Extending sustainability to suppliers: a systematic literature review

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Abstract
Purpose – To make their supply chains more socially responsible, many companies are implementing supplier assessment tools and collaborative practices. The aim of this paper is to provide a systematic literature review on the governance structures used to extend sustainability to suppliers. More specifically, the authors aim to answer two questions: "What is the impact of these mechanisms or governance structures on sustainable performance?" and "What are the enablers of these mechanisms?".
Design/methodology/approach – A structured literature review is carried out that analyses published studies, evaluates contributions, summarises knowledge and identifies managerial implications and lines for further research.
Findings – Both assessment and collaboration have a positive impact on environmental performance and corporate social responsibility, although the most recent collaborative paradigm stresses that assessment alone is not enough. Some enablers of these practices are identified.
Research limitations/implications – Although the authors believe that the right search terms have been used, the choice of these terms could be a limitation of this study. Also, the selection of the articles could be considered subjective, although the papers were reviewed by two researchers.
Practical implications – Supplier assessment and collaboration are effective in improving sustainability. However, the results also indicate that assessment alone is not enough. Firms also need to adopt a collaborative approach. Finally, a list of enablers to implement these practices is provided.
Originality/value – The paper summarises knowledge related to the impact of supplier assessment and collaboration on sustainability, and describes the enablers of such initiatives, providing some managerial implications and lines for further research.

Keywords Sustainable supply chains, Sustainability, Structured literature review, Research, Supply chain management, Sustainable development

Paper type Literature review

Introduction

The most widely-adopted definition of sustainability is that of the World Commission on Environment and Development (1987, p. 8): "development that meets the needs of the present without compromising the ability of future generations to meet their needs". Unfortunately this macroeconomic definition is difficult for companies to apply and provides little guidance for organisations (Hart, 1995; Starik and Rands, 1995). The way it is usually operationalised is through the triple bottom line, a concept developed by Elkington (1998), which simultaneously considers and balances economic, environmental and social issues from a microeconomic point-of-view.

Recently, there has been rising concern about sustainability both among managers and researchers. About 80 per cent of the world's largest 250 companies report on their social and environmental performance, up from about 50 per cent in 2005 (KPMG, 2008). The concept has also recently begun to appear in the literature of business disciplines such as operations and supply chain management (SCM) (Carter and Rogers, 2008).

One of the most challenging aspects is that the boundary of responsibility often extends beyond the reach of a corporation's ownership and direct control. A high level of environmental performance achieved by one firm can be brought to naught by its suppliers' poor environmental management (Faruk *et al.*, 2002). The same argument applies to product safety, labour conditions and other social issues. For example, in 2007 Mattel had to recall 20 million children's toys because some suppliers used materials containing traces of lead; in 1996 Nike was vilified because some subcontractors were using child labour.

Firms have recognised the need to develop strategies that extend their traditional corporate governance processes beyond the firms' boundary to their supply chain partners (Kytle and Ruggie, 2005). The most visible indicator of this extension is the emergence of corporate social responsibility

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(CSR) oriented purchasing strategies, such as laying down standards that suppliers must meet in order to win business (Keating *et al.*, 2008).

Despite many multinational corporations' efforts to implement social and environmental issues in their supply chains, a gap exists between the desirability of supply chain sustainability in theory and its implementation in practice (Bowen *et al.*, 2001). The literature suggests that to make their supply chains more socially responsible, many companies are implementing the following practices: supplier assessment tools, codes of conduct and collaboration with suppliers (Keating *et al.*, 2008; Andersen and Skjoett-Larsen, 2009).

Although Svensson (2007) proposes that second and n-order supply chains should be considered in order to enhance sustainability, most of the recent literature on supply chain CSR practices has focused on governance mechanisms which extend CSR practices to suppliers. We follow Raynolds (2004) and define governance as "the relations through which key actors create, maintain, and potentially transform network activities" (p. 728). Accordingly, by governance mechanisms we refer to those practices used by firms to manage relationships with their suppliers with the aim of improving their sustainability performance. One stream of the literature on supply chain CSR practices and supply chain governance covers the implementation of supplier codes of conduct (e.g. Krueger, 2008; Yu, 2008) while others have reconsidered the underlying market governance mechanisms in the light of proposals for more extensive collaboration (e.g. Lim and Phillips, 2008; Vachon and Klassen, 2008; Jiang, 2009a, b; Spence and Bourlakis, 2009).

Due to the recent proliferation of papers on this topic and their mixed results the need arises to summarise the existing knowledge and identify some managerial implications and lines for further research. This paper aims to provide a systematic literature review on the governance structures used to extend sustainability to suppliers. More specifically, we aim to answer two questions: What is the impact of these mechanisms or governance structures on sustainable performance (environmental, social and economic performance)? And what are the enablers of these mechanisms?

By conducting a systematic literature review on the extension of sustainable practices to suppliers, we will contribute to both the academic and professional communities. For researchers, we will summarise what is known and suggest some lines for further research. For professionals, we will provide some managerial guidelines regarding the impact of these practices and how they can be implemented.

The paper is structured as follows: first, we provide a summary of the methodology used to identify the papers; then, the results of the review, and finally, some conclusions.

Methodology

We now describe in detail the screening methodology employed. First, we decided the keywords to be used in our study (the "*" sign was used at the end of some keywords to expand the range of possible studies, since many papers use slightly different keywords for the same concept, e.g. "sustainable" instead of "sustainability"). In order to broadly encompass the potential list of studies that might be related to our research questions, we selected two classes of keywords:

1 words related to sustainability/corporate social responsibility (i.e. "csr" keywords): "sustainab*", "environment*", "green" and "corporate social responsibility"; and
2 words related to SCM (i.e. "SCM" keywords): "supply", "purchasing", "procurement" and "logistics".

Our search was based on all possible combinations between those two types of keywords.

We employed a meta-search engine (MetaLib) that accessed and compared the most well-known academic data bases (ABI/INFORM Global, Academic Research Library, Academic Search Premier (EBSCO), EconLit (EBSCO), Emerald Journals (Emerald), ISI Web of Knowledge (Cross Search), JSTOR Business and NBER Working Papers) and aggregated the results into a single list. In this search we only considered articles that had a management focus. Articles dealing specifically with technology were not included in our list. This first step generated a total of 1,503 papers (15 July 2011). After deleting duplicated results, the total number of articles was reduced to 628. After that, we carefully read the abstract of these 628 papers, focusing on two criteria: does the paper analyse the transfer of sustainability practices to the supply base? Is it based on empirical data? Papers had to meet both criteria in order to be considered. Using this procedure, we were left with 117 papers. As decisions regarding inclusion and exclusion remain relatively subjective, this stage of the systematic review was conducted by all the authors. Tranfield *et al.* (2003) recommends this stage to be done by more than one reviewer.

Lastly, we read each article and selected those that could provide any insight to the research questions that were mentioned in the previous section, i.e. What is the impact of the different governance structures on sustainable performance (environmental, social and economic performance)? And what are the enablers of these mechanisms? After this final screening, only 41 papers remained. The following sections analyse these papers in detail. For the analysis, we followed the recommendations by Denyer and Tranfield (2009) and went beyond mere description of the papers included in this study. We recasted the information into a different arrangement and developed knowledge that was not apparent from reading the individual papers in isolation.

