaz and Sbai (2008).

features, i.e. the GI, the label of origin (AO) and the agricultural label. To date, and since the law came into force, fifteen Distinctive Signs of Origin and Quality (SDOQ) have been preserved.

To ensure the plan's effectiveness, new structures have also been created both at Ministry level, with a Local Products Development Division and a Labelling Division, and at regional level with 16 Regional Agricultural Services for local products, each elaborating a regional plan.

Some weaknesses still characterize this sector in Morocco, though its context is more advanced than in other Maghreb countries:

- poor management of the sector, which is not well structured and lacks professional organization;
- organizational deficit of the chains, both at production and distribution level;
- bad value distribution along the chain;
- low competitiveness because of the small scale of volumes produced;
- a productive capacity mainly based on crafts and a weak effort of investments;
- poorly qualified human resources;
- incomplete information to consumers;
- an undeveloped national market and an international market ignored by the majority of the professionals of the sector (Bendriss, 2012).

Tunisia: many opportunities to catch

As regards quality, Tunisia has emphasized the promotion of the quality of products, in particular within the framework of its efforts to modernize the industrial sector (*Programme National de Mise à Niveau*). In particular, the National Programme of Promotion of the Quality, launched in the 1990s, enabled support to companies in the implementation of quality management systems, food safety, hygiene and environment, ending in a certification award (including ISO 9000, 14000, 22000, HACCP). In addition, a recent law (Decree No. 2010-2525 of 28 September 2010) established the creation of a quality label for Tunisian transformed foodstuffs (*Food Quality Label*) for some products presenting specific or traditional high-level quality. The quality characteristics are fixed by specifications, and for every product a management body responsible for the label is appointed. At this stage, three labels are being arranged, namely the label *Harissa*, the label *Sardines* and the label *Chamia* (Tunisian cake pastry). With regard to the organic sector, following Law No. 99-30 of 5 April 1999 on organic farming and several Decrees and Orders that form the legal framework governing organic farming in Tunisia, the country has taken numerous measures for more than ten years. Since June 2009, Tunisia has been the only African country recognized as a third country for organic products on the European Union's list and, since May 2011, it has also been recognized on Switzerland's list. At present, there are seven control and certification bodies. It is important to underline the support of the State to the sector of organic agriculture in the form of subsidies for new investments, for the cost of certification, the suspension of customs duties and of the VAT on certain organic inputs. Currently, the country ranks second in Africa in terms of organic certified agricultural areas and it has a national logo for organic products that is unique among South Mediterranean countries.

Regarding legislation about geographical indications, Law No. 99-57 of 28 June 1999, relative to protected designations of origin and to indications of origin of farm produces, was followed, almost ten years later (2008–2010), by Decrees and Orders guiding its application. At this stage, three products have received a label of indication of origin: pomegranate of Gabès, apple of Sbiba and olive oil of Monastir, and the publication has just appeared for the fig of Djebba. Although there has not been much progress in the actual implementation of labels already granted, considerable interest in improving the labelling process of local products is emerging (Hassaïnya, 2012).

Despite the high potential of products with strong typical characteristics and the strong motivation of the institutional actors, the weaknesses of the sector are still numerous; in particular a very poor participation of producers, who are not the promoters of the initiative, is observed, despite the efforts of GIFruits in marketing and communication (no added value produced). This results in poor quantities of labelled products and low impacts on local development.

The political will has not been able to mobilize a critical mass of producers; however, there is the willingness to go further even with a small number of producers in order to show the feasibility of the process.

The strategy of double certification, i.e. organic/typical, is under evaluation for a number of products in order to reinforce the supply chain.

Tunisian local products searching for recognition: the case of the Maltese orange

The Maltese half-blood oranges grown in Tunisia are a Tunisian regional product that is well known on both local and international markets. They are a variety that is associated more with Tunisia, which is the only producer and world exporter, a real regional specialty, whose exceptional qualities are expressed essentially in the Cap Bon peninsula and in several hot regions in the north and centre of the country. These oranges have been well known in France and the Middle East for the last 50 years for their specific features: very juicy (very suitable for processing into juice); red in colour; fairly sweet; very few pips; distinctive aroma. Despite considerable potential, the product costs 30–50 percent more than ordinary oranges, and the quantities exported have levelled off. The difficulties are due mainly to product quality problems and the fact that the organization of the sector is unsuited to export on a very competitive market. Furthermore, the fact that producers are disorganized and lack logistic means prevents them from controlling the marketing of their produce and thus highlighting the intrinsic qualities of the fruit.

Moreover, the GIFruits (fruit intertrade group) in charge of promoting Tunisian products chooses to highlight the juicy quality of these Maltese oranges, thus placing them in direct competition with other oranges that are much less expensive (Spanish oranges, Moroccan oranges, etc.), instead of vaunting the more specific qualities, which make it a differentiated product on the market.

The possibility of creating a PGI for the Maltese half-blood range from the Cap Bon area: This PGI project, which is financed by the World Bank, consists of taking measures to exploit the producers' quality potential in order to: secure a competitive position on export markets; delimit and specify production areas; **and** enhance the coherence of the geographical indications by basing that coherence on what makes an area original and thus on the competitive determinants of the product of that area.

The PGI project is revealing difficulties in connection with coherent strategic positioning and communication that is adapted to strategic choices. The reputation that the Maltese orange grown in Tunisia enjoys on both local and foreign markets shows that they are connected more with their intrinsic quality and the coherence of communication than with their association with a specific geographical origin. What is more, a PGI would necessarily exclude part of production and any producers located outside the area, and the fact that there would then be two Maltese oranges – one with a PGI and one without – would be liable to cause confusion over the quality of the product.

The institutions' efforts should focus more on improving product quality and on structuring supply more efficiently both on domestic markets, through organized distribution, and on export markets.

Source : Mediterra (2012).

PROSPECTS FOR ACTION

The FAO IAMB research activity has given the opportunity to confirm the commitment of the different actors involved in this kind of process, considering all the different situations, level of awareness and the political and legal situation of each country. For this reason, on the basis of the results of the analysis at national and regional levels, a project proposal has been elaborated.

The proposal follows an approach of valorization of local products that targets all the activities that determine the performance of a chain in terms of quantity and regular production, the quality of products with regard to the market requirements, the costs of production/transaction, the added value at every stage, the actors' capacities and organization. What needs to be emphasized is that this project focuses on the valorization of products that must be beneficial to the different actors. It is not a question of assisting the operators individually but of supporting them through their cooperatives, groupings and associations of producers, and thus of supporting a sector in general.

For this purpose, the project aims at developing/strengthening the consortiums of valorization of local products, which are known as *Interprofession* in Switzerland, *Syndicats de défense des appellations d'origine* in France and as *Consorzi di tutela* in Italy. These consortiums deal with:

- development of an inventory by region and by country to identify the target typical products;
- establishment of standards of production and quality standards for the product (specifications);
- assistance to the members to answer the aforesaid conditions;
- control and certification of compliance with the specifications, on behalf of the members;
- deposit and promotion of the collective label of the group (geographical indication, collective mark or certification mark); and
- development and implementation of common promotion strategy.

CONCLUDING REMARKS

Creating a national legal framework will not suffice to guarantee the viability of the right at national and international levels. The southern and eastern Mediterranean countries lack monitoring systems at domestic level, and the institutions do not have the means to guarantee that the rights that have been granted comply with the specifications.

In the last decade, different typologies of people around the Mediterranean countries have become acquainted with the concepts of quality, the labelling process, valorization and local development. They use these concepts in everyday work and in their community life. It is a sort of acknowledging process to them. However, this process takes place with different features in different contexts.

What is needed is an adaptation into mechanisms that function in local contexts. The process of valorization must be based on real specificities, otherwise other standards will be used and taken into account. No ideological approach should be adopted on this issue.

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Voluntary standards: impacting smallholders' market participation

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ABSTRACT

This paper presents the results of a literature review conducted by FAO in 2012 on the impact of voluntary standards on smallholders' ability to participate in markets (FAO, 2013). The study found that the empirical evidence is limited to the analysis of mainly three standards: GlobalGAP, Fairtrade and organic. Moreover, most studies focus on two commodities: coffee and horticulture products. While there is a decent range of geographic cover, the majority of studies focus on a handful of countries: Mexico, Kenya, Peru, Costa Rica and Uganda. This study adopts an impacts pathway model to organize and analyse the trends found in the empirical evidence. The results can be summarized as follows: first, equitable and sustainable supply chain linkages, increased access to assets, and support for cooperative development are incentives for complying with standards. Second, both public and private actors have comparative advantages for supporting voluntary standards and are most effective when combined. Finally, governments can provide services, for example infrastructure and proper legislation, which facilitate the inclusion of smallholders in certified value chains. The study concludes by making policy recommendations on how the public sector can mediate the effects of voluntary standards.

INTRODUCTION

Since the 1980s, there has been a growing consumer demand for food and other agricultural products that possess specific characteristics linked to composition, origin, production method or terms of trade. This has led to the emergence of numerous voluntary standards, labels and regulations associated with such products, which impact domestic and international markets. The rapid expansion of the use of voluntary standards in international trade is often linked to the effects of globalization whereby the increased control of supermarkets over global value chains is coupled with food safety scares and consumer interest in social and environmental sustainability (Santacoloma, 2014). While the market for certified products is still only a small fraction of international trade in agri-food products (estimated at no more

Voluntary standards are rules, guidelines or characteristics about a product or a process. They are not mandatory regulations, but are used voluntarily by producers, processors, retailers and consumers.

These voluntary standards are usually developed by private sector actors (e.g. firms or consortiums), representative of civil society, or public sector agencies.

than 10 percent), these certified value chains are increasingly relying upon smallholder agriculture in developing countries.

Smallholder agriculture is considered to be the largest provider of food and raw materials at a global level and it is also the first source of employment in rural areas (HLPE, 2013). For some key export markets for certified products, smallholders are the predominant group of producers. For example, smallholders are responsible for more than 60 percent of certified tea production in Kenya (Kinyili, 2003) and around 70 percent of certified coffee worldwide is produced by smallholders (Potts, van der Meer and Daitchman, 2010). However, smallholders are often disadvantaged and rural poverty accounts for about 75 percent of world poverty (FAO, 2012). When market conditions are favourable, the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security (2013) found that smallholders can respond positively. These responses include innovation, organization for accessing new market opportunities, upgrading into processing activities and increasing their market power. All of these responses are ways to increase smallholder income, which in turn contributes to food security. As a result, understanding how voluntary standards impact the ability of smallholders to participate in markets can shed light on how voluntary standards might contribute to FAO's mandate of achieving food security for all.

This paper presents the results of a literature review conducted by FAO in 2012, in response to a request from one of FAO's governing bodies, the Committee on Agriculture (COAG), on the impacts of voluntary standards on smallholders' ability to participate in markets. The objective of this paper is thus to summarize the main results of this study. The paper begins with information about the purpose and scope of the study. A brief description of the study including the data collection methods and analytical framework are presented. The results of the study are summarized according to four main themes found in the literature: (1) there are adoption determinants for achieving certification; (2) economies of scale and market linkages matter in determining which producers are able to participate in certified markets; (3) institutional support is key to enabling smallholders to participate in markets; and (4) there are increases both in the prices producers receive and the costs that they incur for certification. The paper concludes by presenting the main lessons learned through the study.

PURPOSE AND SCOPE OF THE STUDY

The FAO Impacts study had two objectives: (1) to present an overview of the results of independent, empirical studies that have been undertaken to date; and (2) to identify the major gaps in the current literature and those areas that may be of interest for further research by FAO. The scope of the study was limited to the impacts of voluntary standards in the agricultural, fisheries and forestry sectors. The study was also limited to standards schemes in which compliance to the standard is determined through certification or another form of verification.

As with any literature review, the study has a number of limitations. First, it is limited to the availability of studies published by independent researchers in the public domain at the time of its writing. Second, biases that were present in the original studies are carried over

into the aggregate study, thus care should be taken in making broad generalizations from these results. Third, the practice of voluntary standards schemes is a fast-moving field where stakeholders are in constant dialogue and are regularly seeking to improve their systems. This means that both the standards and the systems put into place to implement them have changed significantly since the first study in our dataset was commissioned in 1993. The recent move towards multistakeholder initiatives means that more stakeholders are gaining a voice within the standards-setting processes and some of the problems encountered during implementation may be remedied over time. Nonetheless, the value of a literature review is its ability to expose the state of knowledge on how voluntary standards are affecting the market participation of smallholders and can point to future directions for both research and practice.

STUDY DESCRIPTION

This study employed a systematic literature review method to produce both quantitative and qualitative descriptions of the knowledge base about voluntary standards in the agriculture, fisheries and forestry sectors in developing countries. The systematic review began with the bibliographies of ten recent literature reviews that were conducted by relevant agencies between 2003 and 2012 (seven of these ten were conducted between 2009 and 2011). Additional literature was included in the original dataset through a snowball sampling method of looking up references for appropriate articles, and by searching the Internet for more literature by specific authors. Applicable FAO publications were also included in the original dataset. Second, following the ITC's (2011) method, keyword searches were conducted in Science Direct's Scopus search and Web of Science to identify those articles published in 2011 and 2012 or missed in the other literature reviews. Third, the Web sites of the main donor agencies (including standards development organizations) that have been involved in technical assistance projects that include a certification component were searched for relevant project reports on these activities. Owing to difficulty in accessing internal evaluations and lack of detailed information for FAO project evaluations, the authors relied upon those project reports and evaluations that have been published in the public domain. These searches revealed additional publications of interest for the study and resulted in an initial corpus of documents totalling 340 documents.

The keywords and abstracts of these 340 documents were examined and the studies that were selected for inclusion in the evidence base met six criteria:

1. **Access:** full text access online from the publisher or through library bibliographic databases.
2. **Empirics:** focus on primary empirical data (*ex post* analysis) rather than *ex ante* simulation or theory-building discussions of secondary data.
3. **Sectoral focus:** agriculture, forestry, fisheries, and general (but not tourism, mining, textiles, or other industrial sectors)
4. **Impact level:** focus on production level or value chain impacts, rather than on consumer demand, policy or governance aspects of the certification system.
5. **Geographical focus:** developing countries or countries in transition
6. **No conflict of interest:** Researchers had to be independent from standards' organizations

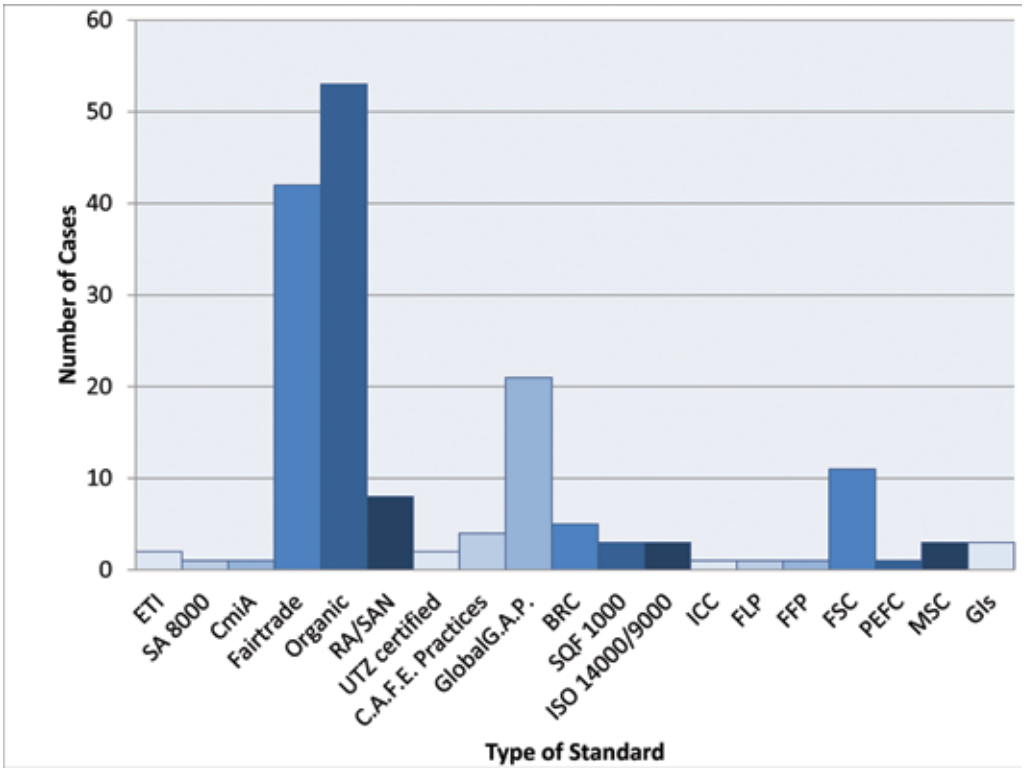

Figure 1: Number of cases analysed per voluntary standard
Source: Author's elaboration.
Note: The total number of cases is 166; this represents the 123 discrete empirical cases where many of them analysed more than one standard repetition of studies that included more than one standard in their analysis.
Legend: ETI: Ethical Trading Initiative, SA 8000: Social Accountability, CmiA: Cotton made in Africa, RA/SAN: Rainforest Alliance/ Sustainable Agriculture Network, C.A.F.E. Practices: Starbucks Coffee and Farmer Equity Practices, BRC: British Retail Consortium, SQF: Safe Quality Food, ISO: International Organization for Standardisation, ICC: International Code of Conduct for Cut Flowers, FLP: Flower Label Programme, FFP: Fair Flowers and Plants, FSC: Forest Stewardship Council, PEFC: Programme for the Endorsement of Forest Certification, MSC: Marine Stewardship Council, GI: Geographical Indications.

This resulted in a total of **138** studies. These studies were then read in their entirety and those that fully met the above six criteria, in addition to a specific focus on the research question for this study (i.e., impact of private standards on smallholder market participation) were selected. Those studies that repeated results from the same research samples were also eliminated to reduce double reporting totalling **101** studies[1] that make up the evidence base in this review.

The evidence base includes project reports, peer-reviewed journal articles and grey literature. To attribute change or differences in indicators (for example profitability) to the effect of the standard and certification, it is necessary to establish counterfactual evidence. Counterfactuals are evidence of what the indicator outcome would be if the farmer or chain would not have been certified (Blackman and Rivera, 2011). There are two ways to

[1] The number of individual cases reported is 123, as some papers recorded multiple cases with different outcomes. In an attempt to reduce confusion, these cases were separated out in the analysis.

gather counterfactual evidence: in an experimental research design or through statistical techniques that can control for such factors. There are surprisingly few studies that control for counterfactuals, only 30 cases in the evidence base. In recognition of these challenges to impact assessment, this study mobilizes both qualitative and quantitative studies in an attempt to get a broad overview of the evidence base. Therefore, in this study we attempt to capture the broad range of effects and outcomes that voluntary standards contribute to, rather than focusing purely on those that can be attributed to standards.

Literature was disaggregated according to the type of study and the methodological rigour, in order to get both a broad overview of the existing literature and to be able to give greater weight to the highly rigorous studies. It was found that much of the literature draws upon a core set of empirical studies that focus mainly on three standards (GlobalGAP, Fairtrade and organic). These studies have been concentrated in a few popular countries (Kenya, Mexico, Peru, Costa Rica and Uganda) and have emerged from key long-term development or donor-funded research projects, or they have been commissioned by interested NGOs. Thus, the focus of these research projects is closely tied to donor objectives. Only a small collection of research projects has focused on market participation by smallholders. The majority of the independent academic literature has focused on two areas that were not considered in this review: (1) environmental impacts that are not necessarily connected with the certification mechanism or (2) standards and certification as systems of governance.

IMPACT PATHWAYS

When analysing the impact of voluntary standards and the related certification systems, it is important to highlight the main function of these schemes, as they represent far more than purely a written standard. Voluntary standards form a system that is used to define good practices and to ensure that both producers and consumers recognize and reward these practices (Figure 2). The system begins with a standard, which is a written document that contains criteria and indicators. It defines what needs to be done and often how to do it. There is usually some type of certification or control on producers and/or traders that consists of audits and tests. This is how we can know if things are being done properly.

These checks can be done by self-assessment, by a party to the market exchange, usually a buyer, or by an independent third party. Accreditation is an important aspect of these systems as it is an oversight mechanism to make sure that the certification system is working properly. In other words, effective accreditation of certifiers means that we can trust the results that certification provides. Both certification and accreditation are functions of the verification systems of standards. Finally, there is often a label. This label is a logo or a brand that communicates the key message of the standard to consumers. These components are organized in different ways in each of the standards systems currently in use. The use of particular combinations of components depends on the market in which the standard operates as well as the contexts of implementation and enforcement.

The analysis of the literature was based on a conceptual framework of an "impact pathway" where an impact can be analysed in terms of immediate results after certification (outputs), short-term outcomes and long-term impact (Figure 3). This framework illustrates that the impact of a standard will depend on the content of the standard, on the

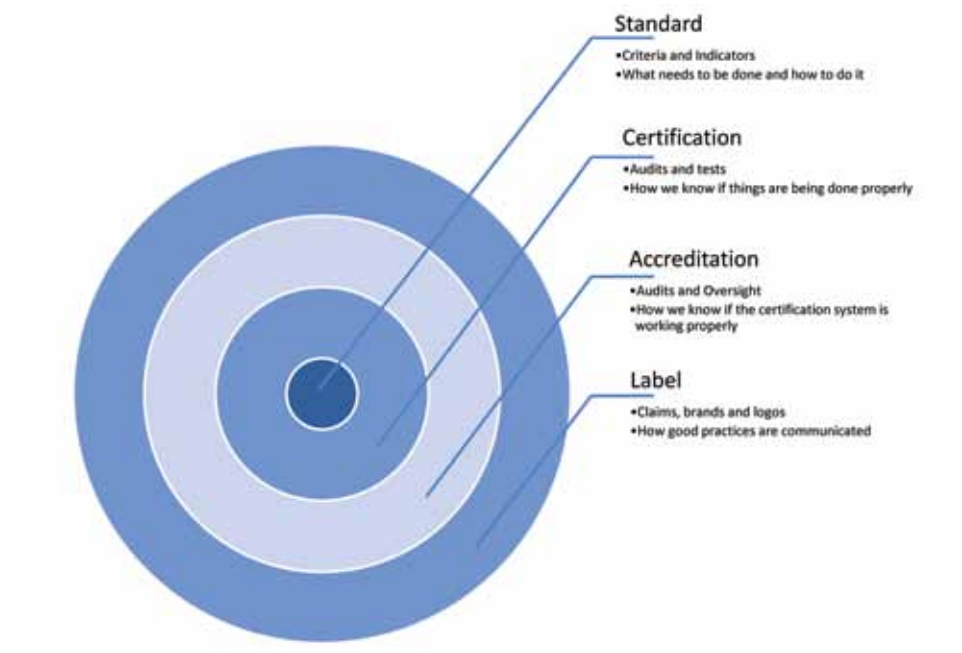

Figure 2: Voluntary standards systems
Source: Author's elaboration.

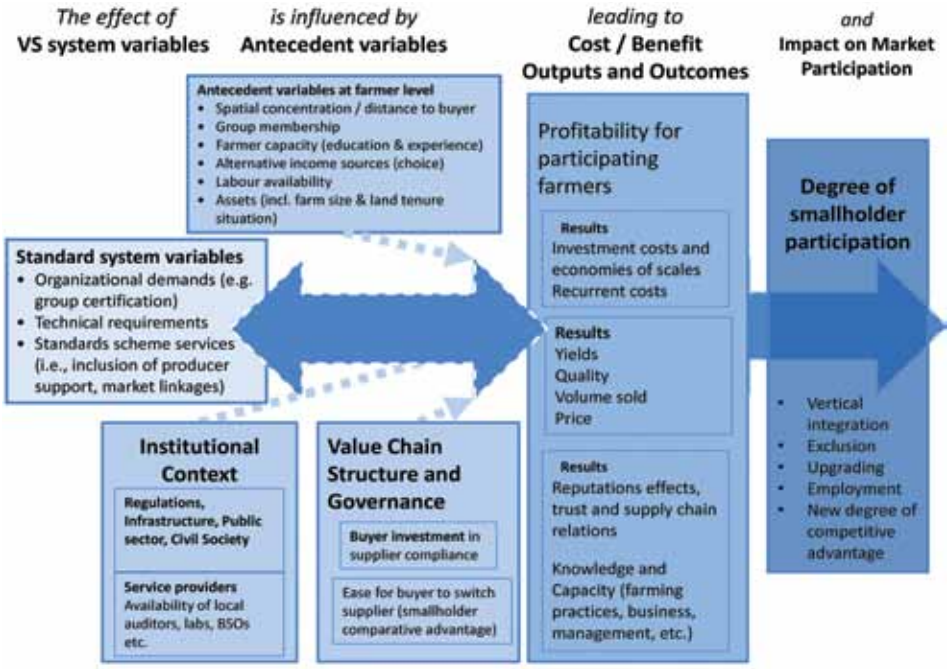

Figure 3: Proposed generic framework for analysis by FAO of the impact of voluntary standards on the participation of smallholders in the chain
Source: Author's elaboration, FAO (2013).

one hand the stringency of its technical requirements for production methods and product characteristics, and on the other hand the organizational demands of the verification system. Whether the standards system has inbuilt support services is also an important factor that influences the impact of the standard.

The impact of these characteristics of the standards system itself also depends on the situation in which the standard is implemented. For example, if a producer already uses production methods that conform to the technical requirements, these technical requirements will have no impact as such. However, some impact always results from the fact that the producer has to demonstrate compliance. *This framework also recognizes that market participation is an intermediary impact and not a development outcome per se. In other words, we are not suggesting that market participation is the same as economic development, sustainability or food security. Market participation is one step on the road to broader and longer-term impacts on development.*

One aspect that is not captured in Figure 3 is that the volume sold and the price received depends on various external factors, such as market demand for certified products and standards' trade rules, for example setting of minimum prices as well as on characteristics that are specific to the product such as quality or origin. Indeed, Figure 3 represents a heuristic tool for understanding impact rather than a normative framework for assigning causal impact. The presentation of the results in the next section follows this framework.

RESULTS

Four sets of variables were identified as being important in understanding the impact of voluntary standards on smallholder market participation. One set of variables is the adoption determinants, i.e. factors at farmer level such as farm size, household wealth, household size, education or experience, off-farm activities and distance to an urban centre or market that influence whether farmers adopt the standard. A second set was found at the farming system level, and the study reviewed indicators of economies of scale, group membership and institutional contexts. Third, profitability outcomes were identified in studies that collected data on variables that affect profits such as price, yields, quality, knowledge or capacity building, reputation effects, production and compliance costs. Finally, the way in which voluntary standards can condition smallholder market participation was examined according to the following aspects: vertical integration, smallholder upgrading, rural employment and small farmer and exporter exclusion. These sets of variables are discussed in the following subsections according to the following themes: adoption determinants, value-chain integration and economies of scale, existing institutions and profitability.

There are adoption determinants

The number of studies that examined impact based on an attribution of farmer level determinants is rather low, at only 23 percent of the evidence base (28 out of 123 cases). Nineteen studies tested the relationship between farm size and impacts; 18 of these were empirical studies, the majority of which were of medium or high rigour, and one was a journal article based on a project report (Asfaw, Mithöfer and Waibel, 2010). Even fewer studies tested for the other variables: 9 for household wealth, 11 for household size, 16 for

education or experience, 8 for off-farm activities and 7 for distance to an urban centre or market. Due to the low number of studies and the diversity of methods used in the studies, conclusive generalizations cannot be drawn. However, the data do show some trends.

First, farm size is often positively correlated with certification. This finding was not conclusive for the Fairtrade cases; however those studies that examined Organic, Rainforest Alliance, C.A.F.E. Practices, GlobalGAP, BRC and ISO standards did find a correlation (e.g. Aloui and Kenny, 2004; Arnould, Plastina and Ball 2009; Asfaw, Mithöfer and Waibel, 2010; Bain, 2010; Barham *et al*., 2011; Gibbon, Lin and Jones, 2009; Maertens and Swinnen, 2009; Philpott *et al*., 2007; Raynolds, Murray and Leigh Taylor, 2004; Roy and Thorat, 2008; Ruben, Fort and Zúñiga-Arias, 2009; Ruben and Zuniga, 2011; Setboonsarng, Leung and Cai, 2006; Vagneron and Roquigny, 2011). Second, a majority of the studies that investigated initial wealth and assets of farmers found that these were positively correlated with certification. This consistent correlation between assets, farm size and adoption hints at the importance of the capacity of farmers to make the initial investments required for certification (Beuchelt and Zeller, 2011). Some of the studies noted that this was more pronounced for early adopters (Eyhorn, Mäder and Ramakrishnan, 2005), in line with innovation adoption theory that early adopters are already in a position (in terms of assets) that enables them to take more risks. However, early adoption can also be influenced by other factors, such as economies of scale reached through smallholder collective action, such as occurred with the early adopters of organic and Fairtrade standards in Mexican coffee, cocoa and sesame production (Gómez Tovar *et al*., 2005).*In sum, there does seem to be evidence of a tendency for self-selection in these systems as those farmers and exporters who have the means to make the initial investments, for example greater assets at farm level, are the first to join*. These studies also suggest that the ability of exporters and farmers to meet requirements set by voluntary standards largely depends on enhanced capabilities, meaning their abilities to implement the good practices outlined in the standards.

Economies of scale facilitate value chain integration

The way in which smallholders are integrated into certified value chains is very important for determining how and when smallholders will participate in certified markets. The importance of farm size and farmer capacity as adoption determinants suggests that economies of scale are often required for access to certified markets. Indeed, out of the eleven studies (two project reports and nine empirical studies) that made reference to economies of scale, all of these studies found economies of scale to be important for smallholder access to certification. *Economies of scale can reduce the compliance costs for smallholders in two ways, first by spreading the costs among a number of smallholders reducing individual upfront investment, or by inducing processes of consolidation and concentration as larger producers have greater access to resources that can assist in meeting compliance costs* (Cubbage *et al*., 2009; de Battisti, Mcgregor and Graffham, 2009; Dolan and Humphrey, 2000; Henson and Humphrey, 2009; Maertens and Swinnen, 2009; Mausch *et al*., 2009; Melo and Wolf, 2007; Santacoloma and Casey, 2011). Beyond individual accumulation of land and assets, there are two main organizational models through which smallholder farmers can achieve economies of scale and gain access to certification.

The first is through a cooperative or other type of farmer organization that manages an internal control system and pays for the certification. Such groups may sell to an exporter or export directly. This was found to be true in 51 cases and moreover there were no studies that covered smallholders who were not organized into a group (e.g. Bacon, 2005; Bass *et al*., 2001; Utting-chamorro, 2005; Valkila and Nygren, 2009). In some standards (e.g. Fairtrade and some GIs) smallholder participation in a producer organization is compulsory for inclusion in the standards' scheme. The second model is an outgrower scheme in a contract farming arrangement, with the buyer (or trader) organizing the internal control system and paying for the certification (e.g. Asfaw, Mithöfer and Waibel, 2010; OECD, 2007; Okello and Swinton, 2007; Okello, Narrod and Roy, 2007). These schemes are often used to achieve consistent quality and supply from non-organized smallholders in value chains (FAO, 2005). As such, the impact of voluntary standards thus partly overlaps with the impact of these organizational arrangements. However, effects of these organizational forms cannot always be attributed to voluntary standards as product characteristics and other aspects may also favour cooperatives or contract farming arrangements (Loconto and Simbua, 2012; Maertens and Swinnen, 2009).

In sum, membership in a group is *de facto* mandatory for smallholder participation in certified markets. More rigorous studies found a more nuanced picture of group membership, often picking up on some of the difficulties that were sometimes found in the collaboration requirements of Fairtrade. Those that were noted were administrative failures (Sáenz-Segura and Zúñiga-Arias, 2008), particularly regarding the negative correlation between the size of the cooperative and price, which may be linked to problems of oversupply and the difficulties of cooperatives to sell higher proportions of their products on certified markets (Barham and Weber, 2012). Nonetheless, voluntary standards organizational requirements do have a direct effect on the way smallholders can participate in certified value chains, excluding ad-hoc sales to exporters and other uncoordinated trade relationships. *Indeed, the consensus in the literature is that although these standards are considered market-driven, due to consumer preference, corporate buyers and supply-chain captains are the drivers of the expansion of both production and consumption, as well as the gatekeepers for inclusion in certified value chains* (Gibbon and Ponte, 2005; Manning *et al*., 2012).

Existing institutions are important

The relationship between value-chain organization, farm-level adoption determinants and standards systems are mediated by institutional contexts and intermediaries at the national level, at the international level and at the local level. Half of the studies in this review made some mention of the institutional context. Recent literature has emphasized the importance of institutional contexts within which voluntary standards are used (e.g. Barham and Weber, 2012; Henson, Masakure and Cranfield, 2011). This is important in the in order to ofunderstand how standards interact with pre-existing norms of production and trade. This recognition also suggests that there are many more variables involved in determining impact than those often taken into consideration in impact studies, thus making attribution more difficult.

National or project specific subsidies were the most often cited instance of institutional infrastructural support. Donor-funded projects provided significant support to help

smallholders make the initial compliance investments (Asfaw, Mithöfer and Waibel, 2010; Damiani, 2003; de Battisti, Mcgregor and Graffham, 2009; FAO, 2009a; Giovannucci, 2005; Naqvi and Echeverría, 2010; Ramm *et al*., 2008). However, for projects linked with GlobalGAP and Organic it is also noted that once the projects phased out, smallholders also became decertified. This was allegedly due to the recurring compliance costs and uncertainty of price premiums (de Battisti, Mcgregor and Graffham, 2009; Van Elzakker and Leijdens, 2000). National subsidies programmes were also shown to be beneficial in helping farmers reallocate resources towards investments in voluntary standards. For example, Barham *et al*. (2011) found that government subsidies in Mexico, led by Progresa/Oportunidades, matched net coffee income levels for the average household. A similar situation was found by another study also in Mexico (Calo and Wise, 2005).

National intermediaries may also play an important role in standard adoption. For example, the Vietnamese Coffee and Cocoa Association (Vicofa) became a founding member of the 4C Association after having participated in a number of public private partnership projects with the German Organization for Technical Cooperation (GTZ), the Neumann Group, Sara Lee, Kraft and other partners (Manning *et al.,* 2012). Today, Vicofa plays an important role in implementing the 4C standard in Viet Nam. Similarly, the National Federation of Coffee Growers of Colombia plays an important role in standard adoption in Colombia (Grieg-Gran, 2005). Henson, Masakure and Cranfield (2011) analysed GlobalGAP adoption determinants of fresh produce exporting firms in ten African countries. Significant effects were found for internal capacity (i.e. firms that had experienced problems meeting other market exigencies were less likely to be certified), for technical and/or financial assistance and for the size of the horticultural sector in the country. Espach (2005) illustrates that supply-side factors such as industry characteristics, public policies and the institutional culture of firms significantly influence programme implementation. Ruben and Zuniga (2011) also illustrate that structural factors influence smallholders' choice of standards system to join and the likelihood that they will find a market outlet for their products.

Put simply, even when constraints that are internal to the producer/farm, such as human/physical capital and finance necessary to comply with voluntary standards, can be relaxed, numerous constraints external to the producer/farm may remain. These include the general public infrastructure and services at the macro and sector level, such as transportation and telecommunications systems, energy supplies and testing facilities among others. To the extent these are limiting producers'/exporters' effective capacity to meet commercial export demands they are also impeding market access. These may be particularly binding constraints for small and medium producers, who cannot use their private resources to overcome these systemic constraints (OECD, 2007). This attests to the key role of support services and infrastructure available in the country where smallholders operate. This type of research is only beginning to be conducted, and more of it is needed if we are to understand when and how the institutional context can work in favour of smallholder producers.

Do smallholders profit from certification?

The evidence base includes 50 papers that noted profits, 85 that reported price outcomes, 50 that looked at yields, 15 were related to quality, 28 noted knowledge or capacity

building, 11 reported reputation effects, 35 mentioned compliance costs while 49 reported on production costs. Overall, the literature shows increases in all of these indicators. In other words, increases in profitability as well as increases in costs as a general trend. However, there was significant variation in data collection and analysis techniques as well as reporting on these indicators. Not a single study reported on all of these indicators, rather, two to three indicators were usually tested together for significance in relation to voluntary standards (e.g. price, yield and costs; price, costs, profitability). Given the poor quality of the data, the study reported specific profitability results only from the 29 highly rigorous studies.

The results shown in Figure 4 related to profitability look better for some standards (e.g. organic, Fairtrade, C.A.F.E. Practices and Rainforest Alliance) than they do for others (e.g. GlobalGAP, ISO 14000, Forest Stewardship Council, the Programme for the Endorsement of Forest Certification and Geographical Indications). This does not mean that this last group of standards was found to be unprofitable, just that the evidence is both limited and inconclusive for smallholders in developing countries.

One of the reasons why it is difficult to determine whether or not these standards are profitable is because a number of factors combine to influence profitability, such as price, yields, product quality, costs, management practices, trade relationships and reputation. We have more information about the effects of standards on these individual aspects than

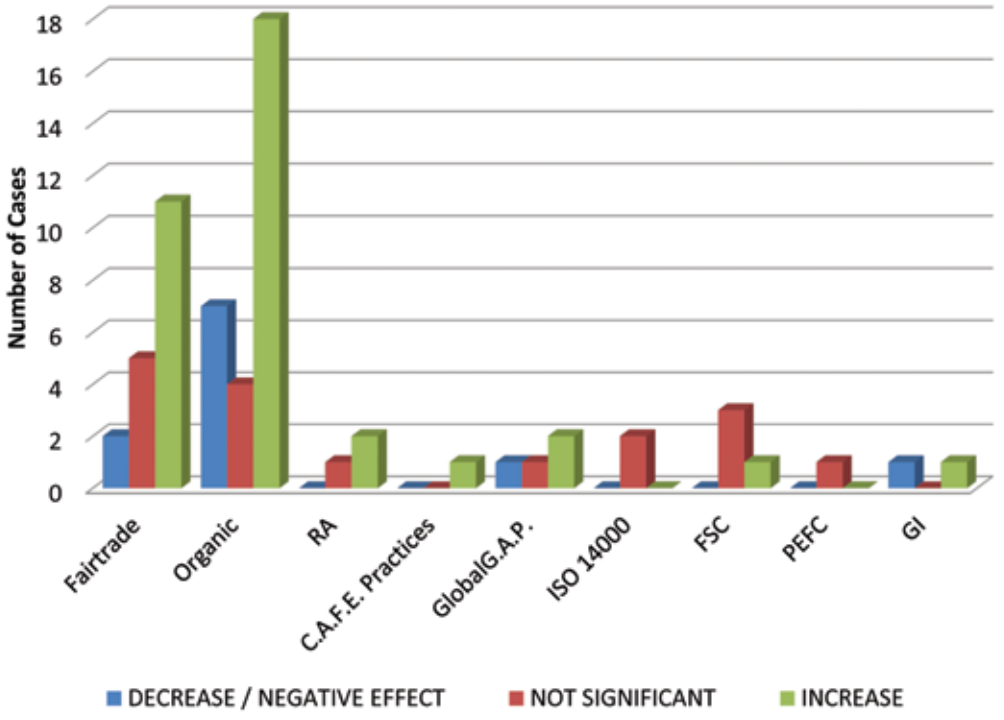

Figure 4: Profitability of voluntary standards
Source: Author's elaboration, FAO (2013).

on profitability overall. For example, farmers did see an increase in the prices they received for their product, particularly for organic and fair trade (e.g. Bolwig, Gibbon and Jones, 2009; Ruben, Fort and Zúñiga-Arias, 2009; Setboonsarng *et al*., 2008). At the same time, the costs that producers incurred to participate in standards also increased or did not change with the introduction of the certification (e.g. Daviron and Ponte, 2005; Henson, Masakure and Cranfield, 2011). Production costs were seen to increase more than compliance costs (e.g. Barham *et al.,* 2011; Santacoloma and Casey, 2011), but the caveat is that many of the producers included in the studies did not pay for certification fees as these were covered by some sort of subsidy, project or by a trader who paid the fees. This fee was frequently calculated into the price that farmers received, which meant that many of the increases (or no change) in prices reported by farmers includes the fees that were paid for certification.edthat was actually the costs It is also important to point out that particularly in the case of Fairtrade, C.A.F.E. Practices, Organic and Rainforest Alliance, the higher profits came from increases in yields rather than directly from the increases in prices (e.g. Barham *et al.,* 2011; FAO, 2009b; Lyngbæk, Muschler and Sinclair, 2001; Ruben and Zuniga, 2011; Valkila, 2009). Finally, a handful of studies commented on the positive effects that standards had on market reputation and management capacity for both better farm management and business management (Bass *et al*., 2001; Daviron and Ponte 2005; de Lima *et al*., 2008; Raynolds, Murray and Leigh Taylor, 2004; Ruben and Zuniga, 2011; Sáenz-Segura and Zúñiga-Arias, 2008).

