Sustainability in global commodity trade: Successful responsible entrepreneurship or fallacious market capture?

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Abstract

In western countries NGOs have increasingly been pressing spearheaded firms to bring their corporate social responsibility into practice, especially in this international context. In response to this European and American producers and retailers are increasingly applying new forms of cooperation and self-regulation; apply sustainability standards for imported products.
In this paper we will present an analysis of scientific literature presented in scientific journals covered in Scopus. Scientists have been supporting this development by suggesting new methodologies for sustainable supply chain management and have provided critical analysis of such new practices. A multi-faceted debate is growing in the international literature. We see a strong growth and inputs from many different relevant disciplines. Most of the academic work is either theoretical or based on single case studies or case comparisons. We will identify the main issues in this new field of research, the conditions for successful governance for sustainability in global supply chains and the level of consensus or disagreement about this route for contributing to the reduction of poverty and hunger in developing countries.

Keywords

Trade, sustainability, value chain, supply chain, environment, fair trade

1. Introduction

International trade is usually considered a prime engine of growth and can contribute significantly to the reduction of poverty and hunger in developing countries, if it actually enables communities in disadvantaged regions to take part in this global economy. Products could be sold for better prices then given on local markets and the growing international demand can enable further job creation and improvement of living conditions.
But such benefits are not evident. Established businesses may very well pick the fruits of growing international economic cooperation, enabling production at the lowest costs and ignoring social and environmental externalities. In many cases foreign investment contributes to the creation of new pollution heavens (Mani 1998; Eskeland 2003; Cole 2004; Bogmans 2010). In these cases the positive socio-economic impacts remain limited, adding to the welfare of a small economic elite, but not contributing to the achievement of the UN Millennium Development Goals.

In the last decade we have seen a very promising counter development emerging in international trade. Civil society in western countries has increasingly been pressing spearheaded firms to bring their corporate social responsibility into practice, especially in this international context. In response to this European and American producers and retailers are increasingly applying new forms of cooperation and self-regulation, either with firm-to-firm supply chain management or with the help of private standards (with third party auditing) to assure that their practices at the developing world side of their supply chain can be labelled as

socially and ecologically responsible, as described in (Vermeulen 2010) under the heading of sustainable supply chain governance systems. These businesses often developed these initiatives in close collaboration with NGOs and newly created certification organizations.

In essence businesses are increasingly posing detailed demands on their suppliers in developing countries, addressing their environmental and social-ethical performance. In this way they are using their market power to enforce change. Examples are Forestry Stewardship Council (FSC), Marine Stewardship Council (MSC), Fairtrade, organic standards, GlobalGAP, Utz Certified, Ethical Trading Initiative (ETI), Business Social Compliance Initiative (BSCI), Rainforest Alliance, and numerous other standards for specific products. Key actors in these new arrangements are businesses in the supply chain, often affiliated with environmental and development NGO's.
Such eco-labelling originally has been fairly marginal in its market shares during the last two decades. However, the last few years show major breakthroughs in some products markets after different systems started to compete in the same product market. In a recent report we showed that both in the timber and the coffee market in the Netherlands, the market shares of sustainable products are peaking up to 50% in 2009 (Vermeulen et al. 2010).

We also see increasing attention in scientific literature for these forms of self-regulation in complex international markets. Scientists have been supporting this development by suggesting new methodologies for sustainable supply chain management and have provided critical analysis of such new practices. A multi-faceted debate is growing in the international literature. In this paper we will present an analysis of all scientific literature presented in scientific journals covered in Scopus. We see a strong growth and inputs from many different relevant disciplines and up to 298 articles in mid 2010. Most of the academic work is either theoretical or based on single case studies or case comparisons.

The debate illustrates that the emergence of supply chain sustainability standards in international trade can been seen as the symptoms of two competing economic trends:
- either the dominant trend of global economic supply chains governance as a strategy of cost reduction and as market capture;
- or the emerging trend of sustainable business and corporate social responsibly as conscious corporate response to global long term ecological challenges.

We will identify the main issues in this new field of research, the conditions for successful governance for sustainability in global supply chains and the level of consensus or disagreement about this route for contributing to the reduction of poverty and hunger in developing countries. From this we suggest an interdisciplinary research agenda and present consequences for policy makers.

2. Systematic literature review methodology

In order to be able to analyze the different scientific articles written on international supply chains and sustainability, a four-step approach was followed: search, select, categorize, review.

Search and select

Based on earlier studies and articles we identified the search area. In the recent article "Sustainable Supply Chain Governance Systems: Conditions For Effective Market Based Governance In Global Trade" (Vermeulen 2010), we described a comprehensive approach for analyzing the practice and impacts of sustainable supply chain governance. With this approach we can address several aspects of the functioning of the supply chain. In this way we distinguished 14 different aspects, as shown in Figure 1 below. In categorizing the articles, this figure was used for coding their focus.