Figure 1 illustrates the process followed.

Analysis

Our review includes 41 papers covering the extension of sustainable practices to suppliers. Table I classifies the papers according to the scope (environmental, social or both issues), the methodology used (case study or survey) and the period of publication.

Although sustainable SCM covers the three pillars of the triple bottom line (economic, environmental and social impact), most papers focused on the environmental issue (25 out of 41 papers are on Green SCM). Socially-oriented practices have been rarely studied and when they have been covered, it has been under the umbrella of CSR practices (which covers both social and environmental issues). Our results are consistent with the findings of previous studies.

Figure 1 Screening methodology

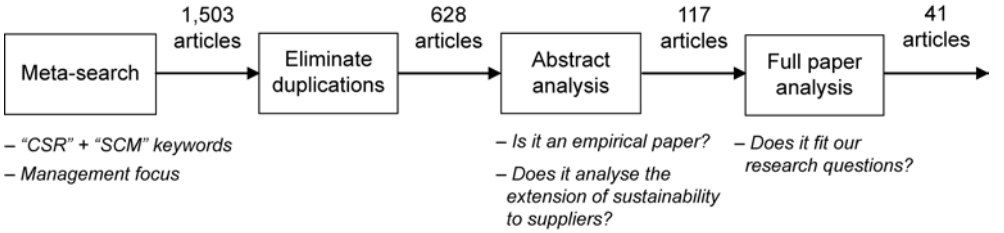

Table I Methodologies and scope of the papers included in the review

	1996-2000		2001-2005		2006-2011		
Scope	**Case study**	**Survey**	**Case study**	**Survey**	**Case study**	**Survey**	**Total**
Green SCM	5	0	0	7	4	9	25
Social	0	0	0	0	3	1	4
CSR: Sustainable SCM (social and environmental issues)	0	0	0	0	9	3	12
Total	5	0	0	7	16	13	41

Seuring and Muller's (2008) literature review on sustainable SCM showed that few papers consider all dimensions of sustainability simultaneously.

Early papers on Green SCM were based on exploratory case studies. However, over the last decade there has been a spate of papers on Green SCM based on surveys. The papers on sustainable SCM, which include social and environmental issues were published in 2008 or later and were mainly based on exploratory case studies. This could indicate that Green SCM is at a more mature "research stage" than sustainable SCM. Over the next few years, we expect to see a rise in the number of papers based on surveys covering the three pillars of sustainable SCM.

Extending sustainability to suppliers: the impact of different supply chain practices on performance

The extension of sustainability to suppliers is being adopted by industry but the extent and mode of implementation vary significantly (Rao, 2002). In this paper, we classify these practices into two approaches: assessment and collaboration. Assessment includes any activity related with evaluating suppliers (e.g. questionnaires and company visits), whereas collaboration refers to working directly with suppliers providing them with training, support or other activities. Similar classifications have been used in previous studies (e.g. Klassen and Vachon, 2003; Vachon, 2007; Jiang, 2009a, b; Carsten *et al.*, 2010; Foerstl *et al.*, 2010; Large and Gimenez Thomsen, 2011).

In this paper, we focus on those supply chain practices or governance mechanisms that imply a "hands-on" approach or direct management by the buying firm. A "hands-off" or indirect management approach based on standards is not the focus of this paper (for further information on this type of approach please refer to Raynolds, 2004; Ponte and Gibbon, 2005; Raynolds and Murray, 2007; Raynolds, 2009). The main reason why our paper focuses on the "hands-on" approach is that we adopt the premise that the buying firm has chosen to invest personnel, time and resources to increase the performance and/or capabilities of suppliers. The same premise has been adopted in previous studies in supplier development (e.g. Krause, 1999; Krause *et al.*, 2000) and sustainable SCM (e.g. Klassen and Vachon, 2003; Vachon, 2007; Jiang, 2009a, b; Carsten *et al.*, 2010; Foerstl *et al.*, 2010; Large and Gimenez Thomsen, 2011).

In this section, we will review and analyse all those papers that study whether the implementation of supplier assessment and/or collaboration with suppliers contributes to improving firms' environmental, social and/or economic performance. Environmental performance is often related to energy efficiency and the reduction of waste, pollution, emissions, environmental accidents, etc.; social sustainability to labour conditions, diversity, connectedness within and outside the community, quality of life, etc.; and, economic sustainability to operational efficiency, market share, sales, etc.

Our literature review shows that 23 papers cover the impact of different sustainable SCM practices on performance. Eight additional papers are included in this section of the review, because, although they do not consider the impact of these practices on performance, they do analyse their impact on environmental investment decisions, the development of suppliers' environmental capabilities or the suppliers' compliance with codes of conduct. Table II provides a summary of the literature on this topic. The papers were classified under four categories:

1 those that consider only assessment;
2 those that consider only collaboration;
3 those that consider assessment and collaboration under a unique construct (e.g. Green Purchasing, Green SCM, etc.); and
4 those that consider the impact of each type of practice independently.

In category 1, Murray (2000), Simpson *et al.* (2007), Yu (2008) and Ciliberti *et al.* (2009) considered only assessment and analysed its impact on social and environmental performance. Whereas Murray (2000) and Ciliberti *et al.* (2009) found support for a positive effect of the implementation of assessment practices on environmental and social performance, Simpson *et al.* (2007) and Yu (2008) did not. In particular, Simpson *et al.* (2007) found that the presence of assessment by itself does not help translate customer requirements into suppliers' environmental

Table II Papers that analyse the impact of sustainable SCM practices on performance

Paper	Scope	Method	Practices Ass.	Practices Coll.	Perf.	Results
Have considered only assessment (category 1)						
Murray (2000)	G *	Case	X		(P) *	Through assessment, the case company was able to raise the number of environmentally-friendly and certified suppliers
Simpson *et al.* (2007)	G	Survey	X		Sup. EC	They found the customer's environmental performance requirements only elicited a supplier response when relationship-specific investments were made. Contracts and supplier assessment practices had no impact on environmental commitment
Yu (2008)	S	Case	X		(P)	Setting labour standards may have negative effects on social performance (employees have to work harder to meet the production target in less hours but they earn less because they are paid by the hour)
Ciliberti *et al.* (2009)	S	Case	X		(P)	Supply chain directors can impose SA8000 certification throughout the supply chain. Subsequent transaction costs are reduced
Have considered only collaboration (category 2)						
Geffen and Rothenberg (2000)	G	Case		X	I	Implementing new technology at the assembly plant to improve environmental performance is best done through partnership with suppliers
Vachon and Klassen (2008)	G	Survey		X	P	Collaboration with customers and suppliers leads to better operational and environmental performance
Schliephake *et al.* (2009)	G	Case		X	(P)	There are greater environmental efficiencies when engaging proactively with supply chain partners immediately adjacent to the primary company
Borchardt *et al.* (2011)	G	Case		X	(P)	Joint eco-design with suppliers reduces costs, toxic waste and energy consumption
Have considered both types of practices as a unique construct (category 3)						
Rao (2002)	G	Survey	X		P	Greening suppliers improves environmental performance, which leads to improved competitiveness, which in turn leads to better economic performance
Zhu and Sarkis (2004)	G	Survey	X		P	External Green SCM has a positive impact on environmental and economic performance. This impact is greater on firms with higher levels of quality management practices adoption
Rao and Holt (2005)	G	Survey	X		P	Greening suppliers and greening production leads to greening outbound which in turn leads to improved competitiveness. Economic performance improves with competitiveness and greening suppliers
Zhu *et al.* (2005)	G	Survey	X		P	Low levels of implementation of external Green SCM practices. Green SCM practices improve environmental performance
Zhu and Sarkis (2007)	G	Survey	X		P	Market pressure and environmental regulation slightly increase the impact of Green Purchasing on environmental performance; whereas competitive pressures significantly improve the economic benefits arising from Green Purchasing
Zhu *et al.* (2007a)	G	Survey	X		P	Industrial sectors with higher levels of Green SCM implementation are associated with better environmental performance
Zhu *et al.* (2007b)	G	Survey	X		P	The greater the implementation of Green Purchasing the lower the environmental performance achieved. No discussion provided on this finding
Have considered both types of practices as independent practices (category 4)						
Green *et al.* (1998)	G	Case	X	X	(P)	There is some evidence that both practices may contribute to performance, but more research on environmental performance measures is needed