CONCLUSIONS

Although this study found and explored a rather large number of studies on the impact of standards on smallholder market participation, much of the literature draws upon a core set of empirical studies that have focused mainly on three standards (GlobalGAP, Fairtrade and Organic). Many of these studies have been concentratedconsolidated in a few countries (Kenya, Mexico, Peru, Costa Rica and Uganda). This is because many of the studies emerged from significant through key long-term development or donor-funded research projects, or have been commissioned by interested NGOs. This closely ties research results to donor objectives and thus the evidence collected about market participation by smallholders has been the focus of only a small collection of research projects. In other words, the existing literature does not provide an adequate representation of the influence of standards. This limits the current knowledge base and the ability to draw conclusive generalizations.

Moreover, the impact of voluntary standards is very context specific. The inconsistencies in standards systems and the geographic, institutional and value-chain differences of each product that is produced demonstrate thatexplains the way in which standards influence on smallholder market participation is extremely context-specific. *Thus it is very difficult to draw general conclusions about the exclusionary or inclusionary nature of a particular standard. However, it is clear that smallholders need to be organized to be able to participate in certified value chains. The evidence suggests that equitable and sustainable supply chain linkages (meaning medium- to long-term commitments from buyers), increased access to assets and support for cooperative development act as incentives that enable smallholders to comply with standards.*

Finally, governments can provide services that make participation easier. Contrary to earlier studies, recent empirical studies and comprehensive literature reviews have recognized that there is indeed a role for the public sector in voluntary standards. There has been a shift in the literature from referring to voluntary standards as purely private mechanisms to a recognition of synergies and hybrid models of governance that include voluntary standards in relation to public institutions. In sum, *both public and private actors have comparative advantages for supporting voluntary standards and are most effective when combined.*

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Geographical indication as a tool for sustainable food systems: importance of a territorial approach

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ABSTRACT

Geographical indications (GI) are defined in the Trade-Related Aspects of Intellectual Property Rights TRIPS) Agreement of the World Trade Organization (WTO) as "indications which identify a good as originating in the territory of a Member [of WTO], or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin". GI are therefore an intellectual property right that is protected by member countries, most often after being registered. The registration process by the competent authority supposes that the users demonstrate the specific quality linked to origin and submit the specifications, or code of practice, to be examined and, if that the case, agreed, by the competent authority. The GI standard is therefore an interesting example of voluntary standards based on a local process, for many reasons that will be illustrated through field projects examples (Morocco, Croatia), in particular, because it directly involves the producers, and especially smallholders who are often guardians of traditional products with strong local identity. In this way the process represents a way to strengthen backward linkage along the value chain.

INTRODUCTION

Geographical indication (GI) can be seen as a tool for sustainable food systems as a result of its particular approach based on a territory – the territory being the production area where the local producers (farmers, processors) have decided to jointly promote and protect their specific quality product. This localized approach presupposes different interesting elements from a sustainable point of view, even though GIs were not created with such a view. One element is the central role of local producers, particularly small-scale ones – often the best guardians of tradition – in the setting up and management of the specification, or code of practice (CoP).

After a definition of a GI, two examples of field projects will illustrate some of the benefits that can arise from such a particular voluntary standard. The advantages of developing a GI process can be numerous, but are not automatic; it is crucial to take some key conditions into account. In conclusion, some aspects seem particularly relevant for inspiring other standards.

WHAT ARE GIs?

There is a wide diversity of GIs worldwide; some old ones such as Champagne, Parmeggiano Reggiano ("parmesan") and Pisco, some more recent but already quite internationally known such as Columbian coffee and Darjeeling tea and some gaining international recognition, such as Longkou Fen Si, which was registered by China in the European market, or Kintamani Bali coffee from Indonesia. GIs are not only major, exported, origin-linked products; some very traditional products are successfully marketed locally. Each GI has its own logo and other visual references protected as an intellectual property right, and it is interesting to note also some national (or regional) official logos certifying the official registration by public authorities (see examples from the European Union, Argentina, Morocco and Switzerland).

Indeed, a GI is an intellectual property right (WIPO, 2013), and this approach is not so recent. In 1958, in the Lisbon Agreement (with 27 Contracting Parties), the appellation of origin was defined as follows: "*Appellation of Origin is the geographical name of a country, region, or locality, which serves to designate a product originating therein, the quality and characteristics of which are due exclusively or essentially to the geographical environment, including natural and human factors*" (Lisbon Agreement 1958). More importantly, in 1994, with the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement of the World Trade Organization (WTO) (153 members), GIs became a major intellectual property right, defined as such in Article 22.1 of this agreement as: "*indications which identify a good as originating in the territory of a Member [of WTO], or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin*" (WIPO, 2003) . GIs have therefore to be protected by member countries. Different legal tools can be used, but the main protection is under a registration system (under a trademark or specific – *sui generis* – law).

This quite recent development explains the increasing numbers of GIs in the world and of cooperation programmes to support countries, especially developing countries, in the establishment and implementation of adequate legal and institutional frameworks.

Not all products can bear a GI: indeed this implies a link to the geographical origin, and this must be demonstrated, as explained in document SCT/10/4, 2005 of the Standing Committee on the law of trademarks, industrial designs and geographical indications of the World Intellectual Property Organization (WIPO, 2003):

"*The link with the geographical origin demonstrates the correlation between the place and one or more elements of the definition, emphasizing the fact that such a factor produces [...] Depending on the system of protection for geographical indications in force, the verification of elements will be more or less thorough and will be made on the different elements, or on only one of them, and will be based on documentation (specifications for example) which will be more or less precise and detailed. Whatever the case may be, the justification for the criteria provided in order to determine whether the protection should be granted will be assessed on a case-by-case basis...*"

This extract also highlights two other important aspects:

- There is no specific legal tool requested to protect GIs internationally; the same applies to the assessment system of the link to origin, and therefore from one country to another the assessment can be more or less strong.

- However, the link to origin must be documented, and therefore for each case specific documentation – a specification (or CoP) – is necessary to justify the right to protect a specific GI.

GIs AND THE QUALITY LINKED TO GEOGRAPHICAL ORIGIN

A GI is much more than an intellectual property right. The link to origin refers to a local system: a territory, its people and its local resources, natural and cultural.

On one hand, for the economic stakeholders involved, and in addition to the intellectual property right giving an exclusivity of use, a GI represents a differentiation tool, i.e. a signal for consumers, in relation with a local system, with three components: people, place and product (FAO, 2010) (Figure 1).

- The **product** is unique and its quality is specific to the place that made it famous over time.
- This uniqueness linked to the **place** is based on the use of specific local resources: natural (temperature, altitude, some specific ferments, race or varieties) and cultural elements (traditional practices, *savoir faire*) that were developed and preserved in interaction with the place, and transmitted from one generation to another.
- **People**, and primarily the local producers (farmers, breeders, processors), are a crucial component: local producers are the owners and guardians of this specific knowledge, and they have agreed collectively to promote and preserve these values.

Therefore, the GI process, i.e. the local process aiming at protecting and preserving the origin-linked quality and associated resources, can be considered as a combination of an economic tool, developed by producers, and a tool for preserving/promoting a local heritage (Vandecandelaere, 2011). This former dimension can also justify the support from public authorities and institutions (research, development, etc.). Indeed, local authorities often play an important role in supporting such a process.

This approach makes a GI a very particular voluntary standard:

- The **code of practice** (i.e. specification) is specific to a product from a particular production area. This is a key aspect for sustainability: by defining the role of the local resources (natural and human) in the specification, which is at the basis of a control and certification scheme, the local traditional system of production, adapted to the local conditions, is reproduced over time.
- The **role of primary producers and processors**

Figure 1: Components of a GI system

through the CoP, is therefore also recognized for the specific quality they provide: they benefit from the added value, and the value is redistributed locally (Barjolle, Reviron and Sylvander, 2007).

- The **GI approach is collective, because the GI and its reputation are collective**: all producers of the territory benefit from this reputation (and are concerned if some of them damage it). Therefore, the value chain actors need to work together, to coordinate their efforts, promote the GI and manage it. The advantages of collective action (economies of scale, stronger market power, synergies) are particularly interesting for small-scale actors, who benefit from a quality signal (Moschini, Menpace and Pick, 2008) they could afford individually.
- The **GI (the link to origin) is assessed and recognized (registered) by public authorities**. Origin-linked products promoted through geographical indications result from a specific interaction between public and private actors. Public bodies are held responsible for the implementation of institutional prerequisites that allow for the recognition and protection of a GI. This includes the writing of the law and of enabling legislation to protect producers and consumers. The necessary interactions between the public authorities (at national and local levels) and the producers around the GI assessment and registration strengthen a public–private dialogue that can facilitate many projects, and not only with regard to the GI related issues. In addition, public actors (independently from those in charge of registration) often play an important role in supporting the development and promotion of GI processes in view of the rural development and heritage dimensions.

BENEFITS: TWO EXAMPLES FROM THE FIELD

Morocco

Morocco is engaged in a quality policy to support the development of remote and marginalized areas, where a varied and rich patrimony can be found. In this direction, the strategy of the Ministry of Agriculture and Maritime Fishery has been to include the promotion of specific quality and origin-linked products in the agenda and, given the complexity and novelty of the subject, FAO assistance was requested. Between 2008 and 2010, FAO has carried out two separate projects in Morocco in collaboration with the MoA, one at institutional level for building capacity on the new legal and institutional framework, and one at the level of a territory, as a pilot case, with the producers of saffron of Taliouine in the Anti-Atlas region.

The stigmas of saffron have been used since ancient times as a spice, as a colourant in the preparation of perfumes and cosmetics, and for medicinal purposes. Saffron is considered among the most valuable and expensive spices worldwide, characterized by extremely variable harvests and revenues. Globally, although 90 percent of world's production of saffron comes from Iran, Morocco still remains in the top ten of the world's biggest producers, ranked fourth after India and Greece and just before Spain (Garcin and Carral, 2007; Vaes, 2008, 2010). Almost all Moroccan saffron originates from the Souss Massa Drâa region, with 95 percent of the national production coming from the High-Atlas of the North, the Anti-Atlas of the South, in the provinces of Taroudant (Talioune

area) and Ouarzazate (Taznakht). Over the years, this region has developed a national and international reputation owing to the unique characteristics of the local saffron production.

Saffron production is particularly well adapted to mountain areas, where it benefits from optimal conditions of soil, altitude and climate. The practices are traditional, with specialized labour (irrigated crop, harvesting of flowers and pruning scars by hand). This production is part of the local culture and identity (Bouchelkha, 2009**).**

The studies show that the specific quality of the saffron of Taliouine comes from a combination of factors and conditions, including soil and climatic conditions of the region (arid-dry climate with harsh winters, calcareous soils, rich in sand and in silt but with low clay concentration) (Birouk, 2009; Aboudrare, 2009, 2010).

The study on biodiversity (Birouk, 2009) shows some local diversity of clones, the quality of which is well recognized. This also creates some difficulties, because many bulbs are sold and disseminated in other regions and producers miss some. To address this, experiments were carried out and recommendations were made in order to ensure reproduction of the local varieties locally. In addition to this, producers over the years have developed and transmitted from one generation to another a unique expertise that represents a precious cultural heritage. The earliest writings that speak of saffron in the region of Taliouine cover five centuries, but the date of its introduction remains unknown. Considered by locals as "gold" not only because of its current value but also because of its yellow colour, this spice plays an important role in the lives of local people in economic, social and ecological terms.

The CoP was prepared by the Regional Council and the producers, through various meetings organized by a local non-governmental organization (*Migrations & Développement*) to discuss the different points and requirements. It was prepared in accordance with the local traditional practices (no chemicals, crop rotation, use of local variety, etc.) with effects on the preservation of such environmental and cultural elements (Région Souss Massa Dra, 2009). In parallel, local institutions and producers were trained

Saffron stigmas removed from the flower – 100 000 flowers are necessary for 1 kg of saffron

Major outcomes of the identification phase for the saffron of Taliouine

– **History and traditions** = first proof of the presence of saffron in the region of Taliouine and Taznakht dates to the twelfth century
– **Local natural resources =** the volcanic soil filters rainwater and also the water coming from the Siroua mountains can be held responsible for determining the specific quality of saffron
– **Local knowledge** = traditional practices are important both for cultivation (crop rotation, natural fertilizer, etc.) and preparation, with women and young people playing a major role; local knowledge intimately linked to the Berber culture, the localization of traditional villages (*douars*) still retaining a strong community tradition

in best agronomic and sustainable practices to enhance the productivity of saffron in qualitative terms. This enabled the improvement of some practices without compromising the sustainable traditional ones (e.g. no use of plastic for collection, use of dryers to better conserve the aromatics) (*Migrations et Développement*, 2011). The success of these negotiations is represented by the submission of the dossier for the recognition of the saffron of Taliouine by the Regional Council of Souss Massa Drâa and the subsequent official recognition in April 2010. The certificate was given to producers by the King himself during the annual saffron festival.

The organization of the value-chain was structured and strengthened: some cooperatives were created and reinforced, and all producers, cooperatives and companies were organized

Saffron of Taliouine and Taznakht: production, producers and markets

- **Number of producers** = around 1 400
- **Number of people concerned** = between 7 000 and 8 000
- **Productivity** = 3 kg/ha in Taliouine (very low compared with a potential 10 kg/ha)
- **Total amount of production** = around 3 tonnes in 2008, of which 1.8 tonnes in a 560 ha production area in Taliouine and 1–1.5 in Taznakht
- **Export markets for the powder (2 percent of total saffron exports)** = between 1998 and 2009, Italy (42 percent), Spain (28 percent), United States of America (14 percent), Canada (6 percent), France (5 percent), Saudi Arabia (2 percent) and other countries (3 percent)
- **Export markets for filaments (98 percent of total saffron exports)** = between 1998 and 2009, Spain (61.4 percent), Switzerland (36.6 percent), France (1.2 percent), Italy (0.8 percent) and other countries (0.1 percent)

Source: Dubois (2010) and Vaes (2008, 2010).

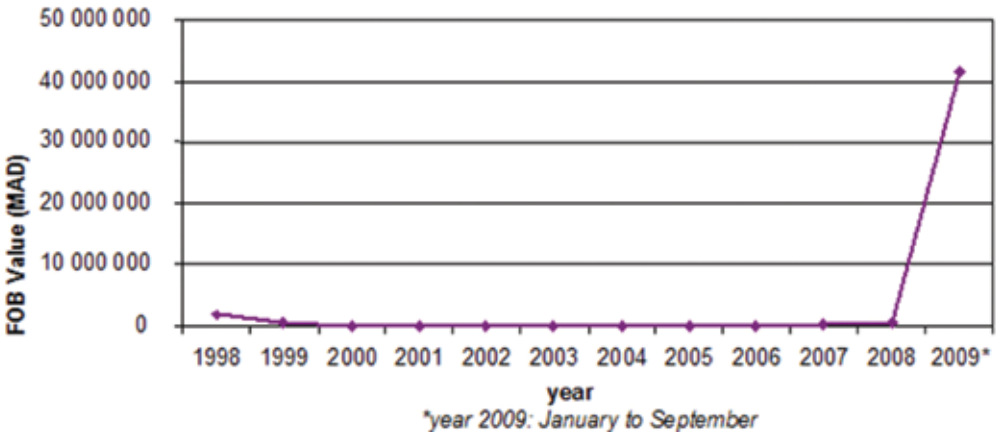

Figure 2: Value of Moroccan saffron exports
Source: Dubois (2010).

in one structure called the Group of Economic Interest (GIE), which started by bringing together seven cooperatives and two companies, also acting as the association in charge of the GI. As a result, value-added (better price negotiated on local and international markets), exports and coordination along the value chain, and fight against misleading.

The GI process thus allowed the preservation and reinforcement of the elements contributing to a sustainable production system, through economic, biodiversity and cultural elements. In addition, it is worth mentioning another impact at the level of the entire territory with the development of agri-tourism in relation with the saffron tour.

Croatia

The project "Support to quality food products in Croatia for improved backward linkages between local agrifood companies and farmers" was launched in March 2011, and aimed to capitalize on the efforts made by national authorities in the area of GI development as well as Agrokor (a leading agribusiness company in Croatia and a client of the European Bank for Reconstruction and Development). The objectives were to: (i) improve backward linkages between the company and its agricultural suppliers; (ii) strengthen public–private interactions for the development of local GIs; (iii) support the development of stronger local brands (as opposed to international brands) to enhance the rural economy; and (iv) raise the importance of quality in consumers' choices.

Two pilot products were identified to pave the way for the development of GIs in Croatia: (i) Baranski kulen sausages; and (ii) mandarins from the Neretva valley. These two products were at different stages of GI recognition but the activities proposed under the project will in both cases result in the improved recognition of the respective GI, and offer new marketing opportunities for local producers. The Croatian Ministry of Agriculture has also expressed an interest in supporting the initiative and in participating in several activities, with a view to gaining capacity in the area of GI recognition and protection.

This project highlighted the importance of such public–private collaboration as well as the role of a market leader.

First, the Ministry of Agriculture benefited from this project thanks to the reciprocal learning-by-doing through the pilot projects and study tours in European countries. There were no GIs registered under the new law at the beginning of the project and in 2013, two years after, 12 GIs were assessed and registered and others are under assessment.

Second, from the value chain point of view, this approach improved backward linkages, with primary producers gaining importance in the marketing decision as the local conditions and needs are known and taken into account. In addition to these vertical relationships, horizontal relationships among producers within the territory were strengthened with the sense of cooperation, in particular to support the smallest-scale producers. The leading producer part of the Agrokor company played an important role in enhancing access to information for the small-scale producers, providing recommendations for upgrading the products (for example with regard to food safety aspects) and supporting the creation of the producers' organization. This was particularly visible in the case of kulen in the Baranja region where trust among people is difficult as a result of the war legacy there. As a consequence, the producer's organizations are being strengthened in both cases and a common vision built for accessing new niche markets. Small-scale producers, although diffident at the beginning, are becoming increasingly engaged. Finally, having a market leader company on board was a key factor to ensure good market access and promotion tools for the niche products of Baranski kulen and the mandarins of Neretva.

The collaboration between the public and private sectors was also very interesting from the promotion point of view, with joint activities to increase consumer awareness in Croatia towards geographical indications (elaboration of spots and video, in particular).

GIs: A POWERFUL BUT NOT A MAGIC TOOL

They are a series of advantages in all the three pillars of sustainability that can be learned from field projects or read through case studies or analysis. The contributions of the GI process to sustainable development can be described as (Frayssignes, 2007, 2009a, b; Pradyot and Grote, 2012; Suh and Macpherson, 2007; WIPO, 2013):

- **Economic impact:** protection against misappropriation of the name, access to niche markets, added value, price stabilization and redistribution of added value down to the producers and return of benefits to the area, economies of scale, better income for producers, maintenance or development of economic activities in isolated areas, and dynamics for other economic activities benefiting from the reputation of the GI.
- **Environmental impact:** preservation or, indeed, improvement of natural resources, contribution to agricultural and wild biodiversity; traditional practices are often more respectful of the environment.
- **Social impact:** preservation of a cultural heritage and a way of life, development or boosting of a social and professional network, development of a territorial view that helps to create synergies with other local activities (products and services), increased respect for producers and support for their defence of their goods.
- **Consumers' well-being:** preservation of food diversity, indication of specific quality in order to improve their choice, transparency and traceability, guarantees of a quality level and specific

characteristics through certification. GI appears as an effective certification tool for high quality product (Moschini, Menpace and Pick, 2008)

However, it must be highlighted that this does not come just by registering a GI. Actually, the registration in itself does nothing; all depends on the setting up and management of the scheme, especially at local level as part of a collective marketing strategy and, at the institutional level, with regard to the credibility of the protection system.

Indeed, what makes the strength of this tool can also act as a weakness if not well established, implemented and regulated. In particular, two important characteristics can be highlighted:

There are no generic rules for establishing the CoP.

- It allows the local community, those who know best the origin-linked practices and natural resources involved, to define the most appropriate rules in the code of practice to ensure preservation of the specific quality and the reproduction of the local resources.
- However, problems could arise if such rules are established too loose (to avoid too many constraints), or too strict (which creates exclusion of some potential producers).
- A solution to this trade-off is the legal and institutional framework that should provide rules or an assessment process to ensure reaching the right balance.

Farmers and producers are at the centre of the process.

- Thanks to the recognition of their role in the CoP, they are central in the GI system, taking part in the decision process and benefiting from the added value.
- However, problems can arise when they are not connected to the market and if they worked on a GI process without involving the downstream value chain (or because the downstream actors were not willing to participate).
- This is why it is so important to map the different stakeholders and their role with regard marketing, in order to build a value chain strategy.

CONCLUSION

GIs represent an interesting voluntary standard towards sustainable food systems, as a result of a localized approach based on the territory. The CoP reflects the local conditions, natural resources and traditional practices, allowing reproduction of resources and inclusion of local producers, especially small-scale, often the best guardians of the traditions. In addition, GI development presupposes a public–private approach that benefits the credibility of the entire scheme, and can enhance consumer awareness and confidence. It is a powerful but not magic tool that requires a strong involvement of local actors and often some external support to demonstrate the link to origin. FAO has developed some methodology to support such a specific approach towards sustainable development, the virtuous origin-linked quality circle (FAO, 2010).

Although a GI can appear as a very particular voluntary standard (one product, one specification), some aspects could be interesting to introduce in other voluntary standards:

– redistribution of values to primary producers in the territory;
– participative approach involving all representatives of different types of operators;
– bottom-up approach, staring from the field;
– local resources and their specific characteristics taken into account or a long-term approach;
– private initiative in the framework of a public regulation;
– consumer protection and information supported by public regulation (official seal, public control).

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FAO's strategic vision to engage with the private sector

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ABSTRACT

Increasingly consumers, governments and businesses are seeking to track and measure the environmental impacts and benefits of agriculture. This paper highlights the efforts of the Field to Market Alliance for Sustainable Agriculture to measure the footprint of agriculture at the farm, landscape and national levels.

Consumers are asking more questions about how their food and fibre is produced. Farmers and downstream supply chain members want to demonstrate a commitment to responsible business practices. The Field to Market Alliance for Sustainable Agriculture is helping to bridge this gap in supply chain analysis by providing more on-the-farm information.

This unique multistakeholder coalition brings together government, growers' organizations, conservation organizations and other companies all along the food and agriculture supply chains, including, among others, Cargill, Coca-Cola, Bunge, Syngenta, DuPont and Wal-Mart, to develop practical, science-based approaches and tools that provide farmers and industry with a better understanding of how to continually improve upon the sustainability of on-farm activities. Currently Field to Market operates in the United States of America and Canada, and is in the process of expanding to Europe and Brazil.

The Fieldprint Calculator, a simple tool that offers farmers a high high-quality snapshot of how their operations influence energy use, climate impact, soil loss and water use is demonstrated. The Calculator further allows farmers to benchmark their "fieldprint" vis-à-vis county, state and national averages.

The Annual National Indicator Report, which tracks nation-wide environmental and socio-economic indicators and impacts of on-farm agricultural production in the United States of America, is also presented.

INTRODUCTION

Despite an overall reduction in hunger globally since the early 1990s, nearly 870 million suffer from hunger each day, according to *The State of Food Insecurity in the World 2012* (FAO, 2012a). In a world where hunger continues to affect so many people and represents a huge challenge to humanity, it has become clear that no single organization or sector can solve the problem of hunger on its own.

FAO therefore places high importance on working together in partnership with all relevant private sector stakeholders at local, national, regional and international levels. By joining forces, FAO and its partners can more effectively contribute to eradicating chronic hunger and poverty and improving access to food by the poor and vulnerable.

In its mission to eradicate hunger and extreme poverty through sustainable agriculture and rural development, FAO considers a wide spectrum of private sector entities as potential partners, including farmer organizations and small and medium-sized enterprises (SMEs) in lower income countries, and international corporations and private foundations.

Agricultural development and production are core private enterprise activities. The private sector can thus potentially widely contribute to lifting large numbers of people in developing countries out of poverty and hunger through responsible and productive investment, innovation, enhanced efficiency and employment creation.

Approximately two billion smallholder farmers live and work in the developing world. They are crucial in the fight to reduce poverty and to feed a growing global population. Improving agricultural practices, technology transfer, access to knowledge and tools to enhance productivity are important, but these alone will not lift families and communities out of poverty. The systems in which smallholder farmers operate, in order to create sustainable growth in agricultural industries and provide opportunities for increased economic benefits for farmers, need to be optimized. A broader approach to development that targets the entire market system is required, working in close partnership with all stakeholders including the private sector.

This renewed approach towards partnerships with the private sector has been a key priority of the present administration led by the FAO Director-General, Graziano da Silva, who strategically wants to bring his experience with Brazil's Zero Hunger Strategy (Graziano da Silva, Del Grossi and de França, 2011) into the organizational framework of FAO's mission to eradicate hunger and fight malnutrition.

FAO's vision for engaging with the private sector draws from the successful and multidimensional experience in Brazil. The role of shared value and corporate social responsibility (CSR) was highlighted in the work in Brazil. "CSR is more comprehensive than sporadic actions in support of tackling problems faced by society that can raise the profile of the corporate world. CSR presupposes changes in the culture of a company as a living organism in society that must be healthy and sustainable. For this reason, the launching of the Zero Hunger Program was seen both as a dynamizing element for companies that were already socially active in addressing the food issue and as a major opportunity for reorienting the actions of other companies that were tacking other issues" (Belik, 2011).

In this new framework, FAO wants to focus its partnerships around its five strategic objectives:

- ending hunger;
- increasing sustainably production;
- reducing rural poverty;
- enabling more inclusive and efficient food systems;
- increasing resilience of livelihoods to threats and crises.

Change at FAO has been undertaken at many levels, and thoroughly integrated into the work through a process of culture change. In a 30 April 2013 interview, Fernanda Guerrieri, Directeur de Cabinet and the new head of culture change at FAO, said: "The

single greatest change will be the need for all of us to work more collaboratively with colleagues outside the narrow walls of our own offices or location. This is the direct result of the new Strategic Objectives, which are fewer in number but more cross-cutting, and which FAO will be pursuing from 2014."

As stated by Graziano da Silva, "The private sector has an important contribution to give to FAO. But this contribution has not always been recognized or valued. This is beginning to change" (FAO, 2012b).

DEFINITION OF THE PRIVATE SECTOR

The private sector includes enterprises, companies or businesses, regardless of size, ownership and structure. It covers all sectors of the food, agriculture, forestry and fisheries systems from production to consumption, including associated services: financing, investment, insurance, marketing and trade.

FAO considers the private sector as encompassing a broad array of entities that include:

- farmer organizations;
- cooperatives;
- SMEs;
- large international corporations;
- private financial institutions;
- industry and trade associations;
- consortia that represent private sector interests.

Past successful private sector partners are the following:

- *Enterprises*: Conad, Starbucks, Merck KGaA, Accor, France 24;
- *Special purpose coalitions and consortia*: International Feed Industry Federation (IFIF), International Federation for Animal Health (IFAH), World Veterinary Association, Federation of Indian Chambers of Commerce and Industry;
- *Financing institutions*: Crédit Agricole, Standard Chartered Bank of South Africa, YES Bank, Rabobank, Equity Bank Limited, Kilimo Trust;
- *International industry associations*: Pan African Agribusiness Consortium, Agricultural Council of Tanzania, Sustainable Food Laboratory, European Forum on Farm Animal Breeders;
- *Private foundations*: Bill & Melinda Gates Foundation, Rockefeller Foundation, Clinton Foundation, Ford Foundation, PricewaterhouseCoopers Foundation;
- *Research and academic institutes*: World Resources Institute (WRI), University of Minnesota, Forum for Agricultural Research in Africa (FARA), Cornell University, National Polytechnic Institute in Mexico, Global Initiative for Food System Leadership (GIFSL), University of California, International Life Sciences Institute, Industry Council for Development, University of the Philippines Open University.

AREAS OF ENGAGEMENT

In the newly approved policy on partnerships with the private sector, FAO has identified six areas of engagement with the private sector (FAO, 2013):

1. Development and technical programmes:

The private sector can complement FAO's technical work locally, regionally and globally. Private companies can complement governmental programmes, as well as programmes that FAO develops at local level, in order to boost markets. International, large and medium-size enterprises can provide support to local SMEs and other actors, strengthening national capacity and economic growth. This can be manifested through the equitable distribution of goods and services, enabling access to agriculture insurance, providing credit and financing opportunities, agricultural inputs, and improved production techniques, among others.

Examples of development of technical programmes are the contributions of private sector stakeholders such as the PricewaterhouseCoopers Foundation towards "Emergency support to restore food security and livelihoods in Myanmar" and the Ford Foundation's contributions in support of "FAO's livestock pro-poor policy programme in India".

2. Policy dialogue:

Private sector participation in policy dialogue on issues related to food and nutrition security at national and international levels can contribute to the debate. It allows private sector interests and technical expertise to be heard. This nurtures a sense of ownership that will enhance sustainability of policy adoption and implementation. FAO can play a role in encouraging and guiding such dialogue at the national and international levels.

Examples of policy dialogue fora include the Private Sector Mechanism (PSM) at the Committee on World Food Security (CFS), the partnership on the environmental benchmarking of livestock supply chains and the World Banana Forum.

3. Norms and standard setting:

FAO plays a key convenor and facilitator role in the negotiation and implementation of international codes of conduct, safety and quality standards for food and other commodities, and global conventions and regulatory frameworks in areas related to FAO's mandate (e.g. Code of Conduct for Responsible Fisheries, International Treaty on Plant Genetic Resources for Food and Agriculture, Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests).

4. Advocacy and communication:

In the areas of advocacy and communication, there are many opportunities for collaboration in support of the achievement of FAO's strategic objectives. World Food Day and TeleFood are the main examples of private sector sponsored events, principally organized at country level. The private sector also provides in-kind donations and services to improve the visibility and effectiveness of global and local public awareness initiatives. Collaboration in this area of work is intended to: maintain FAO priorities on the global public agenda, in particular: the right to food, the fight against hunger, and sustainable agricultural development; mobilise private sector support for international and national communication and advocacy activities related to food and agriculture.

5. Knowledge management and dissemination:

A wide range of FAO's activities are aimed at providing the international community with impartial information and knowledge, including statistics on food and agriculture. FAO's technical advice is often requested by international public and private organizations. The private sector contributes to FAO's knowledge and research capacity by providing data and information on market trends and emerging technologies. Private sector knowledge and technology can provide important contributions to public goods. FAO encourages and supports the sharing and dissemination of private sector information through global networks and along the value chain. Examples include Access to Global Online Research in Agriculture (AGORA), FishInfo Network (FIN) and the Food Security Info Network (FSIN).

6. Mobilization of resources:

Mobilization of human, financial and other resources is fundamental to the implementation of FAO's programme of work. Private sector entities may provide human, logistical, managerial and financial resources for specific activities. When FAO responds to a humanitarian crisis, partnerships with private sector entities can assist by contributing in various ways, e.g. knowledge, expert services, in-kind donations or funds. Both can contribute to global fund-raising and sponsoring of activities at all levels, as well as improving the effectiveness of national implementation of policies and programmes in line with FAO's Resource Mobilization and Management Strategy.

CREATING SHARED VALUE IN AGRICULTURE

Just as the local and global systems of agricultural production and distribution have been shifting, so have the perceptions of the private sector companies about their responsibilities and opportunities. FAO's partnerships with the private sector have evolved substantially, influenced by these changed perceptions, and this in turn has influenced FAO's vision of how to engage the private sector.

Previously, private sector companies perceived their responsibilities to be only to their owners and to the bottom line. Corporate philanthropy was largely unconnected to the business. As the economies of the world became interlinked, the most successful companies identified specific features of competitiveness that enabled them to develop strategies to thrive. These competitiveness-related strategies evolved through understanding of the value chain and the role of clusters within it.

Companies then added the notion of CSR to their strategies. The World Business Council for Sustainable Development defines CSR as "the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large" (SDU, 2007, cited in Asongu, 2007) CSR has become an important part of business. It is an explicit set of business principles, developed and adopted by the companies themselves to suit their specific procurement, manufacturing, logistics, marketing, and other business circumstances. There are various standards for CSR, including ISO 26000, which is the recognized international standard. The joint United Nations Environment

Programme (UNEP) and UN Global Compact's Principles for Responsible Investment is the standard for investment.

However, a purely CSR approach has limitations. As explained by Porter and Kramer (2011), "the more business has begun to embrace corporate responsibility, the more it has been blamed for society's failures... [companies] continue to view value creation narrowly, optimizing short-term financial performance in a bubble while missing the most important customer needs and ignoring the broader influences that determine their longer-term success".

Extensive experience with both competitiveness-related strategies and CSR has led to a maturing of understanding about the interrelation of sustainable development and corporate success. The sophisticated concept of shared value is now at the heart of FAO's vision of how to engage the private sector. Simply put, "the principle of shared value... involves creating economic value in a way that also creates value for society by addressing its needs and challenges" (Porter and Kramer, 2011). This concept of shared value is inducing companies to consider a wide range of stakeholders and issues, and to adopt business practices that enable them to benefit in many ways from improved, and more sustainable, interactions and environments. Ultimately, sustainable development is being integrated into business cycles.

The breadth and depth of FAO's expertise in agriculture and development enable it to engage with the private sector for the creation of shared value. "FAO provides support for the development of specific agro-industries and value chains in all agricultural sectors – crop, livestock, forestry and fisheries. The scope of FAO agro-industries work historically has focused primarily on farm and agro-enterprise level technologies, productivity and efficiency. In recent years, FAO has provided support for several specific agro-industries" (FAO, 2007). The FAO value-chain programmes, in their engagement with the private sector, directly address the many issues of shared value.

Companies are interested in being responsible corporate citizens, including being supportive of the communities where they operate, and from which their supplies are sourced. The impetus for developing and adopting these in agriculture is sometimes because it makes good financial, business sense – like ensuring reliable supplies. But in agriculture in particular, shared value means evolving sophisticated relationships among many actors. FAO's engagement with the private sector includes assisting with the multiple dimensions of these relationships, and benefitting from long experience in the numerous technical areas connected with the relationships. The many stakeholders that impact shared value in agriculture include consumers, investors, suppliers and the community where the company operates. Governments, through incentives and regulations, and civil society, through activism, also influence the development of the shared value, and how it is implemented in the business.

Consumers care, among other issues, about the food they eat – they want it to be safe, nutritious and of good quality. They have similar concerns about other agricultural products. Because of the concerns of consumers in particular, codes and standards have been developed for:

- traceability;

- hygienic production and handling;
- quality of inputs (seeds, feeds, among others);
- quality management systems.

Shared value in agriculture can also involve revising the definition of the consumer. Previously the focus was on existing markets and the consumers in them. Much work is now being done on underserved markets, and catering to the needs of the poor, in all countries. For example, the use of microcredit in agriculture is highlighted by Prahalad (2010) in his seminal work on underserved markets.

Investors care about many issues, including the company's local activities. It may be noted that "the concept of shared value recognises that societal needs, not just conventional economic needs, define markets" (Porter and Kramer, 2011). Some of the topics covered by strategies about shared value, and which concern labour conditions in agriculture, are listed below:

- occupational health and safety;
- terms of employment (e.g. pay, hours, contracts, regularity of work);
- human rights in the workplace (e.g. right of association, rights for casual workers, no forced or child labour, non-discrimination);
- general employee and family welfare (e.g. housing, access to education and healthcare).

FAO's role in the modernization and transformation of agriculture in developing regions has included extensive work with small and medium agricultural enterprises. The shared value concerns of these companies include their role in agro-processing. A series of roundtables focused on their competitiveness found that "They tended to have strong roots in the local communities in which they operated, and were making significant contributions to value addition, employment creation, and income generation. Many of the enterprises, perhaps most, were providing technical support and other assistance to the small farmer suppliers.... most were producing products with specific traits for specific consumers; in many cases, products were based on local diets and traditional recipes" (FAO, 2012c).

As previously noted in an FAO/COAG paper, "While agribusiness and agro-industry development can increase competitiveness in international and domestic markets, the benefits are not automatic and will not be shared by all. The changes in agrifood systems pose particular risks for small-scale farmers, traders, processors, wholesale markets and retailers" (FAO, 2007).

The community in which the companies operate is a critical stakeholder for companies, and concern for the local community tends to be an important component of shared value strategies. Specifically, these include:

- producers' economic viability;
- flow of economic benefits to workers and the local economy;
- social and economic rights of others (e.g. indigenous land rights, local consultation);
- business ethics (e.g. fair dealing, no corruption, market transparency);
- education and role-modelling (e.g. open days).

Even among the poorest, there are possibilities for collaboration to benefit all. Agricultural production, trade, and relationships with companies are major issues addressed in the major work by Collier (2007). The complexity of the issues, and the need

for multi-stakeholder partnerships, indicates an important role for FAO. Traditional cluster development for competitiveness is now amplified for shared value in local cluster development, with fertile opportunities for sustainable development at community level.

All stakeholders are concerned about the environment. The environment-related issues that feature in, and impact, the shared value of companies include the following:

- ecosystems and biodiversity (e.g. provisions to protect virgin forest);
- natural resource inputs (e.g. water use, soil quality);
- human-induced inputs (e.g. agrochemicals, pest control, genetically modified organisms);
- energy use and greenhouse gas emissions;
- waste management;

production practices (e.g. crop rotations, site selection, animal welfare, overfishing).

The voluntary standards being presented in this workshop are part of a range of codes and standards that impact shared value in the area of agriculture and food production, and with which FAO has extensive involvement. The following standards and codes were analysed in depth in the context of corporate social responsibility, and then discussed in an article that was included in the 2009 book published jointly by FAO and UNIDO entitled "Agro-industries for development" (Genier, Stamp and Pfitzer, 2009).

- Basel Criteria for Responsible Soy Production
- Common Code for the Coffee Community
- EISA
- Ethical Trading Initiative
- Fairtrade Standards
- Global GAP
- International Dairy Federation/FAO Guide to Good Dairy Farming Practice
- Marine Stewardship Council
- Rainforest Alliance/Sustainable Agriculture Network
- Roundtable on Sustainable Palm Oil
- Social Accountability Standard SA8000
- Sustainable Agriculture Initiative Principles and Practices for Sustainable Agriculture
- Sustainable Agriculture Standard SCS-001
- UTZ Certified production (cereals)

All the aforementioned agriculture-related topics and concerns are areas in which FAO has extensive expertise. The evolution of private sector business strategies to include shared value provides an excellent opportunity for FAO to leverage this expertise. It is a complex area, with well-known thinkers, like Peter Utting of the UN Research Institute for Social Development (UNRISD), expressing caution about voluntary standards since "The success of many voluntary initiatives requires a certain institutional setting – for example, basic laws related to disclosure and freedom of information, watchdog institutions and strong civil society movements. Such conditions may be weak or absent in many countries" (Utting, 2000). This is an area for FAO to create shared value by engaging the private sector in multi-stakeholder partnerships. Specifically, Utting (2000) suggests "'negotiated agreements' between government and business, and 'civil regulation', where NGOs,

consumers and trade unions have considerable influence in determining the standards and norms shaping business relations with society and the environment".

As noted by FAO's Committee on Agriculture (FAO, 2007), there has been a "rapid proliferation of industry standards and quality requirements. Over the past decade, many agribusiness firms, industry organizations and consortia have been developing their own standards and quality requirements, which often surpass public standards. The main objective of most industry standards and requirements is to manage risk relating to product safety and quality. During the last several years, there has been a strong upsurge of interest in process-based standards as well. Process-based standards have focused on environmental sustainability, social and economic sustainability, fair trade, food safety, guarantees of origin, or a combination of traits". FAO is continuing its long-term high-profile role in negotiation and implementation of standards, and thereby deepening its engagement with the private sector in shared value creation.

An important area of FAO's engagement with the private sector is on the level of government relationships with the private sector, especially with respect to policies and procedures. For example, in the area of agribusiness and agro-industry, "in the light of the complexity and range of issues to be addressed, governments need to review institutional mandates for influencing, regulating and supporting private sector investment" (FAO, 2007). In the context of shared value and partnerships, there is greater scope for joint development strategies, instead of the more traditional adversarial relationships.

Agricultural production involves numerous externalities, which provide many threats and opportunities for the companies and their stakeholders. FAO's long experience and extensive technical expertise can leverage these externalities to increase the shared value for all. It is of the essence to inform government policies, some of which have been designed to compensate for the social costs of the externalities of agricultural production.

Having successful partnerships requires having a clear understanding of the role of shared value in private sector companies. For example, there is great variation in the nature and application of shared value policies. Multinational companies tend to have greater scope in their shared value than national or local companies. However, the shared value profile tends to reflect the profile or the country of operation more than the country of origin. Given FAO's expertise concerning shared value, its vision of engagement with the private sector therefore includes standards, codes, principles and practices, developed often at global level, and adapted at local level, being interwoven through partnerships with the shared value programmes of individual companies. Since "companies have overlooked opportunities to meet fundamental societal needs and misunderstood how societal harms and weaknesses affect value chains" (Porter and Kramer, 2011) there are numerous opportunities for FAO, through partnerships with the private sector, to support many aspects of agricultural development.