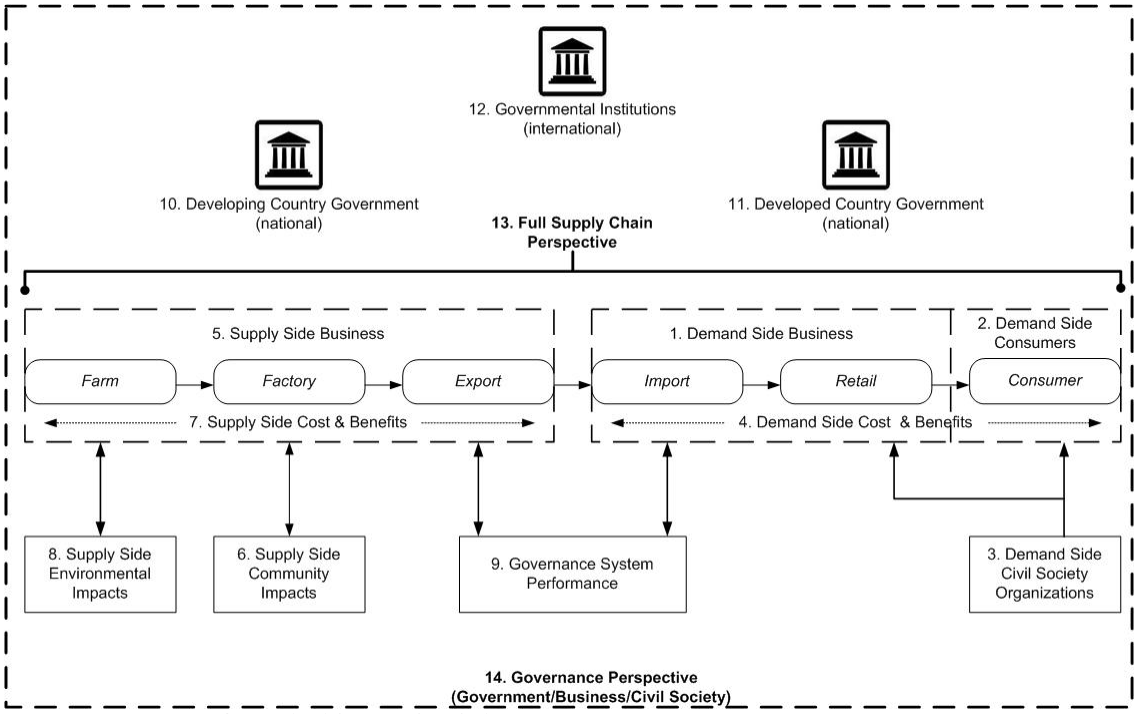

Figure 1: Aspects of Sustainable Supply Chain Governance

Describing the supply chain, we have the demand side of the supply chain at the right side of the figure. The demand side is the final part of the supply chain where products are imported and sold. We identify two relevant aspects: the behaviour of the producing or selling business (1. demand side business) and of the consumer (2. demand side consumers). Expanding this we identify also two special aspects: the cost and benefits for these demand side actors (businesses and the consumer: 4. demand side cost and benefits) and the special role of civil society organizations influencing these demand side actors (3. demand side civil society organizations).
At the other side, basically the beginning of the chain, the supply side actors can be found, often located in developing countries. These consist of supply side of businesses, being farmers, mining companies, producers, and/or traders (5. supply side business). A special aspect at this side is also the distribution of costs and benefits (7. supply side cost and benefits). The ultimate goal of sustainable supply chain governance systems is to create a positive environmental and the community impact (8. supply side environmental impacts and 6. supply side community impacts). Thus far we describe the supply chain and its main actor itself. Further we have to include other (new) players. First these are the newly created (often third party) certification organzations themselves, so a next aspect is the governance system performance, which is intended to generate impact on the performance of supply side businesses (9. governance system performance). When a scientific article covers all these aspects (1-9), it is categorized as the full supply chain perspective (13.). Here we include roles of the various governments, both national (11. developed country government (national); 10. developing country government (national)) as international institutions (12. governmental institutions), which would be able to influence the full supply chain or separate parts of it. Finally we identified a last category for articles covering all these aspects (1-13), the article gets coded as '14. governance perspective' as governance covers the government, business and civil society.

To enable us to identify as many as possible scientific articles we conducted an extensive review of the academic journals on supply chains and certification, using the Scopus database. Scopus is a large abstract and citation database and covers scientific journals (scientific articles and articles in press), trade publications and book series and obtains its information from an extensive amount of publishers (at time of writing 5105) and websites.
The different keywords were mainly discovered during an iterative process. When we started searching, keywords such as supply chains and certification were used, but other keywords were added to the search

during the process. These were added until the idea was that enough articles were found for the analysis. The keywords used all were combined with the word supply chain. An overview of the different keywords can be found in Table 1. For all identified articles the abstract was used to select the applicable articles, checking whether the article indeed addresses some aspects of sustainable supply chain governance.

Keywords + supply chain	Sustainable Sustainability Certification Green Environment Environmental

Table 1: Overview used keywords

Categorize

All articles have been coded according to various features. The first distinction was its focus on parts of the full supply chain system, like described in Figure 1.

The second distinction was made based upon the geographic scope of the article. An indication was made between none, national or international. As some articles tend to only describe managerial issues such as performance (code: none); or national supply chains such as potatoes in a specific country (code: national).

A third distinction is made upon the type of article. In total, seven types of articles could be distinguished. First group are the theoretical articles. Second group are the methodological developmental articles, either developing methods for supply chain management, or other type of methods. A third group is the literature review and the fourth and final group is the empirical research: either single or multiple case or focusing upon correlations between several cases.

A fourth distinction was made based on main and subcategories of product groups. As we intended to analyze scientific articles on all kinds of supply chains and to enable comparisons, both a division in broad categories had and in detailed subgroup was created.