(continued)

Table II

Paper	Scope	Method	Practices Ass.	Practices Coll.	Practices Perf.	Results
Walton *et al.* (1998)	G	Case	X	X	(P)	Supplier evaluation and process improvement are primary areas to increase Purchasing's impact on environmental results
Theyel (2001)	G	Survey	X	X	P	Environmental requirements are positively related to waste reduction whereas collaboration is not. The author comments that, over a longer time-period, firms will see improvements arising from collaborative practices
Klassen and Vachon (2003)	G	Survey	X	X	I	Evaluation by and collaboration with customers has an impact on the level of environmental investment. Such collaboration also encourages investments to prevent pollution
Vachon (2007)	G	Survey	X	X	I	Customer collaboration and assessment by customers do not have any impact on environmental investment decisions with regard to the form of spending on environmental technology
Lee and Klassen (2008)	G	Case	X	X	Sup. CAP	Suppliers initiate environmental efforts when their buyers begin to examine their environmental performance. Then, buyers' collaborative efforts improve suppliers' environmental capabilities. The combination of evaluation and collaboration creates synergy, yielding greater development of environmental capabilities than either component by itself
Keating *et al.* (2008)	CSR	Case	X	X	(P)	A "one-size-fits-all" approach to assess suppliers is inappropriate. One should distinguish between small and large suppliers in this respect. Both types of practices help improve CSR
Lim and Phillips (2008)	S	Case	X	X	CC	While CSR codes of conduct are easy to draft, supplier compliance has been elusive. Collaborative partnerships are necessary to implement CSR
Jiang (2009a)	CSR	Survey	X	X	CC	There are huge gaps between the requirements of the supplier codes of conduct imposed by buyers and actual compliance. While buyer-to-supplier governance does not show significant effects on code compliance, peer-to-peer governance has a positive impact on the suppliers' commitment to codes
Jiang (2009b)	CSR	Survey	X	X	CC	Hierarchy/ relational norms have an impact on code compliance, whereas market governance has not. It is necessary for buying companies to set improvement targets with factories and provide assistance to them in order to see changes, rather than to exert pressure on them
Pagell and Wu (2009)	CSR	Case	X	X	(P)	Supplier certification and non-traditional supplier development help make supply chains more sustainable
Spence and Bourlakis (2009)	CSR	Case	X	X	(P)	Waitrose has evolved from a monitoring approach (Corporate Social Watchdog) to a truly supply-chain responsible firm through the development of collaborative relationships with its biggest and most strategically important suppliers
Strand (2009)	CSR	Case	X	X	(P)	Robust supplier assessment that encourages environmental and social responsibility while fostering collaborative relationships leads to stronger and more engaged supply chains
Carsten *et al.* (2010)	CSR	Case	X	X	(P)	Relying only on assessment is not sustainable. Supplier development is of primary importance, facilitating capacity building in supplier evaluation, and vice versa. Continuous development efforts make for better response
Foerstl *et al.* (2010)	CSR	Case	X	X	(P)	Sustainability risk management implies risk assessment through monitoring suppliers. However, sustainable supplier development was the preferred option by all case companies for established suppliers
Large and Gimenez Thomsen (2011)	G	Survey	X	X	P	Green supplier assessment and green collaboration exert direct influence on environmental performance

Notes: * S: Social; G: Green; CSR: Triple bottom line; P: Impact on performance analysed; (P): Impact on performance implicitly analysed; I: Investment; Sup. EC: Supplier environmental commitment; Sup. CAP: Supplier capabilities; CC: Impact on supplier code of conduct adoption

commitment. The environmental requirements of customers have an impact on suppliers' environmental commitment only under the presence of relationship-specific investments. The case study by Yu (2008) provides support for the negative effects of setting labour standards (through supplier codes of conduct) and monitoring when the cost for improving labour conditions is not shared.

In category 2, Geffen and Rothenberg (2000), Vachon and Klassen (2008), Schliephake *et al.* (2009), and Borchardt *et al.* (2011) considered only environmental collaborative practices and found support for the positive impact of collaboration on environmental performance.

In category 3, Rao (2002), Zhu and Sarkis (2004), Rao and Holt (2005), Zhu *et al.* (2005), Zhu and Sarkis (2007), Zhu *et al.* (2007a, b) collected data in various Asian industries and analysed the impact of Green Purchasing (which includes supplier assessment and collaboration) on environmental and economic performance. All of them, with the exception of Zhu *et al.* (2007b), found that Green Purchasing improves environmental performance. The result of Zhu *et al.* (2007b) for the Chinese automotive industry is in line with the results of Simpson *et al.* (2007), who found that in the Australian automotive industry, the presence of assessment by itself does not contribute to increasing suppliers' environmental commitment. It appears that in the automotive industry, greening the supply chain is a complex matter. To date, it seems that in this industry only collaboration has a positive impact on environmental performance (Geffen and Rothenberg, 2000).

Although the positive impact of Green Purchasing on environmental performance is widely accepted, its effect on economic performance seems to be less clear-cut. Whereas Rao and Holt (2005), Zhu and Sarkis (2004) and Zhu and Sarkis (2007) found support for the positive impact of environmental practices on economic performance, Zhu *et al.* (2007a) did not. This could be due to the moderating or mediating effect of different factors on the environmental practices-economic performance relationship. For example, Rao (2002) found that the impact of Green SCM on economic performance is mediated by environmental performance. This means that once environmental performance is improved, economic performance improves. For Zhu *et al.* (2007a), although some industries have seen improvements in environmental performance, these improvements may yet be reflected in lower costs and greater sales. Another explanation can be derived from the work of Zhu and Sarkis (2007), who found that competitive pressures significantly improve the economic benefits arising from Green Purchasing. For Zhu *et al.* (2007a), it may be that the firms that have implemented environmental practices belong to sectors subject to little competitive pressure.