FAO's extensive experience with value chains, in a wide variety of countries, and with agricultural production systems, means that FAO's engagement with the private sector can be multifaceted, contributing to many aspects of cluster competitiveness (Fairbanks and Lindsay, 1997), and meanwhile contributing to the shared value sought by the companies and society at large. Since the agriculture-related private sector is large and important,

globally and locally, by engaging with the private sector through its shared value, in many different kinds of partnerships, FAO can substantially increase its impact on the reduction of hunger, food insecurity, and malnutrition.

VOLUNTARY STANDARDS IN FAO

Voluntary standards refer to a broad group of public and private standards of which adoption by users is not mandatory. They are developed by governments, intergovernmental organizations, private companies or consortia, non-governmental organizations or multiple stakeholders. Voluntary standards can offer market opportunities by facilitating compliance with international trade regulations and differentiating among products. They can deliver positive economic, environmental or social impacts, but they can also present challenges (costs and exclusivity), particularly for small-scale producers.

The core aim of FAO's work on voluntary standards is to contribute to mechanisms ensuring that the interests of the public sector and smaller-scale stakeholders are addressed in the development and application of public and private voluntary standards. FAO provides expertise on standards for food, agriculture, livestock, fisheries and forestry. It works with partners to benchmark, analyse, share knowledge and provide guidance on voluntary standards.

Examples of voluntary standards developed by FAO with participation of the private sector:

Principles for Responsible Agricultural Investment that respects rights, livelihoods and resources (PRAI):

The PRAI draw attention to rights and livelihoods of rural populations and the need for socially and environmentally sustainable agricultural investments. These principles were jointly developed by an Inter-Agency Working Group composed of FAO, UNCTAD, IFAD and the World Bank and are currently discussed at the CFS. They can be used as a reference for impact assessments, negotiation of business contracts and corporate social responsibility initiatives. The principles build on research on foreign direct investment in agriculture and various international commitments, including the *Voluntary guidelines on the responsible governance of tenure of land, fisheries and forests in the context of national food security*, adopted by CFS (2012), the Equator Principles (2013), the *OECD guidelines for multinational enterprises* (2011) and the *Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security* (2005).

The Principles are based on detailed research on the nature, extent and impacts of private sector investment and best practices in law and policy. They are intended to distil the lessons learned and provide a framework for national regulations, international investment agreements, global corporate social responsibility initiatives and individual investor contracts.

Save Food Initiative:

The Save Food Initiative is founded on the concept of partnership to reduce food losses and waste worldwide. Building partnerships can increase the reach and impact of solutions

and thus help to increase food and nutrition security everywhere. The initiative rests on four main pillars that involve private sector collaboration at all stages: *awareness raising* on the impact of and solutions for food loss and waste; *collaboration and coordination of worldwide initiatives on food loss and waste reduction* through the establishment of global partnerships with public and private sector organizations and companies that are active in the fight against food loss and waste; *policy, strategy and programme development for food loss and waste reduction* through a series of field studies on a national–regional basis, combining a food-chain approach to loss assessments with cost–benefit analyses to determine which food loss reduction interventions provide the best returns on investment; and *support to investment programmes and projects, implemented by private and public sectors,* including technical and managerial support for, as well as capacity building (training) of food supply chain actors and organizations involved in food loss and waste reduction, either at the food subsector level or policy level.

Sustainability Assessment of Food and Agriculture Systems (SAFA):

A SAFA is the rating of a company's or production site's sustainability performance. The SAFA Guidelines specify the procedure, principles and minimum requirements for a SAFA. They are meant to support a sustainability management that facilitates progress towards this vision throughout the sector, from production to processing and distribution of food and agricultural products. The target audience of the SAFA Guidelines are agricultural producers, food manufacturers and retailers who wish to substantiate sustainability claims, as well as entities carrying out sustainability analyses on behalf of these stakeholders. Furthermore, companies, organizations and other stakeholders who want to improve the sustainability performance of their supply chains are encouraged to take up the SAFA Guidelines as a framework for developing their own product category rules for supply chains.

INCENTIVES FOR THE PRIVATE SECTOR TO ADHERE TO VOLUNTARY STANDARDS

For private sector entities, engagement with FAO can generate: (i) increased opportunity to be heard in international standard-setting processes for food and agriculture; (ii) improved alignment of national requirements with international standards, which would enhance the ease of doing business; and (iii) increased private sector participation in processes to establish codes of conduct for responsible business practices.

Incentives for the private sector may result in the areas of:

- *Governance:* The legitimacy of standards is based on both a balanced representation of stakeholders and on their capacity to provide solutions to the social and environmental problems generated by the industry.
- *Scale:* The intended scale of regulation is transnational, therefore the aim is to produce rules with a field of application that transcends nation state borders.
- *Improved reputation/corporate image*: The increased focus on corporate social responsibility integration in private sector research and development, manufacturing and distribution highlights this area.

In general, voluntary standards are a key way for the private sector to become economically, socially and environmentally sustainable. The symbiotic nature of the

General principles from the FAO organization-wide strategy on partnerships

- A partnership should lead to a clear and mutual added value in terms of results relevant to shared goals and objectives, weighted against costs and impediments.
- A partnership should serve as a means for greater effectiveness in supporting international governance of agriculture and agricultural development, including through results-based monitoring and incorporating lessons learned, in line with FAO's goals and strategic objectives.
- Building on ongoing collaboration, new partnerships should be based on the comparative advantages of each partner.
- The nature of the role of FAO in a partnership, which could be that of a leader, facilitator or participant, should be determined by the nature and relevance of inputs and services to be provided.
- FAO must at all times preserve its neutral and impartial role in partnerships and act in a transparent manner while at the same time avoiding any conflict of interest.
- The implementation of global partnerships should take into account conditions and requirements at regional and country levels.

partnership relationships of FAO and the private sector in the area of voluntary standards facilitates the evolution of the existing sets of standards, and bodes well for the development of further sets of standards.

FAO, with the assistance of the private sector, will provide support in the implementation of voluntary standards at the national, regional and global levels. Effective engagement with the private sector can help the fight against hunger and malnutrition by enhancing FAO's work in agriculture, fishery, forestry, natural resource management and the food value chain from farmer to consumer.

DUE DILIGENCE AND RISK MANAGEMENT – FAO STANDARDS FOR ENGAGING WITH THE PRIVATE SECTOR

Partnering with the business community can bring many benefits and increase the impact of FAOs development efforts, but it also presents risks that have to be identified and managed. FAO, in restructuring its private sector strategy from a reactive to a proactive approach, has set up a due diligence process for the selection of private sector partners.

The purpose of the due diligence tool is to minimize risks and guarantee that potential selected private sector partners are compliant with FAO's mission and mandate and with FAO's principles and guidelines. Indeed, monitoring and regularly evaluating FAO's partnerships is a fundamental step in proactively engaging with the private sector.

Adopting an open and pro-active approach to private sector partnerships, in fact, requires adequate mechanisms to identify and manage potential risks that may affect FAO's reputation as an impartial intergovernmental technical agency. This process involves the strategic selection of partners, well-defined agreements, monitoring and evaluation.

The overall framework for the selection of partners is provided by the general guiding principles on partnerships from the *FAO organization-wide strategy on partnerships*.

These general principles serve as a framework for the *FAO principles and guidelines for cooperation with the private sector* that were first issued in 2000. These principles and guidelines are aligned with the UN Business Guidelines[1] and similar principles of other UN agencies, including the ten principles developed by the United Nations Global Compact[2].

All FAO partnerships with the private sector are expected to adhere to these principles:

- *Alignment with UN guidelines and international agreements*: Fundamental compliance and alignment with common UN guidelines is a prerequisite for a mutually beneficial partnership.
- *Conformity with FAO's mission, mandate, objectives and work programme*: Partnership activities must be consistent with FAO's mandate and should enhance the effectiveness of its work programme. FAO does not enter into partnership with organizations or enterprises whose products, programmes or methods of operation are judged by the Organization to be unethical or otherwise antithetical to its mandate, or into partnerships that might in any way undermine the Organization's credibility with Member Governments as a steward of public trust and funds.
- *Common objectives and mutual benefits*: A prerequisite of a partnership is alignment in mission and mandate, as well as long-term objectives with the potential partner.
- *Non-exclusivity with no preferential treatment, unfair advantage or endorsement*: FAO will not enter into an agreement with one or more partners if it excludes the right to negotiate a similar arrangement with other partners.
- *Neutrality and integrity*: Partnerships must ensure that the neutrality of the Organization is maintained and the integrity, independence and reputation of FAO are not put at risk. In particular, declarations of interests are to be made explicit for policy, normative, knowledge production and dissemination work included in the partnership agreement.
- *Accountability of all parties with clear and agreed responsibilities*: Partnership activities will be designed and implemented in a manner that ensures clear and agreed responsibilities and accountability by all partners.
- *Transparency*: FAO/private sector initiatives will be fully transparent. Information on agreed activities will be publicly available and may be reported in documents to FAO's governing bodies. In partnership activities where business confidentiality is necessary or proprietary knowledge is a factor, exceptions to full transparency may be agreed on the basis of narrowly established criteria and explicit agreements.
- *Sustainability*: Partnership activities should be planned to promote economic, environmental and social sustainability and to make optimum use of a partner's

[1] The *UN guidelines on cooperation between the United Nations and the business sector* (released in 2009) serve as a common framework for the UN system in partnering with the business sector. The guidelines address general principles on partnerships among which are transparency, integrity, independence and no unfair advantage.

[2] The UN Global Compact ten principles (released in 2000) address core values in the areas of human rights, labour, environment and governance, and are derived from the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.

resources. A mutually agreed process for the monitoring and evaluation of partnership projects should be built into the project design.

- *Respect for intellectual property in delivery of public goods*: There will be consultation and prior agreement between FAO and private sector partners regarding specific activities that could generate material subject to copyright, patent or other intellectual property jurisdiction.
- *Scientific credibility and innovation*: Partnership activities should be defensible in terms of objective scientific judgement.

A risk assessment process and due diligence tools are in place to evaluate private sector partnerships. Special attention is given to risks that could potentially affect FAO's reputation as an impartial forum and knowledge-based Organization. Such risks include, for example: conflict of interest; undue influence on standard setting; unfair advantage to specific companies.

The risk assessment process involves preliminary screening, review by the FAO Partnerships Committee and monitoring and evaluation. Proposals for a partnership or sponsorship are submitted for approval to the Partnerships Committee, chaired by the Director-General, and composed of members of senior management. The Partnerships Committee is supported by the Subcommittee on Review of Financial and Other Agreements (SubCom-RFA) whose role is to "review and examine partnership proposals and pre-assess cases for transmittal to and approval by the Partnerships Committee."

Tools have been developed to streamline this process. These include: due-diligence screening on the basis of common UN criteria and FAO specific risk factors; a database on past and ongoing private sector partnerships and staff training. The purpose of these tools is to minimize risks and to ensure that potential selected private sector partners are compliant with FAO's mission and mandate and with FAO's principles and guidelines.

CONCLUSIONS

Voluntary standards are a key way for the private sector to become economically, socially and environmentally sustainable. The symbiotic nature of the partnership relationships of FAO and the private sector in the area of voluntary standards facilitates the evolution of the existing sets of standards, and sets the foundation for the development of further sets of standards.

FAO, with the assistance of the private sector, will provide support in the implementation of voluntary standards at the national, regional and global levels. In recent decades, the governance of food and agriculture has been increasingly transformed on a global level by new technological, knowledge-based, financial and managerial resources and innovation. Increasingly, the private sector has been instrumental in the development and often at the origin of these transformations.

Effective engagement with the private sector can help the fight against hunger and malnutrition by enhancing FAO's work in agriculture, fishery, forestry, natural resource management, and the food-value chain from farmer to consumer.

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Development and use of FAO guidelines of ecolabelling of fish and aquaculture certification

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ABSTRACT

Ecolabelling and certification schemes are increasingly being used in the global trade and marketing of fish and fish products. Conformance with the a scheme guarantees that the product originates in capture fisheries and/or aquaculture enterprises that are sustainably managed and/or that adhere to criteria reflecting social and cultural values deemed important by the scheme's originators. In this manner, consumers can promote sustainable resource use through the purchase of labelled products; or, as this is sometimes expressed, ecolabels, and certification schemes use market forces to incentivize more responsible use of physical and human resources.

Many large-scale retailers and food service companies now drive the demand for certification of both aquaculture and capture fishery products in relation to sustainability and social criteria. FAO Members first discussed ecolabels in 1996 at a meeting of the FAO Committee on Fisheries (COFI). Since then, dialogue continued at subsequent COFI meetings on both capture fisheries and aquaculture issues with the resulting development and adoption of three sets of guidelines over the following years:

- Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries (Marine Guidelines), 2005/2009 (revised)
- Guidelines for the Ecolabelling of Fish and Fishery Products from Inland Capture Fisheries (Inland Guidelines), 2011
- Guidelines on Aquaculture Certification (Aquaculture Guidelines), 2011.

An example of the importance of these guidelines to industry is the recent formation of the Global Sustainable Seafood Initiative (GSSI). The GSSI is a sector sector-wide initiative, bringing together leading seafood companies, public institutions, and non-governmental organizations, as well as civil society and academic stakeholders, to deliver a common, consistent and global approach for the improvement of certification programmes promoting seafood sustainability to ensure confidence in the delivery of sustainable seafood worldwide.

This presentation paper will outlines the scope and content of the guidelines and introduces the use of these guidelines by the GSSI and other industry sectors

INTRODUCTION

Although fisheries are considered a renewable resource, there has been increasing concern that many of the fish stocks have been overfished. FAO's *The FAO State of World Fisheries and Aquaculture*, which is published biannually, has been highlighting the stocks that have been overutilized, fully utilized and not fully utilized. Global fish production in 2010 was 148.5 million tonnes, valued at USD217.5 billion (FAO, 2012). Of this, 128 million tonnes was fish utilized for food. Some 47 percent of the food fish came from aquaculture. The trends in global fish production by capture fisheries and aquaculture are illustrated in Figure 1. Fish production by capture fisheries has been stagnating since the mid-1990s, but aquaculture has been growing significantly during the last two decades. About 80 percent of aquaculture production takes place in Asia. Fish is one of the most internationally traded food items. During 2010, fish imports were valued at USD111.8 billion. The European Union accounted for 40 percent of global fish imports, the United States of America for 13.9 percent and Japan for 13.4 percent; thus these three major importers account for 67.3 percent of global fish imports One of the developments during the last two decades has been the increasing role of supermarket chains in distributing fish to consumers in major importing countries. For example, in the United Kingdom, about 70 percent of consumers buy fish from supermarkets. Environmental non-governmental organizations (NGOs) have been raising concerns about the supply of seafood. One example is the Greenpeace report *A recipe for disaster: supermarkets' insatiable appetite for seafood* (Greenpeace, 2005), which placed a lot of pressure on retailers. To convince the consumers about the sustainability of seafood that they are marketing, the retailers have been producing their own requirements such as certifications. The Marine Stewardship Council (MSC) was initiated by the World Wide Fund for Nature (WWF) and Uniliver to develop principles and criteria for sustainable fisheries. Fisheries meeting the criteria were awarded a certification and the products could go to market with the MSC logo on the label. There are also other certifying bodies, such as Friend of the Sea, which have produced their own certification schemes. Some NGOs such as Greenpeace and the Marine Conservation Society have been publishing retailer ranks based on the environmental sustainability of the products they sell and their procurement policies. This has increased pressure on retailers to gain high rankings and maintain their

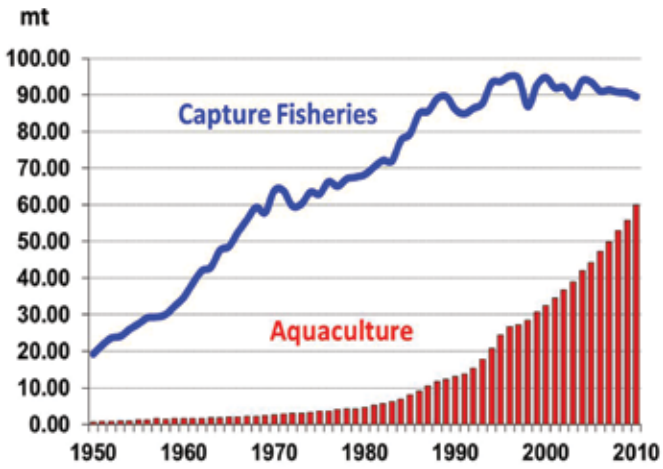

Figure 1. Trends in global fish production by capture fisheries and aquaculture
Source: FAO (2012).

position at the top to differentiate their products from those of competitors. As the market demand for sustainability-based certifications increased, FAO member countries requested FAO to develop guidelines for certifications. The process used by FAO to develop such certifications is explained below.

FAO-LED INITIATIVE ON ECOLABELLING

The 1982 UN Convention on the Law of the Sea and ensuing instruments, notably the 1995 UN Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement), are examples of efforts to contribute to the sustainability of fisheries. FAO developed the Code of Conduct for Responsible Fisheries in 1995 that provides a framework for member countries for carrying out fisheries management, aquaculture and trade. The potential usefulness of ecolabelling schemes to create market-based incentives for environmentally friendly products and production processes was internationally recognized at the UN Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992. In October 1998, FAO convened a Technical Consultation on the Feasibility of Developing Non-discriminatory Technical Guidelines for Ecolabelling of Products from Marine Capture Fisheries. This consultation identified a number of principles that should be observed by ecolabelling schemes. They recommended that the schemes should:

- be consistent with the Code of Conduct for Responsible Fisheries;
- be transparent, voluntary and market-driven;
- be non-discriminatory, by not creating obstacles to trade and allowing for fair competition;
- establish clear accountability for the promoters of schemes and for the certifying bodies, in conformity with international standards;
- include a reliable auditing and verification process;
- recognize the sovereign rights of states and comply with all relevant laws and regulations;
- ensure equivalence of standards among countries;
- be based on the best scientific evidence;
- be practical, viable and verifiable;
- ensure that labels communicate truthful information; and provide for clarity.

FAO has published a technical paper on product certification and ecolabelling for fisheries sustainability providing a review of the theoretical foundations, existing schemes and their potential impacts on international trade (Wessels *et al.,* 2001).

FAO TECHNICAL GUIDELINES ON ECOLABELLING

At the request of the 25th Session of the Committee on Fisheries (COFI), Rome (24–28 February 2003), FAO convened the Expert Consultation on the Development of International Guidelines for Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries, 14–17 October 2003, in Rome. This Expert Consultation produced draft international guidelines for the ecolabelling of fish and fishery products from marine capture fisheries (FAO, 2003). The draft guidelines comprised principles, minimum

substantive requirements, criteria and procedures for the ecolabelling of fish and fishery products from marine capture fisheries. The Guidelines drew upon various sources including relevant guides of the International Organization for Standardization (ISO), the World Trade Organization (WTO) Agreement on Technical Barriers to Trade (TBT Agreement), in particular, Annex 3 *Code of Good Practice for the Preparation, Adoption and Application of Standards*, and the work of the International Social and Environmental Accreditation and Labelling (ISEAL) Alliance (FAO, 2003). As directed by the Twenty-fifth Session of COFI, the draft international guidelines were submitted to the Ninth Session of COFI Sub-Committee on Fish Trade, Bremen, Germany, 10–14 February 2004. The COFI Sub-Committee noted the benefits to fisheries managers, producers, consumers and other stakeholders of internationally agreed and widely accepted and applied guidelines that ensure the credibility and trustworthiness of voluntary ecolabelling schemes for fish and fishery products. At the recommendation of the Sub-Committee, FAO organized a Technical Consultation in October 2004 to finalize the draft guidelines for consideration by the Twenty-sixth Session of COFI in March 2005. Some amendments were adopted by the Twenty-eighth Session of COFI, Rome, 2–6 March 2009. The Technical Guidelines with Revision 1 are available online (FAO, 2009).

The Technical Guidelines for the Ecolabelling of Fish and Fishery Products from Marine Capture Fisheries were adopted by the Twenty-sixth Session of COFI in Rome (7–11 March, 2005) and further amendments adopted at the Twenty-eighth Session of COFI (Rome, 2–6 March, 2009). The Guidelines define the scope, outline the principles, considerations and terms and definitions that apply to the schemes, and provide descriptions of the minimum substantive requirements and criteria for ecolabels. Guidelines have been provided for the setting of standards of sustainable fisheries, for accreditation and certification. The minimum substantive criteria cover three areas: (a) management systems; (b) fishery and associated stock under consideration for which certification is being sought; and (c) ecosystem considerations. Under each area, the requirements and the criteria to be used to see if the requirements are met have been described.

The highlights of criteria related to management system include the need for adequate data on the current state and trends of the stock, use of best available scientific evidence and a precautionary approach in accordance with Article 7.5 of the Code of Conduct for Responsible Fisheries, and consistency of the management target with achieving maximum sustainable yield (MSY). The special consideration needed by small-scale fisheries has been pointed out. The criteria under "stock under consideration" are that the stock is not overfished, and is maintained at a level that promotes the objective of optimal utilization and maintains its availability for present and future generations, taking into account that long-term changes in productivity can occur due to natural variability and/or impacts other than fishing. The criteria under "ecosystems considerations" are that adverse impacts of the fishery on the ecosystem should be appropriately assessed and effectively addressed; the role of the stock in the food web is considered; in the case of key prey species, management measures are taken to avoid severe adverse impacts on dependent predators; non-target catches, including discards, of stocks other than the "stock under consideration" are monitored and the management targets should not threaten these non-

target stocks with serious risk of extinction; if serious risks of extinction arise, effective remedial action should be taken.

While adopting these Guidelines, the Twenty-sixth Session of COFI asked FAO to work on similar guidelines for ecolabelling of fish from inland capture fisheries. Accordingly, an expert consultation was held from 23 to 26 May 2006 (FAO, 2006). This led to the drafting of the Guidelines that were adopted by the Twenty-ninth Session of COFI, 2011 (FAO, 2011a). These Guidelines are very similar to the marine capture fisheries guidelines, but modified to suit the requirements of inland capture fisheries.

FAO TECHNICAL GUIDELINES ON AQUACULTURE CERTIFICATION

The 3rd Session of the COFI Sub-Committee on Aquaculture (4–8 September, India) requested FAO to develop technical guidelines on aquaculture certification. FAO, in collaboration with the Network of Aquaculture Centers in Asia-Pacific (NACA), organized a series of expert workshops in different parts of the world (Bangkok, 27–30 March, 2007; Fortaleza, Brazil, 31 July–3 August 2007; Kochi, India, 27 November 2007; London, 28–29 February 2008; Beijing, 6–8 May, 2008; Silver Spring, USA, 29–30 May, 2008) to develop the draft guidelines, which was then finalized in a Technical Consultation with member countries (Rome, 15–19 February 2010). The Guidelines were approved by COFI during the Twenty-ninth Session in Rome (31 January–4 February 2011). These Guidelines (FAO, 2011b) follow a similar structure to the Ecolabelling Guidelines and include four minimum substantive criteria: (a) animal health and welfare; (b) food safety; (c) environmental integrity; and (d) socio-economic aspects. With respect to animal health and welfare, the guidelines and standards set by the World Organisation for Animal Health (OIE) should be the normative basis. In the case of food safety, Codex Alimentarius Standards, Guidelines and Codes of Practice would be the reference. The certification scheme should ensure special consideration to be provided to address the interests of resource-poor small-scale farmers, especially the financial costs and benefits of participation, without compromising food safety.

USE OF FAO TECHNICAL GUIDELINES BY STANDARD SETTING BODIES

When the FAO Technical Guidelines were developed, it was envisaged that the Guidelines would be used by private or public standard-setting bodies to develop certification programmes. The Guidelines include sections on setting of standards for sustainable fisheries, guidelines for accreditation and guidelines for certification. The MSC claims on their Web site that "The MSC meets the highest benchmarks for credible certification and ecolabelling programs, including the UN Food and Agriculture Organization guidelines and the ISEAL Code of Good Practice". Since MSC is one of the oldest certification schemes, it seems to be well established in the market. Currently, MSC has 207 certified fisheries producing 7 million tonnes of fish, representing 8 percent of the global catch (http://www.msc.org/business-support/key-facts-about-msc). There are also examples of other standard-setting bodies using the FAO Technical Guidelines for Ecolabelling. Global Trust based in Ireland has set up Responsible Fisheries Management (RFM) Certification based on FAO Guidelines. Alaska Salmon Fisheries has acquired RFM certification and this seems to be accepted in the market. Iceland Responsible Fisheries programme (IRF) is

also based on the FAO Guidelines and certified by Global Trust. Friend of the Sea (http://www.friendofthesea.org/about-us.asp) is another certification scheme that follows the FAO Technical Guidelines on Ecolabelling. The Web site of this certifying body claims that "In line with the FAO Guidelines, Friend of the Sea pricing structure is affordable also to artisanal fisheries and small-scale producers, which represent over 50% of the Friend of the Sea certified products".

Multiplicity of certification schemes has been causing difficulties both for consumers, who are confused about the merits of different schemes, and for producers, who need to spend a significant amount of resources to obtain certifications demanded by the buyers. Now there is some attempt to harmonize the schemes. The Global Sustainable Seafood Initiative (GSSI) is supported by the Deutsche Gesselschaft fur Internationale Zusammenarbiet (GIZ) on behalf of the German Ministry for Economic Cooperation and Development (BMZ) and the partners include seafood harvesters, producers, processors, manufacturers, retailers and foodservices, such as A. Espersen, Ahold, American Seafoods Group, Bumble Bee Foods, Gorton's, Darden, Delhaize, High Liner Foods, Iglo Foods Group, Kroger, Metro Group, National Fishery Institute, Sainsbury's, Sea Fish Industry Authority, Sodexo, Trident Seafoods and Wm Morrison Supermarkets. GSSI is planning to benchmark the various certification schemes using the FAO Technical Guidelines for Ecolabelling and FAO Technical Guidelines for Aquaculture Certification. This initiative has been welcomed by certifying bodies such as MSC. It is to be hoped that this benchmarking will reduce the costs of certification and enable small-scale farmers and small-scale fisheries also to obtain certification.

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Survey on (private) voluntary standards in the livestock sector

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ABSTRACT

The paper presents draft results from a global questionnaire survey on private voluntary standards in the livestock sector. Most standards refer to meat, followed by dairy products and eggs. They address a wide range of issues, such as animal welfare and health, food safety and quality, and environmental integrity. Animal, social and environmental benefits and challenges resulting from implementation of standards as presented by respondents are presented and analysed.

INTRODUCTION

In recent decades private standards have become a key element of governance in global agro-industrial food chains, progressively influencing both domestic business and international trade. Many organizations create and adopt standards, and there is a dynamic interchange between the public and private sectors. A challenge for both public and private standards is harmonization, a guiding principle of the World Trade Organization (WTO) (see Article 3 of the Application of Sanitary and Phytosanitary Measures [SPS] Agreement).[1] It's members should also take reasonable measures to ensure that non-governmental bodies accept and comply with Annex 3 of the Agreement on Technical Barriers to Trade (TBT) (the Code of Good Practice for the Preparation, Adoption and Application of Standards).[2] Evidence suggests that the harmonization of national food safety regulations around international standards has been slow. Private food safety standards undermine this process of harmonization, introducing a new layer of governance that risks further fragmentation of national markets according to the food safety requirements with which exporters must comply.

The 40-member governments that responded to a questionnaire about the effects of SPS-related private standards circulated by WTO in 2008 indicate that fresh, chilled or frozen meat (both bovine and poultry) are among the exported animal products most often identified as being affected by private standards (WTO, 2009a, b). The responses from 68 countries and eight international or regional organizations that replied to a World Organisation for Animal Health (OIE) questionnaire on private standards (OIE, 2010) were in agreement that a clear distinction needs to be made between private standards for sanitary safety and private standards for animal welfare. A majority (82 percent) stated that private standards for sanitary safety either have created or may create significant trade

[1] http://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm
[2] http://www.wto.org/english/docs_e/legal_e/17-tbt_e.htm

problems for exports from their countries, but 62 percent consider that private standards for sanitary safety have created or may create significant benefits for the livestock value chains in their countries.

Most responses to the 2008 WTO questionnaire identify the multiplicity of private standards, the lack of harmonization among them, and the high costs of compliance, which are additional to those that would be incurred to comply with official standards, as major difficulties. The proliferation of private standards is also of significant concern to many members of the Codex Alimentarius Commission (CAC), and compliance with and certification of these standards is difficult, especially for developing countries (FAO/WHO, 2009, 2012). However, the creation of private standards drives the harmonization process through benchmarking schemes – for example, the Global Food Safety Initiative (GFSI).[3]

Private standards may benefit producers by requiring more efficient management, reducing costs, improving market access, enhancing product quality and enabling producers to obtain higher prices (Liu, 2009). Compliance with environmental standards may improve the management of natural resources, and compliance with occupational health and safety standards may result in better working and health conditions for farm workers.

Consolidation of private standards leads to sizeable economies of scale, and the benefits of higher investment levels may result in efficiencies that are beneficial to economies as a whole (OECD, 2006). Henson and Humphrey (2009) observe that some of the debate about private food safety standards is fuelled by misunderstandings of why such standards evolved, and the functions they perform. They note that private food safety standards are often closely aligned with regulatory requirements, and the key function of such standards is to provide assurances to consumers in global agrifood value chains that regulatory requirements satisfy. Henson and Humphrey (2009) find that "an increasing number of regulatory authorities in member countries are embracing private food safety standards as a means of achieving higher levels of compliance and/or reducing costs". Private voluntary standards can shape public standards, as evidenced by the governmental regulation of the National Organic Program of the United States of America (USA) – once a private standard across different states, now a nationally regulated voluntary certification.

Private standards might also be seen as a means to increase market opportunities, especially in countries where legal frameworks addressing the agrifood sector are underdeveloped. In some – though yet few – circumstances, compliance with private standards can be a catalyst for upgrading and modernization of developing country food supply chains (Liu, 2009; Henson and Humphrey, 2009).

The replies to the WTO questionnaire point to a disproportionate impact on smallholders but also point to opportunities, as some small-scale livestock producers managed to obtain certification by forming associations (WTO, 2009a, b). Thus, evidence with respect to exclusion of small farmers from export value chains is not conclusive (Henson and Humphrey, 2009).

[3] http://www.mygfsi.com/about-gfsi/gfsi-recognised-schemes.html

To obtain an overview of private standards addressing the livestock sector, FAO circulated a first global questionnaire in 2010 that received 105 responses, mostly from governmental organizations, not-for-profit non-governmental organizations (NGOs), business organizations (representing several subsectors of the food or livestock business), and others. Most of the applied standards were said to have multiple objectives: mostly food safety, followed by animal and public health. However, on the whole, the standards covered a wide range of topics of societal and environmental concerns, such as animal welfare, food security, environmental sustainability, worker health and safety, and nutritive values. A draft report was published (FAO, 2010a).

In its animal genetic resources programme, FAO has been working on value addition for locally adapted breeds (LPP *et al*., 2010). In addition to classical products such as meat, milk, eggs, fibre and skin, livestock breeds provide specialty products for niche markets where labelling as a Protected Designation of Origin (PDO), Protected Geographical Indication (PGI), Traditional Specialty Guaranteed (TSG) or organic production often adds value. Besides those well-known livestock products, livestock provide a range of services including ecosystems services with impact on, for example, landscape value, vegetation management, water cycling and/or carbon sequestration, which are also credence products where labels and certification schemes are needed.

MATERIAL AND METHODS

Following a request by the Committee on Agriculture to consider the proliferation of private standards (FAO, 2010b), FAO launched a second global questionnaire in July 2011. The questionnaire focused on private voluntary standards (PVS), referring to non-mandatory regulations, codes of conduct and guidelines in the livestock sector that are created, enforced, certified, regulated and followed by stakeholders in the value chain. The survey aimed at better understanding the structure and the impact of PVS in the livestock sector and to help FAO enhance stakeholder inclusion in the livestock value chain, as applying voluntary standards might lead to value addition, which is one way to increase income and economic sustainability of locally adapted breeds.

The questionnaire was created in cooperation with Iowa State University using SurveyMonkey (http://www.surveymonkey.com/). It started with two closed-ended questions about the respondent's organization and a filter question in order to split the subsequent questions into the four main roles an organization can play in the standards chain, i.e. to create, certify or enforce, require and follow standards. The questionnaire then split into nine questions for each type of role including:

- one open-ended question requiring to state the most important PVS the organization is dealing with;
- six closed-ended questions referring to the standards;
- two closed-ended questions referring to the organization type.

All organizations, independent of their roles in the standards chain, completed a third section regarding the impact of PVS. The third section had eight Likert-scale questions and two open-ended questions. At the end, eight questions were asked regarding the respondent's country of origin, size of organization, comments or concerns and contacts.

The questionnaire was distributed through several FAO mailing lists on animal production, animal welfare, biodiversity, organic agriculture and many informal lists, including private sector lists. By May 2013, 735 responses had been received.

As only 324 respondents had indicated their country of origin, the GeoIP database[4] was used to identify the remaining countries based on the respondent's IP address. Data were processed and frequency analyses undertaken in SAS 9.3 software. The analysis is at aggregate level of all responses, without consideration of the four roles. Responses to each question provided by creators, followers, requirers and certifiers of standards to the second section of the questionnaire were thus combined. For questions that allowed multiple responses, the overall frequency was first calculated; then the frequency of single mention of each response item and each combination of items was calculated.

RESULTS

The survey was answered by 735 respondents from 90 countries and 6 regions (39 percent Europe, 26 percent North America, 13 percent Asia and Pacific, 9 percent Latin America and the Caribbean, 7 percent Africa, 4 percent Near East). The USA provides most responses (144), followed by the United Kingdom (63) and Canada (45).

The majority of responses (26 percent) were received from NGOs, followed by government organizations (20 percent), producers (14 percent) and processors (7 percent) (Table 1). Other respondents' answers mainly encompassed universities and research institutions, standard owners, feed industries and charity.

On average, each respondent mentioned 1.25 types of organization (Table 1). This indicates that many organizations have several roles in the value chain, as indicated by the high number of combinations in which one organization type is mentioned (Table 2). For example, governments have multiple roles as government, producer, auditor, distributor and commodity group.

Out of 230 respondents, 42 percent classified the size of their organization as "small", 35 percent as "medium" and 23 percent as "large". On both annual profit and the number of permanent employees, more than 50 percent of respondents' organizations

Table 1: Frequency of responses to the question: Which of the following best describes your organization?*

Description of organisation	Number of mentions	Percentage
Producer	127	13.85
Processor	66	7.20
Transporter	12	1.31
Distributor	28	3.05
Retailer (grocery)	12	1.31
Retailer (restaurant)	7	0.76
Commodity group (national)	38	4.14
Commodity group (international)	12	1.31
Auditor	40	4.36
Government	180	19.63
Non-governmental organization	235	25.63
Not applicable	19	2.07
Other (please specify)	141	15.38
Responses	**917**	**100**
Respondents	**735**	
Responses/respondent	**1.25**	

* Multiple responses possible.

[4] http://www.maxmind.com/en/geolocation_landing

were rather small (less than USD500 000 annual profit and less than 25 employees). However, the responses also covered large organizations with high annual gross profit (>USD 100 billion) and many employees (>100 000).

Figure 1 shows the **primary** role of the organizations with regard to voluntary standards. Clearly the creation of standards to be followed externally and internally plays the most important role.

The same ranking of roles resulted when asked to mention **all ways** in which they are involved in PVS. A total of 486 respondents answered the question, with an average of 2.26 responses (Table 3), indicating that many organizations have multiple roles in the standards chain.

Most frequent were organizations that create standards

Table 2: Most frequent combinations of organization type across creators, followers, requirers, enforcer/certifiers of PVS

Organization type	Mentioned alone in % of responses	Number of combinations in which the organization type is mentioned
NGO	30.4	19
Government	27.8	5
Producer	12.0	23
Auditor	3.9	8
Processor	4.0	20
Commodity group (national)	3.7	12

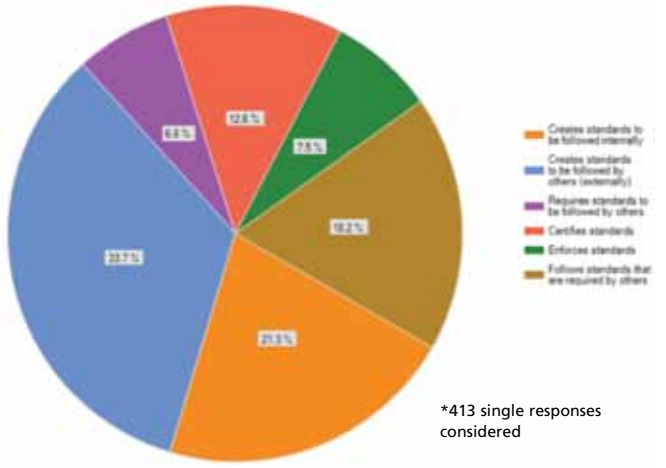

Figure 1: Relative frequency of responses to the question: What is your organization's primary role regarding PVS?*

Table 3: Frequency of responses to the question: What are all the ways in which your organization is involved in PVS?*

Role in the standards chain	Number of mentions	Percentage
Creates standards to be followed internally	197	17.94
Creates standards to be followed by others (externally)	259	23.59
Requires standards to be followed by others	139	12.66
Certifies standards	138	12.57
Enforces standards	146	13.30
Follow standards that are required by others	165	14.94
Not applicable	55	5.01
Responses	**1 098**	**100**
Respondents	**486**	
Responses/respondent	**2.26**	

* Multiple responses possible.

to be followed externally (24 percent) or internally (18 percent). Followers of standards were 15 percent of respondents, and similar shares enforce, require and certify PVS. More small companies were among the certifiers and enforcers, whereas there was little size difference among the others. The average of 2.26 responses per respondent indicates that organizations often play multiple roles in the standards chain. Standards created to be followed externally were most frequently mentioned alone and in combinations.

Table 4: Frequency of responses to the question: Most frequent combinations on roles in the standards chain across creators, followers, requirers, enforcer/certifiers

Role in the standards chain	Mentioned alone in % of responses	Number of combinations in which the role is mentioned
Creates standards to be followed by others (external)	11.7	33
Creates standards to be followed internally	7.2	28
Follows standards that are required by others	7.6	28
Certifies standards	2.7	27
Enforces standards	1.2	30
Requires standards to be followed by others	1.7	27

In our survey, meat (35 percent) was most affected by voluntary standards, followed by dairy products (22 percent) and eggs (18 percent) (Table 5), whereas fibre, hides, skins and fodder were mentioned in less than 10 percent of responses. Meat, milk and eggs alone or combined make up 50 percent of all products covered by PVS. These findings are in line with the WTO survey (WTO, 2009a, b).

On average, each respondent mentioned 2.14 different products covered by standards (Table 5). Meat alone was mentioned in 26 percent of all cases, but meat was mentioned in 19 combinations with other products. The corresponding figures for dairy products were 7 percent in 18 combinations, and for eggs 4 percent in 13 combinations.

Most frequently, the standards were applied at the production level (33 percent), followed by processing (19 percent) and transporting (16 percent) (Table 6). On average, each respondent's organization was active at 2.51 steps in the value chain, and combinations of different steps in the value chain were more frequent than single mentions, indicating vertical integration. It appears that PVS are more or less equally applied in any single

Table 5: Frequency of responses to the question: Which of the following products are affected by the PVS your organization creates, requires, follows or certifies?*

	No. responses creators	No. responses requirers	No. responses followers	No. responses certifiers	Total no.	Percentage
Dairy products	73	9	25	33	140	22.12
Eggs	61	11	14	25	111	17.54
Fibre, hides, skins	24	7	10	8	49	7.74
Fodder	24	6	5	6	41	6.48
Meat	127	13	38	45	223	35.23
Other (please specify)	43	7	9	10	69	10.90
Responses	**352**	**53**	**101**	**127**	**633**	**100**
Respondents	**164**	**18**	**51**	**63**	**296**	
Responses/respondentondent	**2.15**	**2.94**	**1.98**	**2.02**	**2.14**	

* Multiple responses possible.

Table 6: Frequency of responses to the question: Where in the value chain are those standards applied?*

	No. of responses creators	No. of responses requirers	No. of responses followers	No. of responses certifiers	Total no.	Percentage
Producing	150	15	25	56	246	33.06
Processing	80	11	19	38	148	19.89
Transporting	73	9	5	32	119	15.99
Distributing	34	3	7	11	55	7.39
Retailing (grocery)	33	4	17	11	65	8.74
Retailing (restaurant)	21	1	7	8	37	4.97
Other (please specify)	24	3	43	4	74	9.95
Responses	**415**	**46**	**123**	**160**	**744**	**100**
Respondents	**164**	**18**	**51**	**63**	**368**	
Responses/respondentondent	**2.53**	**2.56**	**2.41**	**2.54**	**2.51**	

* Multiple responses possible.

step in the value chain. Producing was most frequently mentioned alone (24 percent); it occurred in 34 combinations. The most frequent combination (12 percent) was production, processing and transporting.