3. First results: the nature of the scientific work

In the real world practice, first initiatives in green (international) supply chains and fair trade emerged in the late 1980s, with the timber and the coffee chain as the pioneers (see Vermeulen et al. 2010). We are not fully able to track down the scientific activity in those early years, as the Scopus database is only on a ad hoc base including work from before 1995. Still we see a strong development in years after the mid 1990s. Figure 2 shows the total number of articles in the last two decades and also with the colours, shows the type of articles. We see a strong continuous growth of research productivity in the years, with initially a focus on theoretical and methodological work. There are a few very early empirical case studies, but empirical studies do more frequently start to be published in the years after 2002.

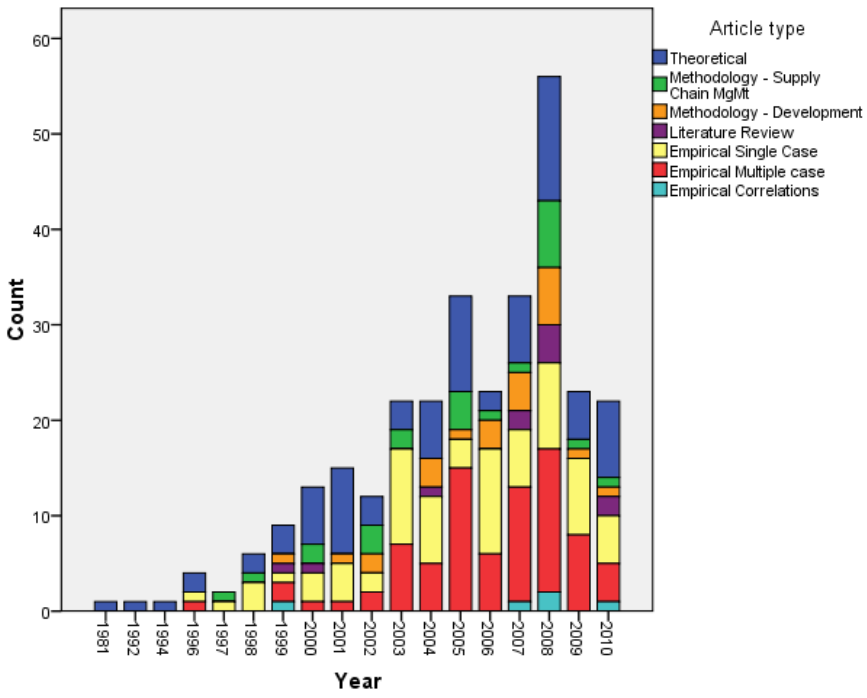

Figure 2: Articles published on sustainable supply chain governance and the article type

Right from the start this research field has attracted attention from scholars in many different scientific disciplines. However, looking at the journals publishing these articles we can see that there are four most active disciplines:

- Environment sciences & sustainable development with 18% of the articles;
- Various sub disciplines in the field business management together 40% of all articles (business management general 8%; business management & environmental sustainability 15%; economics & environmental sustainability 3%; and economics 2%);
- Geography and development studies with 14% of the publications (geography and planning 7%; development studies 5%)
- Agriculture with 8% of the publications.
- Other disciplines such as law, sociology, tourism, energy studies and innovation studies make up for the last 12%.

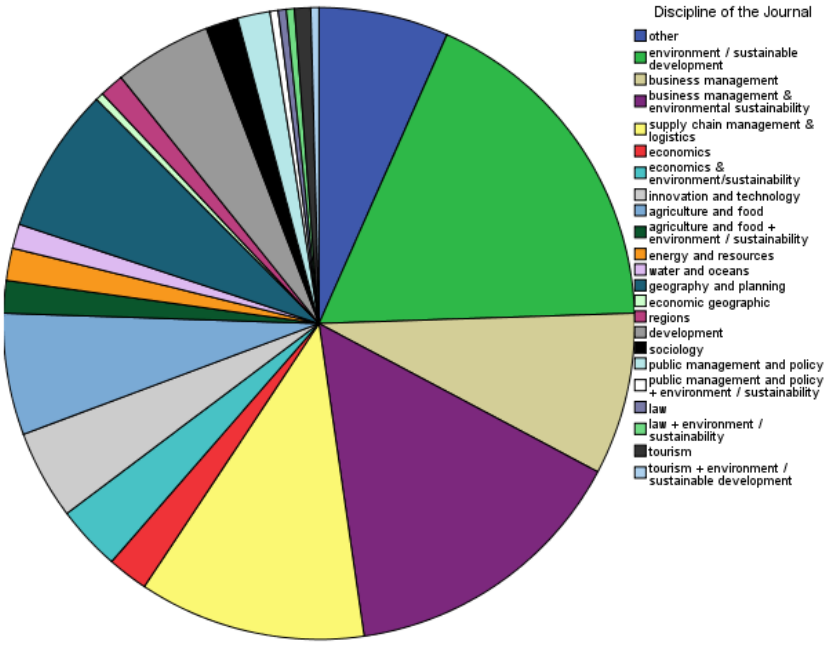

Figure 3: Articles published on sustainable supply chain governance and the disciplines of the journals

Not all these article actually address product supply chains with an international perspective. In many cases supply chains of products or commodities are (at least partly) international, so we also analysed if these articles indeed have a national or international scope. Only one in the six articles indeed discusses supply chains within a specific country or continent region (like Europe), however most publications do indeed address with the international dimension of linking developing countries suppliers with developed world consumers (Figure 4).