In category 4, we list those papers that compared the impact of assessment and collaboration on performance. Green *et al.* (1998), Walton *et al.* (1998) and Large and Gimenez Thomsen (2011) provided support for the positive impact of both approaches on environmental performance, and Keating *et al.* (2008), Pagell and Wu (2009), Spence and Bourlakis (2009) and Foerstl *et al.* (2010) for their positive effect on sustainability. However, Lim and Phillips (2008), Strand (2009) and Carsten *et al.* (2010) concluded that relying only on assessment is not sustainable; collaborative relationships are needed. The exception for the general agreement about the positive impact of both approaches is Theyel (2001), who found that in the short term, only assessment is effective in cutting waste; firms would only see improvements arising from collaborative practices over the longer term.

In category 4, we also have papers that analyse the impact of these mechanisms from the supplier's standpoint. Klassen and Vachon (2003) and Lee and Klassen (2008) found support for the positive impact of both mechanisms on environmental performance. Furthermore, Lee and Klassen (2008) found that the combination of evaluation and collaboration provides synergy that helps build better suppliers' environmental capabilities. However, Vachon (2007) found that neither assessment nor collaboration have an impact on the type of investment technology (pollution prevention versus pollution control) undertaken by the supplier. Finally, in terms of CSR, Jiang (2009a, b) found support for the positive impact of the collaborative approach on suppliers' compliance with codes of conduct, but not for the market-based mechanisms (based on setting goals and monitoring).

The conclusions from this section are:

- Based on the results of the papers in category 3 and 4 it can be concluded that the implementation of both supplier assessment and collaboration with suppliers improve the environmental and social performance. Furthermore, Lee and Klassen (2008) found support for the synergistic effect of their simultaneous implementation.
- The mixed results regarding the impact of assessment on sustainable performance provided by the papers in category 1, taken together with the results of Lim and Phillips (2008), Strand (2009), Carsten *et al.* (2010) and Jiang (2009a, b) seem to show that relying only on assessment is not sustainable; collaborative relationships are needed to improve the environmental and social performance.
- Regarding the impact on economic performance, we only have results from the analysis of the implementation of both approaches simultaneously (under the umbrella of Green Purchasing). It appears that Green Purchasing has a positive impact on economic performance. However, the findings from Rao (2002) and Zhu *et al.* (2007a) suggest that economic benefits only arise once a threshold of environmental performance has been crossed and enough time has elapsed to allow the improvements to reduce costs and/or boost sales.

The managerial implication is that the implementation of both assessment of and collaboration with suppliers seems to be effective in extending sustainable practices to suppliers. However, more recent results and the collaborative paradigm stress that assessment alone is not enough; firms need to engage in collaborative practices. Although assessment may seem easier to implement, managers need to go one step further and collaborate with their suppliers. Assessment may be the first step to identify what actions are needed; however, firms need to engage in collaborative practices with their suppliers to improve sustainability.

There are, however, some unanswered questions that should be addressed by future studies. Further research is needed to assist managers in implementing both approaches. Below, we provide a list of matters requiring further study:

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- Both approaches (assessment and collaboration) are needed. However, is there any relationship between them? For example, the case study by Carsten *et al.* (2010) concluded that supplier development facilitates capacity-building in supplier evaluation and vice versa. Further research should evaluate the relationship between these two strands. For example, future research should try to investigate if the supplier development model proposed by Krause *et al.* (2000), where assessment is an enabler of collaboration, is applicable to environmental supplier development.
- The case study by Lee and Klassen (2008) provided some support for the synergetic effect of both approaches. However, survey-based studies have analysed the impact of both approaches independently. Further survey-based research should test for an interaction effect.
- The impact of both approaches on environmental performance appears to be supported. However, their impact on economic performance is not so straightforward. Further research should investigate whether the impact on economic performance is mediated by environmental performance or if there is a threshold performance above which firms can see the financial benefits of environmental improvement. Further research should also analyse the impact of these practices on the triple bottom line (the literature to date has focused on environmental and economic performance).
- As with the work done by Klassen and Vachon (2003) regarding the impact of assessment and collaboration on the type of environmental investment (pollution prevention versus pollution control), further research should investigate the impact of both approaches on different types of sustainable performance.
- The geographical analysis of the literature shows that the more recent papers on supply-chain sustainability are based on case studies of companies in Europe or North America, whereas the majority of the survey-based papers are only on green issues and use data collected in Asia (especially China). In order to test the generalisability of the findings of the papers reviewed, further research should try to spread the green-based survey research to other regions (Europe, for example). Furthermore, survey research on CSR and SCM would also be very valuable given that the subject has so far only been looked at through case studies.

Enablers of sustainable SCM

Following Lee and Klassen (2008), we distinguish between drivers and enablers. A driver is a factor that initiates and motivates firms to adopt sustainable SCM, whereas an enabler is a factor that assists firms in achieving these sustainable practices. The objective of this section is to review those papers that study the enablers of sustainable SCM. Our paper adopts the perspective of Bowen *et al.* (2001) and analyses the enablers at the focal firm facilitating the extension of sustainable practices to suppliers.

Our literature review shows that 17 papers have covered this topic; however, in only three of them was the study of such enablers the main research aim (e.g. Bowen *et al.*, 2001; Vachon and Klassen, 2006; and Andersen and Skjoett-Larsen, 2009). Table III provides a summary of the literature. Some of these papers are also included in Table II because they cover the impact of SCM practices on performance and their enablers. Ten papers have analysed the enablers of green practices, whereas seven have studied the implementation of sustainable SCM, including both social and environmental practices. It is important to point out that the most recent papers focus on CSR practices and not only on the environmental ones.

Table IV provides a list of the enablers identified in the review. We have placed each in one of two groups: Internal and external enablers. Internal enablers cover factors within the focal firm that help achieve sustainable practices, whereas external enablers concern factors beyond the firm's boundaries. The internal enablers identified are: the firm's environmental commitment, senior or top management support, the availability of resources, the strategic role of the purchasing function, the development of supply management capabilities of purchasing personnel, the role of the project leader and appropriate performance measurement systems. The external enablers are mainly related to the characteristics of the supply chain relationship and the issues cited are: trust, national culture, logistical and technological integration and clarity of objectives. It should be noted that most of these enablers were identified in case studies conducted in different industries.

All the papers have considered these enablers from a static point-of-view, except for Alvarez *et al.* (2010), who analysed the evolution of governance mechanisms and their enablers in a sustainability project. Alvarez *et al.* (2010) found that the governance mechanisms used to extend sustainability throughout the supply chain should not be treated as a fixed element but rather as an adaptable one. The company they analysed had informal mechanisms in a first stage, and formal monitoring in a second one. The key enablers of these two mechanisms were different. In the first stage, the informal governance or coordination mechanisms relied basically on norms and trust. Also, top management's enthusiasm and support were key elements. However, the resources at this stage were difficult to quantify and were not clearly assigned to the project. In the second stage, the governance mechanisms were formalised and structured, and the key elements were clear objectives and responsibilities, and KPIs to monitor the performance of the different actors involved in the project.