Among the primary concerns addressed by the standards, animal welfare was of highest concern (25 percent), followed by food safety (21 percent), animal health (17 percent) and food quality (10 percent) (Table 7). On average, each respondent provided 2.47 responses, indicating that many standards address several concerns, in different combinations. Each single mention was below 7 percent, but 10 percent of the respondents chose the combination "food safety, animal health and animal welfare". Animal health, workers' conditions and fair wages, geographic indication or economic development alone were chosen by less than 1 percent of the respondents. Environment/biodiversity was mentioned by 1 percent of respondents alone, but in 25 combinations, reaching 10 percent of overall frequency.

For the question "What monetary costs to your organization are associated with the implementation of those standards?", several answers were possible. An insight into the costs related to the implementation of such standards is provided in Table 8. Costs for training programmes, audits record keeping, labour costs, and research and development are considered to be the most frequent costs.

The highest mention alone was that there are no associated costs to the organization (10.3 percent), followed by research and development (5.4 percent). All cost items in all combinations were below 3 percent, mostly below 1 percent each, indicating that several small single cost items add up in the standards chain.

Costs related to the standards are less than 10 percent related to initial investments, 40 percent related to training, labour, and research and development, with the majority of costs occurring continuously such as record keeping, consultants or related to certification.

The majority of respondents indicated that the standards they create, follow, require or certify are based on existing standards. These existing standards were in equal frequencies of national or international, public and private standards (Table 9). National private and public standards, and international public standards, were mentioned alone in more than

Table 7: Frequency of responses to the question: What are the primary concerns addressed by those standards?*

	No. of responses creators	No. of responses requirers	No. of responses followers	No. of responses certifiers	Total no.	Percentage
Food safety	93	5	35	22	155	21.20
Food quality	37	5	15	18	75	10.26
Public health	22	3	11	5	41	5.61
Worker health and safety	13	1	3	2	19	2.60
Worker conditions and fair wages	4	2	0	2	8	1.09
Animal health	70	4	21	28	123	16.83
Animal welfare	105	9	23	44	181	24.76
Economic development	3	2	1	4	10	1.37
Poverty alleviation	6	2	0	0	8	1.09
General social welfare, including equality	4	1	2	1	8	1.09
Environment, including biodiversity	40	2	12	18	72	9.85
Geographic indication	5	2	2	0	9	1.23
Other (please specify)	10	2	5	5	22	3.01
Responses	**412**	**40**	**130**	**149**	**731**	**100**
Respondents	**164**	**18**	**51**	**63**	**296**	
Responses/respondent	**2.51**	**2.22**	**2.55**	**2.37**	**2.47**	

* Maximum three responses possible.

Table 8: Frequency of responses to the question: What monetary costs to your organization are associated with the implementation of those standards?*

	No. of responses creators	No. of responses requirers	No. of responses followers	No. of responses certifiers	Total no.	Percentage
There are no associated costs to your organization	20	4	5	5	34	3.33
Research and development	71	8	16	28	123	12.05
Investment in infrastructure (e.g. new equipment)	41	1	16	21	79	7.74
Audits (internal or external)	75	6	28	39	148	14.50
External consultant fees	47	4	13	25	89	8.72
Training programmes	48	2	29	42	151	14.79
Labour costs	46	3	24	28	131	12.83
Record keeping	45	1	28	32	136	13.32
Certification fees	41	2	21	33	97	9.50
Other (please specify)	24	2	5	2	33	3.23
Responses	**548**	**33**	**185**	**255**	**1021**	**100**
Respondents	**164**	**18**	**51**	**63**	**296**	
Responses/respondent	**3.34**	**1.83**	**3.63**	**4.05**	**3.45**	

* Maximum three responses possible.

10 percent of all responses and occurred in more than ten combinations each. International private standards alone were mentioned by 5 percent of responses, in nine combinations. This indicates that public standards serve as a primary reference for the creation of PVS. The standards created, required, followed or certified by the organizations were based on an average of 1.78 other standards.

Table 9: Responses to the question: What types of existing national or international standards or regulations are the standards based on?*

	No. of responses creators	No. of responses requirers	No. of responses followers	No. of responses certifiers	Total no.	Percentage
National private voluntary standards (e.g. company, commodity group)	40	10	23	26	99	26.05
National public voluntary standards (e.g. geographic indication, organic)	43	6	18	19	86	22.63
International public standards (e.g. Codex, OIE)	44	8	23	21	96	25.26
International private standards (e.g. GlobalGAP)	28	8	10	12	58	15.26
Other (please specify)	32	1	1	7	41	10.79
Responses	**187**	**33**	**75**	**85**	**380**	**100**
Respondents	**108**	**17**	**40**	**49**	**214**	
Responses/respondent	**1.73**	**1.94**	**1.88**	**1.73**	**1.78**	

* Maximum three responses possible.

Table 10: Frequency of responses to the question: Who verifies compliance to those standards?*

	No. of responses creators	No. of responses requirers	No. of responses followers	No. of responses certifiers	Total no.	Percentage
Your organization's employees	67	5	26	36	134	28.57
Other businesses in your organization's supply chain	29	3	16	12	60	12.79
Independent third-party auditors	106	11	30	37	184	39.23
Government inspectors	31	3	22	10	66	14.07
Other (please specify)	14	1	5	5	25	5.33
Responses	**247**	**23**	**99**	**100**	**469**	**100**
Respondents	**164**	**18**	**51**	**63**	**296**	
Responses/respondent	**1.51**	**1.28**	**1.94**	**1.59**	**1.58**	

* Maximum three responses possible.

Regarding the verification of compliance with standards, independent third-party auditors play the most important role, followed by employees of the organization itself (Table 10). On average, each respondent gave 1.6 responses, indicating that multiple certification takes place. Third-party certification alone was mentioned in 32 percent of responses, and in 11 combinations, whereas own employees alone were mentioned in 16 percent of responses and in 11 combinations.

A total of 243 respondents provided information on the number of organizations in the value chain that follow the standards their organization creates, requires or certifies. It appears that a similar share (28 and 30 percent) is followed by less than 100 and by 100 to 1 000 organizations respectively.

POTENTIAL BENEFITS, PROBLEMS AND IMPACTS OF VOLUNTARY STANDARDS

The third section of the questionnaire aimed at identifying potential benefits and potential problems, and impacts on global public goods that may occur with the implementation of voluntary standards.

The implementation of voluntary standards seems to provide large benefits for more than 50 percent of respondents on product quality and traceability, for meeting stakeholder concerns, for product differentiation and for maintaining current or accessing new markets, and for creating or improving links among members of the value chain (Table 11). However, these advantages do not seem to be fully translated in price stability or increased productivity. More than 40 percent of respondents saw large benefits in risk mitigation and the facilitation of public standards. This shows again the close link between public and private standards. Product uniformity, price premiums and price stability were less frequently seen as large benefits.

Many respondents considered the potential problems listed in Table 12 as small problems only. Monetary costs were maintained as a small problem by 40 percent and as a large and very large problem by 30 percent of respondents; similar responses were received on management costs. Acquisition of technical skills and training were considered a small or no problem for 44–46 percent, and a moderate problem for 34–35percent of respondents. Confusion owing to the existence of multiple standards was considered a moderate to very large problem by 61 percent of respondents. However, adaptation to changes in the requirements of standards or lack of infrastructure were no or a small problem for 54 and 50 percent of respondents, respectively.

A key concern in the WTO context is whether the standards are "science-based" and developed in an open, democratic, inclusive and transparent form, and their potential implications as trade barriers (WTO, 2009b; FAO/WHO, 2009). However, lack of scientific justification was considered no or small problem by 64 percent of respondents (Table 12). 59 percent of respondents indicated that the science base of standards has improved (Table 13).

In relation to the impact of implementation of voluntary standards as seen by the organizations, the survey found that: product quality and traceability have increased

Table 11: Rating of issues identified as potential benefits that may occur with the implementation of PVS, according to the organization's experience

Potential benefit	Perventage from 270 responses for rating benefits as			
	None–little	Moderate	Large–very large	Does not apply
Maintaining current markets	12.96	21.85	60.37	4.81
Access to new markets	13.70	25.56	55.19	5.56
Product differentiation	21.48	20.37	51.11	7.04
Product uniformity	28.15	23.70	34.07	14.07
Product quality	9.63	22.22	62.96	5.19
Product traceability	17.41	18.52	58.15	5.93
Price premiums	29.63	26.67	34.81	8.89
Price stability	41.48	26.30	20.00	12.22
Increased productivity	32.22	29.26	28.89	9.63
Risk mitigation	17.04	27.78	49.26	5.93
Meeting stakeholder concerns	9.26	21.11	63.33	6.30
Creating or improving links among members of the value chain	14.81	30.37	50.37	4.44
Facilitating or implementing public standards	17.04	27.41	45.93	9.63

Table 12: Rating of issues identified as potential problems that may occur with the implementation of PVS, according to the organization's experience

Potential problem	Percentage from 259 responses for rating problems as			
	None–little	Some	Large–very large	Does not apply
Monetary costs	27.03	40.15	29.73	3.09
Management costs	32.82	37.84	27.41	1.93
Acquisition of technical skills	45.56	34.36	16.99	3.09
Training	44.40	35.14	18.15	2.32
Lack of infrastructure	50.19	22.78	21.62	5.41
Lack of scientific justification	64.48	15.83	16.22	3.47
Meeting stakeholder concerns	53.67	28.96	13.51	3.86
Coordination between different standards	34.75	29.31	31.66	4.25
Confusion due to the existence of multiple standards	33.98	24.71	37.84	3.47
Frequent changes in requirements of standards	54.05	23.94	18.15	3.86

Table 13: Rating of issues identified as potential impacts relating to market access and costs that may occur with the implementation of PVS, according to the experience of organizations

Potential impact	Percentage from 251 responses for rating potential impacts as			
	Decreased	No change	Increased	Does not apply
Market access	7.17	21.91	60.96	9.96
Product differentiation	3.19	27.49	56.97	12.35
Product uniformity	6.37	37.45	39.84	16.33
Product quality	1.59	19.92	68.92	9.5
Product traceability	1.99	20.32	65.34	12.35
Price premiums	3.19	32.67	50.20	13.94
Price stability	3.98	50.20	26.69	19.12
Monetary costs	5.18	20.72	64.14	9.96
Management costs	5.18	19.92	67.73	7.17
Productivity	9.16	31.87	47.41	11.55
Profitability	9.56	27.89	51.39	11.16
Market concentration	3.98	49.40	29.48	17.13
Science base of standards	3.98	28.69	59.36	7.97
Risk mitigation	5.18	27.89	56.97	9.96
Transparency between members of the value chain	2.79	21.51	68.53	7.17
Links between members of the value chain	1.59	21.91	69.32	7.17

for 68 and 65 percent of respondents, and market access has increased for 61 percent of respondents (Table 13); 69 percent found that transparency between stakeholders and links between members of the value chain have increased; 49 percent said that market concentration has not changed, while 29 percent found it to have increased; 50 percent said that price premiums have increased; 27 percent said that price stability has increased, while 50 percent said it has not changed. Productivity had not changed for 32 percent, increased for 47 percent and decreased for 9 percent. The corresponding figures for profitability were 28, 51 and 10 percent. This suggests that better economic returns arise from a combination of improved productivity and product quality as well as price premiums.

As expected, respondents confirm that management and monetary costs increase with adopting standards. Some important positive effects are registered concerning risk mitigation, transparency and links between members of the value chain. It is interesting to note that despite such results, a considerable minority of 10 percent of the respondents, declared that their productivity and profitability have decreased since they implemented the standards; for 7 percent of respondents market access has decreased. Further analysis may indicate which type or size of organization has gained most from implementing PVS.

Generally, the impact of voluntary standard implementation on human health and welfare does not raise particular negative issues. The majority (74 percent) of respondents said that educational and technical skills of workers have increased. However, this does not necessarily seem to translate into higher wages, as 48 percent found no change in worker incomes, 27 said their incomes improved but 3 percent said they decreased. Some 55 percent of respondents stated that general human health, safety and welfare have improved. Some 52 percent of respondents stated that gender equity has not changed following the adoption of standards; 43 percent said that forced or child labour is not applicable to their organization, another 40 percent said it has not changed. According to 34 percent, working conditions did not change, but 44 percent found that they improved.

According to the respondents, most aspects of animal welfare and health benefit from implementing voluntary standards. All aspects of livestock welfare and health – from biosecurity, handling, understanding and feeding of animals, to the monitoring of and reporting on their status – improved according to more than 66 percent of respondents. Also an average of 51 percent respondents stated that antibiotic use, animal stress and stocking densities have decreased, while an average of 29 percent found no change. These positive changes may be due to the objectives of the standards, many of which focus on animal welfare, food safety and animal health.

For most respondents, environmental issues are reported as having a less strong or more mixed benefit from implementation of voluntary standards. Incidences of chemical, material contamination, or unwanted residues decreased for 57 percent of respondents. Air, water and soil quality in and around the operation were said to remain unchanged according to an average of 31 percent of respondents, whereas 45 percent found it to improve. All of these direct environmental impacts of production close to the operation are relatively easy to mitigate with improved management that may be part of the prescriptions of the standards.

Greenhouse gas emissions decreased for 27 percent and remained unchanged for 45 percent of respondents; 50 percent found that the size of production did not change, while 21 percent found it to increase – this points to some economies of scale. The effect of standards on biodiversity is weaker, as less standards aim at improving biodiversity, and management of biodiversity is more complex and requires longer time frames: 41 percent and 34 percent of respondents said that wild biodiversity remained unchanged or increased, whereas the figures for breed diversity were 48 and 23 percent. It also seems that breed diversity is an even less important objective for PVS than wild biodiversity.

Table 14: Rating of statements with regard to the implementation of private voluntary standards by each organization.

Statement	Percentage from 234 responses for rating statements			
	Strongly disagree/ disagree	Neutral	Agree/ strongly agree	Does not apply
Your organization is adequately addressing environmental concerns	4.70	17.52	67.52	10.26
Your organization is adequately addressing social equity concerns	5.98	23.08	46.58	24.36
Your organization is adequately addressing human health and welfare concerns	5.56	11.54	68.38	14.53
Your organization is adequately addressing animal health and welfare concerns	2.99	1.71	89.74	5.56
Your organization is adequately addressing stakeholder concerns	2.56	8.97	85.04	3.42
Meeting standard requirements takes great effort	13.68	14.96	68.38	2.99
Private voluntary standards implemented by your organization are having their intended effects	2.99	5.98	85.47	5.56

Overall, more than 80 percent of respondents agreed that the private voluntary standards implemented by their organization are having their intended effects, that animal health and welfare concerns and stakeholder concerns are adequately addressed (Table 14). The agreement declined on human health and welfare, and on environmental concerns, with lowest agreement (47 percent) on social equity concerns.

TRANSPARENCY

The increasing role of private standards has heightened concerns about the transparency and inclusiveness of such standard-setting processes, and their "legitimacy", both in general and in comparison with the standards set by international organizations. Country replies to the 2008 WTO questionnaire highlight concerns about the lack of transparency and lack of stakeholders' involvement in the private standard-setting process.

Many standard-creating organizations answering the questionnaire mentioned their reference standard (public and private). Trying to collect information directly from those organizations – such as standard manuals, legal framework documents, guidelines or schemes – was not always possible because many organizations do not allow public access to their documents. In summer 2012, the standards mentioned in 289 survey responses received by then were tracked. It was found that 136 standards (47 percent) were publicly available. It was found that many standards are connected in a standard chain that goes from public to private standards. Benchmarking schemes so far assessed few of the standards. The analysis will be repeated with the full dataset as resources become available.

DISCUSSION AND CONCLUSIONS

The emergence of private voluntary standards in the livestock industry has seen marked growth over the past two decades, and is expected to continue to rise under the influences of market competition, risk mitigation, advocacy groups, participation in global value

chains, and consumer awareness and preferences. Voluntary standards have benefits for breeders, producers, processors, suppliers and retailers who seek product differentiation in a competitive marketplace. With food scares on the rise, the extra assurance of product quality and traceability is important for consumers.

Private voluntary standards regarding livestock and animal food trade were found to relate mostly to animal welfare, food safety or animal health. Regulatory changes in major markets in developed countries, often devolving responsibility for ensuring food safety from the state towards the private sector, have been drivers for the development of private food safety, SPS related standards. Animal welfare is not covered by the WTO SPS Agreement. However, the highest importance of animal welfare as objective of PVS resulting from our survey confirms the findings of the OIE (2010); 64 percent of respondents to the OIE questionnaire consider that private animal welfare standards create or may create benefits for their countries (OIE, 2010).

The impact of the standards on animal welfare and health seems to be generally positive. The analysis of regional differences might be interesting as most responses came from developed countries. The standards also address environmental or social concerns, including economic development, working conditions or gender equity; however, the impact of these dimensions of standards seems to be more mixed. To allow for a better assessment, the prescriptions for all dimensions of the standards's objectives need to be analysed.

Owing to the priority given to SPS-related concerns, it is not surprising that most standards were said to be based on other existing national or international regulations or standards (e.g. OIE or Codex Alimentarius), thus indicating that the large majority of the standards may possibly exceed, but are unlikely to be inconsistent with, the internationally negotiated public standards. Standards are connected: typically, private voluntary standards originate from international public standards. However, the different standards and their linkages cannot be fully investigated owing to lack of documentation and transparency.

Judging from the range of types of organizations that responded the survey, the majority of standards seem to be developed by private business, including in cooperation with national government organizations. Organizations have different functions in value chains, ranging from production to retailing, indicating vertical integration. Organizations also have different functions in standards chains, ranging from creation to certification.

Adherence to the standards is mostly certified by independent organizations. Participants in the value chain who are subject to standard enforcement may incur extensive costs, often without reimbursement or assistance. Voluntary standards often require extensive training and certification processes on an ongoing basis. Combined, these factors amount to a system that may exclude smallholders who do not have the resources or abilities to meet these demands (see Loconto, 2014, this publication). A more detailed analysis of benefits and impacts by stakeholder groups still needs to be carried out, as most studies on the standards' impact on smallholder are from the crop and horticulture sectors.

Private voluntary standards have both positive and negative impacts on stakeholders throughout the value chain. The replies to the questionnaire highlight that often a multiplicity of costs could be compensated by an equally broad set of benefits. The standards seem to provide economic benefits, not only in premium prices or stabilized

or increased market opportunities, but also in productivity increases and more reliable production. This indicates that the implementation of certain standards may be beneficial even without certification.

PVS have been criticized for lack of capacity development provided to smallholders. Our survey found that generally, training results in an improved worker skill-base and improved general human health and welfare. The responses also indicate where improvements are still needed, for example in worker incomes, gender equity or child labour, biodiversity and harmonization of standards.

As private voluntary standards continue to dominate the livestock industry, it is not known what effects – if any – they might have on changing public standards. Obviously, lessons learned in the private sector could shape governmental policy, depending on whether those lessons are positive or negative. When public and private voluntary standards overlap, assurances must be given to protect public goods and public health. In a best-case scenario, private voluntary standards would become transparent so that scientific knowledge and issues of liability could be addressed, as well as social equity, animal welfare and environmental sustainability, thereby benefiting all stakeholders (business as well as governments and citizens). At the very least, those using private voluntary standards could gain an advantage from partnering with advocacy groups, including those staffed by scientific counsels. By doing so, both for-profit and not-for-profit organizations might form collaborations that increase product integrity while improving quality of life – animal and human.

Finally, additional research on private voluntary standards needs to be ongoing and focused to enable fair and equitable trade in both foreign and domestic markets. Questions related to the need for government policy in aligning public and private voluntary standards are not easily answered. Any policy decision should balance the best practices of business while considering potential impacts on human and animal welfare, social equality and the environment.

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Sustainable nutrition and consumer communication

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ABSTRACT

The paper describes Nestlé's approach to sustainable nutrition and provides information on the tools that have been developed at Nestlé to guide the renovation and innovation of products and to provide reliable and valuable information to consumers on nutrients, as well as on environmental impact. Examples are given of an initiative "Beyond the Label" that uses Quick Response (QR) codes printed on the package as a means to provide more detailed information to consumers.

INTRODUCTION

Over the next 40 years the world's population is expected to increase from 7 billion to more than 9 billion, with 70 percent of the population living in an urban environment. Globalization will further expose the food system to novel economic and political pressures while production and climate change will lead to increased competition for food, water and energy. Alongside this we face the double burden of malnutrition – by which we mean both undernutrition and the obesity pandemic. These factors combined require us to go beyond the scope of classical nutrition and food security. Such diverse global issues cannot be considered in isolation and we need to take a step beyond to integrate these aspects into an approach we call "sustainable nutrition". As yet, there is no widely accepted definition; however, the working definition that we are using is: *Sustainable nutrition involves the physical and economic access to sufficient, safe and nutritious food and water to fulfil dietary and cultural needs to enable an active and healthy lifestyle without compromising the ability of future generations to meet these needs.* This approach is multifaceted and in order to understand the key aspects we need to consider three main areas:

First, sustainable nutrition must cover the environmental, economic and social aspects of sustainability. This involves sustainable food production and consumption and nutrient security. From the economic viewpoint, it includes such factors as farmers' income (particularly smallholders) and public health economics, as well as income from sales of food products.

Second, sustainable nutrition has to encompass the entire value chain from agriculture and responsible sourcing, the choice of ingredients, food processing, food packaging, distribution and consumer use right through to the end of life including food waste.

The third aspect of sustainable nutrition is the supply of the appropriate nutrients to ensure optimal human growth and development. The early years, especially the first 1000 days, are particularly crucial and can have an impact on the maintenance of health and independence in later life. This is expressed schematically in Figure 1. Inadequate, or

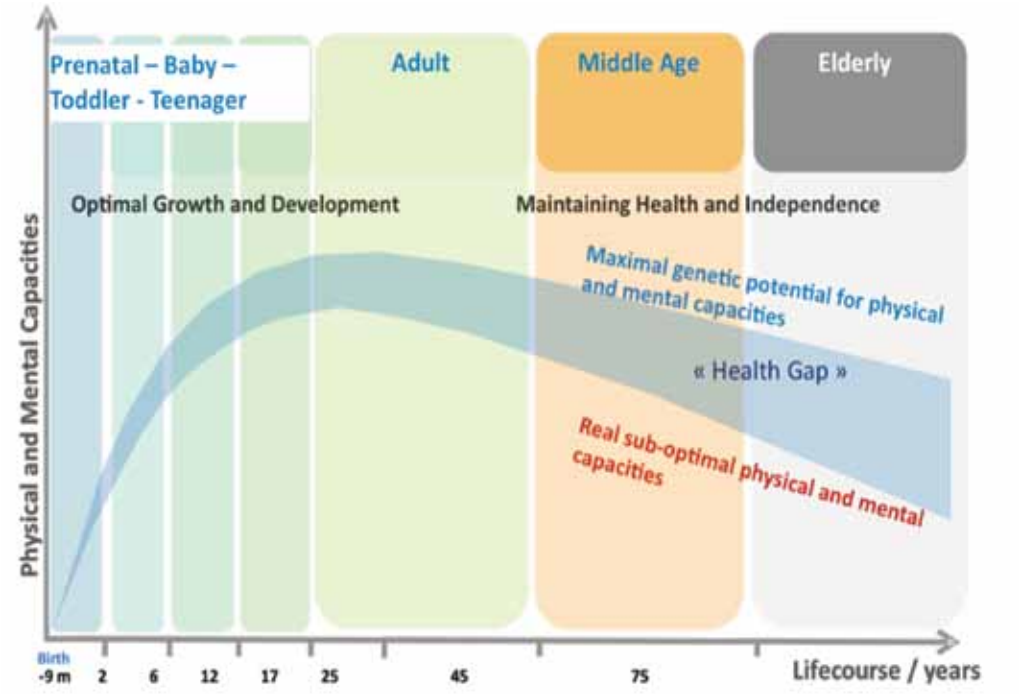

Figure 1. Sustainable nutrition – fulfilling genetic potential
Source: Nestlé (2012).

inappropriate nutrition, can mean that many people will remain on a lower curve and then never reach their full potential. Decline can then be faster and further than those with an adequate nutritional intake.

ANALYSIS OF SUSTAINABLE NUTRITION

Today there are no integrated tools that enable comprehensive assessments of sustainable nutrition so Nestlé is currently using different means to assess the various aspects.

Assessments at the farm level are carried out using a tool called RISE that was developed by the University of Bern in Switzerland. This is a semi-quantitative assessment tool that covers a range of criteria as shown in Figure 2. Most importantly, the RISE analysis leads to a concrete action plan at the farm level in the economic, socio-cultural and environmental areas (Häni *et al.*, 2003). This tool is available to Nestlé's 1 200 agronomists in the field and RISE studies have been conducted in over 18 countries. For example, follow-up on RISE studies conducted in two regions in Mexico led to field analyses of the nutrient flows (nitrogen [N], phosphorus [P] and potassium [K]) in dairy farms. The study provided a simple tool to calculate NPK balances and to identify feasible and cost-efficient solutions to provide nutrient efficiency. Excessive application of N and K can result in eutrophication of surface waters and can negatively impact human and animal health.

On the *level of the food product*, Nestlé conducts regularly full life cycle assessments (LCAs) that provide very valuable information. However, full LCAs are too complex and

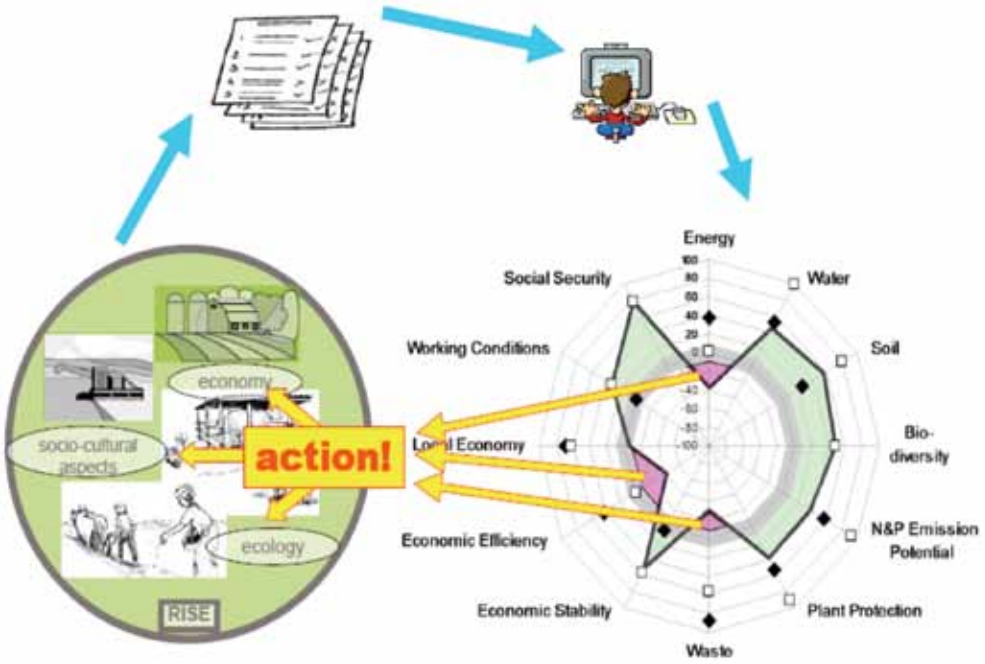

Figure 2. Sustainability assessment at the farm level – the RISE tool
Source: Nestlé-University of Bern.

too expensive for daily industrial practice. A LCA is normally done towards the end of the development cycle when any changes are very difficult to implement. Since Nestlé has in excess of 12 000 ongoing development projects, it is essential to have practical, science-based tools that can be used by product developers throughout the worldwide organization at a very early stage in the product development cycle. For this reason, we have developed an ecodesign tool called **EcodEX** in conjunction with an external partner. This tool is based on life cycle assessment but with a simplified interface that enables use by non-experts in LCA. It covers the entire value chain from agriculture through ingredients, food processing, packaging, distribution and consumer use right through to end of life including food waste. Five environmental impact areas are analysed with EcodEX and these are: greenhouse gas emissions; non-renewable energy and minerals; land use; water consumption; and impacts on ecosphere (see Figure 3). Examples of the output are given in Figure 4 for three different meals. EcodEX enables comprehensive analyses to be carried out on all projects and enables fact-based environmental choices to be made right at the beginning of the product development cycle when many options are open. The EcodEX tool is commercialized by Selerant and is available for any company, or organization, to adopt (EcodEx, 2013). We will, however, continue to use full life cycle assessment with third-party peer review when more detailed assessments are required and to establish comparative environmental claims about our products – in full conformity with ISO 14 040 and 14 044 standards.

In order to link together environmental factors and nutrition, Nestlé has recently developed a *nutrient balance tool* that allows the calculation of the 25 essential nutrients

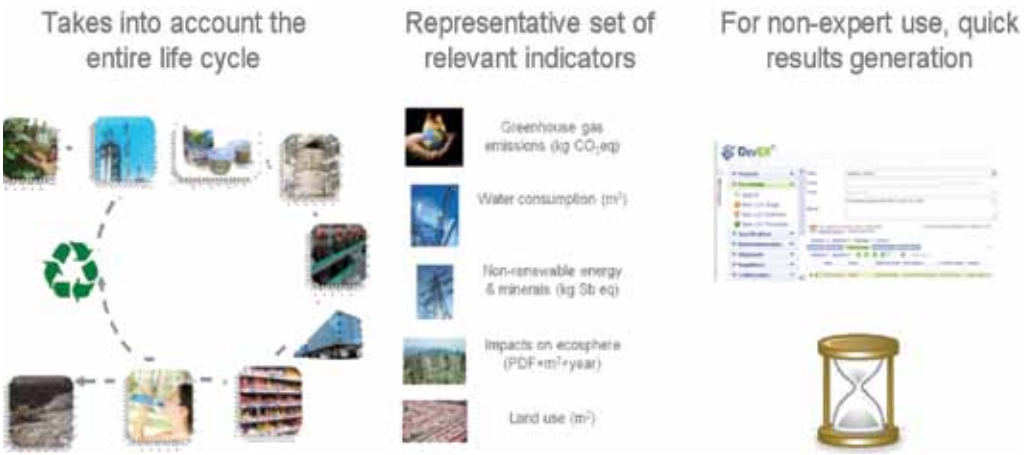

Figure 3. Scope of the ecodesign tool EcodEX
Source: Nestlé internal document.

Figure 4. Environmental impact of different meals calculated using EcodEX
Source: Nestlé.

that are required for a healthy life. These include minerals, vitamins, proteins, etc. This tool can be used to analyse individual food products, whole meals or complete diets.

As we implement this tool we will be increasingly bringing together environmental sustainability and nutrition in the research and development of new products and the renovation of our existing portfolio.

CONSUMER COMMUNICATION

This critical lack of harmonized tools for practical environmental assessment has led to a proliferation of competing schemes developed by various actors (public authorities, retailers, producers) and different methods assessing different impacts with different methodologies that are more or less reliable (carbon footprint, water footprint, food miles, organic, etc). Communication tools are supported by different schemes that reduce consumer understanding and comparability. Communication to consumers is further complicated by the high diversity of food and drinks, and different environmental impacts at different stages of the life cycle (e.g. sugar vs milk vs pizza).

Nestlé has extensively supported the development of the Envifood Protocol (Envifood Protocol, 2012; Food SCP, 2011a, b). This is a harmonized methodology for the environmental assessment of food and drinks elaborated within the European Food Sustainable Consumption and Production Round Table (Food SCP, 2011a), which involves the European Commission and the entire food chain as well as FAO and UNEP among others. The Round Table has three main objectives:

1. establish scientifically reliable and uniform environmental assessment methodologies for food and drinks;
2. identify suitable tools and guidance for voluntary environmental communication to consumers and other stakeholders;
3. promote continuous environmental improvement measures along the entire food supply chain.

The Round Table has issued in particular its report Communicating environmental performace along the food chain, (Food SCP, 2011b), which identifies suitable tools and guidance for voluntary environmental communication to consumers and other stakeholders.

The conclusions of this report can be summarized as follows:

- The information communicated must be valid and reliable and is best achieved using a multifaceted approach.
- There is a need for consumer research as consumers must be enabled to make informed choices. Data verification by independent third parties is essential to analyse the data and the associated assumptions and to ensure credibility.
- The partners across the food value chain play an important role in enabling consumers to act on complex product-specific information and to make informed choices, supported by awareness-raising and a broader public education strategy.

Following the Round Table timeline shown in Figure 5, the Envifood Protocol and different communication tools are currently being tested in a series of more than 20 pilot

Figure 5. Communicating environmental performance across the food chain
Source: European Food Sustainable Consumption and Production Round Table.

projects. Finalization of these pilots is expected by the end of 2013.

For the above reasons, we need to communicate much more information to consumers and other stakeholders. However, product labels are getting more and more crowded with legally required information, branding, nutritional information etc. For this reason, Nestlé has adopted an approach we call "Beyond the Label". This is based on the use of a QR code printed on the package that links to a Web site with more detailed information on nutrition, environment and social aspects. The system was launched in January 2013 and will be rolled out to a wide range of products. An example of the type of content is shown in Figure 6.

CONCLUSIONS

Nestlé is developing tools to approach the issues of sustainable nutrition that will provide the basis for fact-based decisions at an early stage in the product development cycle. We firmly believe in transparent consumer communication and the importance of voluntary standards that are based on sound science. However, the environmental, social and economic aspects of sustainable nutrition are complex and multifaceted and communication to consumers needs to be clear, cutting through the complexity but remaining factual. Our current roll-out of "Beyond the Label" has the aim of providing such information to the interested consumer in a visually attractive and accessible way. As we expand the understanding of sustainable nutrition, we will further develop integrated assessments to allow optimal decisions both within our product development and for consumers to make informed choices.

Figure 6. Consumer communication using QR codes "Beyond the Label"
Source: Nestlé internal document.

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PDOs' role in reassuring consumers: the "Parmigiano Reggiano Terremotato" case

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ABSTRACT

The earthquake swarm that shook the Emilia Romagna (Italy) region in May 2012 caused 26 deaths and diffuse economic damage in the traditional production area of Parmigiano-Reggiano Protected Designation of Origin (PDO), including several dairies' warehouses where the cheese is produced and aged. It has been estimated that the loss to the Parmigiano-Reggiano producers exceeded 150 million euros. The broad mobilization to help the stricken people revealed the "social embeddedness" of this specific food, giving rise to the sale of "Parmigiano-Reggiano damaged by earthquake" (PR-T). This paper aims to investigate the main determinants of PR-T purchasing, using the theory of planned behaviour (TPB) as a conceptual framework. A new concept of sustainability is explored, departing from the ability of the PDO brand name to reassure consumers' trust. A preliminary focus group was formed and a survey on 200 consumers was carried out for this purpose; data were collected during face-to-face interviews in stores and markets where the PR-T has been sold. The relative importance of attitude, descriptive norms and perceived behavioural control (PBC) in influencing the intention to purchase PR-T and the behaviour itself were investigated. Other concepts were added to the analysis, such as formal and informal trust, moral attitude, PDO perception, sense of belonging to the region, and other socio-economic variables. The revised TPB model predictors accounted for 70 percent of the variance in intention to purchase PR-T in the future and 32 percent of the variance in behaviour. PBC, trust in formal communication sources and PDO quality warranty are the main predictors of intentions. Behaviour is positively affected by descriptive norms, sense of belonging, age and intentions, and negatively affected by food scares, past behaviour and educational level. The PDO granted to Parmigiano Reggiano cheese played a powerful role in reassuring consumers, avoiding the "worst-case scenario"(market crisis). This seems interesting since PDO may make food chains resilient in front of adverse events with a probable economic impact, maintaining the trust and providing food chain sustainability. Prices of Parmigiano-Reggiano remained stable, and both the producers and the Consortium played an active role. These empirical findings also provide evidence of the solidarity aspects of collective purchases of Parmigiano-Reggiano in the aftermath of the 2012 earthquake swarm, as well as the importance of increasing people's capability and trust to effectively reach the goal of facing alarming food scares.

INTRODUCTION

Emilia-Romagna region – well-known for its production of traditional food products – gained widespread national and also world media coverage starting in May 2012 because of an earthquake swarm causing 26 deaths and diffuse damage. The earthquakes also damaged several dairies' warehouses where Parmigiano-Reggiano (PR) was produced and aged; the Consortium estimated the financial loss of Parmigiano-Reggiano exceeded 150 million euros. About 633 700 wheels fell off shelves (about 20 percent of annual production) and five dairies were declared unfit for use (Consorzio Parmigiano-Reggiano, 2012a). The damaged product, named "Parmigiano-Reggiano Terremotato" (PR-T, namely "Parmigiano-Reggiano damaged by earthquake") referred to serious impairment of wheels either (i) below the minimum period of maturation defined by the Protected Designation of Origin (PDO) standards (12 months) that therefore were melted or grated, with a loss of about 6 €/kg; or (ii) already rated as PDO, which, due to the damage, were sold at a discounted price, with an estimated 2 €/kg loss.

In the broad mobilization to help the stricken people, local communities took the lead. Coldiretti, the major Italian Farmers' Union, managed alternative food networks (AFN) and direct-selling channels, relying on informal trust in the producers and on word-of-mouth mechanisms – perfectly matching the true spirit of spontaneous relief. This gave rise to the correctly entitled "PR-T sales", which entail aspects of a bottom-up, self-organizing approach. Such sales were made both in farmers' markets, in Coldiretti's farmers' shops (*Botteghe di Campagna Amica*) and also on the Internet (collective purchases), and were characterized by deep emotional participation by consumers.

At the same time, more formal actions were orchestrated: large retailers agreed with the Consortium that for each wedge of Parmigiano-Reggiano sold at the current prices, a contribution or 1 €/kg was devoted to the dairies hit by the earthquake (Consorzio Parmigiano-Reggiano, 2012b). Moreover, for those who wanted to buy cheese directly from the damaged dairies, the Consortium made available on the Internet a list of the dairies concerned in order to avoid fraud or speculation, while maintaining a proper governance during the crisis situation. The Consortium strategy was to sell this product as a generic cheese and not with the PDO label.

PDOS AS SUSTAINABLE FOOD PRODUCTS

PDO food systems and products can be considered "sustainable" against a wide array of aspects. First, *environmental sustainability* is a natural feature of PDO food chains. Owing to reliance on locally-owned raw materials for food processing, PDO products can escape the limits of indefinite growth and resource consumption only with difficulty. As De Roest and Menghi (2000) realized, PR-PDO is a environmentally-friendly product, with a limited environmental impact if compared with other food chains. The inherently small-scale production is *"ecosystemically" bounded*. Available resources reach soon an equilibrium point.

Another facet relates to *economic sustainability*. Also here, PDO products (with no exception for PR) cast a high differentiation potential versus similar products. The limited offer of the food, due to non-industrial production, is the other aspect keeping the prices

high. In turn, this benefit local producers and communities. This is also enshrined in the European Union (EU) regulation (2012). According to Regulation 1151/2012 (Whereas: 5), "Agricultural product quality policy should therefore provide producers with the right tools *to better identify and promote those of their products that have specific characteristics while protecting those producers against unfair practices*".

In addition, PDOs may cover aspects of *food safety and even nutritional sustainability*. EU regulations recognize "traditional products" (Regulation 852/2004 EC, Whereas: 16) maintaining traditional production practices as able to produce "safe food" even if formally outside strict EU hygiene rules. The reasoning behind this is that traditional foods (such as PDOs) are those foods that have *survived* over centuries (*safe and advantageous*). Hence traditional foods may be notified by national authorities in order to preserve their pre-modern, yet sustainable, transformation methods.

In addition, traditional foods are at the very core of national food diets, providing key nutrients and in a position to cover the nutritional requirements of a large part of the national populations. This is at least indirectly encompassed under the preambles (11 and 12) of Regulation (EC) 1924/2006, where reflections are made on "dietary habits and traditions" and on "certain foods or categories of foods depending on their role and importance in the diet of the population".

However, for the scope of this paper, the most interesting feature to be explored attains *sustainability* against "X events" (Casti, 2012). In this vein, a key research question was: "*Are PDOs sustainable in front of major food crises typical of modern food chain?*", and again, "*What does happen?*" in the case of *food scares on the horizon? Are PDOs resilient, anti-fragile* (Taleb, 2012), *able to restore consumers' trust?*

Evidence has shown that environmental disasters can trigger extreme food scares (e.g. buffalo mozzarella contaminated by dioxins in Campania in 2008, tsunami and Fukushima accident in 2009). It is unclear why some disasters resulted in food scares and other did not, even if there are interesting and promising clues on this (artificial vs naturally occurred, etc.). Fears deriving from the natural phenomenon itself, and also from the food-safety perception of PR, were apparently not given grounds to thrive. Consumption and purchasing of PR-T could be seen as a way to help stricken communities to face natural disasters, while strengthening social relations and the sense of being part of the same community.