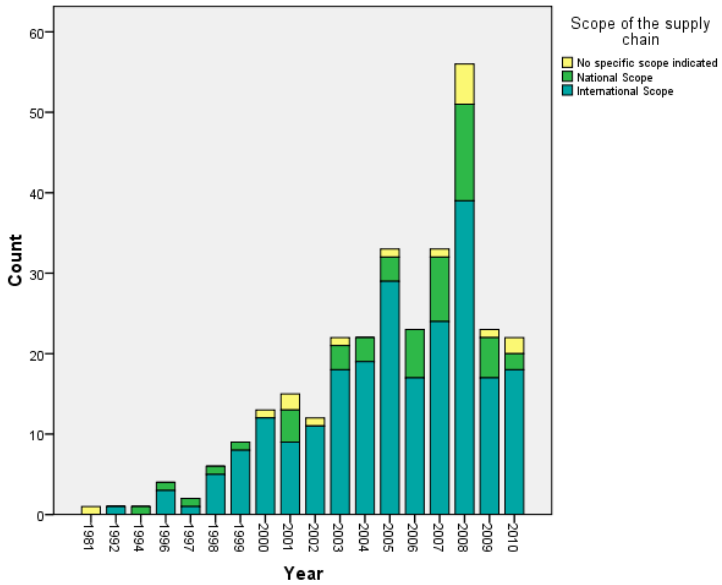

Figure 4: Articles published on sustainable supply chain governance and their scope per year

For a final classification we looked at the main product groups that have been discussed in these articles. We distinguished 7 main product groups: crops, livestock, aquaculture, resources, manufactured products, beverages and a last category: no product discussed. This latter group refers to articles, which were written

on for example supply chain management in general, and therefore not addressing any specific type of product group. Each of these groups are divided in several subgroups such as the coffee and cotton for the crops or the poultry and chicken for the livestock. As some articles may address several of these subgroups (e.g. both fruits and poultry), an extra main group was added with named 'multiple product group' in order to make the overview complete.
We can see an early focus on food products, including crops, livestock and beverages and to a lesser amount aquaculture. Attention for supply chains of manufactured goods and raw materials emerged later. A large portion of the article does not discuss a specific example.

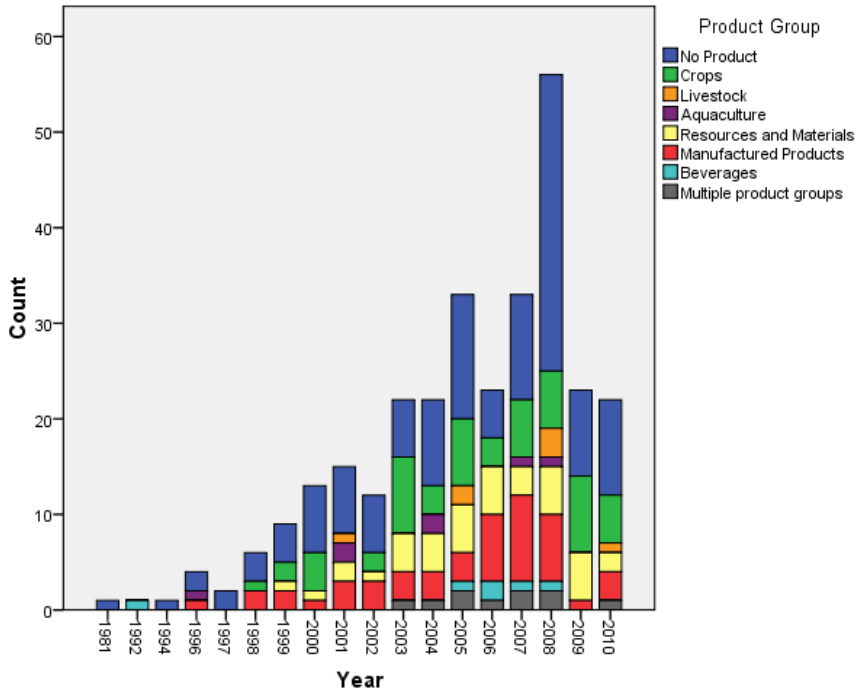

Figure 5: Articles published on sustainable supply chain governance and the product groups discussed.

After these first descriptive data we now move to the contents. Using Figure 1 we can see which aspects of sustainable supply chain governance have most extensively been covered, as being shown in Table 2. Not all identified articles could be categorized. In some cases we were able to retrieve only abstracts, not the full paper. In other cases the article would not fit into our framework. All together we could categorize 202 articles based on their contents, while we identified the 2 main aspects addressed in these articles. Looking at these data some clear observations can be made:
- Only half of the articles present empirical data, based on the researchers data collection (either as a case study, comparative case study, survey study or other forms of data use);
- There is a strong focus on demand side studies looking at the role of business in developed countries (47%), while only less then half of these contain empirical data;
- The largest share of the articles focuses on the demand side aspects, or: the roles of actors in the developed countries (62%);
- A fair smaller share of the articles (also) looks at the various aspects at the developing countries supply side (42%), with only few (13%) presenting any form of empirical data about these impacts.