Finally, one should note that most of the papers have considered the enablers without distinguishing between assessment and collaboration. There are only three papers that have studied the enablers of assessment on the one hand, and the enablers of collaboration on the other: Bowen *et al.* (2001), Vachon and Klassen (2006) and Large and Gimenez Thomsen (2011). Table V shows the enablers identified in these papers.

The managerial implications arising from these studies can be summarised as follows. A focal firm wishing to implement sustainable practices needs to have enough resources to develop the initiative and to ensure:

- It makes a clear commitment towards sustainability. This means having a clear policy statement that is operationalised in the firm through measures in its functional areas, and devoting the resources needed to implement these measures.
- It has senior management support for implementing the changes needed at the organisational and inter-organisational levels.

Table III Papers that analyse the enablers of sustainable SCM practices

Paper	Scope	Method	Practices Ass.	Practices Coll.	Results
Lamming and Hampson (1996)	G	Case	X	X	Standards, collaboration and supply base rationalisation are some of the practices used by companies to deal with environmental challenges. Key enablers are: senior management involvement, important role of the Purchasing function and commitment
Walton *et al.* (1998)	G	Case	X	X	Supplier evaluation and process improvement are the main areas to increase Purchasing's impact on environmental results. Key enablers are: availability of resources and purchasers' training
Murray (2000)	G	Case	X		Assessment used to improve suppliers' environmental performance. Communication and training of purchasing staff
Bowen *et al.* (2001)	G	Survey	X	X	Corporate environmental pro-activity and strategic level of Purchasing are the key to develop supply management capabilities, which enable collaboration. These capabilities are not needed for the assessment approach; assessment is developed by environmental pro-activity
Zhu and Sarkis (2004)	G	Survey		X	Quality management programs are very important forerunners to many Green SCM practices. The impact of external Green SCM on environmental and economic performance is higher for firms that have more thoroughly adopted quality management practices
Zhu and Sarkis (2006)	G	Survey		X	The firm's environmental mission and internal multinational policies are considered very important for Green Purchasing
Vachon and Klassen (2006)	G	Survey	X	X	Technological integration with suppliers and customers is linked to environmental assessment and collaboration, whereas logistical integration is only associated with assessment
Walker *et al.* (2008)	G	Case	Not covered		Although the paper focuses on the drivers of and barriers to Green SCM, one enabler emerging from the analysis is the role played by project leaders and value champions. They play a key role in incorporating environmental concerns in the buying process
Holt and Ghobadian (2009)	G	Survey	X	X	Environmental attitude is a key predictor of Green SCM activity. Implementation levels also seem to be moderated by organisational contingencies such as size and nationality. SME seem to face less pressure and adopt less green operational practices. Some aspects of national identity seem to influence the operational practices
Ciliberti *et al.* (2008)	CSR	Case	X	X	Barriers to transferring CSR practices: national culture, low customer interest, corruption and poor IT infrastructure. Trust and close relationship with supplier are needed in those firms that collaborate with suppliers
Keating *et al.* (2008)	CSR	Case	X	X	A "one-size-fits-all" approach to assess suppliers is inappropriate. It is advisable to distinguish between small and large suppliers. Internal support is identified as an enabler
Andersen and Skjoett-Larsen (2009)	CSR	Case	X	X	CSR has to be embedded in the organisation. The enablers identified are: knowledge enhancing mechanisms in focal firm and suppliers; performance measurement system; change agents; large size and resources; corporate history
Pagell and Wu (2009)	CSR	Case	X	X	They identified supplier certification and non-traditional supplier development as practices contributing to more sustainable supply chains. Key enablers of these practices are: Sustainability orientation, innovation capability, measurement systems, and performing well in operational metrics
Pedersen (2009)	CSR	Survey		X	CSR supply chain activities still remain the preserve of a small group of SMEs. Two characteristics that seem to facilitate their implementation are: size and sophistication of CSR systems (firms with multifaceted CSR systems are more likely to implement CSR activities in the supply chain). CSR at senior management level is not necessary
Alvarez *et al.* (2010)	CSR	Case	X	X	Governance mechanisms evolve. The case company had informal mechanisms in a first stage, and formal monitoring in a second one. In the first stage, key enablers were norms, trust and the enthusiasm and support of the top management; the resources were not clearly assigned to the project. In the second stage, the governance mechanisms were formalised and structured, with objectives and responsibilities and KPI clearly stated
Carsten *et al.* (2010)	CSR	Case	X	X	Supplier development facilitates supplier evaluation and vice versa. Available resources and top management support are key enablers
Large and Gimenez Thomsen (2011)	G	Survey	X	X	Collaboration and assessment are driven by the strategic level of the Purchasing department and the firm's environmental commitment. Whereas commitment influences assessment directly, its impact on collaboration is mediated by the Purchasing department capabilities

Table IV List of enablers

Enabler	Papers on Green SCM	Papers on CSR and SCM
Internal enablers		
Environmental commitment/ mission	Lamming and Hampson (1996) Bowen *et al.* (2001) Zhu and Sarkis (2006) Holt and Ghobadian (2009) Large and Gimenez Thomsen (2011)	Pagell and Wu (2009)
Corporate history		Andersen and Skjoett-Larsen (2009)
Senior management involvement/Senior management support	Lamming and Hampson (1996)	Keating *et al.* (2008) Alvarez *et al.* (2010) Carsten *et al.* (2010)
Availability of resources/firm's size	Walton *et al.* (1998) Holt and Ghobadian (2009)	Keating *et al.* (2008) Andersen and Skjoett-Larsen (2009) Pedersen (2009) Alvarez *et al.* (2010) Carsten *et al.* (2010)
Performing well in operational metrics		Pagell and Wu (2009)
Important role of Purchasing	Lamming and Hampson (1996) Bowen *et al.* (2001) Large and Gimenez Thomsen (2011)	
Purchasers' training/ Supply management capabilities	Walton *et al.* (1998) Murray (2000) Bowen *et al.* (2001) Large and Gimenez Thomsen (2011)	Andersen and Skjoett-Larsen (2009)
Innovation capability		Pagell and Wu (2009)
Project leader/ Change agents	Walker *et al.* (2008)	Andersen and Skjoett-Larsen (2009)
Performance measurement systems		Andersen and Skjoett-Larsen (2009) Pagell and Wu (2009)
Quality management practices	Zhu and Sarkis (2004)	
Multifaceted CSR practices		Pedersen (2009)
External enablers		
National culture	Holt and Ghobadian (2009)	Ciliberti *et al.* (2008)
Trust		Ciliberti *et al.* (2008) Alvarez *et al.* (2010)
Clear objectives		Alvarez *et al.* (2010)
Technological integration	Vachon and Klassen (2006) Borchardt *et al.* (2011)	
Logistical integration	Vachon and Klassen (2006)	

Table V List of enablers considering assessment and collaboration

		Assessment	Collaboration
Internal enablers			
Bowen *et al.* (2001)	Environmental commitment	X	X (indirect, through SMC)
	Strategic level of Purchasing		X (indirect, through SMC)
	Supply management capabilities (SMC)		X
Large and Gimenez Thomsen (2011)	Environmental commitment	X	X (indirect, through SMC)
	Strategic level of Purchasing	X	X
	Supply management capabilities (SMC)		X
External enablers			
Vachon and Klassen (2006)	Technological integration	X	X
	Logistical integration	X	

- It recognises the strategic position of the purchasing function within the firm. It is essential that purchasing forms part of the strategic planning process.
- It develops the supply management capabilities of purchasing staff so that they can effectively assess and work with the firm's suppliers.
- It adapts the performance measurement systems of functional areas (especially purchasing) in order to foster new and sustainable SCM practices.