But it was still questionable *why*.

AN EMERGING FEATURE OF SUSTAINABILITY: THE *RESILIENCE* OF PDO BRAND NAME VERSUS *FOOD SCARE* EMERGENCE

One of the goals of the current research is hence to investigate the role of the PDO EU quality brands as a possible element in guaranteeing consumers during a possible food-scare phenomenon. In fact, PR cheese is a famous PDO product, well appreciated worldwide.

Previous research has shown how PDO products generally are well received by consumers (European Commission, 2004, 2012; Van Ittersum *et al.*, 2007; Loureiro and McCluskey, 2000), which demonstrates a higher willingness to pay (WTP), in particular under local consumption circumstances, where they represent "traditional food". Other

research has drawn attention to the strong identification and symbolic value local foods such as PDOs can supply to communities (Parrott and Murdoch, 2002; Van Ittersum *et al.*, 2007).

From an institutional perspective, PDOs were established formally under Council Regulation (EEC) No 2081/92, and are now reinforced by EU Regulation No 1151/2012 of the European Parliament and of the Council. To register a PDO trademark, producers have to issue a formal request to enter the formal register established at the EC level. National authorities at the level of Member States have a role in examining the demand, and set a control system under broader EU provisions on official controls (Regulation 882/2004 EC). While official controls have a role to play in securing the robustness of the system, it is apparent that consumers' trust in PDO products relies on a bundle of features related to territorial, relational and "socially-dense" aspects. In fact, under the PDO designation, the eventual food(stuff) (Regulation 2081/1992, Art. 2, p. 2 and Regulation 1151/2012, Art. 5 p. 1):

- comes from a well defined area, place or (most rarely) country;
- its quality is significantly or exclusively determined by the geographical environment, including natural and human factors;
- its production, processing and preparation takes place within the determined geographical area.

Similar designations such as Protected Geographic Indication (PGI) or Traditional Specialties Guaranteed (TSG) discount only a weak link to the territories beneath. On the contrary, the PDO name requires that the entire productive process – from the sourcing of raw materials to the first, and following transformation(s) – occurs under the geographic area as previously defined. In the end, it means that the name of the territory is the name of the product (and *vice versa*), *"linking people, places and products"* (FAO, 2010).

PDOS: EMBEDDEDNESS AT WORK

This implies the very concept of "embeddedness", explored by Polany, Arensberg and Pearson (1957), as an extension of the Marx's fundamental thought that economics *is about* social relationships. In a nutshell, *embeddedness* underpins that social aspects come before and shape economic relationships, melting with them. If "food consumption" stands as an intrinsically "embedded" trait of any given society, *food is even more "embedded" when local, traditional food is on stage*. Furthermore, social networks can play a distinctive role (Granovetter, 1985), providing an explanation of how economic players act concretely. This allowed the surpassing of the neo-classic perspective of atomized, individualistic actors, willing only to maximize their own subjective utility (*"rational, self-interested behaviour affected minimally by social relations"*, Granovetter, 1985), giving ground to an emerging idea of "social utility".

Furthermore, in an economic context (PR food chain) inside which labour intensity is double, as in the dairy sector (De Roest and Menghi, 2000), the handcraftsmanship provides an economic return to the territory, able to magnify the societal acceptance of this productive sector. *Embeddedness* here may also be framed as an "enlarged safety network", in the vein of what presently constitutes *familiar welfare* in regions or countries

where a limited female labour force, high unemployment rates and an overall critical macro-economic environment have a place. The very concept behind is that people under financial difficulties can rely on established social relationships to recover key resources, wealth, social acceptance and, eventually, *weltanschauung* – i.e, *"world's meaning and vision"*.

METHOD

A qualitative phase (assisted focus group), eliciting salient aspects for deeper research (covering both wide topics within the food discourse and more specifically ones addressed to Parmigiano-Reggiano purchases) was carried out. Then, in the confirmative phase (quantitative), the aim was to investigate the determinants of "Parmigiano-Reggiano damaged by earthquake" (PR-T) purchasing. For this, the theory of planned behaviour (TPB) (Ajzen, 1991) was used as a conceptual framework.

Preliminary qualitative analysis

After a literature review, the authors formed an initial focus group in November 2012, with ten consumers covering topics within food and Parmigiano-Reggiano purchases such as, among others: risk perception, formal and informal reassurance mechanisms both in general and after the earthquake, and solidarity aspects involved.

The focus group was aided by visual and verbal stimuli (questions, statements for comment, pictures of damaged Parmigiano-Reggiano wheels as they appeared in newspapers, wasted warehouses, sales in farmers' markets, etc.), going in depth into the emotional aspects permeating the *statu nascenti* consumers' response (i.e. willingness to purchase).

The semantic map surrounding the very concept of "food" allowed some broader reflections: common expectations regarding food included relationships, friendship, conviviality and culture. In turn, this reflected the intrinsically social background of food: out of nine concepts expressed, five related to social aspects (Figure 1). Sociological studies are well aware that consumption can be seen as a ritual, able to maintain the social structure

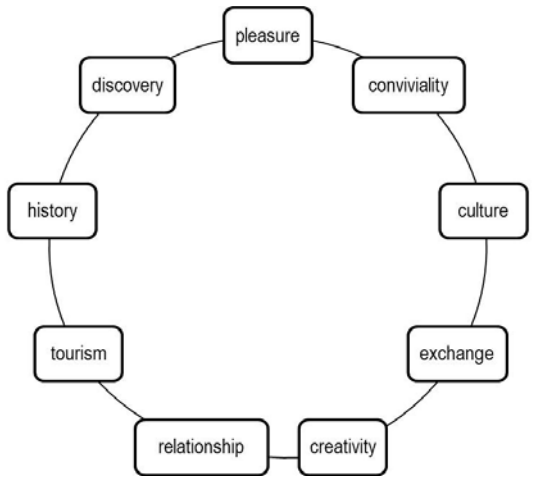

Figure 1. Semantic map of food perception based on focus group results
Source: Authors' elaboration.

of a society (Baudrillard, 1970; Levi Strauss, 1962). Furthermore, goods have a symbolic value more than value of use, and can be conceived as instruments and tools to think. Consumption can also be framed as activation of exchange among people (Mauss, 1925): "by exchange of goods relations are established between individuals, clans: it creates the society". These aspects make a deeper analysis on solidarity aspects during extraordinary conditions interesting.

Study design

Based on the literature review and focus group results, a questionnaire was developed and submitted to 200 consumers. The mean age of the sample was 37 (standard 13.5) years, mean family size was 3.3 members (standard 1.3), and children under 12 in household were 0.3 on average (standard 0.7). Some 63 percent of respondents were born and 78 percent are living inside the traditional area of Parmigiano-Reggiano production. The mean distance from the earthquake epicentre (i.e. kilometres from Mirandola, a village in Modena Province) was 54.6 km (standard 90.5) (Table 1).

Almost half of the survey respondents have purchased some Parmigiano-Reggiano damaged by earthquake during the last months. One-third of those who purchased PR-T bought it in farmers' markets or in supermarkets; however, many people purchased it in traditional food shops or from other sources (e.g. friends, colleagues, groups of consumers, etc.). This wide variability of purchasing sources shows the broad mobilization to help the stricken people, as well as the deep emotional participation by local consumers.

Measures

In its baseline description, the theory of planned behaviour (TPB) considers *intention* as the central factor in performance of a given *behaviour* (e.g. to purchase the Parmigiano-Reggiano damaged by the earthquake), and is guided by (a) *attitudes*; (b) *perceived pressure from social groups*; and (c) *perceived ability to perform the behaviour* (Ajzen, 1991).

Attitude towards the behaviour refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal about purchasing the damaged Parmigiano-Reggiano (PR-T) (Ajzen, 1991). Attitude was assessed with five semantic differential scales, e.g. purchasing PR-T is bad–good, unhealthy–healthy, risky–safe, unpleasant–pleasant, expensive–cheap. The positive *moral attitude* of consumers to help stricken people and companies by purchasing PR-T ("purchasing PR-T would help economically", alternatively "...would help stricken people" and "would help stricken industries and shops") was also considered. The second predictor considered by the TPB was the subjective norm, i.e. the perceived social pressure to perform or not to perform the behaviour (Ajzen, 1991). The authors opted to use a better operational version of subjective norm, the *descriptive norm*, that, according to the literature, significantly increased the variance explained in intention after other variables had been taken into account, in particular when health-risk behaviour is considered (Rivis and Sheeran, 2003). The *perceived behavioural control* (PBC) construct refers to the individual's perception of the ease or, on the contrary, difficulty of performing the behaviour of interest (Ajzen, 1991). In particular, respondents were asked whether they knew shops, groups of consumers and producers where they could buy PR-T. *Intentions*,

Table 1: The sample

	Percentage (%)	
Gender		
Males	37.6	
Females	62.4	
Educational Level		
Primary or lower secondary	12.4	
HIgher secondary	50.5	
Tertiary	36.6	
Past benaviou (frequency of purchase)		
More than twice a day	10.2	
Twice a day	8.6	
Once a day	32.8	
More times a week	32.8	
Less than once a week	2.7	
Several times a month	8.6	
Less than once a month	3.8	
Never	0.5	
Born inside the traditional area	63.4	
Residence inside the traditional area	78.0	
Did you purchase the Parmigiano-Reggiano damaged by earthquake (% yes)	49.5	
Where did you purchase the Parmigiano-Reggiano damaged by earthquake:		
Supermerkets	30.4	
Traditional retail	12.0	
Farmers' market	32.6	
Internet	6.5	
Other (e.g. friends, group of consumers, etc.)	18.5	
	Mean	Sd
Age	37.17	13.54
Family size	3.27	1.29
Children in household (< 12 years)	0.30	0.74
Distance from epicentre (km)	54.64	90.50

Source: Authors' elaboration.

according to the TPB, are assumed to capture the motivational factors that influence a behaviour; they are indications of *how hard* people are willing to try, in order to perform the behaviour in the future (Ajzen, 1991). In general, the stronger the intention to engage in a behaviour, the more likely should be its occurrence. Participants were asked if they intended to purchase PR-T in the future.

The authors integrated this model in order to account also for other aspects, such as: the role of the PDO brand name; the role of formal or informal information sources; the perception of food scare/fraud; the subjective perception of health status; of wealth status; and, finally, the role of price advantage as a possibly separated driver for purchasing, instead of solidarity.

Parmigiano-Reggiano is a PDO product with a strong image and high brand awareness. We hypothesise that the *quality warranty* of the Parmigiano-Reggiano PDO label could

have a distinctive effect on the rational intention to purchase the PR-T (Van Ittersum *et al.,* 2007). Consumers beliefs about the PDO label were measured on a five-point Likert scale (with the end poles labelled 1 = totally disagree, to 5 = totally agree), by asking participants if they agreed that the PDO label for Parmigiano-Reggiano (i) guarantees the origin, (ii) preserves a higher quality, (iii) guarantees the traditional production method, and (iv) protects the authenticity of the product.

Furthermore, as stated above, 63 percent of respondents were born and 78 percent live inside the traditional area of production of Parmigiano-Reggiano. Van Ittersum (2001) found a positive relation between consumers' sense of belonging to a product's region of origin and his or her intention to purchase the regional product. Thus, we hypothesise that consumers' sense of belonging to the region of origin affects the intention (rational) and the PR-T purchase (behaviour). This was also explored by specific questions, adding a variable ("sense of belonging") to the model

The role of the media, institutions and peer information in shaping consumers trust and thus the behaviour, i.e. PR-T purchase, was also investigated. Thus, formal communication (Parmigiano-Reggiano Consortium, public health local services, etc.) and informal communication sources (word of mouth, friend-of-a-friend, social networks, etc.) were analysed to assess the most effective trust-establishing mechanism (Lobb, Mazzocchi and Traill, 2007). *Trust in formal sources* was distinguished by asking respondents if they were reassured about the hygienic and quality properties of damaged Parmigiano-Reggiano by a health authority, Parmigiano-Reggiano Consortium, mass media and supply chain actors (producers, traditional retailers and supermarkets) communications and, on the other hand, if they trusted more *informal channels*, such as "other people close to me, working in the PR supply chain", and "other people making collective purchases".

With regard to *perceived food scare*, the assumption was to test if the messages and images – as shared by the media– of damaged cheese in the warehouse could trigger emotional expectations in terms of diminished food safety. Food scares are a recurrent and qualifying argument inside the present food discourse (Renn, 1999). Literature addressed aspects of the role of the media in diminishing or increasing food-scare impact (Beardsworth, 1990; Frewer, Raats and Shepherd, 1993; Frewer, Miles and Marsh, 2002; Lobb, Mazzocchi and Traill, 2007; Mazzocchi *et al.,* 2008), food chain players role and trust reassurance (Bocker and Hanf, 2000; Duffy, Fearne and Healing, 2005; Miles and Frewer, 2001). Fear can be propagated in irrational ways, without even the most basic foundations (Slovic, 2000). In particular, heuristics and cognitive shortcuts may be biased in conditions of uncertainty, panic and stress (Tversky and Kahneman, 1974; Mathews *et al.,* 1995; Mathews and Mackintosh, 1998; Warda and Bryant, 1998; Smith and Bryant, 2000). Thus, respondents were asked if they were worried (1 = totally disagree, to 5 = totally agree) about (i) safety and (ii) frauds of Parmigiano-Reggiano because of the earthquake.

Finally, three more items were included in the analysis. First, we assessed the self-reported status of participants, asking the subjective evaluation of one's own *health* and *wealth* (1 = very bad health/wealth status, 5 = very good health/wealth status). Results showed a good self-reported health and a slightly satisfactory wealth status of participants (respectively, mean = 4.26 and 3.36). Second, we investigated if respondents found a

Table 2: Construct items means and standard deviations (Cronbach's alpha)

	Mean	Sd
Behaviour		
Quantity of purchased PR-T (kg)	4.41	24.00
Quantity of purchased Pr-T (kg, excluding two outliers)	2.17	5.20
Attitude (alpha = 0.88)	*4.06*	*0.93*
Purchasing PR-T is bad/good	4.63	0.73
Purchasing PR-T is unhealthy/healthy	3.74	1.22
Purchasing PR-Tis risky/safe	3.96	1.26
Purchasing PR-T is unpleasent/pleasent	*4.15*	*1.19*
Purchasing PR-T is expensive/cheap	3.86	1.18
Moral attitude (alpha = 0.80)	*3.95*	*0.97*
Purchasing PR-T helps economically stricken people	3.77	1.16
Purchasing PR-T helps economically stricken people and shops	4.15	0.96
Descriptive norm (alpha = 0.84)	*3.43*	*0.84*
People important to me (parents, friends, partner, etc.) have purchased PR-T	3.54	1.27
Other people in my town have purchased PR-T	3.82	1.02
Other people in the shops have purchased PR-T	3.37	1.15
PBC (alpha = 0.76)	*3.31*	*1.06*
I know shops where I can buy PR-T	2.75	1.49
I know groups of consumers that buy PR-T	2.57	1.48
I know producers that sell PR-T	2.21	1.40
Intention (alpha = 0.76)	*3.31*	*1.06*
I intend to purchase PR-T in the future	3.88	1.22
I am sure I will purchase PR-T in the next weeks	2.81	1.32
Formal trust (alpha = 0.75)	*3.34*	*0.72*
Trust in mass media communication	3.10	1.29
Trust in health authority	3.07	1.26
Trust in Parmigiano-Reggiano Consortium	3.76	1.05
Trust in producers	3.85	1.14
Trust in traditional retailers	3.59	1.23
Trust in supermarkets	3.19	1.24
Informal trust (alpha = 0.74)	*3.16*	*1.06*
Trust in other people close to me, working in the PR supply chain	3.06	1.48
Trust in other people making collective purchases	3.39	1.38
Food scare (alpha = 0.73)	*2.28*	*1.08*
I was worried about the safety of PR because of the earthquake	2.10	1.15
I was worried about the frauds of PR because of the earthquake	2.42	1.30
PDO quality warranty (alpha = 0.81)	*4.35*	*0.66*
PDO guarantees the origin	4.54	0.73
PDO preserves a higher quality	4.22	0.91
PDO guarantees the traditional production method	4.29	0.86
PDO protects the authenticity of the product	4.49	0.77
Sense of belonging (alpha = 0.90)	*3.57*	*0.91*
I love my region	3.76	0.92
My heart belongs to my region	3.28	1.08
I feel especially attached to my region	3.55	1.02
Health status		
Subjective evaluation of one's own health	4.26	0.68
Wealth status		
Subjective evaluation of one's own wealth	3.36	0.87
Price advantage		
Purchasing PR-T allows to buy PDO at lower prices	3.60	1.09

Source: Authors' elaboration.

price advantage in purchasing PR-T, asking whether or not purchasing PR-T allowed consumers to buy the PDO at lower prices (1 = completely disagree, to 5 = completely agree); the reported mean value of 3.60 (standard deviation 1.09) showed that participants envisaged some price advantage in buying PR-T.

Finally, *behaviour* was measured by the observed quantity (kg) of damaged Parmigiano-Reggiano purchased by the respondents (Table 2). All the questions demonstrated a good level of internal consistency (Cronbach's alfa test).

Data analysis

The one-way analysis of variance (ANOVA) was employed to determine significant differences between those who purchased the PR-T and those who did not buy it, against the measured aspects.

Structural equation modelling (SEM) was then applied (using Amos 20.0 software) to test for the relative importance of intention and behaviour determinants. SEM is a statistical methodology that takes a confirmatory (i.e. hypothesis testing) approach to the analysis of a structural theory on a specific phenomenon (Byrne, 2010). This technique allows the representation of theoretical constructs, such as attitude, subjective norm or intention, that cannot be observed directly (Menozzi and Mora, 2012). These latent variables can be inferred by observed variables, e.g. measured scores to a questionnaire item, that can serve as indicators of the underlying construct that they are presumed to represent (Byrne, 2010). SEM allows for the specification of regression structure with both latent and observed variables, representing relationships among variables by path diagrams, where circles generally indicate latent variables, while rectangles represent observed or measured variables. This method models relationships among latent and observed variables and statistically tests the hypothesized theoretical model and assumptions against empirical data by means of confirmatory factor analysis (CFA).

The items were divided using the predefined categories specified in the TPB (attitudes, descriptive norm, PBC, intention) and other latent variables (i.e. food scare, PDO quality warranty, formal and informal trust, and sense of belonging). Principal component analyses, with varimax rotation, have supported the distinction among the variables. Other socio-economic determinants, such as age, educational level, health and wealth status, were also used as determinants of PR-T purchase. The TPB model was tested including other predictors, suggesting the following expectations. In accordance with the original TPB model (Ajzen, 1991), attitude towards behaviour, descriptive norms and perceived behavioural control (PBC) should be significant predictors of intention to purchase PR-T (H1). Behavioural intention is also assumed to be positively affected by trust in formal and informal communication sources regarding the hygienic and quality properties of damaged Parmigiano-Reggiano (H2), PDO quality warranty (H3), consumers' sense of belonging to the region of origin and their moral attitude to help stricken people and companies (H4); intention is assumed to be negatively affected by food scare (H5), i.e. a higher food scare would result in a lower intention to purchase PR-T. PBC, descriptive norms and intention are also expected to be predictors of behaviour, i.e. PR-T purchase (H6). Behaviour is also expected to be influenced by formal and informal trust (H7), sense of belonging and moral

attitude (H8). Past behaviour and price advantage (H9) should also emerge as significant positive predictors of behaviour, since a stronger frequency of consumption of Parmigiano-Reggiano and a stronger perception to purchase a cheaper product should result in a higher quantity of purchased PR-T. Food scare is assumed to negatively affect behaviour (H10). On the other hand, we expect a positive effect of wealth and health status on behaviour (H11), since a lower self-reported health and wealth status could virtually discourage the purchase of a risky product such as PR-T. Finally, other socio-demographic variables are expected to be predictors of behaviour (H12), either positive, i.e. age and family size, and negative, i.e. education, children in household and distance from epicentre.

Three models were tested to accept or reject the previous hypothesis. Model 1 considers the traditional TPB model, with attitude, descriptive norms and PBC determinants of intention, and intention, PBC and descriptive norms predicting behaviour. Model 2 adds formal and informal trust, and PDO quality as predictors of intention and formal and informal trust, health and wealth status as determinants of behaviour. Finally, Model 3 is the more complex one, including other variables predicting intention (sense of belonging, moral attitude and food scare) and behaviour (food scare, sense of belonging, moral attitude, past behaviour, price advantage, age, education, family size, children in household and distance from epicentre).

RESULTS

Descriptive analysis

Descriptive statistics for the TPB and other constructs are shown in Table 2. About half of the survey respondents have purchased some Parmigiano-Reggiano damaged by earthquake during the last months. The total quantity purchased by the respondents was 820 kg, with a mean value of 4.4 kg (standard 24 kg). However, after having removed two outliers who purchased more than 100 kg of PR-T (in one case because it was used in a restaurant, and in another case since the respondent acted as a collective purchase leader), the mean purchase of PR-T was 2.2 kg (standard 5.2). For these reasons, it was decided to exclude these two cases from the following analysis.

Respondents shown a positive attitude towards purchasing PR-T; the mean value of these items is 4.06, showing a general agreement among respondents (Table 2). The moral attitude, that is the willingness to help economically stricken people and companies, was also favourable among participants (mean value 3.95). The descriptive norm, expressed by the social influence of important other people in performing the behaviour, is also positive, in particular the item indicating other people in respondents' town having purchased PR-T. PBC shows a low value (2.57), with a quite significant variability (standard 1.16), indicating that not all consumers knew shops or other means to buy the damaged Parmigiano-Reggiano. Intention to purchase PR-T in the future is quite high (3.88), while not all consumers are sure they will purchase PR-T in the following weeks (2.81).

Results show that respondents generally prefer formal communication sources (mean 3.34) to informal ones (mean 3.16); in particular, respondents were reassured about the hygienic and quality properties of damaged Parmigiano-Reggiano mostly by producers (3.88), Consortium communication (3.76) and traditional retailers (3.59), while being

neutral by supermarkets (3.19), mass media (3.10) and, surprisingly, by a health authority (3.07). Informal sources were less appreciated by respondents – especially trust in other people working in the PR supply chain shows a neutral value (3.06) – while trust in people making collective purchases has a slightly higher mean value (3.39).

The Parmigiano-Reggiano strong image and high brand awareness is implicitly recognized by respondents with a general strong agreement on the role of the PDO label as a quality warranty (mean 4.35). At the same time, results show that respondents' sense of belonging to the region of origin is positive (mean 3.51), whereas they are not worried or scared about the safety and fraud of Parmigiano-Reggiano because of the earthquake (mean 2.28). Parmigiano-Reggiano is generally perceived as a high-quality and high-priced product; these two aspects also emerged from the survey, as it is quite generally recognized that purchasing PR-T would also lead to an economic advantage because of lower prices (3.60). This stands as a traditional economic explication, given the direct utility provided to the final consumers, and regardless of other apparent motivation.

Factors affecting the damaged Parmigiano-Reggiano purchase

Confirmatory factor analysis (CFA) has shown that the all-items factor loadings were significant across the hypothesized theoretical framework, and that the measurement structure is robust across the three models; this means that the latent variables keep the same meaning across the models. The goodness-of-fit indices X^2/df, between 1.27 and 1.67, comparative fix index (CFI) between 0.93 and 0.96, and RMSEA ranging from 0.04 to 0.06, show that overall the hypothesized models fit the data well.

Analysis predicting behavioural intentions

Table 3 shows that the TPB variables alone are able to explain 51 percent of the variance of intention to purchase PR-T in the future; however, the entry of additional variables in Models 2 and 3 significantly increased the amount of variance explained, up to 70 percent (Figure 2). PBC is the main predictor of intention in the three models, while attitude is only significant predictor of intention in Model 1; as long as other variables are considered, attitude does not remain a significant predictor. Descriptive norms are also not significant. Thus H1 is only partially confirmed. In Model 3, PBC is positively correlated with formal and informal trust, and with food scare (Table 4).

Trust in formal communication sources is a significant predictor of intention (Figure 2), while informal trust is not. This partially supports H2. The PDO quality warranty is a significant predictor of intention, thus confirming H3, and is negatively correlated with distance from epicentre (Table 4). In contrast to H4 and H5, consumers' sense of belonging to the region of origin and their moral attitude to help stricken people and companies are not significant predictors of intention, as well as food scare.

To summarize, when consumers have a greater sense of control, i.e. know shops, groups of consumers or producers that sell PR-T, have more trust in formal communication sources for reassurance about the hygienic and quality properties of damaged Parmigiano-Reggiano, and have stronger perception about the quality warranty of the PDO label, they are more likely to intend to purchase PR-T in the future. Aspects related to real-life

Table 3: Regression coefficients and model fit

	Model 1	Model 2	Model 3
Intention (R^2)	0.51	0.69	0.70
Predictive variables			
Attitude	0.13 *	0.04	0.03
Descriptive norm	0.06	–0.18	–0.18
PBC	0.65 **	0.56 ***	0.58 ***
Formal trust		0.50	0.48
Informal trust		–0.07	–0.13
PDO quality warranty		*0.29* **	*0.28* **
Sense of belonging			–0.06
Food scare			–0.01
Moral attitude			0.05
Behaviour (R^2)	0.22	0.23	0.32
Predictive variables			
Intention	0.10	0.11	0.23 §
Descriptive norm	0.39 ***	0.38 ***	0.41 ***
PBC	0.04	0.04	0.04
Formal trust		–0.04	–0.13
Informal trust		0.06	0.05
Health status		–0.11 §	
Wealth status		–0.05	–0.06
Food scare			–0.20
Sense of belonging			0.17
Moral attitude			–0.08
Past behaviour			–0.15
Price advantage			–0.07
Age			0.18
Educational level			–0.11 §
Family size			0.09
Children in household			0.01
Distance from epicentre			0.08
Model fit			
X^2/df	1.69	1.29	1.27
CFI	0.96	0.95	0.93
RMSEA	0.06	0.04	0.04

Source: Authors' elaboration.
Notes: *** indicates significant positive and negative relationships between variables at 99.9% level (p<0.001), ** at 95% level (p<0.01), * at 95% level (p<0.05), § at 90% level (p<0.1).

factors and behavioural control of the external environment are expected to better predict the choices than declared values and intentions. This stands in line with recent learning from behavioural economics, whereas contingent aspects and contextual cues facilitating choices lead eventually to action. Furthermore, because trust acts like a substitute for knowledge (Hansen *et al.*, 2003), our hypothesis that information did not merely build trust, but that trust may activate parallel reassurance activities (community-oriented and socially established) able to mitigate fear, has been partially confirmed (i.e. positively associated with intentions). In contrast, the passage from intention to behaviour is not straightforward.

Table 4: Correlations between variables in Model 3, p-values

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Attitude	0.23 *0.003*		0.31 *0.001*					0.20 *0.012*	0.27 *0.001*				0.16 *0.029*			0.16 *0.025*	
2 Descriptive norm		0.48 *0.001*	0.55 *0.001*	0.32 *0.002*	0.13 *0.096*	0.34 *0.001*											
3 PBC			0.36 *0.001*	0.48 *0.001*		0.46 *0.001*								0.20 *0.006*			0.017 *0.013*
4 Formal trust				0.58 *0.001*	0.23 *0.011*	0.16 *0.073*		0.30 *0.004*	0.22 *0.002*								
5 Informal trust					0.27 *0.003*	0.20 *0.030*											
6 PDO quality warranty							0.20 *0.013*	0.21 *0.013*	0.17 *0.003*					0.19 *0.013*			0.30 *0.001*
7 Food scare							0.25 *0.002*										
8 Sense of belonging												0.17 *0.013*					0.19 *0.006*
9 Moral attitude									0.19 *0.010*						0.15 *0.024*		
10 Price advantage																	
11 Past behaviour															0.16 *0.017*		0.13 *0.014*
12 Health status												0.27 *0.001*	0.25 *0.001*			0.20 *0.006*	
13 Wealth status																	
14 Age																0.17 *0.023*	
15 Family size															0.27 *0.001*		0.21 *0.022*
16 Children in household																	
17 Educational level																	
18 Distance from epicentre																	

Source: Authors' elaboration.
Note: correlations not shown in the table are not significant at 90% level.

Analysis predicting actual behaviour (i.e. purchase of damaged Parmigiano-Reggiano)

Descriptive norms emerged as the main significant predictor of reported behaviour in the three models. Intention is a marginally significant predictor of behaviour only after the inclusion of all variables in Model 3 (Figure 2). Perception of control is not a significant predictor of behaviour. Thus, H6 is only partially confirmed. Descriptive norms are positively correlated with PBC, formal and informal trust, and food scare (Table 4).

In contrast to H7, trust in formal and informal communication sources is not a significant predictor of behaviour. Sense of belonging has resulted in a significant positive effect on behaviour in Model 3, whereas moral attitude did not, partially confirming H8. Sense of belonging is also negatively correlated with distance from epicentre (Table 4). Price advantage is not envisaged to be a significant predictor of behaviour, in contrast to H9. Past behaviour, that is the frequency of consumption of Parmigiano-Reggiano PDO, has a negative significant effect on behaviour in Model 3, also contrasting with H9. In support of H10, food scare has a significant negative effect on behaviour (Figure 2). Wealth status does not affect behaviour; self-reported health status has a marginal negative effect on behaviour in Model 2, then becomes non-significant when other socio-demographics are considered (Model 3). Thus H11 is rejected. Few socio-demographic variables resulted to be predictors of behaviour, i.e. age having, as expected, a positive effect, and education, that has a marginal negative effect on behaviour, while other variables, i.e. family size, children in household and distance from epicentre, are not significant predictors. Thus, H12 is only partially supported.

Consumers purchased a larger quantity of PR-T if they were older and with lower formal education, if other people important to them did purchase PR-T, if they perceived a stronger sense of belonging to the region of origin, if they indicated stronger intentions to buy PR-T again in the future and if they were less worried about the safety and fraud of Parmigiano-Reggiano because of earthquake.

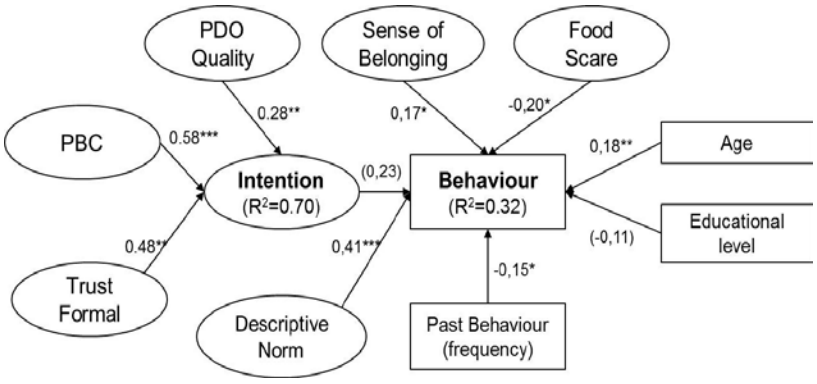

Figure 2. Simplified diagram of Model 3 results

Source: **Authors' elaboration.**

Notes: *** indicates significant positive and negative relationships between variables at 99.9% level (p<0.001), ** at 95% level (p<0.01), * at 95% level (p<0.05), values between brackets indicate significant relationships at 90% level (p<0.1). To make it visually understandable, the diagram does not display correlations between variables (reported in Table 4) and non-significant relationships between variables, relative to the full results (Table 3).

DISCUSSION AND CONCLUSIONS

The revised TPB model predictors accounted for 70 percent of the variance of intention to purchase PR-T. The study confirmed preliminary assumptions of the solidarity expressed in the aftermath of the earthquake swarms that occurred in Emilia Romagna region in 2012. The PDO designation was able to reassure consumers both directly and indirectly. In the first case, PDO as a separate variable is a significant predictor of intention (Figure 2), acting positively on origin perception, higher quality image, authenticity of the product and warranty of the traditional production method.

Furthermore, the PDO is indirectly implied in the formal trust dimension (predictive of *intention* as well). Here the *producers* are recognized as key players in reassuring about the features of the product (better than any other subject); while the Consortium is another pivotal actor in guaranteeing trust (scoring better than health authorities, retailers and supermarkets, or mass media (Table 2), and second only to farmers–producers.

Also, the PDO could have exerted a positive role by the "sense of belonging" dimension – at least for local consumers having strong ties with their "territory". This variable is strictly related to the final behaviour, hence providing even more solid grounds for causal explication versus the intention (which is only partially contributing to the final consumption of PR-T).

Furthermore, apart from PDO-oriented reflections, other elements emerged, giving a rounder vision of the phenomenon of the run on damaged Parmigiano-Reggiano wheels.

First, the role of *social networks* and *gate-keepers* in facilitating and transmitting (desirable and expected) behaviour is once again confirmed, coherent with previous research on social marketing and food marketing (Wansink, 2005). Key people (relatives, friends, and also colleagues on the worksite) exerted moral pressure to contribute to collective purchases of Parmigiano-Reggiano, in the spirit of giving relief to affected producers having lost their productive sites and manufacture. This feature, well recognized inside marketing, should be considered for similar, future food crises whereas food-scare aspects and solidarity need to match. *A sociologic focus could hence in parallel introduce "consumption" (a broader concept that mere "purchase") as a means to achieve "socially diffused trust" (solidarity).* This stands at least partially in contrast to the baseline, standard economic theory, where the purchase is the rational result of self-interested actions.

Similarly, the role of environmental, contextual facilities and clues allowing for a perceived behavioural control were positively associated with intention. This is another confirmation from *behavioural economics* that has to be considered as a stable argument for future social marketing investigations and actions (community-oriented interventions, policy-making, etc.). Making access to key resources easier (e.g. improving information, etc.) and increasing people's capability seem to be major aspects to effectively reach the intended goals.

Another relevant aspect is that, among the key players able to reassure trust, producers – more than retailers and wholesalers–distributors – were able to capitalize equity. This may mean that in the case of crisis communication, people less "marketing oriented" are perceived as more trustworthy and genuine than professionals. Interestingly, despite one of the major arguments of retailers being about the "fidelity" and "trust" accorded by the end-consumers to them, dairy producers were considered as more trustworthy. In any case,

trust in different communication channels was only partially and indirectly related to the final behaviour of purchasing PR-T. It seems here that social motivation took prevalence over official sources and rational information processing as a determinant of purchase.

This allows insightful reflections. In particular, despite people being motivated to comply with expectations by relatives and friends *(descriptive norm)*, rationally they trust more formal channels. Interestingly, this is in line with the Elaboration Likelihood Model (ELM) of the information, with the *central route* of decision-making as opposed to the *peripheral one* (Petty and Cacioppo, 1986): at first, people are emotionally motivated to act by relatives and friends, relying on cognitive shortcuts and simplified heuristics; but *then* they rationally process information under more aware pathways and follow more robust and accountable sources (e.g. health authorities, media, press, Consortium of Parmigiano-Reggiano). Eventually, the direct link between descriptive norm (compliance with social expectations) and behaviour (purchase of damaged Parmigiano-Reggiano) means this was truly and ultimately a "socially-driven event", where emotional aspects had a positive role, coming up in a "solidarity run".

The PDO brand seemingly deployed its task to reassure people locally more than people from the "outside". This positive "local" bias has been addressed in food literature, whereas being a food *local* grants inferentially a safer perception of it. Slovic, Fischhoff and Lichtenstein (1988) included familiarity as one of three primary factors that affect people's risk perception. Murdoch, Marsden and Banks (2000) underline how the perception of "natural", "traditional" and "local" foods" marks the revamped turn to quality food products as more able to provide safety perception. In parallel, studies on environmental pollution stress how people perceive their territory as less polluted than the reality (Bickerstaff, 2004), and hence intrinsically safer.

Food-scare perception was negatively correlated with purchase intention, as expected. However, those people having purchased damaged Parmigiano-Reggiano were the ones most concerned about food-scare aspects (hygienic conditions and storage aspects). This probably stresses that food scare was not a reason impeding purchasing PR-T, and that the people not buying probably never thought about possible consequences on Parmigiano-Reggiano safety and quality in the aftermath of the 2012 earthquake waves. As expected, other socially embedded features such as sense of belonging to the territory, that decreases with the increasing distance from the epicentre, positively affects purchase of PR-T. These results are also in line with previous outcomes from the focus group: people making PR-T purchases were first motivated by emotional and solidarity reasons, and only after, mirroring priorities relevance, gave ground for food-safety concerns to emerge. This confirms complex decision-making and cognitive processes, as the multilevel risk benefit assessment (Hansen *et al.*, 2003). At the same time, this confirms that rationality is not a future-focused screening to orient action, but rather an *"ex-post"* discourse – in the vein of a "narrative" – able to retrospectively justify actions that have happened. It confirms baseline assumptions of the bounded-rationality paradigm (Simon, 1957), and of "cognitive dissonance" (Festinger, 1957).

The price advantage of purchasing PR-T, although found to be quite an important factor for respondents, did not result as a significant predictor of behaviour. For this there are two

possible explanations. First, the questionnaire consisted of stated preferences. Therefore respondents may have dismissed (masked) the role of price, as may frequently happen, given also the revealed assumptions of the study (i.e. to measure aspects of solidarity, which makes it morally questionable to focus on prices). Second, the price for Parmigiano-Reggiano cheese is expected to be rigid (owing to the particular demand for high-quality food products and difficult substitution [CRPA, 2013]). This means consumers expect to pay virtually the same price and are less prone to the promotional-offer logic.

It can be concluded that a number of variables contribute to explain and give shape to the solidarity dimension in its widest meaning. These are: formal trust guaranteed by producers; the perception of "local" annexed to the PDO label; the sense of belonging to the territory; the compliance to social expectations; the recognition of being useful to stricken people and producers – such aspects all addresses a social dimension, inside which the food is produced, stored, sold and, more broadly, conceived. It reflects an even wider and more dense, emerging idea of the significance of *solidarity*, including – more than a concept of external relief and economic aid – the willingness of the members of a community to act in the same direction, for shared values, in order to maintain prospectively the material and cultural basis of the same society, with an eye on the past and another on the future.

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Signs to choose: voluntary standards and ecolabels as information tools for consumers

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ABSTRACT

"Sustainable consumption and production" recognizes the role of consumers to promote sustainability, and sustainable production, by their consumption choices. This paper considers how voluntary standards and ecolabels can contribute to this as information tools to be used by consumers to orient their food choices. It adopts a communication perspective in order to understand better how voluntary standards and ecolabels can be used effectively by consumers. To convey information about such a broad, complex and often confusing notion as "sustainability" is in itself challenging. Most voluntary standards in fact focus on some dimensions or aspects of it. This contributes, among other factors, to the multiplicity of signs, which is one more source of confusion for consumers. The efficiency of voluntary standards is ultimately determined by the way consumers use them, along with a range of other criteria, to choose the products they buy effectively. Key to it is thus the way voluntary standards impact on consumers and how they interact with other criteria that consumers use when choosing products. Sustainability concerns interact with other quality attributes in consumers' attitudes towards food. These interactions, along with competition with other messages, drive consumers' perception of voluntary standards and of the information they aim to communicate. Such an analysis leads to proposing ways to improve the effectiveness of voluntary standards as communication tools from producers to consumers, and vice versa, for more sustainable food systems.

INTRODUCTION

The Rio Conference in 1992 recognized that 'the major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries' (UNCED, 1992). To address this, chapter 4 of Agenda 21 fixes two objectives: focus on unsustainable patterns of production and consumption and develop national policies and strategies to encourage changes in unsustainable consumption patterns. Developing consumer information is identified as a major means to achieve these objectives. The very effectiveness of the concept of "sustainable consumption and production" is in fact grounded on the idea that to increase sustainability of systems, both production and consumption, supply and demand, have to be considered. There are production choices; there are consumption choices. Increasing sustainability is a matter of both. To a certain extent, and still in many economies, consumption choices are bound to evolve in the, often restricted, product space that

production offers. But in today's world, with a space of consumption choices increasingly wide, there are greater prospects for consumption to drive production, for consumption choices to orient the choices that producers make (which products, how they are made), or globally to orient "production" towards the products consumers want to buy. In that regard, there are increasing opportunities for more sustainable consumption patterns and choices to drive towards more sustainable production patterns.