Aspect	All articles				Articles presenting empirical data			
	Main focus	Secondary focus	totals	share of total 202 articles	Main focus	Secondary focus	totals	share of total 202 articles
1. Demand side business	76	19	95	47.0%	35	10	45	22.3%
2. Demand side consumers	1	0	1	0.5%	1	0	1	0.5%
3. Demand side civil society organizations	8	11	19	9.4%	5	5	10	5.0%
4. Demand side costs and benefits	5	4	9	4.5%	1	2	3	1.5%
5. Supply side business	17	17	34	16.8%	13	9	22	10.9%
6. Supply side community impacts	16	6	22	10.9%	10	5	15	7.4%
7. Supply side costs and benefits	1	8	9	4.5%	1	6	7	3.5%
8. Supply side environmental impacts	11	7	18	8.9%	6	5	11	5.4%
9. Governance system performance	8	19	27	13.4%	5	9	14	6.9%
10. Developing country Government	2	0	2	1.0%	0	0	0	0.0%
11. Developed country Government	1	6	7	3.5%	0	3	3	1.5%
12. Governmental Institutions International	3	6	9	4.5%	0	4	4	2.0%
13. Full supply chain perceptive	37	9	46	22.8%	17	5	22	10.9%
14. Governance perspective	16	4	20	9.9%	11	0	11	5.4%
totals	202				105			

Table 2: Numbers of articles covering specific aspects of the analysis of sustainable supply chain governance.

In this article we discuss some of the typical findings on the aspects most often covered, looking at the articles presenting results of empirical work.

Demand side business responses

Research work at the western demand side in most cases addresses the businesses at the demand side. The roles of NGOs and consumers have far less been studied (Figure 6).

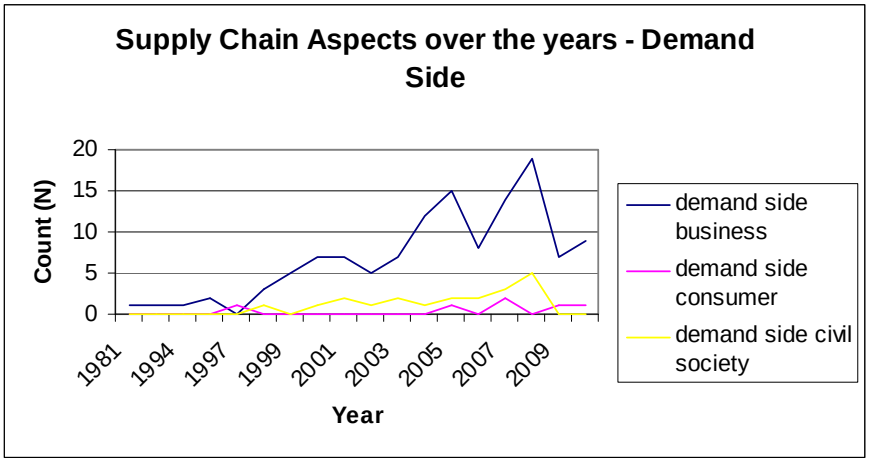

Figure 6: Articles about supply chain aspects over the years: demand side aspects

Simultaneously we see that the financial cost and benefits of the various approaches have not often been at the centre of the analysis (Figure 7).

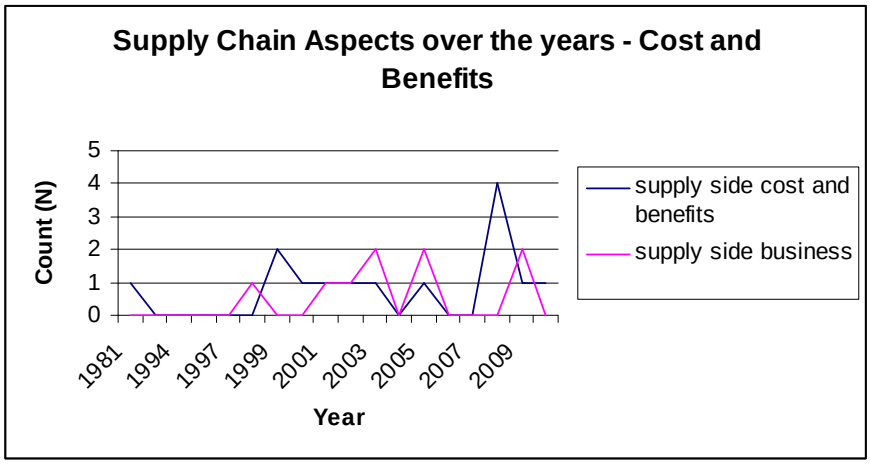

Figure 7: Articles about supply chain aspects over the years: cost and benefits

Many individual case studies have been described in these articles showing how firms are dealing with supply chain management in their (international) supply chains. The various articles equally show examples of firm setting up their own 'single-firm' supply chain management approach, using codes of conduct, questionnaires, green purchasing policies and inspections; and of firms applying available third party collaboration and certification systems (see also Vermeulen 2010, pp 143-148).
Apart from this distinction these cases can be divided in two classes, using Zsidisin and Siferd's distinction in proactive and reactive approaches. They refer to it as "two types of corporate responses to pressures for environmental improvements in supply chains" (Zsidisin & Siferd, 2001, p. 63). According to them, reactive strategies can be defined as being focused on regulatory compliance with the possibility of third using party audits. The second factor determining the reactive strategy is that the interaction with the supplier is mostly about exchanging information. In contrast to that, the proactive approach has a broader scope and goes beyond regulatory compliance, by encouraging cooperation and exchange of information and best practice examples, or exchange of technologies. Further factors are the building of long-term relationships, systematic monitoring of compliance and knowledge transfer.