A final managerial implication is that the role and importance of these enablers in different stages may differ.

Some further lines of research that have been identified after the review of these articles are:

- Few papers considered the enablers of assessment on the one hand and the enablers of collaboration on the other. The results by Bowen *et al.* (2001) and Large and Gimenez Thomsen (2011) suggest that different factors may contribute to the implementation of each approach. Further research should explore this.
- Most of the papers focused on internal enablers. Further research should investigate the role of supply chain characteristics in the implementation of both approaches.
- Most of the enablers emerged from exploratory case studies. Further research should try to generalise these findings with bigger samples.
- The survey-based studies were mainly on enablers of environmental practices. Further survey-based research should look at the factors facilitating implementation of both environmental and social practices.
- Most of the papers considered the enablers of governance mechanisms from a static point of view. The dynamic approach adopted by Alvarez *et al.* (2010) should be adopted in future research.

Extending sustainable practices to suppliers: an integrative framework

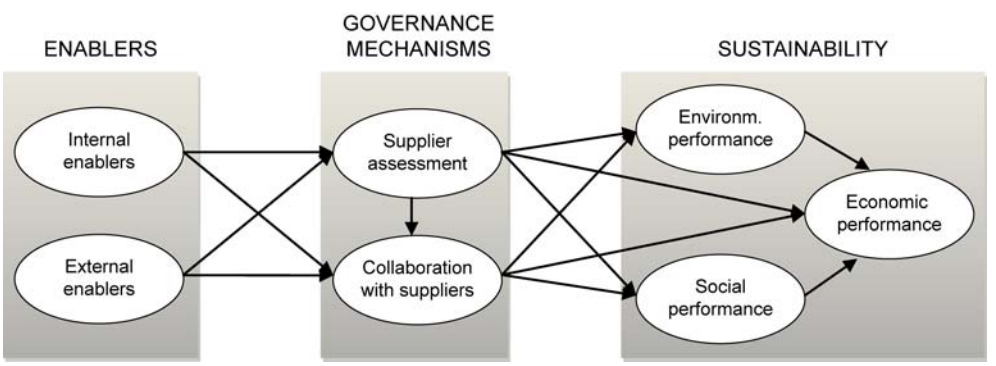
From the analysis conducted in the previous sections, the following framework can be derived (see Figure 2). Two different governance mechanisms or approaches to greening suppliers and improving sustainable performance have been identified: supplier assessment and collaboration with suppliers. Several papers have analysed the contribution of these approaches to improving environmental and/or social performance and few studies have considered their impact on environmental and economic performance. However, despite the importance of considering the three dimensions of sustainability, we have not found any study that analyses their impact on the three pillars of the triple bottom line. Our framework includes all possible relationships between these two approaches and each dimension of the triple bottom line. As pointed out, this framework has been partially tested in different studies but further research should consider all these relationships in a single study.

Our framework also includes other relationships among the governance mechanisms, on the one hand, and among the performance dimensions, on the other. Applying the supplier development model of Krause *et al.* (2000), our framework includes a relationship between assessment and collaboration, as the impact of assessment on the triple bottom line may be mediated by collaboration. Also, because the impact of assessment and/or collaboration on economic performance may be mediated by social and environmental performance our framework also includes a relationship between environmental and economic performance (based on the results of Rao, 2002) and a relationship between social and economic performance.

Our framework also encompasses different factors (i.e. enablers) that assist firms in the extension of sustainability to suppliers. These factors could be internal to the firm (e.g. environmental commitment) or external (e.g. trust). Based on the results of Bowen *et al.* (2001) and Large and Gimenez Thomsen (2011), our framework includes relationships between the internal enablers and each approach. Similarly, based on the results of Vachon and Klassen (2006) our framework considers relationships between the external enablers and each approach.

The main contribution of our integrative framework is that it considers the following three types of constructs: approaches or governance mechanisms to greening suppliers, their impact on sustainable performance (environmental, social and economic) and the enablers of these approaches. Only six papers in the literature review conducted consider these three types of constructs. Zhu and Sarkis (2004) analysed the impact of Green SCM on environmental and economic performance and the role of quality management practices as forerunners to many Green SCM practices; however, they did not analyse the effect of each approach (assessment and collaboration) on sustainable performance. Walton *et al.* (1998), Keating *et al.* (2008), Pagell and Wu (2009) and Carsten *et al.* (2010) conducted case studies to analyse the impact of assessment and collaboration on environmental and/or social performance; however, when analysing the enablers they did not consider that some of them may enable assessment while other factors

Figure 2 Extending sustainability to suppliers



may be required to implement a collaborative approach. Finally, Large and Gimenez Thomsen (2011) analysed the impact of each approach on environmental performance and considered different enablers for each approach; however, they did not include external enablers, possible relationships between the mechanisms or the other pillars of the triple bottom line. Our literature review and integrative framework integrates the results of these and other previous studies to provide some managerial guidelines and lines for further research.

Most of the study on supply chain governance mechanisms rests on the analysis of dyadic relationships (Provan *et al.*, 2010). Although most of the papers reviewed are based on this type of relationship (with the exception of Klassen and Vachon, 2003; Vachon and Klassen, 2006; Vachon, 2007; Vachon and Klassen, 2008; Alvarez *et al.*, 2010), our integrative framework is applicable to networks: it can be applied upstream (with suppliers of materials, information and services) and downstream (with suppliers of logistics services, such as third party logistics providers). Furthermore, our framework can be applied to contexts that consider a buying company and several suppliers (like the network considered by Alvarez *et al.*, 2010). In summary, the practices and governance structures considered in our framework are applicable to supply networks and not only to specific buyer-supplier dyadic relationships.

Conclusions

Despite many multinational corporations' efforts to implement social and environmental issues in their supply chains, a gap exists between the desirability of supply chain sustainability in theory and its implementation in practice (Bowen *et al.*, 2001). This study has tried to fill this gap by providing a summary of the existing knowledge on the mechanisms firms use to make their supply chains more sustainable.

Regarding the governance mechanisms, the main conclusion is that both supplier assessment and collaboration with suppliers seem to have a positive impact on environmental performance and CSR. However, the most recent research seems to indicate that assessment alone is not sufficient. The main managerial implication is that firms need to be able to adopt both approaches. Assessment may be the first step to identify what actions are needed; however, firms need to engage in collaborative practices with the firms in their supply networks to improve sustainability. There are still some aspects that need further study: the relationship between assessment and collaboration; whether a threshold value of environmental performance needs to be reached before the economic benefits derived from these practices are seen; and the impact of these practices on the triple bottom line.