Consumers, by their choices, in terms of type of products, quantity and quality (including production modes) orient production. Consumers are oriented by the information made available to them. Producers can also anticipate consumer demand and its changes and pro-actively seek new markets. Because of this, communication between producers and consumers is key. Consumers "communicate" to producers "ex post by the act of buying", in giving them information about their "preferences", the share of products they buy, under different (economic) contexts. In turn, producers "communicate" to consumer "ex ante" the act of buying, either well before it (advertisement, etc.) or, and in most cases, at the moment of buying. Therefore, a complex communication system exists between producers and consumers, and at the centre of it is the communication about the product and its "qualities". This is used to induce or facilitate the choices of consumers. Consumers receive information about sustainability issues, about food, and about links between the two, by numerous channels – newspapers, television, books, films, on the web, not to mention more "traditional" word of mouth, which still plays an important role. This information originates from diverse categories of actors – media, public actors, non-governmental organizations (NGOs), producers, retailers – often with the purpose of influencing attitudes and behaviour. Some of this information, of these messages, is linked to products, or categories of products, indirectly or directly. Voluntary standards and ecolabels are among these.

This paper aims to consider the role that voluntary standards and ecolabels can play as information tools, as "signs to choose", obviously for consumers, but also as tools to orient production. In order to do so we adopt a communication perspective: what is/are the messages that voluntary standards and ecolabels convey to consumers about sustainability? The paper thus focuses on business to consumer schemes (B to C) even though business to business (B to B) schemes are playing an increasing role, often to ground business to consumer schemes. The paper first acknowledges the challenges for them to communicate a clear message on sustainability. The multiplicity of "sustainability signs" is in itself a major challenge. It then reviews what is known on the drivers of consumers choices in order to understand how, to what extent and by what means, voluntary standards can play in role in orienting consumption and production.

COMMUNICATION FOR SUSTAINABILITY: WHAT ARE VOLUNTARY STANDARDS AND WHAT ROLE CAN THEY PLAY FOR SUSTAINABLE PRODUCTION AND CONSUMPTION?

To orient consumption and production patterns towards more sustainability, consumers need adequate information. Detachment of consumers from food production, as a consequence of urbanization, longer food chains and increasing transformation of food,

has been well noted in industrialized countries (Foresight, 2011). This trend is expected to extend with urbanization in developing countries. It imposes consumers to rely, for their consumption decisions, on other sources than traditional, oral, information from producers and retailers. As mentioned above, consumers receive information about food products by very diverse channels and with very different objectives. The sums invested by food producers and the food retail industry in communication towards consumers are much bigger than what is available to public actors and NGOs for diverse actions targeted at changing consumption patterns (Foresight, 2011). Businesses are also much "closer" to consumers than other actors are, especially at the very moment of buying. Voluntary standards and ecolabels are part of these exchanges of information about food and sustainability.

There is no universally agreed definition of voluntary standards and ecolabels as related to sustainability. We propose here to attempt a working definition of the voluntary standards and ecolabels that are directed to sustainability, based upon the following four main common characteristics that they share:

- First of all, they are linked to a specific product, which distinguishes them from general statements.
- Second, they are voluntary –, a producer can use them or not (decision to comply), and select the one he wants to use, and finally show them (or not). This distinguishes them from mandatory information requested from national authorities for health, nutritional, market or even environmental reasons.
- Third, they attest to certain attributes of the process of production, in reference to a "standard" and/or to measurements. As such, they can be distinguished from simple "claims" even if this distinction could be more subtle, especially when there are commercial and protection of consumer rules against fraudulent claims and publicity.
- Fourth, these attributes are directly or indirectly linked to one or several dimensions of sustainability.

A working definition could thus be: voluntary standards and ecolabels for sustainability are voluntary schemes conveying information of relevance to sustainability about the process of production of specific products according to a reference standard or measurement.

Producers do voluntarily choose to provide this supplementary information, in spite of the additional costs incurred, because they expect benefits in return from consumers (selling at higher prices, higher market share, creation, exploitation or increase of niche markets, etc.). These are all grounded on consumers recognizing a specific added characteristic integrated as a choice criteria and resulting in preservation (through building customer loyalty) or increase of market share or/and the acceptance to pay a higher price. This can be summarized as an exchange between producers and consumers where producers provide, along with the product, additional information on the way it has been produced and the impacts of its production on one or several dimensions of sustainability, enabling sustainable consumption, and where consumers acknowledge these efforts by recognizing an additional credential attribute, giving more value – cultural, social and economic – to products coming from sustainable production. By deciding to give more space and preference to those products in their consumption choices, given all sets of constraints to consumption (income, space of consumption choices, etc), they give more "weight" to sustainable production (Figure 1).

Here two points are of crucial importance:

The first is that, as it is the result of a voluntary choice, the information between products is not always comparable. Certainly a first solid criterion for comparison is that some products do not carry this supplementary information while others do, but it can be diverse information/schemes and in diverse forms, not easily "comparable" with each other.

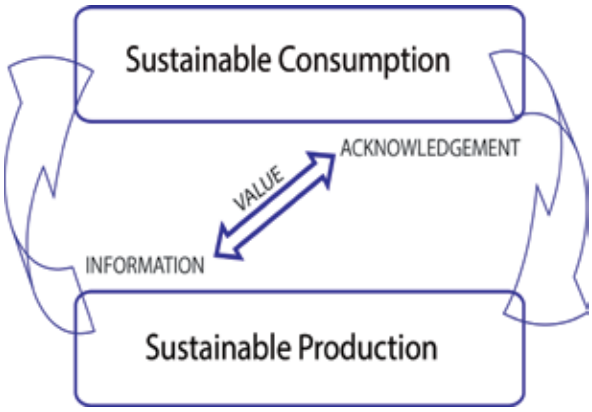

Figure 1. Voluntary standards: information for value

The second is that the attribute put forward by the scheme cannot be tested by the consumer (unlike appearance or taste). It is a credential attribute that relies entirely on the trust of the consumer – in the scheme, in who is managing it, in who is controlling it. These two points create a second level of choice: the choice between the signs/schemes used to choose a product.

To a certain extent, the various schemes are competing for the consumer's attention. Karl and Orwatt (2000) suggest that such competition between labels may increase their credibility, as competition will encourage tighter environmental criteria. But it could also increase confusion. Moreover, in the absence of easy ways to compare labels, the risk is that the outcome of this competition would not be based on credibility but on visibility, giving the advantage to the actors with the bigger market presence and the more resources. As in the "standards wars" described by Shapiro and Varian (1999), there are also strategic dimensions in the multiplication of schemes. Proprietary labels developed by firms can be competitive weapons (King and Backus, 2011) to protect or increase market shares, seeking to increase profits. Seemingly, NGOs can use proprietary labels to increase their own visibility. The type of tools and information used has also a critical influence on the balance of power inside the food chain. A scheme focused on primary production gives a better possibility for farmers to valorize their contribution; food chain-wide communication gives a more central position to actors further down the chain, transformers and, increasingly, retailers.

Given the above, it is necessary, along with the information related to sustainability, to convey information on the information, on the way it has been produced, to ensure credibility and trust, to enable choice

A MULTIPLICITY OF SIGNS TO COMMUNICATE ON "SUSTAINABILITY"

Many observers have noted the proliferation of voluntary sustainability standards (IISD/IIED, 2010; Esnouf, Russel and Bricas, 2011; Foresight, 2011; Santacoloma, 2014; Grothaus, 2014; Scialabba, 2014), often coming from an international perspective but also from national perspectives, considering either standards implemented by producers in a

given country (AFNOR, 2007) or linked to products accessible to consumers in a given country (King and Backus, 2011). Various studies and tools also attempt to map or to categorize voluntary standards (SAI-Platform, 2009; IISD/IIED, 2010; Scialabba, 2014; Standards Map, 2013). A study conducted in 2010 on sustainability labels linked with products sold to Dutch consumers identified more than 70 labels and noted they are very diverse in scope and objective (King and Backus, 2011). They have been developed to apply to a product, a product category, to address a specific issue, or for a company. They give information on primary production and/or the manufacturing process. The authors note that most of them relate to health, environment, animal welfare and/or fairness, addressing one or several dimensions of sustainability.

We propose here a characterization of the schemes, according to six types of criteria.

Four of them relate to the "substance" of the claim:

i. issues covered;
ii. stages of production and transformation included;
iii. type of statement, either respect for external standard of practices or quantitative measurement of impacts or engagement in an improvement process following a standard to do so;
iv. a fourth criteria distinguishing between signs that carry only a message related to sustainability and those where it is part of a broader "quality" message.

We also propose two other criteria related to:

i. the breadth or scope, whether in terms of range of products concerned and/or geographical coverage; and
ii. the type(s) of actors involved in the governance of the system.

As noted by the studies mentioned above, most of the schemes address directly only some dimensions of sustainability, most often environmental and to a lesser degree social issues. Moreover, most of the environmental schemes focus on some issues, such as greenhouse gas emissions, with a growing number of schemes using carbon footprint, or biodiversity, often focusing on a single species. King and Backus (2011) identify shifting consumers' awareness as one of the major reasons for the multiplication of schemes, itself very dependent on media shifting attention to sustainability issues.

There could be trade-offs between the breadth of a scheme and its impacts on consumers. Paradoxically, given the complexity of the notion of sustainability, the broader the scope of the scheme the more difficult it is to envisage how to communicate about it. Conversely, certain simple messages like "dolphin friendly" have been proven to be very efficient for consumers and to induce changes in production methods (Teisl, Roe and Hicks, 2002). Interestingly, in this case the success of the label was closely linked to the intensity of the media campaign on the issue.

This leads to the critical question of the relationship between a single dimension of sustainability and sustainability as a whole. In particular, are there not risks of trade-offs between one issue and another, and between one dimension of sustainability and the other (at the risk of being counterproductive)? To what extent can a scheme limited to one issue contribute to sustainability overall? Crucial to lower the risk of trade-offs here is precisely the way issues are selected and priorities are determined. Things can be quite different

whether the scheme is established from a holistic perspective or to fit producers'/sellers' interests or the interests of a lobby or consumers' concerns, with different implications (i) on the fidelity of the scheme to the overall objectives of "sustainability", and (ii) on its "efficiency" in terms of its capacity to succeed to gain markets and therefore to bring quantitative impacts. Each case brings its own efficiency, which depends on the focus and/or potential breadth of the scheme. As mentioned above, for example, there can be indirect effects (here meaning not directly covered by the standard itself) of a purely "environmental" scheme, in particular indirect economic and social effects on producers. These are generally thought to be positive, according to the implicit reasoning that economic benefits from a secured market share and/or higher price more than compensate for the costs induced by the scheme (change of practices, monitoring and reporting costs). Studies (e.g. Loconto and Santacoloma, 2014) show that effects can be much more diversified depending on schemes, products and local specificities. Changes of practices for the sake of an environmental objective can bring their own economic or social benefits: economies in input use, increased productivity, increased positive recognition. But win–win effects are not for granted: voluntary standards may also lead to exclude some actors from the markets, particularly smallholders, therefore undermining the primary objective of the scheme.

Voluntary standards can either be restricted to the primary stage of production or embrace the whole food chain, including transformation.

The references and methodologies grounding the standards can be classified in three broad types.

- First, those that attest that the product has been produced or is sold by an actor (farm, enterprise, retailer) that is engaged in a process of improvement, such as ISO 14000, the environmental management standard, for instance. Such complex procedures, designed for big units, are more often used in large enterprises, generally for food-chain-type approaches.
- Second, those that attest that the product has been produced respecting certain rules, additional to mandatory rules (often a set of good practices), or the exclusion of certain undesired practices or inputs; it could also be the respect of a maximum level of negative impact, or the respect of a minimum level of positive externality, sometimes in a quantified format. Such schemes can be more adapted to farm level schemes.
- The third category uses quantitative indicators. They mainly cover environmental issues and often use life cycle analysis (LCA), which enables food chain approaches. LCA is more easily implemented by large enterprises. The use of this family of tools has important consequences. As mentioned above, they mainly cover environmental issues, but are more adapted to assess global issues such as greenhouse gas emissions or resource use, through the family of "footprints". Impacts that are locally specific, such as on biodiversity, are much more difficult to quantify, especially in the agriculture sector, as the indicator of land consumption, often used to quantify the impact of industrial production on biodiversity, cannot account for the interactions between agriculture and biodiversity, including favourable impacts of extensive

systems. Given the cost of their calculation, to estimate impact at primary production stage, they often use standard values (average or more often calculated from a sample), which does not allow for differentiation at this stage. Finally and precisely because of this, they mainly function to differentiate categories of products rather than products themselves.

As mentioned above, there are voluntary standards focused (in terms of communication and underlying standards) on sustainability issues and other, which incorporate sustainability, explicitly or implicitly, as part of a product identity, often linking it, explicitly or implicitly, to other attributes of a saleable product: taste, "good for health" or as part of a broader "quality" concept. From an analysis in selected European countries of some food labelling schemes that claim to promote sustainable forms of food production, Ilbery and Maye (2007) conceptualize two development rationales: "territorial" (place-based) and "critical" (process- based). In the first type the assumed benefits are implicit; in the second, explicit. They also note that, in reality, schemes may combine different elements of these two types.

Finally, with respect to our fifth and sixth criteria, voluntary standards can bear very diverse scopes, in terms of product and geographical coverage, often in relation to the main actors in the scheme. This can have various consequences. First, the scope itself often orients the choice of issues covered and type of reference. Some schemes focusing on specific categories of products also focus on a specific impact. For instance the integrated pest management (IPM) label, found on some fruits and vegetables in Italy, attests to production practices aiming to use fewer pesticides. Second, schemes focusing on products from a specific area, such as national or regional park labels or geographical indication of provenance, can better account for local specific issues, including biodiversity. Third, the scope of a scheme, as well as dimensions covered and type of reference used, are very much driven by the type of actors involved in its definition. The initiator of a scheme can be a private actor, a group of farmers, a company, either from the transformation sector or a retailer, a non-governmental organization, a public actor, either a government, a local authority or a specialized entity such as a regional or national park. The governance of the scheme, the way it associates various categories of stakeholders, and especially smallholders and consumers, is also, in itself, a key element towards sustainability. It drives the definition of priorities and also the way constraints and costs as well as potential economic and social benefits are distributed along the food chain.

HOW DO SIGNS PLAY TO ORIENT CONSUMERS' CHOICES? CHALLENGES FOR VOLUNTARY STANDARDS AND ECOLABELS

From a consumer's perspective, voluntary standards for sustainability and ecolabels can be analysed as tools providing additional information about the way a specific product has been produced and the impact this has on one or several dimensions of sustainability. The challenge for a scheme to be efficient and win market share is to provide consumers with a clear and attractive message on a complex notion involving various issues, in a very short time (the actual moment of choice), while competing with other types of information, many of them being much simpler and easier to compare (such as price, or promotional messages such as "buy two, get three").

To evaluate the effect of voluntary standards on consumers, a first approach is to consider the way they affect markets.

It is difficult to estimate the market share of products covered by a voluntary standard or ecolabel, first of all by lack of an agreed definition, especially at international level, lack of data, or lack of centralization. At global level, there are estimates for certain types of labels, which have a global coverage, mainly organic and Fairtrade. According to IISD-IIED (2010), "sustainable produce" had in 2009 a share of global markets of 17 percent for coffee, 8 percent for tea and 20 percent for bananas. It also noted that growth rates are much higher for "sustainable produce" than for "conventional" ones (see Table 1 in Grothaus, 2014).

Worldwide, the market for organic products is probably the best known, thanks to the work of the International Federation of Organic Agriculture Movements (IFOAM) and the Research Institute of Organic Agriculture (Forschungsinstitut für biologischen Landbau – FiBL) (see Willer, Lernoud and Kilcher, 2013; Sahota, 2013). It is still relatively small – 2 percent of global retails ¬ but growing significantly: it has increased threefold from USD18 billion in 2000 to USD55 billion in 2009, with double-digit increases every year, except in 2009 where it still grew by 5 percent despite the financial crisis (FAO, 2012). North America and Europe represent 96% of the global market (Willer, Lernoud and Home, 2013). In some countries organic products occupy a significant part of the market, for instance 4 percent in the United States of America and 7 percent in Denmark. The high import rates of Europe, particularly for fruits and vegetables, create opportunities for developing countries (Kearney, 2010).

These statistics do show a growing interest for products covered by voluntary sustainability standards, even if they only relate to some schemes that seem to have, at least partly, very specific categories of consumers and/or better cover some types of products. Another indicator of increased interest for voluntary standards and ecolabels is the multiplication of the number of schemes, already mentioned.

To consider the potential impact of voluntary standards requires replacing them in a broader understanding of the drivers and determinants of consumers choices. Consumer researchers distinguish "attitudes" of consumers towards food choices and "behaviour" that describes their actual choices.

The vast majority of research on consumer attitudes has been conducted in Europe and North America (Shepherd, 2011), which, as mentioned above, are also the bigger markets for products covered by voluntary standards. Studies highlight that, apart from price, sensory characteristics of food are the most important factors in consumers choices. However, other attributes are becoming increasingly important such as food safety, nutritional value and how the food has been produced. Shepherd (2011) also notes, discussing attitudes towards foods containing genetically modified organisms, that they are very different between Europe, the United States of America and China, and thus very culturally dependent.

As part of a major study on food consumption conducted in France in 2006–2007 (AFSSA, 2009) a representative sample of households was asked to answer to the question "In general you choose food products according to…" by selecting three answers among 14 given criteria. The winning criteria (see Figure 2) were price (cited among the top

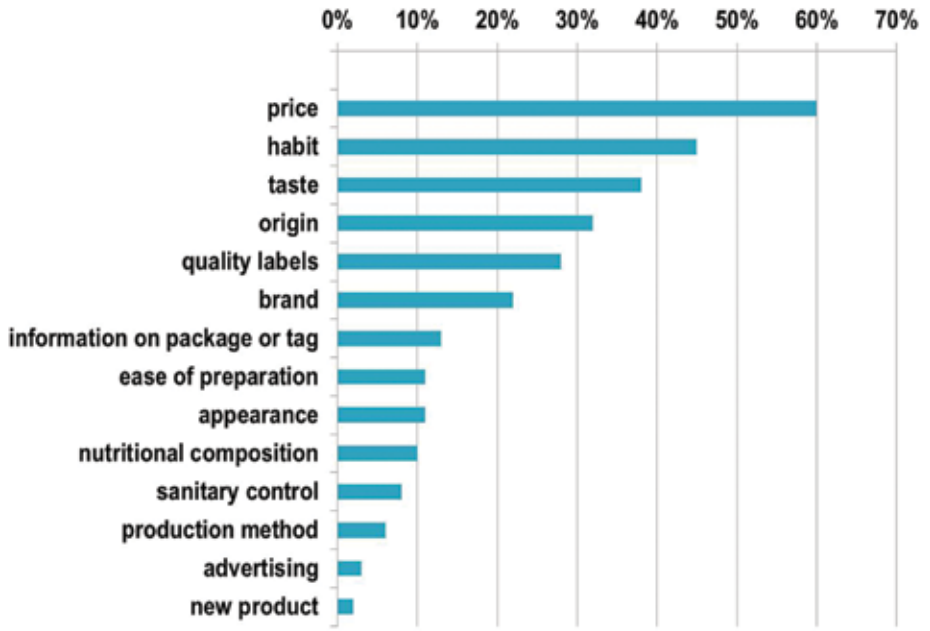

Figure 2. Main criteria for food product choice, cumulating three answers per household, percentage of households), study conducted in France 2006–2007
Source: AFSSA, 2009.

three by 60 percent of households), habit (45 percent) and taste (38 percent). Production method is ranked in the top three criteria by only 6 percent of households, which seems to suggest that this criterion has been mainly understood as referring to organic farming. On the other hand, it does not mean that criteria grounded on production specificities are insignificant, when one sums up criteria related to origin (32 percent of households included them in the top three), quality labels (28 percent) – which in Europe covers various publicly regulated schemes, including geographical indication of provenance – and brands (22 percent).

Attitudes towards organic food have given way to a number of studies (Kearney, 2010; Shepherd, 2011), mainly in the European and North American markets. Consumers' attitudes towards organic food often mix health, the environment, ethics and identity. The most commonly stated motives to buy organic are concerns for personal health, followed by environment. Animal welfare is also mentioned. Studies of organic food users often identify a specific segment of frequent users with strong environmentally friendly and altruistic values, concerned with characteristics demanding reflection, such as environmental soundness, political and social fairness. Interest for organic foods is spreading towards broader categories of consumers, less frequent buyers of organic produce, who would be more likely to balance (or mix?) the "organic" attribute with other characteristics such as price, convenience and quality (Shepherd, 2011).

The example of consumers' attitudes towards organic food shows that even well-informed and engaged consumers tend to amalgamate diverse quality attributes. We

make the hypothesis that this tendency is often confirmed and amplified for consumers of products with other types of voluntary standards. This would lead to consider that sustainability issues are often perceived – and presented – as part of a broader "quality" concept.

"Attitudes" of consumers towards food choices and "behaviour" that describes their actual choices can be quite different, for various reasons, which are briefly described below, and which correspond to so many challenges for voluntary standards and ecolabels.

To begin with, food consumption choices are not made as other consumption choices are made. Food choices have very specific characteristics, different to housing or clothing choices. A food consumption choice balances many very different, complex criteria, and the choice is made very often and very quickly. Grunert (2011) reports the results of a study observing shoppers in six European countries. The time spent for each product bought was on average 35 seconds, with 40 percent of the shoppers taking less than 15 seconds. These characteristics have a strong influence on the way voluntary standards can effectively influence consumers. Second, food choices are mainly based on habits (Grankvist and Biel, 2001; AFSSA, 2009; Grunert, 2011), probably more than other choices, and linked to the fact that they are the most recurrent/frequent act of consumption, which has a strong influence on the way consumers will consider information. Strong habits generally make them less responsive to relevant contextual information and encourage them to use information that supports previous choices (Grankvist and Biel, 2001; King and Backus, 2011).

Grunert (2011) has identified six barriers to the use of ecolabels for effective sustainable food choices. Consumers, overwhelmed by information in a very short time span can simply not perceive the labels. The labels are perceived but only marginally and are not processed as information. Consumers make wrong inferences. The information about sustainability can be traded off against other criteria. Lack of awareness about the label or of credibility about it prevents the positive attitude translating in actual behaviour. The positive attitude is not strong enough to motivate choice at time of choice. The author notes that the "underlying theme across the six barriers is the need to communicate sustainability".

Studies show that consumers are confused by the variety of schemes and labels. An exception is the organic label, which is better understood and recognized, especially by consumers looking for such products (Foresight, 2011). It has also been noted that even though "low input agriculture" might have advantages in requiring lower price premiums, it could have, as opposed to organic farming, difficulties in providing a clear message to consumers (Loureiro and Lotade, 2005, Foresight, 2011). This example seems to indicate that the leading factor is not necessarily the trade-offs between price and other attributes but rather the credibility and clarity of the message delivered on the attribute.

Finally, there are limits to the amount of information that can be put on a food label and that can be processed by the consumer (Foresight, 2011). This drives us to the key question of the type of information on sustainability to convey and of how to make it compatible with the other types of information conveyed at the same time about food (nutrition value, price, etc.). For instance, studies show widespread consumer interest in nutritional information on food packages (Grunert and Willis, 2007) but evidence shows

that simple graphics or qualitative information are more effective to provide nutritional information than complex quantitative information (Foresight, 2011; Drichoutis, Lazaridis and Nayga, 2006).

DISCUSSION AND PERSPECTIVES

In this paper, we propose to define voluntary standards for sustainability as voluntary schemes conveying information of relevance to sustainability about the process of production of specific products according to a reference standard or measurement. Their increasing importance, both in number and market share, suggests that they do have an influence on consumers' choices. Surveys conducted on drivers of consumers' choices suggest that voluntary standards do not function as purely information tools but rather as signs, diversely interpreted and used, along with other criteria, to determine choices. Studies note that, even if price and sensory characteristics, along with habit, are the main drivers of food choices, other attributes are becoming increasingly important. We propose to denominate these characteristics "quality" attributes, and note that they are all "credential attributes", which cannot be tested by consumers and for which they have to rely on information. We propose thus to distinguish four main groups of drivers: habit, price, sensory and other material characteristics (including taste, which is a driver of habit) and credential attributes ("quality").

Price, as a driver of choice, that is, a lower price, is generally perceived as negatively correlated to "quality", meaning here credential attributes, and to "taste" and other sensorial and other material characteristics. "Quality" is generally perceived by the consumer as positively correlated to positive sensorial and material characterisitics. Furthermore, from a discussion of empirical studies McCluskey and Loureiro (2003) conclude that the consumer "must perceive a high eating quality for the food products to command a premium", particularly for socially responsible and origin based products.

We consider that habit, or change of habit, is driven by the result of the combination of price, credential attributes and sensory and material characteristics; with two poles of decision-making patterns, balance between these criteria or one of them playing a decisive role.

Such an analysis leads to distinguishing two opposite poles for voluntary standards and associated marketing strategies to impact consumers' behaviour effectively. They can comfort habit, by creating an additional credential attribute, often building on existing ones. Such schemes would be more likely to be broad in terms of issues and/or chain coverage. Or else they can aim to change consumers' habits by introducing a new parameter in order to change decision-making. Such schemes would be more likely to use iconic themes, often related to topics strongly represented in the media. These two poles can correspond to two different marketing strategies, suited respectively to comfort market shares or to gain new markets. To a certain extent, they also drive two different change pathways: changing food production to comfort consumers' choices or changing consumers' choices to drive change.

These diverse strategies and mechanisms, along with the multiplicity of actors and the diversity of consumers' preferences, driven also by social and cultural factors, lead to a multiplicity of schemes. Many observers have noted that this multiplicity is confusing for consumers. As a result, some plead for a standardization of voluntary standards, for

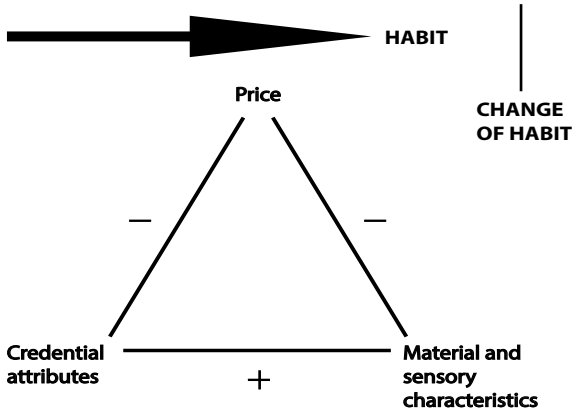

Figure 3. Main drivers of consumers' choices

instance suggesting that policy-makers should consider prioritizing a limited range of information that they wish to be conveyed to the consumer and communicate it using a nationally standardized, simple system (Foresight, 2011). This leads back to the determination of priority issues to be covered by a scheme, particularly difficult for international trade where the priority issues for the producing countries can be quite different from the priority issues for the consumers. Determination of quality criteria and common systems of evaluation require coordination among actors (Renard, 2003). More generally voluntary standards recognize the power of consumers, by giving them the possibility to exert choices according to their priorities. The multiplicity of "sustainability signs" is confusing but it also opens choices. It also reveals that the actors find interest and value in designing their own scheme, for their consumers. As such these signs can give sense and value to sustainability. It requires enabling consumers to choose the signs.

Identifying the challenges of communicating sustainability to consumers enables to propose ways to improve the effectiveness of voluntary standards as communication tools from producers to consumers, and vice versa, for more sustainable food systems. These could be of three broad types: improving "background" information on sustainability and on voluntary standards, improving credibility and clarity of voluntary standards, improving accessibility and visibility.

Changes in consumer attitudes and better understanding of voluntary standards and labels could be initiated through better "background" information both on sustainability issues and on voluntary standards themselves. The environmental issues and equitability of food consumption and production could be introduced in school curricula (Foresight, 2011). Campaigns to inform and raise awareness would also help to produce social norms leading to more sustainable choices (Foresight, 2011).

Actions to enhance the credibility and to clarify the landscape of labels and claims can greatly contribute to consumers' reliance on the information they provide. Governments can play a central role to enhance the credibility of voluntary standards directly by regulating voluntary claims and indirectly by using them as part of their public procurement policies. Green claims have been regulated to various degrees in different countries (Cason and Gangadahan, 2002). National laws to protect consumers can consider sustainability claims as part of the attributes of the product and thus integrate them in the general rules governing the protection of consumers against fraudulent claims and publicity. Public authorities can also devise frameworks or guidelines enabling consumers to assess sustainability claims. The Green claims guidance drawn up by the UK government (DEFRA, 2011) aims to

help business and consumers make more informed decisions and prevent misleading claims in the marketplace. The French certification environnementale des exploitations agricoles recognizes environmental certification schemes for farms, using a framework devised in consultation with all stakeholders (Meybeck *et al*., 2011). Importantly, such actions should take into account both the schemes that focus on an explicit sustainability message and those that include a less explicit claim to sustainability.

The way the information/message is conveyed at the moment of choice, its format, the design of a logo, their display, can be decisive (Stockley, 2011). Complementary information given at point of sale, including restaurants, can have a positive impact (Foresight, 2011). Such actions require coordinated work between manufacturers, retailers and public authorities (Grunert, 2011). All stakeholders have a role to play: up until the final buying act with essential parts to be played by retailers, to give visibility to sustainably produced foods on their shelves, and finally by consumers in choosing them.

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Role of voluntary sustainability standards in South–South food commodity supply chains: the case of the sustainable rice platform

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ABSTRACT
Among the challenges facing the agri-food sector, achieving food and nutrition security for the 9 billion people in 2050 is the toughest. The way to achieve this is not only to look at increasing productivity but also at the impact that food production has on the environmental, economic and social aspects of human well-being. It has been demonstrated that voluntary sustainability standards (VSS) can go some way to contributing to this. However, what happens if the conditions needed for VSS as they exist now are simply not there? Whereas with some food commodities produced by smallholders in developing and emerging economies and consumed in developed countries (coffee, cocoa), VSS have provided a much needed market pull for certified products that are usually driven by strong private organizations compelled to act for a number of reasons inter alia, to secure their supply of raw material and/or for reputational reasons. However, for many of the world's food commodities that are also considered staple foods for many of the world's food-insecure people, the market pull for sustainability certification for these products is non-existent. Yet the need for sustainable production of these food commodities is as great if not greater than those commodities that are produced in developing countries and consumed in developed countries. Taking the case of global rice production, then this is clearly the case as 95 percent of the world's rice is consumed in the same country as it has been produced. Rice is also a drain on water resources, using 34–43 percent of the world's irrigation water and responsible for 5–10 percent of global methane emissions. The sector is also seeing declining yield growth (from 2.2 percent during 1970–90 to less than 0.8 percent since then) and the rice production area is declining due to land conversion, salinization and

increased water scarcity. Rice is of strategic importance to governments of rice-producing countries and is considered a matter of national security. Added to the fact that more than 3.5 billion people depend on rice for more than 20 percent of their daily calories and that one-fifth of the world's population depends on rice cultivation for their livelihoods, if food and nutrition security is to be achieved a sustainable rice sector must be seen as top priority for policy-makers, traders and intergovernmental and non-governmental organizations alike. This paper explores the possible ways where the uptake of VSS can be incentivized in fragmented and low-value supply chains.

INTRODUCTION

Recent shortages and price increases of food commodities have highlighted the fragility of the balance between food supply, trade flows, global security and environmental degradation, giving impetus to the drive for resource efficiency and sustainability in our global food supply. The World Bank estimates that 100 million people were pushed into poverty by the 2008 food crisis, with Asia at its epicentre. Adding to the urgency, increasing consciousness among consumers, governments and the private sector over the need to enhance sustainability of agri-food value chains has spawned diverse market-based approaches, including public–private partnerships (PPP), agreements and covenants with governments, standards based on best management practices, and consumer labels.

In recent years, **voluntary sustainability standards (VSS)** have been established for diverse sustainability-related criteria, covering worker health and safety, environment, economics, social and animal welfare, human rights, community relations, land-use planning and others. Variously established and regulated by individual companies, PPPs, roundtables or multistakeholder consortia, VSS may reduce costs, improve supply chain integrity and support corporate marketing and brand awareness. Market-based standards have become a progressively more pervasive feature of the global economy, providing supply chain actors with trustworthy mechanisms that add value and enhance accountability. According to the global *State of sustainability initiatives review 2010* (Potts, van der Meer and Daitchman, 2010), by 2010 VSS schemes certified over 10 percent of global production of key global commodities.

Yet, despite the increasingly central role of market-based strategies in catalysing international trade and in promotion of sustainable development strategies, critics argue that from the farmer's perspective, the benefits claimed are context-dependent, and outcomes far from certain. Moreover, their rapid proliferation – and in some cases their acceptance as *de facto* market norms – have also brought unforeseen implementation challenges (for example, in evaluating actual impacts and benefits of VSS on environmental, economic, labour and social issues, and in assessing distributional impacts along the value chain). The International Trade Centre's Standards Map/T4SD Global Database is one of a number of initiatives addressing these challenges, using a common taxonomy to facilitate comparisons among over 100 voluntary sustainability standards in 200 markets.

Recognizing the need for an integrative approach, the United Nations Forum on Sustainability Standards (UNFSS) was created in 2012 by five UN agencies (FAO, UNEP, UNIDO, ITC and UNCTAD), to facilitate dialogue for exchange of knowledge

and provide a forum for intergovernmental actors to communicate and engage with key stakeholders (UNFSS, 2013; Grothaus, 2013). The forum aims to provide information and analysis on VSS and to unlock their value as tools for achieving sustainable development goals. The platform also addresses potential trade and development obstacles arising from use of VSS, and their particular impacts on small-scale producers.

However, despite the linkages between the behaviour of the rice market and food security (Durand-Morat and Wailes, 2011; Timmer, 2010), market-based initiatives in rice value chains have until recently received relatively little attention. In 2010, UNEP, in collaboration with the International Rice Research Institute (IRRI), launched a new initiative to harness lessons learned from VSS initiatives in other commodities to enhance resource efficiency and sustainability in rice value chains. **The Sustainable Rice Platform (SRP)** was officially launched in December 2011 as a multistakeholder partnership with governments, the private sector, research institutes and civil society organizations (CSOs). This article provides an overview of the overall context, rationale, objectives and activities of the SRP.

RICE – ITS STRATEGIC IMPORTANCE

Rice is the daily staple for half the global population – more than 3.5 billion people, many of them classified as food-insecure. Rice is produced on 160 million hectares of land, with a large part cultivated by 144 million smallholders with, on average, less than one hectare of land, and a minimal marketable surplus. With over 90 percent of the world's rice produced and consumed in Asia (Dawe, Pandey and Nelson, 2010), it is also the staple food for the 70 percent of the world's poor living in Asia (Gulati and Narayanan, 2002). In all, the livelihoods of over 1 billion people depend upon rice production.

The global rice market is highly distorted. Restrictions imposed by governments on imports and exports, as well as overwhelming domestic demand in most rice-producing nations, restrict the volumes entering international trade, resulting in wide price differentials across countries, low overall trading volumes and ensuing price volatility in the global market. In 2009, only 5–7 percent of total production entered global trade flows, much of it via South–South bulk trade (Gulati and Narayanan, 2002; Dorosh and Wailes, 2010).

Global rice production stood at 440 million tons milled rice in 2008 (Mohanty *et al.,* 2010). Projections for future global rice consumption (demand) vary widely and depend on computation methodology and underlying assumptions about future rice yield growth, population growth, shifts in food preferences, income developments, and elasticities of supply, demand, and price of rice and substitutable food items such as wheat (among others). A review by Abudullah *et al.* in 2005 (as referenced in Timmer *et al.,* 2010) revealed estimated global rice consumption in 2035 to vary between 380 and 540 million tons milled rice. For 2050, projected global rice consumption is estimated to be 360 million tons by Timmer *et al.* in 2010, 455 million tons by Nelson *et al.* in 2009, and 522 million tons by FAO in 2006. Eliminating long-term uncertainties and looking only 10 years ahead, Mohanty *et al.* (2010) estimated a production of 475 million tonnes by 2019. In these projections, the future price of rice rises considerably. For example, Nelson *et al.* (2009) project that the price of rice will increase by around 80 percent of its 2000 value. If the price

of rice is to be kept within reach of the global poor, global rice production needs to increase faster than the above projections.

In the past, increases in global rice production have come from both increases in harvested area and in yield (Mohanty *et al.,* 2010). From 1961 to 1977, the global harvested rice area increased by 1.38 percent per year, but since then growth has slowed to just 0.33 percent per year (Dawe, Pandey and Nelson, 2010). Reasons for this decrease include factors such as limited availability of new land, conversion of existing rice land, salinization and increased water scarcity. In light of this, Pisante *et al.* (2010) estimate that in developing countries, 80 percent of future crop production increases will need to be delivered through intensification via higher yields, multiple cropping and shorter fallow periods, rather than by area expansion. However, annual rice yield growth has stagnated, falling from over 2 percent during 1970–90 to less than 1 percent since then (Mohanty *et al.,* 2010). Despite this trend of declining yield growth, Mohanty *et al.* (2010) computed that the yield of rice needs to increase by 15 percent over the coming decade – up from the current value of 8.7 percent - to bring down the price of rice to an affordable level of around US$300/tonne constant nominal value (approximating the average of 2005–2008 reference price before the onset of the food crisis). This target may be unrealistic, especially in view of increasing resource scarcity (water, nutrients, energy, labour) and negative effects of climate change (Masutomi *et al.,* 2009; Li and Wassmann, 2011).

Urbanization, industrialization and liberalization of markets add further to the pressure to grow more from a declining agricultural resource base; these trends carry significant environmental implications as rice producers strive to intensify production on existing land. Such scenarios underscore the urgency of the need for enhanced productivity and resource efficiency, while at the same time reducing the environmental footprint of rice systems.

SUSTAINABILITY CONCERNS IN RICE

While flooded paddy rice production is considered an essentially sustainable system that maintains long-term soil fertility and continuous high productivity (Dobermann, Witt and Dawe, 2004), sustainability concerns in rice production systems can be generally categorized as follows:

- resource use efficiency (land, water, agrochemicals, labour);
- greenhouse gas (GHG) emissions (CH_4, N_2O, CO_2);
- impacts on ecosystem services;
- soil impacts (e.g. salinization, arsenic, organic matter);
- disease impacts (e.g. water-borne pathogens);
- climate change impacts.

These issues have already been extensively documented in the literature (see overview by Bouman *et al.,* 2007). Use of resources (particularly water and agrochemicals) and GHG emissions from rice paddies are of particular concern. Globally, about 100 million ha (harvested) rice area are irrigated (Dawe, Pandey and Nelson, 2010), accounting for some 34–43 percent of the world's irrigation water (Bouman *et al.,* 2006). The imperative for improving water-use efficiency is further sharpened by increasing incidence of local water

scarcity, even in irrigated rice areas. Tuong and Bouman (2003) estimated that by 2025, 15–20 million ha of irrigated rice will suffer some degree of water scarcity.

Total fertilizer consumption has increased for most countries in the last 50 years, and this is probably also the case for rice (Gregory *et al.,* 2010). Based on the most recent crop-specific fertilizer consumption statistics, the world's rice fields receive some 15 percent (or 24.3 million tonnes) of global fertilizer ($N + P_2O_5+K_2O$) use – the same amount as the world's wheat and maize fields. Total N use stands at 15.7 million tonnes, P_2O_5 at 4.8 million tonnes, and K_2O at 3.8 million tonnes (Gregory *et al.,* 2010). Country averages vary from more than 200 kg/ha in countries such as China and Viet Nam, to less than 100 kg/ha in the Philippines and Thailand (IFA, 2009; cited in Gregory *et al.,* 2010). The health and environmental impacts of excessive use of fertilizers in intensive systems are compounded by low fertilizer use efficiencies; poor application timing can result in only 20–40 percent or less of applied nitrogen fertilizer captured by the crop (Islam, Bagchi and Hossain, 2007).

Pesticide use, too, has grown. Using recent pesticide sales data, Norton *et al.* (2010), estimated that pesticide use in rice roughly doubled from 1980 to 1996, but has levelled off since then in real terms. In the period 1994–1999, pesticide use on rice ranged from 0.4 kg active ingredients (ai)/ha (Tamil Nadu, India) to 4.2 kg ai/ha (Zhejaing, China) (Norton *et al.,* 2010).

Flooded rice cultivation is an important source of atmospheric methane and also of nitrous oxide. According to the International Panel on Climate Change (IPPC), the world's rice fields emit 31–112 teragram (Tg) of methane per year, about 12–26 percent of the anthropogenic methane sources or 9–19 percent of global methane emissions (IPPC, 2007; cited in Wassmann *et al.,* 2010). GHG emissions in irrigated rice are strongly influenced by management practices, offering considerable potential for effective mitigation, for example through adapted water management (such as alternate wetting and drying (AWD), mid-season drainage and aerobic rice), residue management and appropriate selection of the type and timing of organic and inorganic fertilizer application (Wassmann *et al.,* 2010).

Facing these and other formidable challenges to sustainability, what can researchers, development practitioners, farmers and other supply chain actors do to enhance productivity, efficiency and sustainability, not only at the farm level but throughout the value chain, while protecting our environment and enhancing smallholder livelihoods?