This distinction also reflects in the key variables proposed in these articles, relevant for explaining the level of success of implementing supply chain management. These critical variables relate to:
- The firm's strategy and commitment:
    - Type of commitment of top management; explicitness of the corporate strategy;
    - Perceived potential for cost reductions;
- External pressures:
    - Pressures from NGO's;
    - Consumer demand;
    - Government pressure; legal demands;
- The experiences in supply chain collaboration:
    - Relation to suppliers;
    - Level of competition;
    - Perceived transaction costs;
    - Flow of information;
    - Role of power.

What demand side businesses are actually doing varies from case to case, but the articles most often describe examples of green purchasing and integrating sustainability issues in the business-to-business negotiations with suppliers. However, an equally large number of articles explain that the creation and maintaining of long-term relations with suppliers (networks) is also at the core of the demand side firms strategies.

Supply side aspects
How suppliers in developing countries are responding to supply chain requirements is increasingly being analyzed, but the impact on communities on the environment receives less attention in scientific literature (Figure 8).

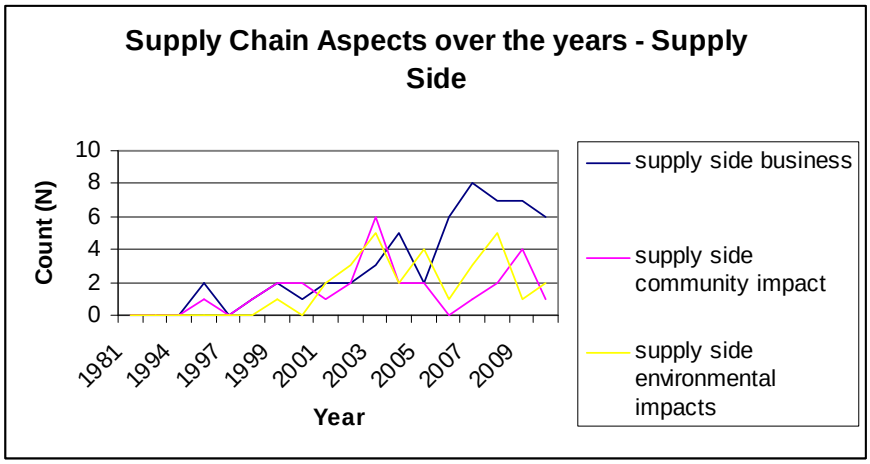

Figure 8: Articles about supply chain aspects over the years – supply side

Some of the key themes recurring in articles on supply side firms' experiences are the need for knowledge and social learning; coping strategies needed for risk reduction, transparency, monitoring, knowledge/ information, social learning, resources (technology and monetary), costs and efficiency and organizational structure (flexible vs. static) and the poor inclusion of suppliers in these governance systems

Uncertainty can be interpreted in two different ways. The first is uncertainty of suppliers to remain in the business by having long-term contracts with buyers, while the second relates to the risk of public exposure by NGOs. When applying the first interpretation, several scholars speak about risk-reduction by applying long-term contracts and consistent volumes of operation (Font et al. 2008, 267) and reducing vulnerability by applying to standards in both developing (Parrish et al. 2005, 180-188) and developed countries (Banterle and Straneiri 2008, 329; Crotty 2006, 222). Nadvi writes about the second interpretation and states that by applying to standards the risk of public scrutiny by NGOs decreases (Navdi 2008, 329).

In order to avoid the risk of public exposure and to increase legitimacy both transparency and monitoring become important variables. Transparency is an important condition for compliance with standards and a prerequisite for monitoring to be effective. Without transparency monitoring is a difficult task. Usually, transparency is reached by requiring (annual) reports (Parrish 2005, 181; Hamann 285; Robinson 2009, 565), which is only a small part of monitoring. Reardon et al. stress the importance of monitoring of standards for the consumer trust in producers (2001, 428). Without proper monitoring safe claims about the supply chain cannot be made. This is confirmed by Nadvi (Navdi 2008, 333-334).

Another issue is knowledge or information availability. One of the main drivers of compliance with standards is the knowledge of how to incorporate those into business practices and the information necessary about the standards and their implementation. In this respect training and raising awareness are important concepts (Font et al. 2006, 268) especially since 'adjustment requires knowledge' (Danse and Vellema 2007, 48). Therefore, without appropriate knowledge companies are easily excluded from supply chains in which standards are the norm.

This also related to the availability of resources for implementation. Resources can be both technology based and in terms of money. Without sufficient technology or money companies are unable or unwilling to implement standards (Danse and Vellema 2007, 47-48; Reardon et al. 428, 432; McEwan and Bek 2006, 1029). Implementing standards can be a costly business, especially in companies where the social and environmental conditions are much different from what is required by the standards. On the other hand,

standards do have the advantage that they can lead to higher efficiency of the supply chain and thereby reduce costs of compliance (Nadvi 2008; Parrish et al. 2005, 181; Reardon et al. 2001, 426; McEwan and Bek 2006, 1031; Crotty 2002, 221).

Efficiency within the supply chain is not only related to standards and costs. It is also related to the organizational structure. One example of organizational structure is the level of flexibility within an organization to comply with changing standards (Nadvi 2008, 340). If an organizational structure is highly static the organization will have severe difficulty in adjusting to changing demands and continues improvements in standard systems. Therefore, the organizational structure plays an important role in explaining compliance.

In this respect social learning becomes important. Social learning, but any learning process, is essentially a process of transferring knowledge and providing information to those who don't posses it yet. Learning processes are a stimulus for integrating standards into supply chains (Font et al. 2006, 268). Danse and Vellema argue for the integration of local knowledge into global supply chains and thereby broadening the current concept of learning (Danse and Vellema 2007, 45) and McEwan and Bek even argue that without learning and training empowerment of marginalized groups within supply chains is not possible (2006, 1029-1030).