Our study also identified two types of enablers: internal (such as the firm's environmental commitment, senior management support and the availability of resources) and external (such as trust and clarity objectives in the buyer-supplier relationship). The main managerial implication is that having a clear statement on sustainability is not enough. To extend sustainability along the supply network firms need to: devote the required resources and management support; develop the supply management capabilities of Purchasing staff; and adopt the appropriate performance measurement systems. There are, however, some aspects that remain unclear: the relative effect of each of these enablers on the different approaches; and the role of the supply chain relationship in the implementation of both approaches (i.e. what characteristics of a supply chain relationship enable these practices).

Despite its contribution, this study has some limitations. Firstly, it does not consider papers in progress, or studies that are not in the databases mentioned in the methodology section. Relevant knowledge concerning this topic may be found in conference papers, textbooks or PhD theses. Secondly, although we believe that the right search terms have been used, the choice of these terms could also be a further limitation of this study. It may be that other articles covering this topic exist under different labels. Finally, the selection of the articles included could be considered subjective, although the papers were reviewed by two researchers.

References

Alvarez, G., Pilbeam, C. and Wilding, R. (2010), "Nestlé Nespresso AAA sustainable quality program: an investigation into the governance dynamics in a multi-stakeholder supply chain network", *Supply Chain Management: An International Journal*, Vol. 15 No. 2, pp. 165-82.

Andersen, M. and Skjoett-Larsen, T. (2009), "Corporate social responsibility in global supply chains", *Supply Chain Management: An International Journal*, Vol. 14 No. 2, pp. 75-86.

Borchardt, M., Wendt, M.H., Pereira, G.M. and Selitto, M.A. (2011), "Redesign of a component based on ecodesign practices: environmental impacts and cost reduction achievements", *Journal of Cleaner Production*, Vol. 19 No. 1, pp. 49-57.

Bowen, F., Cousins, P., Lamming, R. and Faruk, A. (2001), "The role of supply management capabilities in green supply", *Production and Operations Management*, Vol. 10 No. 2, pp. 174-89.

Carsten, R., Foerstl, K., Hartmann, E. and Blome, C. (2010), "Sustainable global supplier management: the role of dynamic capabilities in achieving competitive advantage", *Journal of Supply Chain Management*, Vol. 46 No. 2, pp. 45-63.

Carter, C.R. and Rogers, D.S. (2008), "A framework of sustainable supply chain management: moving toward new theory", *International Journal of Physical Distribution & Logistics Management*, Vol. 38 No. 5, pp. 360-87.

Ciliberti, F., Pontrandolfo, P. and Scozzi, B. (2008), "Investigating corporate social responsibility in supply chains: a (sic) SME perspective", *Journal of Cleaner Production*, Vol. 16 No. 15, pp. 1579-88.

Ciliberti, F., de Groot, G., de Haan, J. and Pontrandolfo, P. (2009), "Codes to coordinate supply chains: SMEs' experiences with SA8000", *Supply Chain Management: An International Journal*, Vol. 14 No. 2, pp. 117-27.

Denyer, D. and Tranfield, D. (2009), "Producing a systematic review", in Buchanan, D. and Bryman, A. (Eds), *The Sage Handbook of Organizational Research Methods*, Sage Publications, London, pp. 671-89.

Elkington, J. (1998), *Cannibals with Forks: The Triple Bottom Line of the 21st Century*, New Society Publishers, Stoney Creek, CT.

Faruk, A., Lamming, R., Cousins, P. and Bowen, F. (2002), "Analyzing, mapping and managing environmental impacts along supply chains", *Journal of Industrial Ecology*, Vol. 5 No. 2, pp. 13-36.

Foerstl, K., Reuter, C., Hartmann, E. and Blome, C. (2010), "Managing supplier sustainability risks in a dynamically changing environment – sustainable supplier management in the chemical industry", *Journal of Purchasing and Supply Management*, Vol. 16 No. 2, pp. 118-30.

Geffen, C. and Rothenberg, S. (2000), "Suppliers and environmental innovation: the automotive paint process", *International Journal of Operations & Production Management*, Vol. 20 No. 2, pp. 166-86.

Green, K., Morten, B. and New, S. (1998), "Green purchasing and supply policies? Do they improve companies' environmental performance?", *Supply Chain Management: An International Journal*, Vol. 3 No. 2, pp. 89-95.

Hart, S.L. (1995), "A natural-resource-based view of the firm", *Academy of Management Review*, Vol. 20 No. 4, pp. 986-1014.

Holt, D. and Ghobadian, A. (2009), "An empirical study of green supply chain management practices amongst UK manufacturers", *Journal of Manufacturing Technology Management*, Vol. 20 No. 7, pp. 933-56.

Jiang, B. (2009a), "The effects of interorganizational governance on supplier's compliance with SCC: an empirical examination of compliant and non-compliant suppliers", *Journal of Operations Management*, Vol. 27 No. 4, pp. 267-80.

Jiang, B. (2009b), "Implementing supplier codes of conduct in global supply chains: process explanations from theoretic and empirical perspectives", *Journal of Business Ethics*, Vol. 85 No. 1, pp. 77-92.

Keating, B., Quazi, A., Kriz, A. and Coltman, T. (2008), "In pursuit of a sustainable supply chain: insights from Westpac Banking Corporation", *Supply Chain Management: An International Journal*, Vol. 13 No. 3, pp. 175-9.

Klassen, R.D. and Vachon, S. (2003), "Collaboration and evaluation in the supply chain: the impact on plant-level environmental investment", *Production and Operations Management*, Vol. 12 No. 3, pp. 336-52.

KPMG (2008), "KPMG International Survey of Corporate Responsibility Reporting 2008", available at: www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/Pages/Sustainability-corporate-responsibility-reporting-2008.aspx (accessed 6 September 2010).

Krause, D. (1999), "The antecedents of buying firms' efforts to increase suppliers' performance", *Journal of Operations Management*, Vol. 17 No. 2, pp. 205-24.

Krause, D., Scannell, T. and Calantone, R. (2000), "A structural analysis of the effectiveness of buying firms' strategies to improve supplier performance", *Decision Sciences*, Vol. 31 No. 1, pp. 33-55.

Krueger, D.A. (2008), "The ethics of global supply chains in China – convergences of East and West", *Journal of Business Ethics*, Vol. 79 No. 1, pp. 113-20.

Kytle, B. and Ruggie, J.G. (2005), *Corporate Social Responsibility as Risk Management*, John F. Kennedy School of Government, Harvard University, Boston, MA.

Lamming, R. and Hampson, J. (1996), "The environment as a supply chain management issue", *British Journal of Management*, Vol. 7 No. 1, pp. 45-62.

Large, R.O. and Gimenez Thomsen, C. (2011), "Drivers of green supply management performance: evidence from Germany", *Journal of Purchasing and Supply Management*, Vol. 17 No. 3, pp. 176-84.

Lee, S. and Klassen, R.D. (2008), "Drivers and enablers that foster environmental management capabilities in small- and medium-sized suppliers in supply chains", *Production and Operations Management*, Vol. 17 No. 6, pp. 573-86.