CHALLENGES FOR VSS IN THE RICE SECTOR

Most VSS regimes harness market factors and supply chain actors as the primary drivers of transformation processes, and have been successfully implemented for a range of value chains, creating financial or other incentives for producers to adopt "best-practice" regimes that satisfy the norms of remote destination markets. Such regimes vary greatly, and may or may not make use of certification, traceability and chain of custody, and product labels. Nevertheless, despite this private sector focus, regulatory context remains key to effective implementation; VSS regimes require government support in the form of an enabling regulatory environment in order to function effectively (Figure 1).

In the agri-food sector, VSS have been implemented for commodities including oil palm, sugar cane, timber, coffee, tea, cocoa, soybean, fruit and vegetables, cotton, textiles and livestock.

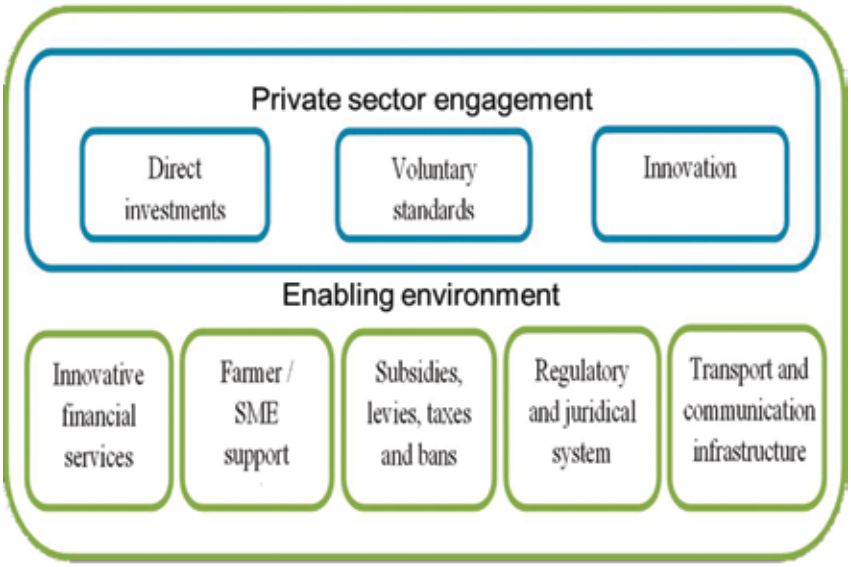

Figure 1: Private sector engagement needs an enabling environment
Source: Kessler *et al.* (2013).

VSS regimes tend to operate via demand pull, expanding markets, increasing value-addition and enhancing livelihoods. The origin of this demand is of critical importance; demand for "sustainable produce" is driven almost exclusively by Northern countries, creating opportunities for value addition through price premiums and secured access to high-value markets. However, such opportunities hardly apply in the case of rice, for which trade flows are overwhelmingly South–South, with less than 2 percent of global rice production destined for high-value markets in Northern countries. While the export of rice is dominated by a few countries (in the first decade of the 2000s, the top five exporters, Thailand, Viet Nam, India, United States of America and Pakistan, accounted for 81 percent of the world market), rice imports are more evenly dispersed (Dorosh and Wailes, 2010). From 2000 to 2010, imports by the five leading importing countries/regions (Philippines, Nigeria, Iran, Indonesia and the European Union) accounted for only 27 percent of the world total, while the share of the top ten importing countries was only 44 percent. (Dorosh and Wailes, 2010). In rice, it is clear that destination markets do not in general serve as a demand driver for sustainable market transformation.

Challenges for VSS also arise from the production structure of rice, where transaction costs (e.g. organization and verification) are relatively high for low-value commodities and there is a large, unorganized and fragmented production base. In general, for higher-value commodities, the business case exists for farm-level certification only if there is a significant price premium to incentivize adoption of specified practices. (It is, however, important to note that some VSS approaches deliver training in good agricultural practices (GAP) in lieu of monetary premiums, with farmers gaining financial reward though higher yields and quality, and from improved organization of farmer groups.)

Alternative options must therefore be sought for rice, as incentivization through price premiums is unlikely to be feasible for low-value commodities, particularly considering

the strategic imperative to increase the affordability of rice for the 70 percent of the world's poor who live in Asia. That said, the business case for VSS in rice may become more persuasive if improved practices lead to increased profitability (yields, input efficiency, market access), although this will require new investments in training, technical assistance and provision of inputs.

Thus, our challenge is to develop a mechanism(s) that creates value for farmers to incentivize adoption of sustainable practices, while avoiding the pitfall of further marginalizing resource-poor small farmers. At the same time, the system must create value (e.g. financial or reputational) for buyers in destination markets.

THE SUSTAINABLE RICE PLATFORM

Mission and objectives

The Sustainable Rice Platform (SRP) was co-convened in 2011 by the United Nations Environment Programme (Division of Technology, Industry and Economics Agri-food Programme) and the International Rice Research Institute (IRRI) as a multistakeholder partnership. One of a wide range of initiatives under UNEP's Global SCP Clearinghouse (UNEP, 2013), SRP aims to promote resource-use efficiency and sustainability, both on-farm and throughout the value chain. Its mission is as follows:

To promote resource efficiency and sustainability in the global rice sector through an alliance that links research, production, policy making, trade and consumption.

SRP pursues public policy development and voluntary market transformation initiatives with the goal of providing private, non-profit and public actors in the global rice sector with sustainable production standards and outreach mechanisms that contribute to increasing the global supply of affordable rice, improved livelihoods for rice producers and reduced environmental impact of rice production. SRP's three overall objectives are shown in Table 1.

Governance structure

The SRP is a multistakeholder initiative, open to membership by governments and governmental bodies, the private sector, research institutes and the international non-governmental organization (NGO) community. Such organizations can participate in the platform through financial or in-kind contributions. The SRP meets annually in plenary to review its plans and activities, while an Advisory Committee provides operational oversight and ensures that the Platform achieves its objectives. The SRP organizational structure is shown in Figure 2.

SRP's two Working Groups focus on development and implementation of SRP's programmes. Working Group 1 (WG 1) works on sustainability principles and guidelines, as

Table 1: SRP objectives

SRP objectives: a four-year timeframe (2012–2015)		
Develop a context-dependent modular standard for sustainable rice production and processing, including decision-making tools and quantitative sustainability impact indicators	Leverage supply chain mechanisms and public policy development to develop and promote outreach models that foster large-scale adoption of sustainable best practices	Establish a global platform recognized for its role in promoting sustainability in the rice sector, with broad participation from value chain actors, public and private sectors, as well as research and non-profit organizations

well as identification and field-testing of tools, indicators and sustainable best practice. WG 2 focuses on development and adoption of effective outreach models, incentive mechanisms and value-chain efficiency, based on the best practices identified by WG 1. The SRP Secretariat supports the Advisory Committee and the Working Groups and is responsible for administration, coordination of operations and external outreach. The Secretariat is managed by a Coordinator based at UNEP, which also acts as the SRP's legal entity.

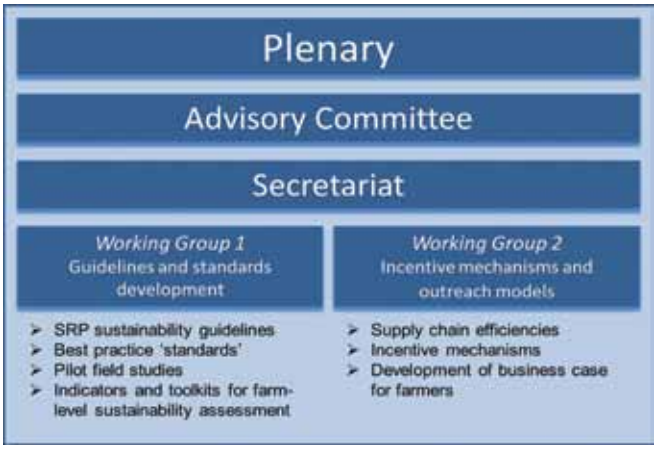

Figure 2: SRP organizational chart

Partners and members

SRP was co-convened by UNEP and IRRI, with Louis Dreyfus Commodities, Kellogg's, Olam Trading, Mars and ICA-Ahold as founding members. Members include governments and governmental bodies, research institutes, NGOs, and the private sector (trade, food processors/manufacturers, input suppliers and retailers). In developing the SRP, wide stakeholder engagement has been sought within both public and private sectors, the development and research communities and CSOs. Participants in the SRP dialogue to date are shown in Table 2.

Guiding principles

Through a consultative process, the SRP has developed eight guiding principles (shown in Box 1) to which SRP's institutional members commit in their own activities.

Key programmes

The SRP's two Working Groups focus on development and testing of sustainability guidelines, standards, tools and outreach models for sustainable rice production and processing, including decision-making tools and quantitative sustainability impact indicators. The mandates of the two Working Groups are shown in Table 3.

Technologies and outreach for sustainability

On the basis that best practice provides an essential underpinning for ecologically sustainable rice production, IRRI has undertaken extensive research into a range of technologies with potential to enhance sustainability in a range of rice systems. The following is a non-exhaustive list (IRRI, 2012):

- safe alternate wetting and drying;

Table 2: SRP members and dialogue partners

Stakeholder group	SRP members/dialogue partners
International/public sector agencies	United Nations Environment Programme (UNEP) Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Food and Agriculture Organization of the United Nations (FAO) Indonesia – Center for Rice Research Thailand Rice Department, Ministry of Agriculture and Cooperatives Viet Nam – Department of Crop Production, South Viet Nam
Research	International Rice Research Institute (IRRI) Asian Institute of Technology (AIT) University of the Philippines, Los Baños (UPLB)
Civil society	Catholic Relief Services (CRS) International Institute for Environment and Development (IIED) Aidenvironment UTZ Certified International Fertilizer Association (IFA) Solidaridad
Private sector	Bayer, Capital Rice, CropLife Asia, DuPont, ICA-Ahold European Sourcing, Jollibee, Kellogg's, Louis Dreyfus Commodities, Mars Foods Europe, Migros, Nestlé, Olam International, PetroVietnam Fertilizer & Chemicals Corporation, Ramcar Group of Companies, Syngenta, Tokyo Tokyo.

- digital decision tools for extension workers and farmers;
- multi-stress-tolerant varieties (salinity, drought, flooding) for climate-smart agriculture;
- site-specific nutrient management tools to improve N and P efficiency;
- sustainable intensification of rice cropping systems;
- improved irrigation efficiency;
- bio-fortification;
- low-cost post-harvest technologies to reduce food losses.

However, to succeed in driving large-scale adoption of any technological innovation,

Box 1: SRP guiding principles

1. Improve livelihoods of current and future generations of rice growers
2. Meet consumer needs for food security, food safety and quality of rice and rice products
3. Manage natural resources efficiently
4. Protect the natural environment from disruptive effects
5. Protect neighbouring communities from disruptive effects and contribute to their development
6. Mitigate GHG emissions and adapt rice production systems to a changing climate
7. Respect labour rights and promote the well-being of workers
8. Conduct business with integrity and transparency.

Table 3: Working Group mandates

Working Group 1: **Guidelines and Standards Development**	**Working Group 2:** **Incentives and Outreach Mechanisms**
• *Standards development* *•Develop guiding principles for sustainable rice production* *•Develop certification standard based on SRP Guidelines, at market-desired levels of compliance* *•Develop farmer-friendly information/training system to promote adoption* *•Identify, improve and test decision guidance tools for farmers to assist in selecting the most appropriate and sustainable production options* *•Identify environmental indicators and implement preliminary field trials to measure impacts (i.e. obtain baseline measurements for indicators)* *•Long-term impact monitoring*	•Collect data on consumer interests, stakeholder mapping, inventory of outreach models and farmer-incentive mechanisms (including barriers to adoption) •Identify guidelines/standards for rest of supply chain based on SRP's Guiding Principles •Define strategies to improve sustainability throughout rice value chains •Define and test SRP outreach models/incentive mechanisms through supply chain mechanisms for high-value markets/modern supply chains •Define and test SRP outreach models/incentive mechanisms for low-value markets •Develop business case for farmers to adopt good agricultural practices.

incentives and outreach models will need to convince farmers that best practices for rice production help increase profits as well as mitigate health and environmental risks. As indicated earlier, if direct monetary premiums are unfeasible, innovative approaches to value addition at farm level must be sought that make use of untapped incentive mechanisms. Among these, SRP has identified a number of possible avenues, including the following:

- new business models for smallholder farmers, e.g. the "small farmer–large field" system in Viet Nam;
- the "book and claim" system to promote adoption of sustainable practices;
- crop management practices for carbon trading;
- payment for ecosystem services (PES), including performance standards and metrics.

SRP therefore aims to look beyond certification/verification to seek alternative ways of reaching out to farmers and incentives – for example, the "book and claim" system offers a sustainable rice credit trade system in which issued credits can be traded independently from the physical rice, contributing to investment in improved practices. Other options may include linkages with existing GAP schemes, integration of sustainable standards in policies and public extension services, and creation of new incentives via PES schemes.

CONCLUSIONS

The SRP is currently entering its implementation phase and seeks broader stakeholder support and participation in its programmes. The SRP hopes to draw relevant lessons from established sustainability initiatives, with the aim of offering the global rice supply chain a proven system of sustainability standards, options for best management practices, and incentive mechanisms to facilitate broad-scale implementation, particularly by smallholder farmers.

It is hoped that by taking an innovative and integrated approach, SRP can contribute to reducing the ecological footprint of rice, while strengthening South–South (and indeed, global) cooperation on standards, stimulating supply stability and enhancing value-addition along the value chain.

Organizations aligned with SRP's guiding principles are encouraged to participate as members of the SRP initiative and to contribute actively to the SRP's programmes, either financially or in kind. Further information and application forms are available at www.sustainablerice.org.

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Ongoing experiences in Costa Rica: the Ecological Blue Flag Program

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Costa Rica performs important public–private initiatives in the field of sustainable development. One such initiative is the Blue Flag Program (www.banderaazulecologica.org). With a history of over 15 years, this Program today consists of nine categories that have been developed based on experience and the necessity to open new space for the participation of various types of organizations and sectors in the efforts for sustainable development of the country.

One of the most recent categories is that of climate change, consisting of two types: mitigation and adaptation. This paper refers to adaptation, which applies to the agriculture sector, for small and medium as well as large producers.

BLUE FLAG PROGRAM

The Blue Flag Program started in 1996 as an incentive for coastal communities to improve the environmental and socio-economic situation in coastal villages affected by pollution of the beaches owing to tourism and hotel operations in several parts of the country.

It is a public–private initiative led by a Steering Committee, comprising representatives from the eleven organizations in charge of the Program.

In the beginning, it focused on action to protect water and beaches from pollution. However, from 2002 to 2012, an additional eight categories were formed, bringing the total to nine. The climate change category was introduced in 2008.

Currently, there are 2 016 local committees countrywide that have achieved the award in one of the nine categories.

The Program has been an inspiration for similar initiatives in Panama, Peru, Guatemala and Ecuador (Mora and Fernández de Torrijos, 2006; Mora and Chávez, 2010).

CLIMATE CHANGE CATEGORY

Climate change is the sixth category of the Program. It was created in 2008 and consists in two types of action: mitigation and adaptation. Mitigation actions apply to institutions, industries, service enterprises, buildings, transportation companies and car rental companies, for example. Currently there are 2 002 Local Committees in the category. Adaptation actions apply to farms, whether individuals or organizations. At present there are 19 agricultural enterprises that have achieved the award and more than 30 will be participating next year.

PARAMETERS

There are six parameters to be evaluated in the adaptation category (Table 1), each consisting of three to four subparameters or criteria.

For the "Quality and quantity of water for agricultural use" parameter, the description of the source, annual consumption, the quality of the source and the good practices programme to protect water sources are evaluated. The standard demands water-use savings. The individuals or organizations must submit certification of quality and quantity of used water.

Regarding "Soil management and conservation", the land-use systems, the soil characterization and its use as a basis for soil management and fertility, and the plan for good agricultural practices to protect the soil are evaluated. The standard demands practices to protect soil against degradation (specially as a result of erosion). The individuals or organizations must submit a copy of the soil analysis laboratory report.

In terms of use and management of synthetic agrochemicals and bio-inputs and veterinary products, an annual inventory of used inputs and good agricultural practices for storage and input management are requested. The standard demands the use of officially registered inputs, reductions in inputs used and substitution of conventional agrochemicals by bio-inputs.

Regarding "Aspects related to corporate social projection", the standard demands the sharing of experiences of the individuals or organizations included in the Program

Table 1. Parameters and score evaluated in the adaptation category

Parameters	Score
1. Quality and quantity of water for agricultural uses	16
2. Management and conservation of the soil	20
3. Uses of agrochemicals, biological inputs and veterinary products	20
4. Aspects related to social corporate projection	14
5. Management and final disposal of solid and liquid residues	20
6. Environmental management for adaptation to the impact of climate change	10
Total	100

with the community. Also, the spread of experiences among all kinds of visitors to the farm is considered. This subparameter emphasizes the effort to stimulate similar initiatives by other farms or producers. It is necessary to have a record of visitors and to include a copy of this record in the annual farm report.

In the field of solid and liquid residues disposal, the standard requests a description of sources of residues (quantities, sources, types) and residue treatment and uses of the final product. The standard promotes residue reduction and its recycling as organic inputs in the farm production process.

Related to environmental management for adaptation to the impacts of climate change, the standard requires a description of the practices to reduce the vulnerability of the production system (economic, social and environmental practices), a description of the good agricultural practices to increase biomass in the system and the practices to reduce the use of water, electricity and fuels. The objective is to reduce emissions and to promote CO_2 capture.

INSCRIPTION AND DOCUMENTATION OF THE PROCESS

Regarding requirements, concerned individuals or organizations must submit an annual inscription to the Technical Committee (January to March). For the first year, it is necessary to present a diagnosis of the enterprise in terms of general characteristics and use of resources and inputs.

A work plan (activities to do in each subparameter) must be presented annually, and at the end of each year it is necessary to present a report of the executed activities. The report must include data and certified documentation to demonstrate compliance with the subparameters (December).

The documents are submitted to the Technical Committee either by e-mail or by written means. The Technical Committee evaluates the documentation and then formulates and communicates its decision to the respective concerned individuals or organizations.

Extension Officers (from the Ministry of Agriculture and Livestock) are available to assist the applicants (either farmers or organizations) in their submissions to the Technical Committee, either in terms of documentation or work plan development.

The applicants who receive the Blue Ecological Flag must display it in a place where neighbours and visitors can see it easily. The winners may communicate the award to the consumers of their products.

As a plus in the award, the winners can receive between two and five stars. This depends on the following criteria:

The farmer/organization achieves a 90–100 percent score.

The farmer/organization is included in a certification process.

The farmer/organization has a certification (USDA-Organic; Rainforest Alliance Certified; GlobalGAP, etc.).

The farmer/organization has calculated the carbon footprint.

The farmer/organization is carbon-neutral.

THE AWARD

The award consists of a Blue Flag and a certificate. The costs of both are supported by government and private organizations.

BARRIERS

There are basically three barriers. The first and perhaps the most determinant barrier is the producer's limitations to document the process and to register the results.

Second is the financial limitation of some producers to put into practice the technical recommendations needed to meet the standard.

In particular, the consumer role is significant. If the consumers do not know the standard, whatever the standard is, they do not push the producers to improve the production process.

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Voluntary standards for sustainable food systems: the role of public procurement

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ABSTRACT

The absolute size of the public sector, as well as its unique leadership position, suggests that what governments choose to buy and who they choose to buy from has the capacity to transform markets. Traditionally, public procurement has centred on establishing policies and procedures to ensure the public sector is able to source the goods and services it needs on the most favourable terms. However, this is slowly changing as governments around the world increasingly recognize the role of public procurement in fostering broader socio-economic objectives such as sustainable consumption and production.

In 2012, the ISEAL Alliance conducted research into sustainable public procurement (SPP) with a specific focus on how voluntary sustainability standards can support this process. The results from this study, which included a survey component, concluded that while SPP is on the rise, at national and subnational levels this progress is not uniform. Furthermore, even where supportive policy frameworks are in place, implementation lags behind ambition. The research also identified that one of the main barriers limiting SPP was public buyers' lack of knowledge and expertise on how to implement SPP.

One way of overcoming this knowledge gap is to promote the uptake of sustainability standards. Sustainability standards can play an important support role in SPP – specifically their ability to identify sustainability hotspots, provide procurers with the technical specifications to address these hotspots and ensure that contractors produce their products and services in compliance with these specifications. While sustainability standards are being used to support SPP, the study identified that there is still considerable scope to scale up their use in procurement. However, this scaling-up is predicated on overcoming a number of barriers that limit their use in procurement. These barriers include: the standards' coverage; supply of certified products; knowledge of the standards' landscape; and certainty regarding their legal status. One strategy that can be used to overcome these barriers is to use high-profile, quasi-public events such as the Olympic Games to build confidence among public procurers with respect to how they can legally and effectively use sustainability standards in procurement.

With this as background, the objective of the paper is to present the main findings of the ISEAL 2012 study. It also includes a case study of how the London 2012 Food Vision for the Olympic and Paralympic Games empowered the London Organising Committee of the Olympic Games and Paralympic Games (LOCOG) – a quasi-state institution – to use standards in their food procurement tender documents. The transfer of this legacy to the Rio 2016 Games, as well as at its spill-over effect at the city and local levels is also discussed.

INTRODUCTION

In the last few decades, voluntary sustainability standards and their accompanying certification and labelling programmes have made a significant contribution towards responsible production and consumption. The strength of sustainability standards lies in the fact that they are market-based tools built on multistakeholder partnerships. These partnerships bring together a diverse range of stakeholders not only to identify a sector's sustainability hotspots but, more importantly, to agree on a pathway for sector participants to improve their practices and thereby encourage sustainable production. Simultaneously, standards, certification and labelling also provide reliable benchmarks for supply chain buyers, governments and consumers to make informed purchasing decisions and in this way steer sustainable consumption. A number of empirical studies[1] have confirmed the positive impacts that sustainability standards are able to deliver.

With 10 percent or more of global production certified in forestry, fisheries and key agricultural commodities, sustainability standards have the potential to transform global markets.[2]This transformational capacity hinges to a large extent on whether the users of sustainability standards systems are able to scale up their direct and indirect demand for certification.

A recent research report that delved into the state-of-knowledge of standards and certification concluded that consumer demand alone is unlikely to catalyse a large-scale shift towards the use of certification and labelling systems. Demand from large retailers, and the desire of manufacturers to differentiate their products for key business customers, is also an important driver behind certification. So too is the government sector – an often overlooked force behind the uptake of standards and certification (Steering Committee of the State of Knowledge Assessment of Standards and Certification, 2012).

The purpose of this short paper is to address this omission and look at how governments around the world currently use and support the uptake of sustainability standards. The challenges and opportunities to expand this uptake will also be assessed by presenting the results of a research project that focused specifically on governments' role as a buyer of goods and services, i.e. public procurement. In order to illustrate the relevance of this research to the agricultural and food sector, this analysis will be followed by a short case study illustrating how the London Organising Committee of the 2012 Olympic and Paralympic Games (LOCOG) – a government-established enterprise – used sustainability standards as part of their food procurement strategy.

GOVERNMENTAL USE OF SUSTAINABILITY STANDARDS: AN OVERVIEW

One of the biggest policy challenges all governments currently face relates to sustainable development – meeting the needs of the present generation without compromising the ability of future generations to meet their own needs (World Commission on Environment

[1] For more information on these studies see: Steering Committee of the State of Knowledge Assessment of Standards and Certification (2012).

[2] While 10 percent is a useful average to use across sectors, within sectors the percentage of product that is certified sustainable differs significantly. For example it ranges from 18 percent in the case of coffee, 17 percent in the case of wild capture fisheries, 9 percent for global forest land and 1.2 percent for cocoa production (see Potts *et al*., 2010 and FAO, 2011, for more information).

and Development, 1987). It is widely recognized that established, business-as-usual production models and consumption patterns will have to be transformed if the threat of environmental crises, including climate change, is to be avoided and a more resource-efficient, socially inclusive economic system created.

Traditionally, governments have achieved public policy outcomes such as economic growth and social protection through domestic legislation supported by monitoring and coercive enforcement if needed. However, this "command and control" style of government is being called into question in a world in which the drivers for policy increasingly lie outside of national boundaries and where "... the evolving structures of global production – multinational enterprises and global supply chains – pose major challenges for conventional 'regulation' action by the state" (Carey and Guttenstein, 2008). Governments worldwide need new ways of working and new policy tools if they are going to adequately respond to the most pressing societal challenges.

One way governments can support transnational policy making and implementation effectiveness is to engage with voluntary sustainability standards. Paradoxically, the origins of many sustainability schemes can be traced to perceived government failures to deliver effectively on social and environmental outcomes. In this context, sustainability standards were offered as an alternative to government regulation. Despite these origins, the line between public and private regulation has become blurred.

When it comes to the different ways in which governments engage with sustainability standards, the range of examples is extensive. First, governments can use standards to help them co-regulate markets. This is achieved by governments' setting binding rules for sustainable consumption and enforcing these by officially prescribing a number of sustainability standards with which firms must comply in order to meet these legal requirements. An example of this approach is the European Union's Renewable Energy Directive (RED). Second, governments can act as supporters of standards by actively encouraging economic operators to become certified through providing subsidies, grants and/or tax breaks for certification. The Government of India's organic aquaculture certification subsidy programme is an example of this approach.

Third, governments can work towards facilitating the development and improvement of standards themselves. The Governments of Australia, the Netherlands and Switzerland, for example, are all members of the Roundtable on Sustainable Biomaterials. These governments are also important financial contributors to a number of sustainability standards organizations.

Finally, governments are not only regulators of markets but also active market participants in their own right, given that they are the owners and operators of many state enterprises and assets. In the same way that a private company may look to become certified to voluntary standards, this is also the case with government operations. In the Baltic States, Northern Europe, Canada and the Russian Federation, for example, large proportions of state-owned forests have achieved Forest Stewardship Council (FSC) certification. There are also similar examples from the fisheries sector.

Governments and public entities also play a significant role at the other end of market transactions – as buyers of goods and services in general, and food in particular. In its 2006

report "Procuring the Future", the UK government (DEFRA, 2006) identified food as the third in the list of priority procurement categories and in 2008, the European Commission ranked it as the second most important procurement product category. When it comes to goods and services, certification can be used by government buyers as a means to demonstrate compliance with either established government policy or with recognized good practice for the production of particular goods. How this works in practice, as well as the opportunities and challenges this brings, will be the focus of the remainder of this paper.

SUSTAINABLE PUBLIC PROCUREMENT AND THE USE OF STANDARDS: RESULTS OF A RECENT STUDY

Sustainable public procurement and the use of standards: an overview

Public procurement is the purchase by governments, government agencies and state-owned enterprises of products, services and infrastructure. By all accounts, this expenditure makes up a significant percentage of most countries' gross domestic product (GDP). The latest data from the Organisation for Economic Co-operation and Development (OECD) suggests that its member countries spend on average 12 percent of their GDP on public procurement (OECD, 2011), while estimates for developing countries are significantly higher and as much as 25 to 30 percent (OECD, 2012).

Over the past decade, one of the most important trends shaping public procurement has been the recognition of the role that public procurement can play in advancing sustainable development objectives. This importance is manifested in the absolute size of the public procurement market; the leadership that governments can show to the market through purchasing sustainably (or "crowding-in"); and the ability of governments to stimulate innovation in sustainable products and technologies by engaging with suppliers. However, a number of studies (e.g OECD, 2012) have shown that the extent to which governments can support sustainable development through their procurement policies is not without its challenges. These include:

- lack of knowledge on the part of public procurers on how to achieve sustainable public procurement (SPP);
- concerns over the cost of sustainable alternatives;
- lack of mechanisms to monitor SPP outcomes;
- absence of incentives to bring sustainability considerations into procurement decision-making; and
- concerns over the supply of sustainable products and services.

Sustainability standards, as market-based tools that link sustainable production with consumption, can help overcome some of these barriers. They provide a means: to quickly and inexpensively identify key sustainability hotspots in the supply chain or lifecycle; to include these criteria in tender documents; and for suppliers to demonstrate compliance with these criteria through a familiar and easily understood mechanism – a seal or label.

In terms of the way in which national governments reference sustainability standards in their procurement frameworks, this typically happens in one of two ways. Some countries develop their own criteria for what constitutes the sustainability of a certain

product category, and then assess the extent to which the various certification schemes meet these requirements. This is the approach that the United Kingdom, for example, follows with respect to its sustainable timber procurement requirements. Other countries have adopted a less complex system, and decide that particular certification schemes meet their requirements. France and Germany, for example, explicitly mention certain sustainability standards, such as the Forest Stewardship Council, in their procurement systems (Brack, 2008).

The impact these mandates have had on the uptake of sustainability standards by the public sector, as well as the broader market outcome of this shift, is unclear. The existing literature on the use of sustainability standards in public procurement is fairly thin on the ground and, where available, tends to be focused on particular standards, the use of standards in particular locales, or standards as one component in a broader approach to SPP. Nevertheless, examples from the United States green building sector (Simcoe and Toffel, 2011) and the United Kingdom forestry sector (Fripp, Carter and Oliver, 2011) suggest that when governments use sustainability standards as part of their sustainable public procurement strategy, it has a positive impact on uptake of the standard – well beyond the size of the public order.

However, the literature also points to the fact that sustainability standards also give rise to difficulties in their effective use. Cited in the literature, questions of legal certainty, limited awareness of the availability of standards and certified products, limited knowledge of how the systems work and challenges in ensuring credibility and preventing "greenwashing" figure prominently.

In order to flesh out some of the initial findings from a literature review on the subject of sustainability standards and SPP, the ISEAL Alliance commissioned primary research in 2012. A total of 47 semi-structured interviews were conducted with government procurement officials (41 of which generated an appropriate level of detail to be useable) across the world. This research was not intended to offer a comprehensive global picture of how standards are used in SPP, nor would such an aim be achievable. Rather, the approach offers a flavour of the current state of affairs by including the views of a wide range of different types of public sector organizations.

USE OF SUSTAINABILITY STANDARDS IN SPP : SURVEY RESULTS

Knowledge and awareness of sustainability standards

Procurers interviewed showed a basic knowledge of and exposure to sustainability standards. Nearly all could name at least one standard they had encountered during their work, including a mix of single and multiple phase standards, single and multiple criteria standards, ISO management standards, reporting standards, government buying standards and other organisations' guidelines of best practice. Standards most often mentioned were FSC, Energy Star, ISO standards and Fairtrade. Standards cited fell into several categories with the most common being forest management standards, ecolabels, energy efficiency and ethical, organic and environmental standards related to food and textiles.

A high proportion of interviewees had used standards to support their purchasing decisions in some form but relatively few (less than twenty per cent) had done so in a

systematic and on-going way or across multiple categories. Where a local, government-backed standard was available, there was a tendency towards using this, such as the Green Choice ecolabel in the Philippines. Aside from government endorsement, common acceptance and wide recognition were also important for procurers to commit to the use of a label, such as in the cases of FSC or Fairtrade.

Barriers impeding use of sustainability standards

One of the key barriers to the use of standards arising from the interviews relates to the supply of standards and adequate coverage of the highest risk areas of purchasing. Further down the list of barriers is the actual supply of certified goods in a given sector, which appears to be less of a concern than the availability of one or more appropriate standards in particular sectors. Both of these concerns speak to the importance of having adequate supply (of standards and certified products) to ensure accessibility and competition.

Ranked second is continued uncertainty around the potential of legal challenge to the use of standards. One procurement manager pointed out how, despite the demonstrably legal use of standards and ecolabels, there remained reticence among some procurers. This could be connected to high profile legal cases that have arisen in recent years that, despite clarifying the use of standards, bring a degree of uncertainty.

A lack of knowledge about the available standards also ranked highly. This concern was more prevalent in non-OECD than OECD countries. However, the large proliferation of standards in the market and the difficulty involved in distinguishing among their scope and credibility was also seen as contributing to the vulnerability of standards to legal challenge.

Another observation from the interview results is the lack of cohesion with regard to SPP support programmes, initiatives and toolkits. There is an absence of concerted approaches to consolidating materials and resources from different or jurisdictions. In terms of the use of standards and labels, no authoritative support institution was identified.

Strategies to increase the use of sustainability standards in SPP

The findings of the literature review, as well as the results of the primary research point to the fact that if sustainability standards are to make it easier and more efficient to engage in SPP, the barriers limiting their use will need to be addressed. For the sustainability standards community, this suggests three main strategies:

- Building knowledge and awareness around standards and how they can be used in public procurement.
- Developing tools to make it easier for procurement officials to use standards.
- Raising confidence in the procurement community that they can readily refer to sustainability standards without the fear of legal challenge.

Deciding on which of these strategies to emphasize depends on the extent to which SPP is already integrated into the culture and operations of a country or region's public procurement practice. For example, in OECD countries, the emphasis needs to be on building the confidence of procurers to use standards freely. For countries such as India, that are at the start of their SPP journey, the emphasis should be on building knowledge and awareness of how standards can support public procurement.

Operationalizing these strategies is easier said than done and can include a broad range of activities such as training programmes, tools to compare standards, and highlighting and replicating best practice. One example of best practice relates to the London 2012 Olympic and Paralympic Games and the sustainability of the food that was served at this event. This is a useful example in that the inclusion of sustainability standards into the Games' procurement strategy served both as a vehicle for improving the impact of London 2012 as well as a way to showcase the sustainability value of standards to a global audience.

STANDARDS AND BUILDING SUSTAINABLE FOOD SUPPLY CHAINS: 2012 LONDON OLYMPIC AND PARALYMPIC GAMES

When London won the right to host the Olympic Games, the city made a number of important sustainability commitments and specified its intention to be the "the greenest games in history". The London Organising Committee for the Olympic and Paralympic Games (LOCOG) was the enterprise the government established to be responsible for the actual delivery of the games, including awarding contracts to the catering sector with respect to 14 million meals that were to be served during the Games event (Soil Association, Sustain and nef, 2007). In terms of examples of some product volumes, this translated into 330 tonnes of fruit and vegetables, 100 tonnes of meat and 21 tonnes of cheese.

In order to achieve its sustainability mandate, in 2009 -2007 – well ahead of the games – LOCOG set out its sustainability targets in its "Food Vision" document (London 2012, 2009). For product categories where sustainability standards would be used, this "Food Vision" differentiated between standards that were mandatory requirements in purchasing decisions and "aspirational" standards that should be weighed into decisions. In the former category, Red Tractor (a food safety and quality standard) certification was a common requirement, and for certain other products compliance with Fairtrade and Marine Stewardship Council standards or equivalents were set as the benchmark. Aspirational standards recognized by LOCOG included Rainforest Alliance, organic and LEAF.

Because this Food Vision document was well publicised and consulted across the food service sector ahead of the point at which contract notices were issued, the suppliers had sufficient time to ensure they could meet LOCOG requirements with respect to certified products and transmitted this message to agricultural producers across the world . As a result, all the tea, coffee, bananas, sugar and oranges served at the games were Fairtrade certified, while all the chicken and pork served to the athletes, journalists and dignitaries was certified to the RSPCA Freedom Food higher welfare standard. In addition, all the fish eaten at the games was confirmed to be 100 percent demonstrably sustainable wild-caught fish. Where LOCOG fell short was around their commitments to have organically produced food available.

While the LOCOG food sustainability achievements at the 2012 Games were impressive, the question that this case study poses is how can this positive experience be used as a catalyst to increase the public sector's demand for certified products on an ongoing basis? First, there is the replication factor. Other large, state-sponsored events – for example the upcoming 2014 Commonwealth Games in Scotland and the Rio 2016 Olympic Games – have also made bold sustainability commitments and have pledged to use

a similar approach to that followed in the "Food Vision" (including– the specification of minimum and aspirational sustainability standards).. The second impact of the Olympics case relates to its demonstration effect. The Food Vision document has been an important reference document for what a sustainable food sourcing strategy should comprise. Anecdotal evidence suggests that across the United Kingdom a number of public and private organizations such as government departments, hospitals, schools, universities and in-house company restaurants have adopted this framework.

Lastly, and possibly the most important impact LOCOG' use of sustainability standards has been its effect on raising the profile of sustainability standards and instilling confidence in standards as tools to support procurement. How this increased confidence will translate into increased demand for sustainably certified products will take some time to filter through.

CONCLUSIONS

Scaling up of sustainability standards beyond the current 10 percent market share will require broader and deeper commitments from governments to use and support these tools. One way this can be achieved is through promoting the use of standards in the context of sustainable public procurement.

As the research presented here shows, procurers see a number of benefits associated with using sustainability standards, such as a set of ready-made technical specifications and ease of verification. There are however major barriers limiting procurers' use of standards. These include: knowledge and information on standards with respect to how they work and their scope and coverage; supply issues in that not all product and service categories are covered by standards together with concerns about the level of supply of certified products; risk for the procurer regarding the threat of potential legal challenges; assessing equivalence across different standards and cost issues, with the perception being that certified products are more expensive.

If sustainability standards are to make it easier and more efficient to engage in SPP, the barriers identified above will need to be addressed. The case study on the 2012 London Olympic and Paralympic Games showed one way in which these barriers could be overcome. The conclusion here is rather than being a one-off endorsement of standards and their contribution to sustainable development, we should see big events such as the Olympic Games as opportunities to build good practices into the way in which governments and the private sector approach food procurement.

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Roles of public actors in the voluntary standards

FAO Food Control and Consumer Protection Group[1]

ABSTRACT

The main objective of this paper is to identify the role of public actors in ensuring the good functioning of the voluntary food standards (VFS) in the perspective of sustainable food systems.

VFS are challenging several aspects in the management of the food chain and the role of public actors. Their main possible negative effect is their cost, which may be not covered by a premium price, but charged to the actors in the food chain. Public actors should actively regulate the VFS functioning, mainly in minimizing their negative effects, but as well in optimizing the positive ones. Public actors may enhance the credibility and legitimacy of the voluntary standards system through mobilizing synergies between the efforts of public institutions and private operators, and monitoring and adjusting the public support measures based on observed impacts. This paper illustrates several examples of possible actions, which may be undertaken by the public actors regarding the VFS.

INTRODUCTION

In the context of an increasing trade globalization, the standards are gaining importance within the value chain. This could be attributed to the following factors:

- Standards for food products may enhance consumers trust in food. While food safety takes the lead, the other aspects, such as working conditions and natural resources protection, are gaining in importance.
- Increasing market liberalization acts as an incentive for development of the product differentiation strategies in order to increase trust, loyalty and preference of intermediary buyers and final consumers.

Regarding the first aspect of consumer trust in food, several scandals (bovine spongiform encephalopathy [BSE], dioxin, listeria) have led to changes on two big issues:

- Greater accountability of food distribution stakeholders, who consequently ask for more guarantees from their suppliers. On the most attractive markets, the end-sellers are now considered equally responsible for food safety (both in the European Union [EU] and in the United States of America [USA]) as the food producers. Since 2002, European food safety legislation[2] emphasizes the primary responsibility of

[1] In collaboration with the Development Law service of FAO. This paper is based on an ongoing work still subject to review and revision. Dominique Barjolle, from the Research Institute of Organic Agriculture, Switzerland and Emilie Vandecandelaere, from the Food Control and Consumer Protection Group of FAO and Carmen Bullon from the Development Law service are among the contributors.

[2] Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety.

food producers as well as those of the whole food chain, including distributors and retailers. In the US, the New Food and Drug Administration (FDA) Food Safety Modernization Act[3] (FSMA) of 2011 also establishes the responsibility's principle of the sellers, who sell to the end-consumers.

- Greater consumer attention to guarantees, particularly relating to the impact of practices on the food chain, such as correct use of the pesticides, CO_2 impact, animal welfare, working conditions and prices paid to the small producers.

Regarding the second factor (increased need for product differentiation), the players in the food industry need to stabilize and expand their market opportunities. All additional efforts of compliance with specific high requirements should be sufficiently compensated. Consumer preference for premium products should be turned into a "willingness to pay more" and, therefore, into a better producer income. The way to achieve this is to differentiate the product with both a sound and proven difference and a visible logo (creating a "signal"), combined with a clear message, strict controls and active communication.

In such a context of increasing standardization, public authorities have a crucial role for several reasons. First, public authorities ensure the consistency of the public and private tools and second they provide adequate good governance conditions for both the producers and the consumers to cope with the rapid development – even proliferation – of public and (mainly) private standards that may complement but also contradict each other.

International conferences and scientific studies (Henson and Humphrey, 2009; ISEAL Alliance, 2011; FAO/WHO, 2010; FAO, forthcoming) clearly raise issues related to the proliferation of standards, especially private ones: voluntary standards required by major distributors in developed countries pose grounds for the exclusion of small producers; the upgrading and certification costs are not always balanced by increased prices; and, finally, there is a severe lack of capacity of the small producers that hinders the adoption of standards.