Related to social learning are social embeddedness of standards and discourse. Social embeddedness relates to the level of integration of standards into already existing social practices in the suppliers environment. Increased social embeddedness leads to an increased inclusion of local, smaller suppliers into the supply chain, which is a way to alleviate poverty in the region (Danse and Vellema 2007, 48; Nadvi 2008, 340). McEwan and Bek (2006) also argue for higher social embeddedness and show that social embeddedness is needed to increase empowerment in South Africa. At the same time they show that social embeddedness by itself is not sufficient for integration. Rather a change in discourse is required. People need to be able to think about the possibility of incorporating environmental and social aspects into supply chains, before they can start with the actual implementation.

The articles referred to here are not explicitly addressing the eventual impacts of improving suppliers' sustainability performance on their communities and the environment. Yet, these in fact are the ultimate goals of sustainable supply chain governance systems in response to western consumer and civil society concerns.
The various certification systems have different backgrounds, originally either focussing on environmental sustainability or on socio-economic sustainability. More recently the various most dominant systems have become more integrating and less exclusive addressing both the people and the plant aspect of sustainability.
This development is well discussed in various articles. Yet, measuring these ultimate intended impacts is still difficult. Most academic work in this area has been done in the supply chains with the longest history of addressing sustainability, being the coffee and the timber chains. Measuring the social and community impacts may be the most difficult, because societal development may be difficult to causally link to trade practices.

The point of departure for determining these final impacts can be linked the five goals for local communities as established by the Fair Trade Labelling Organisation (FLO) 'International standards and procedures': improved livelihoods of small producers and their families, stronger producer organisations, rural community development, gender equity, and environmental protection (Utting-Chamorro, 2005).

For this purpose, Bacon (2005) determined a Livelihood Vulnerability Framework based on Amatya Sen's pioneering work on shifting the definition of poverty away from narrowly focused income-based measurements, to one that includes *multiple stakeholders* and *collective coping strategies*, *subsistence production*, *migrations*, *increased labor time* and *political mobilization*. By far the most interesting element of the current evaluation of community impacts is the operationalization and measuring of the *increased livelihoods* variable, as it is the view of many scholars that increased income should not be the only criteria used for determining a positive impact on farmers well-being (Arce, 2009; Bacon, 2005; Blowfield, 2003; Couville, 2003). The importance of the concept for overcoming the narrow biases inherent to evaluators outside the

community (Couville, 2003) suggests actually incorporating the local social concerns in the measuring of impacts (Blowfield, 2003; Bradford et al., 2011). Following Bacon's (2005) operationalization, three sub-variables (success factors) can be used to assess community impact, namely *ability to meet basic needs* (measured in terms of self-perceived ability to cover basic housing, clothing, medical costs and education), *covering costs of production* and *perception life quality* (measured in term of life quality self-perception and perception over security over land). This is also supported by Couville's study on community impacts indicators, which finds the same variables as valid for assessing the application of the fairness criteria to the financial return mechanisms implied in cooperative participation (2003).

However, certification systems also aim to bring an impact at a community level, by improving *labour rights* and through *rural community development*. While an improvement in *labour rights* is one of the main claims of Fair Trade labeling systems, their impact is assured by the preconditions and standards posed by the certification systems to local farmers (Utting-Chamorro, 2005). However, propagating all these impacts at a community level is more difficult. If measured in terms of school and other local infrastructure improvements, the output variable *rural community developments* does not always prove positive correlations, however, theoretically, in a longer time span, it might lead to *increased capacities* at the community level (Utting-Chamorro, 2005). Lastly, Utting-Chamorro (2005) also talks about measuring impacts of certification systems on producer organizations themselves, so about Capacity Building. The author operationalizes it in terms of increases in the number of acres certified, while Bradford et al (2011) look at increases in the number of members. Although not encountered in the reviewed articles, it would be interesting to see other measurements of *capacity building*, such as increased trade and agricultural knowledge which help the local communities further their goals.

Looking at existing scientific literature we see both successes and examples of negative side effects opposite to achieving the UN Millennium Development Goals. These include problematic access of smallholders or even systematic restructuring of export sectors, benefitting small numbers of large (white run) expert firms, while excluding smallholders or women (Ito 2004, Francesconi, Heerink & D'Haese 2010, Islam 2008). Freidberg called this the 'homogenization of the supply chain' (Freidberg 2003). Others point to unfair trading practices, transferring the risks and transaction costs of global supply to the supply side (Ras, Vermeulen & Saalmink 2007a, Ras, Vermeulen 2009). Whether working with product standards enables improving working conditions for home workers is another issue (Freeman 2003). Unequal access to decision making on the content of standards and ignorance of local socioeconomic structures and needs are discussed by others (Alberto 2009, Blowfield 2003, Muller, Vermeulen & Glasbergen 2009).