Lim, S. and Phillips, J. (2008), "Embedding CSR values: the global footwear industry's evolving governance structure", *Journal of Business Ethics*, Vol. 81 No. 1, pp. 143-56.

Murray, J.G. (2000), "Effects of a green purchasing strategy: the case of Belfast City Council", *Supply Chain Management: An International Journal*, Vol. 5 No. 1, pp. 37-44.

Pagell, M. and Wu, Z. (2009), "Building a more complete theory on sustainable supply chain management using case studies from 10 exemplars", *Journal of Supply Chain Management*, Vol. 45 No. 2, pp. 37-56.

Pedersen, E.R. (2009), "The many and the few: rounding up the SMEs that manage CSR in the supply chain", *Supply Chain Management: An International Journal*, Vol. 14 No. 2, pp. 109-16.

Ponte, S. and Gibbon, P. (2005), "Quality standards, conventions and the governance of global value chains", *Economy and Society*, Vol. 34 No. 1, pp. 1-31.

Provan, K.G., Fish, A. and Sydow, J. (2010), "Interorganizational networks at the network level: a review of the empirical literature on whole networks", *Journal of Management*, Vol. 33 No. 3, pp. 479-516.

Rao, P. (2002), "Greening the supply chain: a new initiative in South East Asia", *International Journal of Operations and Production Management*, Vol. 22 No. 6, pp. 632-55.

Rao, P. and Holt, D. (2005), "Do green supply chains lead to competitiveness and economic performance?", *International Journal of Operations & Production Management*, Vol. 25 No. 9, pp. 898-916.

Raynolds, L. (2004), "The globalization of organic agro-food networks", *World Development*, Vol. 32 No. 5, pp. 725-43.

Raynolds, L. (2009), "Meanstreaming Fair Trade coffee: from partnership to traceability", *World Development*, Vol. 37 No. 6, pp. 1083-93.

Raynolds, L. and Murray, D. (2007), "Fair trade: contemporary challenges and future prospects", in Raynolds, L., Murray, D. and Wilkinson, J. (Eds), *Fair Trade: The Challenges of Transforming Globalization*, Routledge, Abingdon, pp. 223-34.

Schliephake, K., Stevens, G. and Clay, S. (2009), "Making resources work more efficiently – the importance of supply chain partnerships", *Journal of Cleaner Production*, Vol. 17 No. 14, pp. 1257-63.

Seuring, S. and Muller, M. (2008), "From a literature review to a conceptual framework for sustainable supply chain management", *Journal of Cleaner Production*, Vol. 16 No. 15, pp. 1699-710.

Simpson, D., Power, D. and Samson, D. (2007), "Greening the automotive supply chain: a relationship perspective", *International Journal of Operations & Production Management*, Vol. 27 No. 1, pp. 28-48.

Spence, L. and Bourlakis, M. (2009), "The evolution from corporate social responsibility to supply chain responsibility: the case of Waitrose", *Supply Chain Management: An International Journal*, Vol. 14 No. 4, pp. 291-302.

Starik, M. and Rands, G.P. (1995), "Weaving an integrated web: multilevel and multisystem perspectives of ecologically sustainable organizations", *Academy of Management Review*, Vol. 20 No. 4, pp. 908-35.

Strand, R. (2009), "Corporate responsibility in Scandinavian supply chains", *Journal of Business Ethics*, Vol. 85 No. 1, pp. 179-85.

Svensson, G. (2007), "Aspects of sustainable supply chain management (SSCM): conceptual framework and empirical example", *Supply Chain Management: An International Journal*, Vol. 12 No. 4, pp. 262-6.

Theyel, G. (2001), "Customer and supplier relations for environmental performance", *Greener Management International*, Vol. 35 No. 3, pp. 61-9.

Tranfield, D., Denyer, D. and Smart, P. (2003), "Towards a methodology for developing evidence-informed management knowledge by means of systematic review", *British Journal of Management*, Vol. 14 No. 3, pp. 207-22.

Vachon, S. (2007), "Green supply chain practices and the selection of environmental technologies", *International Journal of Production Research*, Vol. 45 No. 18, pp. 4357-79.

Vachon, S. and Klassen, R.D. (2006), "Extending green practices across the supply chain", *International Journal of Operations & Production Management*, Vol. 26 No. 7, pp. 795-821.

Vachon, S. and Klassen, R.D. (2008), "Environmental management and manufacturing performance: the role of collaboration in the supply chain", *International Journal of Production Economics*, Vol. 111 No. 2, pp. 299-315.

Walker, H., Di Sisto, L. and McBain, D. (2008), "Drivers and barriers to environmental supply chain management practices: lessons from the public and private sectors", *Journal of Purchasing and Supply Management*, Vol. 14 No. 1, pp. 69-85.

Walton, S.V., Handfield, R.B. and Melnyk, S.A. (1998), "The green supply chain: integrating suppliers into environmental management processes", *International Journal of Purchasing and Materials Management*, Vol. 34 No. 2, pp. 2-11.

World Commission on Environment and Development (1987), *Our Common Future*, Oxford University Press, New York, NY.

Yu, X. (2008), "Impacts of corporate code of conduct on labour standards: a case study of Reebok's athletic footwear supplier factory in China", *Journal of Business Ethics*, Vol. 81 No. 3, pp. 513-29.

Zhu, Q. and Sarkis, J. (2004), "Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises", *Journal of Operations Management*, Vol. 22 No. 3, pp. 265-89.

Zhu, Q. and Sarkis, J. (2006), "An inter-sectoral comparison of green supply chain management in China: drivers and practices", *Journal of Cleaner Production*, Vol. 14 No. 5, pp. 472-86.

Zhu, Q. and Sarkis, J. (2007), "The moderating effects of institutional pressures on emergent green supply chain practices and performance", *International Journal of Production Research*, Vol. 25 Nos 18/19, pp. 4333-55.

Zhu, Q., Sarkis, J. and Geng, Y. (2005), "Green supply chain management in China: pressures, practices and performance", *International Journal of Operations & Production Management*, Vol. 25 No. 5, pp. 449-68.

Zhu, Q., Sarkis, J. and Lai, K. (2007a), "Initiatives and outcomes of green supply chain management implementation by Chinese manufacturers", *Journal of Environmental Management*, Vol. 85 No. 1, pp. 179-89.

Zhu, Q., Sarkis, J. and Lai, K. (2007b), "Green supply chain management: pressures, practices and performance within the Chinese automobile industry", *Journal of Cleaner Production*, Vol. 15 Nos 11/12, pp. 1041-52.

Further reading

Carter, C.R. (2000), "Ethical issues in international buyer-suppliers relationships: a dyadic examination", *Journal of Operations Management*, Vol. 18 No. 2, pp. 191-208.

Kovacs, G. (2008), "Corporate environmental responsibility in the supply chain", *Journal of Cleaner Production*, Vol. 16 No. 15, pp. 1571-8.

Vasileiou, K. and Morris, J. (2006), "The sustainability of the supply chain for fresh potatoes in Britain", *Supply Chain Management: An International Journal*, Vol. 11 No. 4, pp. 317-27.

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