Furthermore, some of the possible positive effects that have been identified include: better pay for farmers; preservation of the environment; improvements in public health; and building the capacities of producers. All this may justify government involvement in supporting the promotion and adoption of VFS.

Nevertheless, in the current situation where there is uncertainty about the actual guarantees provided by some private standards, the states should establish guiding principles for their priorities and action. This prioritization should aim at: increasing transparency, accuracy and trust in the standards with verifiable promises; tangible effects in the provision of public goods; and contribution to the public policies.

In that context, the objectives of this paper are:

- to bring more clarity about the international and national legal frameworks regarding food standards (FS) and particularly VFS;
- to identify the stakes and challenges regarding the VFS;
- to identify the role of public actors in ensuring the good functioning of the VFS in the perspective of sustainable food systems.

[3] http://www.fda.gov/Food/FoodSafety/FSMA/default.htm

GENERAL PRINCIPLES OF STANDARDIZATION OF THE FOOD SYSTEM

Normative framework of the food chain

The Technical Barriers to Trade (TBT) are subject to specific agreements for different categories of products within the World Trade Organization (WTO) frame.

In the food industry, the implementation of trade agreements is governed by standards, prepared by the representatives of the Member States of the United Nations under the auspices of the relevant agencies. The basic agreement is the one on Sanitary and Phytosanitary Measures (SPS).

The relevant standards organizations under the Agreement on SPS are:

> Commission FAO/WHO Codex Alimentarius, for food
> World Organization for Animal Health
> Secretariat of the FAO International Plant Protection Convention (IPPC), for plant preservation.

The standards set by the Codex Alimentarius are not compulsory for the UN Member States, but once they decide to transcribe them into their national legislations, they become mandatory national standards for the food chain operators. This is different from the voluntary standards: operators are free to adopt them or not. If adopted, then compliance is binding.

According to the type of food products, other standards may exist that are defined by instances of international coordination such as the Organisation for Economic Co-operation and Development (OECD) international standards for fruit and vegetables.[4] Economic Commission for Europe of the United Nations also has an important role of standardization.[5] Again, the states are free to implement these standards in their national legislation, and to render them mandatory for all operators without distinction.

Some principles of voluntary standards are defined in international agreements. These consist essentially of the legal framework related to the geographical indications, as defined in the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement of WTO,[6] but also in the Lisbon Agreement of the World Intellectual Property Organization (WIPO).[7]

Definitions

A general definition of standard is the one provided by the TBT Agreement. A standard is a "document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labeling requirements as they apply to a product, process or production method." (TBT, Annex 1, al. 2).

Standards on one hand, and regulations and procedures on the other, differ on three aspects:

[4] http://www.oecd-ilibrary.org/fr/agriculture-and-food/international-standards-for-fruit-and-vegetables_19935668
[5] http://www.unece.org/trade/agr/aboutus.html
[6] http://www.wto.org/french/tratop_f/trips_f/gi_background_f.htm
[7] http://www.wipo.int/lisbon/fr/general/

Codex General Principles of Food Hygiene [CAC/RCP 1-1969, Rev. 4-2003]

This standard provides basic rules for the hygienic handling, storage, processing, distribution and final preparation of all food along the food production chain. This document should serve as a basis for the establishment of Good Hygiene Practices (GHP). Topics addressed by the code include: design and adequate facilities; control of operations (including temperature, raw materials, water supply, documentation and recall procedures); maintenance and sanitation; personal hygiene; and training of personnel. This code contains the Annex on Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its Application.*

* For instance, the most common private VFS include the obligation to apply the HACCP, although compliance is already mandatory by public law. This does not create a new obligation for the supplier, but it changes the general obligation towards society into an obligation towards the purchaser and provides the purchaser with civil law instruments to enforce this obligation. If non-compliance liability for damages arises, contractual relationships may be ended and all kinds of consequences may arise that have been agreed upon in the contract (such as contractual fines).

Source: http://www.codexalimentarius.org/standards/en/

– regulations ensure (or measure) the expected outcome;
– standards create a set of rules designed to produce this outcome;
– scheme creates a methodology and governance protocol that will deliver the standard in a credible and robust way.

A food standard is said to be "voluntary" for the private operator when its adoption is not required as mandatory by the national regulations.

Note, however, that voluntary standards can be perceived by the players in the industry as "mandatory" to enter a particular market, but this is a commercial point of view, while the standard remains voluntary from the regulatory point of view.[8]

Indeed, when the buyers decide to adopt a standard (either through a contract with the private owner of the standard, by registering with the authorities for the use of a voluntary public standard, or by mere allegation to consumers if the standard does not require a contract or registration), then they are required to comply with the associated requirements. Failure to comply may be sanctioned by criminal laws, according to the principles of commercial law applicable to private contracts.

The relationships between voluntary vs mandatory and private vs public standards are schematically illustrated in Table 1.

The functioning of standards

The system of standards is complex per se. Whatever the category of standard, Henson and Humphrey (2009) have identified five steps of the implementation of the VFS:

[8] Note that the distinction between voluntary and mandatory standards within this guide is based solely on the existence of a legal requirement for adoption of the standard.

Table 1: Different types of standards

Standard	Public	Private
Mandatory	Laws and by-laws Public standards	Private standard, which is rendered mandatory by a law or a by-law (e.g. International Organization for Standardization (ISO) and HACCP in the Codex Alimentarius)
Voluntary	Voluntary public standard (e.g. organic farming/ geographical indications)	Voluntary private standard (e.g. Max Havelaar)

Source: Henson and Humphrey (2009).

1. *Standard setting:* this step corresponds to the process leading to an effective standard content.
2. *Adoption*: this step corresponds to the sensitization, the information, the advice and the effective adoption of the standard by the users (the agents who really will implement the standard in their practical work).
3. *Use*: this step consists of the activation of the standard by the concerned users. It includes all the technical and managerial aspects that are concerned by the necessary compliance of the product, the processes, the facility or the firm (depending of the type of standard).
4. *Conformity assessment*: this step concerns all the procedures, rules, regulations and organizations that play a role in all the verifications necessary to verify and assess the compliance to the standard.
5. *Enforcement*: all the rules and regulations that allow enforcing the sanctions in case non-conformity is found during the conformity assessment.

In a broad approach, three types of actors interact in the functioning of the VFS:

1. *Public authorities, policy-makers and bodies under public mandate*. They offer the guarantees on food, as defined and enforced by the laws.
2. *Private actors acting for commercial purposes.* For their own commercial purposes, the producers and the intermediaries set up other types of standards, which may be imposed upon acceptance of certain commercial conditions (for example, to become a member of a certain association, the compliance with the standard may be required; or to continue to sell to an intermediary, the producer must adopt the standard).
3. *Representatives of civil society*. Non-governmental organizations (NGOs), associations or informal networks claim for more guarantees, true and reliable information, reduction of the confusion related to the claims on food, etc.

An active dialogue among the three types of actors contributes to the safeguarding of all interests, which may be contradictory. In effect, it is sensible, and in some cases even critical, to find a balance between food safety and provisioning of public goods, and commercial practices. In that context, the role of the public authorities is particularly important for the respect of the public interest. At the same time, the public authorities may face some shortcomings, for example a lack of capacities and resources. In that situation, the role of the NGOs, and more broadly of civil society, is to make counter-power in advocating for the public interests, for example human health, protection of natural resources and animal welfare.

Categorizations of voluntary standards

Categorization B2B and B2C

B2B standards

The Business to Business (B2B) standards are known by a seller and a buyer along the food supply chain, but are not communicated to the final consumer at the points of sale. The standard has the exclusive purpose of providing guarantees to the purchaser of the product at an intermediate stage. This is the case of certain standards of food safety (for instance Global Good Agricultural Practices [GlobalGAP][9], British Retail [BRC][10] and International Food Standard [IFS][11]).

B2C standards

The Business to Consumers (B2C) standards are communicated to the final consumers, in labelling and advertising the significance of a "promise" (often signaled by a visual sign, such as a logotype). These standards are, for example, organic farming and geographical indications, which are public as defined in international agreements, as well as national or regional laws and ordinances (in the case of regulations on organic agriculture,[12] geographical indications and traditional specialties[13] of the European Union, for instance). Private voluntary standards also exist, such as those of respect for natural resources or which combine several sustainability goals. Other standards are developed to strengthen the social dimension of sustainability, by imposing respect for decent working conditions and particularly the prohibition of child labour, or fair prices to agricultural producers (for example, Fair Trade or the Roundtable on Sustainable Palm Oil [RSPO]).

As a core principle, the owners of the voluntary B2C standards are most generally looking to convince consumers to prefer their product, as it brings more guarantees, and to compensate this higher guarantee by paying more for it. They seek to remunerate the producers more, and this is the incentive they have to convince the producers to adopt the standard.

Categorization according to their main objectives

VFS differ according to the goals they promote, and can be grouped into four main categories according to their objectives:

1. ensuring food safety (absence of toxic residues, absence of bacterial toxicity);
2. origin of the product and the specific features of the geographical origin warranty (based on territory approach, development of specific local resources of a certain origin);
3. guarantee the respect of the environment (protection of natural resources);
4. social well-being and especially fair income for producers (fair prices for small producers, fair distribution of value added along the food chain).

This categorization is useful to have a better overview of the diversity of the standards,

[9] http://www.globalgap.org/uk_en/
[10] http://www.brcglobalstandards.com/
[11] http://www.ifs-certification.com/index.php/fr/
[12] http://ec.europa.eu/agriculture/organic/organic-farming/what-organic_fr
[13] http://ec.europa.eu/agriculture/quality/schemes/index_fr.htm

as the claims of the different standards often overlap, but rarely duplicate. Distinctions between two standards targeting the same goal are often technical and require an intensive benchmarking work.

Consequences for the development and application of standards at national level

A voluntary standard is defined as a specification enacted by a public or private body (called the standard holder) applied voluntarily by users along the food chain (one or more stages of production between agricultural production and final consumption). The holder, user or an independent third party controls the compliance to its rules. Sometimes different approaches are combined at some steps, for instance the holding organization can be a forum where several stakeholders can take part in the standard definition, or the third-party certification is participatory and involves representative consumers.

At the legal level, the situation is complex. Private standards and public standards often refer to the same basic principles, and can duplicate compliance check. For example, the most common private voluntary standards include the obligation to apply the HACCP system, although compliance is already required by public law. This does not create a new duty for the provider, but it changes the general obligation vis-à-vis the society by an obligation vis-à-vis the buyer and gives to the buyer the instruments of civil law to enforce this obligation. In the case of non-compliance, and liability for damages, the contractual relationship can be terminated and various consequences can occur, defined as contractual penalties.

These interactions are managed by different authorities, which have an interest in examining the situation in all its aspects and ramifications. Priorities, with possible adjustments, can be set for each state, according to the political agendas.

Public and private voluntary food standards are very complementary. For example, the compliance to national laws and international agreements is required to obtain the certificate of compliance to a voluntary standard, as is the case, for example, for the standard RSPO.[14] Reciprocally, in some case, the official recognition of the compliance to private standards may be considered as proof of compliance to the public standard on food safety. This is for example the case in the fish industry in the United States, under the FSMA.

International standards coordination

Currently, the Codex Alimentarius Commission and its general, sectorial and regional committees[15] are the most active and recognized members in the field of international harmonization of food standards. In 2010 and 2011, the Codex Commission treated the point of convergence of Codex standards with voluntary standards, and is concerned to develop its role in the context of their proliferation.

Coordination platforms for voluntary standards recognized in a public regulation have been implemented over time, the two most important being the International Federation of

[14] http://www.rspo.org/files/resource_centre/keydoc/8%20fr_RSPO%20Fact%20sheet.pdf
[15] http://www.codexalimentarius.org/committees-and-task-forces/fr/

Organic Agriculture Movements (IFOAM)[16] for organic agriculture and the Organization for an International Geographical Indications Network (oriGIn)[17] for geographical indications (their respective roles being of course different). These platforms are active to defend the interests of their members, to ensure the consideration of the interests of all members in the regional and national regulatory bases, and to promote the products identified as conforming to the standard.

Meanwhile, regarding private standards, certain coordination platforms have emerged both in the sphere of private stakeholders (e.g. ISEAL[18]) and between public stakeholders (e.g. United Nation Forum on Sustainability Standards [UNFSS][19]) or both (e.g. Global Food Safety Initiative [GFSI][20]). They facilitate the exchange of information, raise awareness and facilitate mutual recognition between standards with similar objectives.

On a cross-cutting issue in all standards (public or private), it is notable that the control mechanisms are inserted into accreditation schemes directly under the responsibility of public authorities. The processes of multilateral recognition of standards allow the national standards to find their correspondence in multilateral agreements. The credibility of the certification has made significant progress through international standardization of controls, which has led to the wide spreading of international procedures for the mutual recognition of accreditation procedures.

CHALLENGES AND LIMITS IN THE DEVELOPMENT OF VOLUNTARY FOOD STANDARDS

General problems with private voluntary standards

Voluntary private standards (VPS) generate costs for the food industry players and the public sector. The main sources of costs include:

- *Creation of double compliance:* Food VPS, when they are related to safety, raise the question of their coexistence with the mandatory food standards, which are themselves based on normative regulatory texts. The fact that some buyers in developed markets frequently condition their purchase to the respect of a private standards when they arise – especially when these private standards often include higher requirements than those internationally agreed by Members of the Codex Alimentarius framework, or those incorporated in the national legislation – is the subject of many discussions and publications at international level (Codex Alimentarius Commission, 2009 and 2010).
- *Requirements of buyers are higher than acceptable guarantees established in the Agreements on Technical Barriers to Trade of the WTO, resulting in additional costs for producers:* Sometimes operators must comply with private standards in addition to public standards.
- *Requirements and unfounded demands complication, resulting in additional costs:* Most of the private standards pose a requirement of compliance with the process

[16] http://www.ifoam.org/
[17] http://www.origin-gi.com/
[18] http://www.isealalliance.org/
[19] http://unfss.org/
[20] http://www.mygfsi.com/

rather than the characteristics of the final product. This requirement on the process complicates and increases control processes. Private voluntary standards often overshadow the efforts of public authorities to increase the capacity of producers and food chain for their compliance with hygiene standards. Requirements (for example, maximum levels of residues in the final products) are often higher than the mandatory regulation. This results in additional analyses paid for by producers and seems to question the levels established by the public authorities. This happens even though the health risks at this level are not scientifically proven. There is a lack of transparency in their development and the absence of an evidence-based approach, while the standards defined by the Member States within the Codex are subject to scientific justification and a long negotiation process among countries to ensure a coordinated decision.

- *The dependence of operators in developing countries on those in the developed world regarding monitoring and certification skills results in additional costs:* This is compounded by the fact that most developing countries do not yet have a national certification body accredited by an accreditation body recognized internationally by the Multilateral Recognition Agreement of the International Accreditation Forum (IAF) (only 23 developing countries have international recognition). In addition, the certificates of compliance with private standards are issued by private certification bodies accredited by accreditation bodies in importing countries, where the public authorities of the producer (export) countries do not have direct control.
- The leadership of some operators – who take the lead in standard definition as well as in management – raises the question of the distribution of costs and benefits of the standard between different actors along the supply chain. The fact is that, in many cases, operating costs (marking for traceability, certification, promotion) are actually paid only by the producers. Benefits, if any, are therefore captured downstream by importers and retailers (CIRAD, 2008; Graffham, Karehu and MacGregor, 2007; Maertens and Swinnen, 2007; Nelson and Pound, 2009; FAO/WHO, 2010).

Regarding these problems, public authorities can take measures to offset costs, minimize duplication as well as the introduction of unfounded demands, and can raise efficiency gains in the certification and good governance within sectors.

Provision of public goods: the impact and limits of voluntary standards

The positive effects of voluntary standards, whether private or public, can be found at two levels (see Table 2):

– provision of public goods, such as food safety, and sustainability improvement in its ecological, economic and social dimensions;
– contribution to public policy objectives such as farm income and rural development, especially in disadvantaged areas (the European Commission Regulation 1151/2012 on quality schemes for agricultural products and foodstuffs to the European Union explicitly provides for example).

However, the importance of the positive contribution of these voluntary standards for public goods is very variable and, in any case, difficult to measure. For reasons of

Table 2: Examples of contribution of voluntary standards for public goods

	Examples of voluntary standards that mainly contribute (main effect expected)	Examples of voluntary standards that incidentally contribute (induced potential effect)
Protection of natural resources	GlobalGAP, UTZ *Standards that are public in some countries:* Good Agricultural Practices Organic Agriculture	Standards FLO (Fair Trade)
Contribution to animal welfare	GGAP *Standards that are public in some countries:* Animal keeping Good Practices	Standards FLO (Fair Trade)
Food safety	*(These standards are mandatory, and are the legal bases on food safety.)*	Mainly: SQF, BRC, IFS, GlobalGAP Also: UTZ, Standards FLO (fair trade) and other private voluntary sustainability standards *Standards that are public in some countries:* Good agricultural practices Integrated pest management Organic agriculture Geographical indications
Cultural diversity	*Standards that are public in some countries:* Geographical indications	
Farm income	Standards FLO (fair trade)	*Standards that are public in some countries:* Geographical indications
Rural development		*Standards that are public in some countries:* Geographical indications

Notes: UTZ = *Utz Kapeh*, meaning "good coffee" in the Mayan language Quiché. FLO = Fair Labor Organization. SQF = Safe Quality Food Institute.

availability of data and methods, measuring the impact on the provision of public goods and contribution to public policy objectives is still incomplete (FAO, forthcoming).

The impact on sustainable development of standards developed in a participatory manner has not been comprehensively assessed and quantified in any study. Many questions remain open from a methodological point of view. Indeed, it is very difficult to isolate the evaluation of the impact of standards from other incentives, market or others. Since we do not know how to measure it, it is difficult to argue that voluntary standards make a tangible and significant impact on the targets set by their promoters.

ROLE OF THE STATE TO ENSURE THE EFFECTIVE FUNCTIONING OF STANDARDS

General principles

Main lines of public action

Standards, whether mandatory or voluntary, public or private, can be used as tools to contribute to a sustainable food system in its dimensions of health, environment protection and social balance, as far as their negative effects are limited and their positive effects are strengthened. This is where public actors can play an important role.

To guide the decisions of public authorities in this field, the search for efficiency in the use of resources available in four main areas of intervention can be organized around four lines of action:

Sustainable food system – definition

A sustainable food system has a positive effect on health, and is economically attractive, environmentally and socially acceptable. A food system is a variety of activities and processes that relate to the processing of raw materials for food and conversion of nutrients in a positive effect on health. The whole system is integrated into a biophysical and socio-cultural context.

Source: Sobal, Kettel Khan and Bisogni (1998).

1. ensure the credibility and legitimacy of the voluntary standards through the definition and efficient implementation of national legislation, harmonized to the relevant international standards;
2. support the positive and minimize the negative impacts of public and private voluntary standards on the provision of public goods;
3. reduce public costs of support measures, by creating synergies between the efforts of public institutions and organizations and private operators;
4. monitor support actions and, based on the observed impacts, adjust public support measures.

These lines of action are described in detail with concrete examples below.

Key points of the development of public policy on voluntary standards

Promoting sustainable food systems through voluntary standards

Limit the negative effects of exclusion

The mechanisms of exclusion of small producers by establishing private standards have been clearly identified (FAO, forthcoming). To fight against this mechanism, public authorities may act at several levels:

- Awareness campaigns spreading information about small producers.
- Capacity building:
  - o of interface structures gathering small producers ¬ for example, their cooperatives.
  - o of farmers in participatory management structures of the standard.
- Participatory approach in the process of consultation and information of local actors.
- Direct and indirect financial support for public–private partnerships in support programmes for the adoption of standards, e.g. with buyers of agricultural commodities.
- Establishing a legal framework and institutions dedicated to the strict quality management for products that make use of the standard (see Box 1).
- Interact with the owners of private standards to safeguard the interests of vulnerable groups.

The interaction with the owners of the standard is reflected by the participation of public authorities in the roundtables implemented by private actors (economic actors and civil society) to advise on the content of the standards. The possible issues include: strengthening scientific verification of the standard requirements; soundness of its governance, participation and equitable representation of vulnerable groups (minorities, gender, ethnic or group of farmers); and the efficiency of their methods of development.

Box 1: Interprofessional organization

In this capacity of producers, one of the most effective is that of support for collective governance of industries and producer groups' accompanying measures.

As an example, in France,* but also in some West African countries, interprofessional organizations establish collective management of products with the participation of farmers alongside other actors in the chain of production.

All those concerned in respect of the standard are members of the interprofessional organization; therefore buyers, traders and downstream retailers and consumers are excluded.

A well-organized collective management helps to respect fair treatment between actors. The interprofessional body is involved in the definition of the standard itself and ensures that the costs of the standard are not carried by the weaker players, but are equally distributed among all industry players. The interprofessional body can also take an active role in negotiating the terms of prices and volumes. In this, it ensures that the prices actually cover the costs at different levels of the supply chain. Associations of producers of organic products luckily pursue similar goals at the local, regional or national level in several European countries.

This support does not cost much to public authorities, as stakeholders should sue unfair competitors or members of collective organizations that do not comply with the rules of the game. Sometimes the government has a greater role in approving some collective agreements that are exceptions to the rules of competition, as is the case in Switzerland, for example.**

* http://www.legifrance.gouv.fr/affichCode.do;jsessionid=14D4A4EAB4FFD723FE716BB82939CDEE.tpdjo04v_1?idSectionTA=LEGISCTA000022657696&cidTexte=LEGITEXT000006071367&dateTexte=20130605

** http://www.admin.ch/opc/fr/classified-compilation/20021452/index.html

At the international level, this results in the active governmental participation (or their representatives in the UN agencies such as FAO, UNEP, UNCTAD, UNIDO) in private and public platforms that discuss the definition and evaluation of the impact of the criteria contained in the standards, along with civil society – for example, the multi-stakeholder sustainability initiatives for soy and palm oil or the platform of the development of guidelines on sustainable fisheries hosted by FAO.[21]

At the national level, this could be set up and maintained by established officially acknowledged platforms (see Box 2).

Support the positive effects towards sustainable production

State support is more effective when the participation of the various public authorities is coordinated both among themselves and with private entities (owners, groups of users producing standards, private inspection and certification bodies).

In some countries, such as Germany, France, Italy, the Netherlands and Switzerland, among others, the national development agencies support the development of VFS for the

[21] http://www.fao.org/fishery/topic/12283/en

Box 2: Agence BIO: an example of a participatory platform of organic farming standardization (France)

Agence BIO is a public-–private partnership, an association gathering: the Ministry of Food, Agriculture and Fishery, the Ministry of Ecology, Energy, Sustainable Development and Sea, the Permanent Assembly of French Chambers of Agriculture (APCA), the Federation of agricultural Agricultural Co-operatives (Coop de France), the National Federation of Organic Farming (FNAB) and the National Federation of Processors of Natural and Organic Products (SYNABIO).

Agence BIO works with partners who contribute to the development of organic farming, especially public, professional and interprofessional organizations, research, distribution, environmental organizations and consumers 'associations.

Agence BIO governance bodies include:

- the Great Orientation Council (GOC), which meets at least once a year, under the presidency of the Minister of Agriculture. The GCO gives its opinion on the orientations chosen for the development and promotion of organic farming;
- four working groups at Agence BIO, platforms of dialogue and project proposals (observatory, environment and territories, networks and markets, communication).

The missions of Agence BIO are the following:

- to communicate and inform on organic farming and products, their environmental, societal and territorial impacts;
- to develop the national observatory on organic farming;
- to facilitate the dialogue between partners and to contribute to the structuring of organic networks, to the development of markets and interprofessional dynamics;
- to manage the notifications of producers and other certified operators;
- to manage the Agence BIO mark when it is used for communication.

purposes of capacity building in developing countries related to the compliance with food safety standards, market access and resilience of traditional rural societies.

The programmes for strengthening the technical and financial capacities of partners in developing countries in upgrading and introduction of voluntary food safety standards usually evolve around:

- Strengthening the capacities of producers (particularly small) to adopt standards and thus access to new markets. The programmes usually include the training of trainers, the strengthening of institutional capacities in the ministries, and in the structures of accreditation, inspection and certification.
- Establishing platforms and documents for the provision of information tailored to local contexts (content standards, requirements for compliance, scientific research programmes to adapt standards to local contexts, production data, etc.). This might include regulatory facilitation for trade, such as acknowledgement of standard certificates in the process of obtaining export licences.

Enhancing the credibility and legitimacy of the main voluntary standards

Here public authorities have a strong role to play in establishing and implementing relevant regulation in the following areas:

Establishing valid guarantees:

The credibility of voluntary standards, whether public or private, is based on guarantees, which consist of monitoring and market surveillance conducted impartially and independently by the competent authorities.

The basic guarantee system requires the following elements that public authorities should ensure:

- the standards should be based on scientific evidence and developed in consultation with stakeholders;
- verification of standards is based on traceability established within the food chain;
- coordination of monitoring between public and private standards, so that the national organization of food control ensures the reliability of VFS. [22]

Support the establishment of inspection and certification bodies:

To be recognized by the buyers, the compliance to the major private voluntary standards must be proved by inspections and certifications delivered by accredited organizations. Though some countries have accreditation bodies recognized at the international level, not all have been willing or able to take this step, since only 23 developing countries have international recognition for their accreditation body.

In terms of inspection and certification, the public actors can take various support measures:

– Put a priority on the establishment and on the international recognition of a national accreditation body. This means working on the transposition into national language and in the context of national laws, to enable the accreditation body to comply with the requirements for international recognition. It means to enhance the local capacities of the regulatory authorities, and of the inspection and certification bodies, in order to enable them to perform activities on inspection and certification of the main VFS.
– Provide financial support for producers by discharging all or part of the costs of testing and certification.
– Optimize responsibilities and exchange data for multiple certifications (see for example the internet Webpage AGATE of the Swiss Confederation[23]).
– Provide good complementarity between internal controls (carried out by the owner of the standard, or a mandated party), and external control carried out by an independent third party (see for example the regulation established by the French National Institute of public quality standards [INAO][24]).

Other actions can be taken to reduce the costs of certification:

– Less expensive specific procedures for small-scale producers can be used: this is group

[22] Concerning the establishment of a national coordinating body for food safety, see FAO/WHO, 2003.
[23] https://www.agate.ch/portal/c/document_library/get_file?uuid=bb1b4022-d297-4b6d-946d-a12d116f292f&groupId=26918
[24] http://www.inao.gouv.fr/public/home.php?pageFromIndex=textesPages/Agrement_et_controles437.php~mnu=437

certification.[25] Public authorities can have them officially recognized in a legal frame (as it is now the case in Brazil, for example).
– Participatory guarantee systems, without third-party certification, can grow on a private basis, or mixed public–private basis, for direct sales between producers and consumers. This system emphasizes the trust in short supply chains, when the consumer can directly check the quality and make observations.[26]

Strengthen voluntary standards by upgrading them from private to public:
When private voluntary standards are gaining significant importance on the market, public authorities may develop a specific public legal framework. This may increase the value of standards to consumers and increase their willingness to pay more for the products that comply to those standards.

This approach enhances credibility, mainly because these official public standards may benefit from a much stronger market surveillance and fraud prevention. This is the case of organic farming and geographical indications in the European countries, and in several other countries around the world. Other standards have also been hoisted to the status of public standards for defining and monitoring for specific economic sustainability reasons, the case of allegations "Montagne" "Alpage" in Switzerland,[27] or "Fermier" in France.[28]

Beyond the endorsement of a legal frame, the regulation of claims can serve as the first basis for recognition and protection. For example, voluntary standards related to fair trade are currently private, but some states intervene to oversee their implementation. France has recently defined the term "fair trade" in the regulations related to the prevention of fraud and has adopted a national action plan[29] to strengthen the market share of the holders of fair trade products.

Inform consumers in a neutral manner:
One of the objectives of the public policy is to simplify the information for both commercial and institutional stakeholders, and for small farmers and consumers. Indeed, the increasing complexity of obligations that apply to all parties and the resulting costs are obstacles to the functioning of markets and their social acceptance.

As outlined before, the proliferation of standards causes confusion for consumers. To avoid consumers losing confidence in any standards, governments may incur efforts at several levels in:
– Supporting harmonization or equivalence between standards, especially with regard to requirements for food safety. In this way, the same claims (such as "organic", for example) could eventually offer the same guarantees for consumers, regardless of their country of origin (IFOAM works actively in this direction).

[25] http://www.imo.ch/logicio/pmws/indexDOM.php?client_id=imo&page_id=devel&lang_iso639=en
[26] http://fr.wikipedia.org/wiki/Syst%C3%A8me_de_garantie_participatif
[27] http://www.blw.admin.ch/themen/00013/00085/00273/index.html?lang=fr
[28] http://mesdemarches.agriculture.gouv.fr/Declaration-prealable-a-l
[29] http://www.diplomatie.gouv.fr/fr/politique-etrangere-de-la-france/aide-au-developpement-et/evenements-et-actualites/article/lancement-du-plan-national-d

– Supporting organizations in the general interest, to make the comparison and transparency in private voluntary standards. The standards map platform[30] established by the International Trade Centre is a good example of this type of tool.
– Informing consumers in a neutral and competent manner, or supporting consumer associations or other public interest organizations to do so.
– Fighting against fraud, by implementing fraud repression and market surveillance.
– Regulating criminal sanctions against offenders so that frauds are followed by real penalties.

Monitoring

Monitoring is a form of public support for strengthening relevant voluntary standards, by providing data on their contribution to sustainable development. Indeed, the sustainability impacts are difficult to measure. For example, producers' income depends not only on the existence and use of the voluntary standard, whether private or public, but also on their competitiveness, public support and market prices. Any measure of the economic performance of the use of any standard has to take into account the tangle between all the direct and indirect effects of each impact factor.

Therefore, to ensure measurement and monitoring of impacts in the context of sustainable food systems, the authorities should support the development, and adoption, of tools and means to confirm that the support and the efforts are paying off. Several international initiatives seek to develop tools to measure the levels of sustainability with a set of selected indicators, including the Sustainability Assessment of Food and Agrigulture (SAFA) programme of FAO,[31] but also the work done by the Committee on Sustainability Assessment.[32]

Food safety: regulatory framework and basic priority

In order to comply with public safety standards, compliance to SPS-related standards is the basis (WHO, 1998). To enhance the capacities of smallholders, especially in the agriculture sector, some standards need to be adapted to local agro-climatic conditions. These agricultural standards, so-called good agricultural practices (GAP), are most often developed locally by some pioneers, in interaction with the institutions in charge of research and extension, and then tested on pilot farms, before being voluntary adopted by other farmers more broadly. Finally, the GAP can be put in a regulatory framework, generally as a voluntary standard. Good agricultural practices are critical to food safety in that they determine the levels of toxic residues of many pesticides (insecticides, nematocides, antifungal, etc.).

FAO plays an important role in supporting these initiatives as a member of the International Plant Protection Convention[33] and in parallel by conducting regional

[30] http://www.standardsmap.org/
[31] http://www.fao.org/nr/sustainability/sustainability-assessments-safa/en/
[32] http://www.thecosa.org/
[33] https://www.ippc.int/index.php?id=standards_programme0&no_cache=1&L=0

Box 3: Standards of good agricultural practices in Switzerland

In Switzerland, integrated production standards emerged in the late 1980s and have been developed by organizations of fruit growers in several regions in French-speaking Switzerland. Federal Agricultural Research Stations helped producers in the pursuit of reducing the use of chemical inputs, mainly insecticides, nematocides and antifungals. A major Swiss large retailer was also a pioneer in supporting this initiative and funded part of the research and testing.

In 1992, during an in-depth review of Swiss policy, towards moving to a system of direct payments decoupled from production, a political consensus was reached to link direct payments to the rules of production, as developed by professional organizations in collaboration with agricultural research and extension bodies.

This standard has been set up in the Federal Law, and its control changed dimension. Essentially, it is now rooted in individual counselling to farmers performed by inspection agencies whose competence and impartiality are accredited by the Swiss Accreditation Service (EN 45,004). The standard is voluntary, but it is strictly regulated. Its commercial value has increased, as now distributors require compliance to Swiss GAP on all production but pay virtually no premium, believing that direct payments compensate for shortfalls in terms of yield

programmes on good practices of integrated pest management,[34] which are then adopted at the local level.[35]

Public authorities could encourage the extension of GAP, as it is a beneficial change in the food chain, taking into account that professional organizations may be important determinants in the process of widespread adoption of the standard by farmers (see Box 3).

POLICY INTERVENTIONS ACCORDING TO THE FUNCTIONS OF STANDARDS – A COMPREHENSIVE VIEW

In many countries, public authorities are involved, with varying intensity, in the functioning of voluntary standards. Indeed, each function may require or benefit from state intervention. The only case where the responsibility of the state is never fully committed is when private standards are under the exclusive control of the user and the holder, without control by a third party.

For purposes of clarity, the main public interventions are shown in Figure 1, which describes the main stages of functioning of any food standard.

In the light of the five functions listed, a summary of some actions of public actors is given below:

- *Creation of the standard:*
  - o The public authorities may give an advisory or binding opinion. They can also take full responsibility for the definition of the standard, which is developed in the best

[34] http://www.vegetableipmasia.org/
[35] http://www.vegetableipmasia.org/docs/Index/revised-CFC_project_for_website.pdf

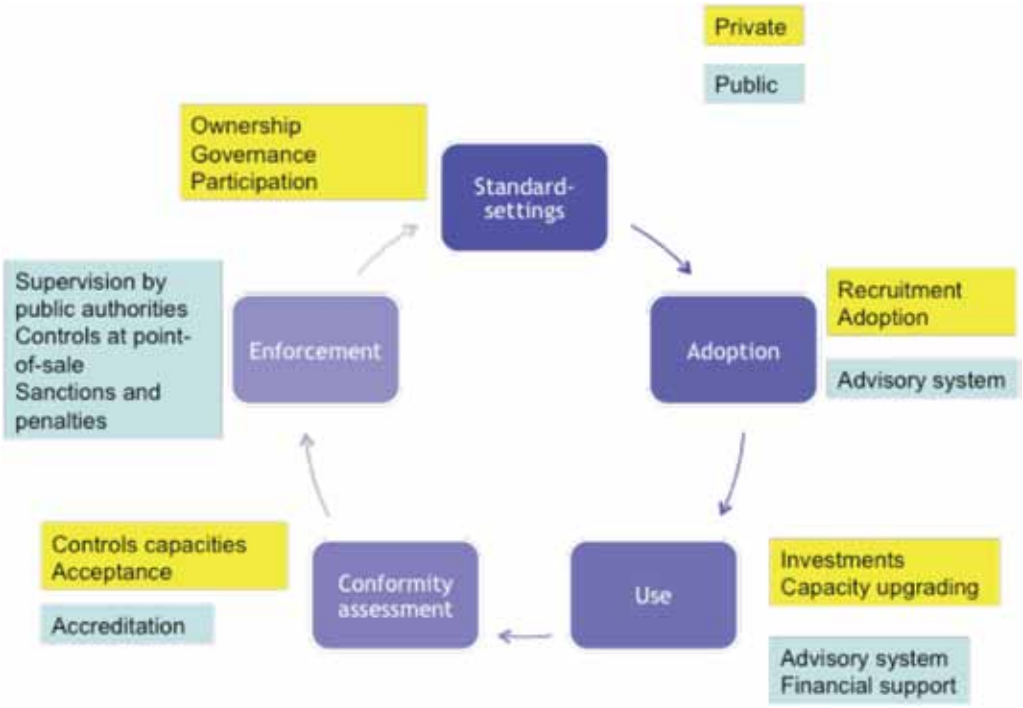

Figure 1. Roles of public and private actors in the functioning of VFS

case in extensive dialogue with stakeholders. The implementation of a standard can be fully legally based or only rooted in a legal basis. Public authorities can take measures to ensure that standards are created impartially with the sufficient scientific evidence. This can be done by establishing a good responsibility separation between the standards' owners, stakeholders (including primary users, who should be consulted for the creation or revision of the standard) and the third parties responsible for the compliance monitoring.

  - The authorities can implement monitoring points and ways to interact with the holders of the VFS, establishing platforms for discussion and information sharing (for example, Agence BIO).

- *Adoption of the standard:* public authorities can be neutral in adoption of a voluntary standard. They can have a preventive role in the process of adoption by active information spread publicly, through direct (subsidies) and indirect (exemptions) financial support, or subsidized training. Depending on the case, and depending on the degree to which the standard contributes to the provision of public goods and fulfilling public policy objectives, the use of incentives or disincentives may be appropriate.
- *Use of the standard:* Public authorities can support compliance to a standard with financial support and capacity building.
- *Conformity assessment:* The control can be entirely borne by the state, delegated to a public institution, or delegated to the users by giving subsidies to offload the costs of control. The state may also assume some or all of the tasks and costs of accreditation

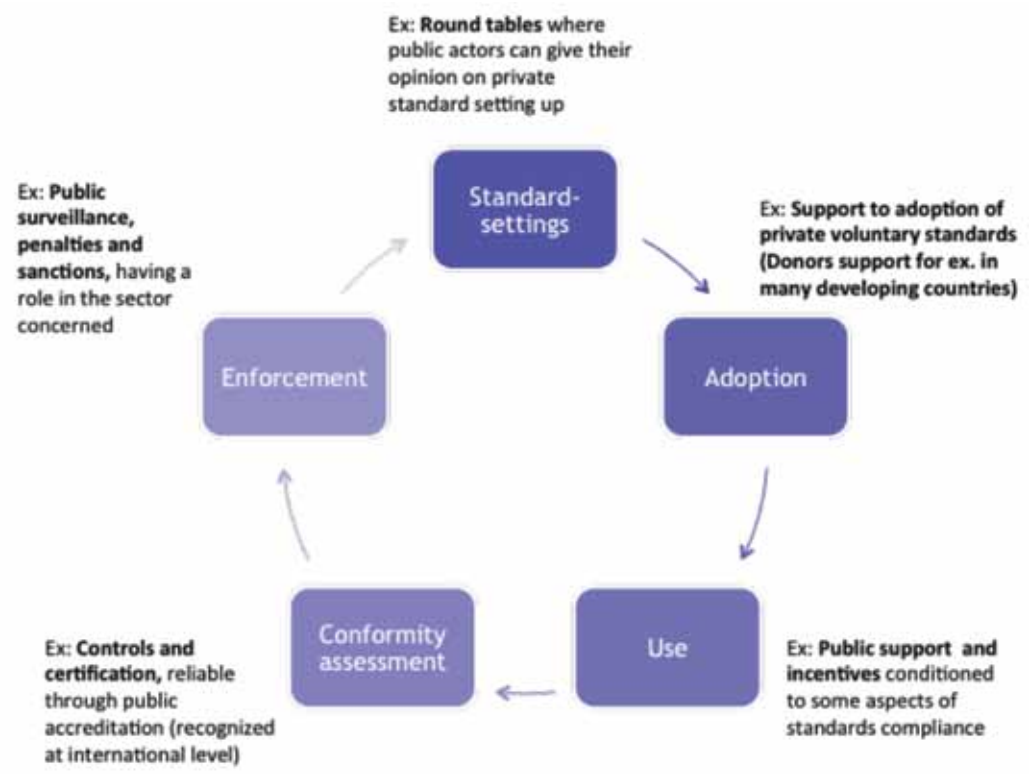

Figure 2. Examples of interventions by public institutions

of inspection and certification. What is important is that the controls are operated in a neutral and independent manner. The international recognition of accreditation bodies is also important, reducing the cost of testing and certification for users of the country.

- *Close surveillance of the standard use:* The state can actively engage in the fight against traders abusing the standard (without full respect to specification). These measures are likely to increase the confidence of users of the standard, as they gain confidence that government will fight against the frauds. The authorities should also establish processes that ensure clear consumers' information, control of the labelling and the claims, and dissemination of neutral and objective information.

To these five functions, it is important to add the monitoring and feedback loop.

- Public authorities can ensure a smooth flow of information on standards, their use, the results of the checks of the users and operators and the control of the truth of the claims put on the products. It is useful to give a feedback to the holders, users and stakeholders, so that each player can undertake the medium- and long-term corrective actions. In this sense, the analysis of the expected impacts and the control of the effectiveness of public actions may have a very positive effect.

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The FAO/UNEP joint programme is catalysing partnerships among United Nations agencies, other international agencies, governments, industry and civil society to promote activities that can contribute to sustainable food systems.

Voluntary standards are increasingly being presented as a tool to foster sustainable consumption and production. They are very often seen as the solution, the tool to make consumption and production more sustainable. They can deliver positive economic, environmental or social impacts, but they can also present challenges, particularly for small-scale producers.

The FAO/UNEP programme organized, in June 2013, a workshop on "Voluntary Standards for Sustainable Food Systems: Challenges and Opportunities". The various sessions of the workshop considered issues that could address the needs of the various stakeholders in order to facilitate the uptake and scaling up of voluntary standards for sustainable food systems. This publication is a compilation of the papers presented at the workshop, and the workshop summary.

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