Making a general statement about the effectiveness of initiatives that aim at getting product chains more environmentally sustainable proofs also to be difficult. While the majority of authors propose variables that can be measured, only some authors have actually empirically assessed these variables (see e.g. Blanke and Burdick, 2005; Jones, 2002). Nevertheless, it is often explicitly or implicitly claimed that sustainable governance approaches perform better in practice compared to traditional managerial systems (Danse, 2003; Eltayeb, 2011; Zhu and Sarkis, 2004, Testa and Iraldo, 2010;). Indicators that have been proposed or are being used to determine the ecological performance of supply chains can be summarized as follows: They either focus on the inputs into and out puts from production processes:

- primary and secondary energy (e.g. fossil fuels, electricity) use of all production stages (cultivation, transport, packaging, preservation, distribution, consumption etc.)
- use of agrochemical and fertilizers (that can enter organisms and watersheds),
- usage and quality of groundwater,
- toxicity of solid waste and waste water from production.

Or on the ultimate ecological impacts of those:

- change in the natural resource base,
- conservation, richness and change of formation of soil,
- biodiversity conservation (plant and animal health), public health impacts.

In some cases the impacts measured also refer to the quality of (agricultural) products produced.

6. Conclusion: areas for further study

What we present here are first impressions from the initial review of the broad body of literature, focussing on the aspects most frequently covered. Research in this field still is young, very diverse, hardly integrated and applying a wide variety of research methods. Various highly relevant aspects (like the impacts) have only been addressed in still a few articles. Figure 1b now shows the research emphasis with the largest shares in yellow. The review shows that we do not yet find a lot of hard data about effectiveness, which is extremely difficult to measure.

We are dealing with a complex research field, complex in the sense of it's multiple actor base and global scope, its' wide diversity of product sectors and the socio-cultural diversity in societies connected.

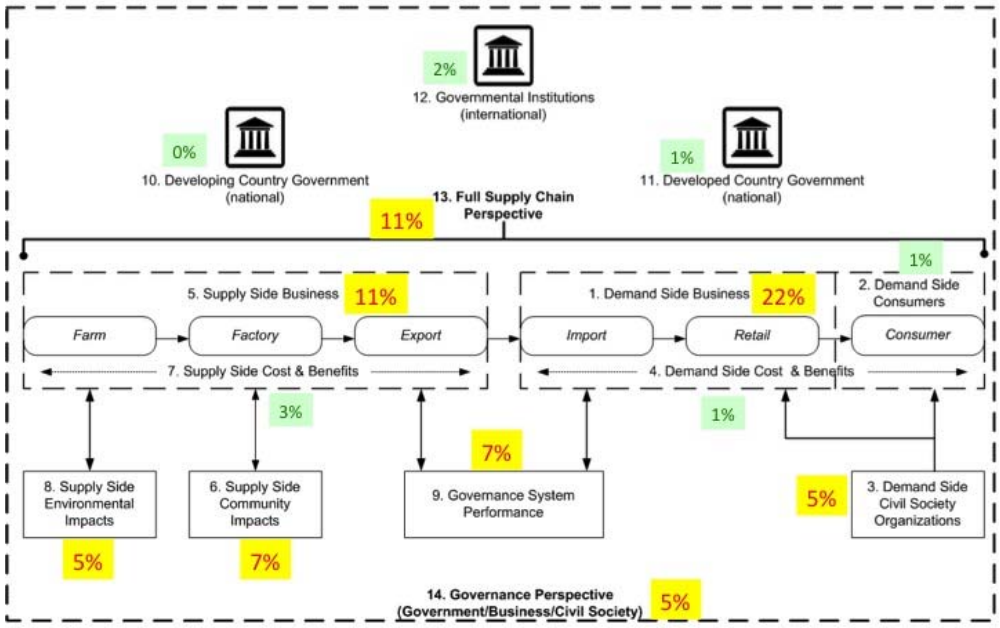

Figure 1b: Selective attention in scientific literature for aspects of Sustainable Supply Chain Governance

Yet, this field of literature is sharing a common concern for maintaining livelihood in the global village, consumers at one side of the world feel connected to (small) producers and workers at distant countries at the other side of the world.

The global economy works towards harmonizing the rules of the game, yet two different games may be played. In the introduction we observed that engaging in sustainable supply chain governance may very well serve two different objectives, either that of market capture or that of creating shared value for a sustainable future (Porter and Kramer 2011). Given the limited amount of empirical work in measuring the ultimate impacts, at this stage no conclusion can be given on whether these new practices of self-governance in global supply chains are forms of successful responsible entrepreneurship or merely represent cases of fallacious market capture.

At this stage we can identify various challenges and dilemma for the various stakeholders.

The *research communities* face various challenges: moving from describing how-to-do's towards analysis how effective the various approaches are; creating knowledge about how effective the various self-governance approaches are; the need for more standard and agreed modes of measuring the level of effect/success;

creating a method to enable researchers to determine who sincere the various business approaches are and measuring relation between firm responses and the ultimate ecological and community impacts.

For *supply chain actors* some crucial dilemmas are relevant: dealing with supply chain complexity (complex integrated systems not efficiently to handle individually); choosing between or balancing competition and collaboration in supply chains, choosing individual or collective strategies and jointly organizing better collaborative impact monitoring.

For *governments* a (re)consideration of their roles in this international context is relevant. Especially in the global trade context the hands of government are tied. They can either support the self-organizing power in markets, but need to ensure that these approaches do create proven impacts at the far supply side. Their challenge is how to set boundaries with smart regulation, but without suffocating proactive market activity firms. And how to prevent free riding and fraud, while still stimulating frontrunners

Still a lot of challenging collaborative work is to be done. At the demand side many single case example have been documented, but few impacts studies are available, especially on a more aggregate level. At the supply side establishing the intended impacts proofs to be a very complex issue, surrounded by a lot of debate, but with little emphasis on creating evidence.

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