

# **Social issues in sustainable supply chain networks: state of the art and further research directions**

**Abstract ID: 117**

**I. Borrella, R. Carrasco-Gallego, J. Moreno, C. Mataix**  
**Technical University of Madrid**  
**Spain**

## **Abstract**

The study of supply networks sustainability is a field with a long path behind. Nonetheless, most studies to date are focused on the environmental sub dimension of sustainability, while the social perspective in supply chain networks research still shows a potential for pioneering contributions. Moreover, from the development standpoint we have observed a paradigm shift advancing from a narrow concept of development, centered on purely economic dimensions, towards more refined issues such as inclusive business, shared value or poverty footprint, all of which are highly related to supply chain activities. In this paper we present a review of the current state of the art on social sustainability of supply chains and we identify the main existing trends in this field. After conducting this study, we can state that a new sphere of knowledge is emerging at the interface between sustainable supply chain networks and development research. The academic community is called to play an important dovetailing role in this scenario by advancing both conceptual and methodological contributions.

## **Keywords**

Sustainable supply chain networks, social issues, literature review.

## **1. Introduction**

This paper explores the treatment of social issues in sustainable supply chains. The research is framed within the sustainable supply chain discourse [1–3].

Sustainable development is a concept introduced by the Brundtland Commission in 1987 [4] and it emphasizes the interdependence among social, economic and environmental factors. Elkington underlined this interdependence in 1998, creating the “triple bottom line” concept [5]. However, the work on supply chain sustainability within the operations management community has largely been focused on environmental concerns for a long time.

Currently, a willingness to integrate the three dimensions of sustainability is being observed. An increasing interest in social matters related to supply chains has been fostered by factors such as global competition, outsourcing to developing countries, competition between supply chains (rather than between companies), stakeholders increasing pressure, social demand for transparency and responsibility and a growing influence of socially responsible investment.

Supply chains as they were understood some years ago have evolved into modern supply networks, constituted by complex webs built up around suppliers’ and customers’ alliances, intricate materials, financial and IT-supported information flows and a wide range of contractual relationships [6]. In these complex networks, the responsibilities of each agent are diluted, whereas multinational corporations and brand owners have usually been appointed by society as the entities accountable for the negative impacts their supply networks produce on the environment and society.

This is a big challenge for multinational companies and brand-owners, which now are urged to control what happens throughout the entire supply network. This is not an easy task, as the information asymmetry increases due to the need of measuring intangible features (social and environmental) in addition to the economical and purely

managerial ones. The complexity and the costs of controlling many suppliers (especially when they are valued according to intangible attributes) are very high [7]. Good governance is therefore important in order to reduce the risk of scandals in supply networks, which could harm the main firms' reputation, sales and/or market share [8]. Well-known cases are the Nike and Adidas Asian suppliers' improper practices discovered and publicized by NGOs in the 90's, which led to a worldwide discredit campaign against these firms. Regaining a company's reputation is not only time-consuming but also an expensive activity [9].

Companies are beginning to realize the great importance of guaranteeing the accomplishment of standards along their supply networks, not only quality standards but also others linked to responsible behavior. Firms choose such an approach because of their corporate citizenship, as part of their risk management strategy or as a marketing tool. It is becoming increasingly common to find enterprises that demand the accomplishment of certain codes of conduct to their suppliers.

This movement towards social sustainability of supply chains has only been timidly reflected in the literature. Though the supply chain field and the human development field have both approached the subject from different perspectives, they are arriving to common points. Concepts like corporate social responsibility in supply chains [10–12], shared value [13], inclusive business [14], social footprint [15] or poverty footprint [16] show the increasing importance given to this issue in the academic world.

To the best of our knowledge, no exhaustive literature review on the social aspects of supply chain sustainability has been made so far. This paper will try to fill this gap by identifying what has been said in the field of social sustainability of supply chains.

It is important to underline that, up to date, most works from the development standpoint have been conducted by practitioners and experts and shallowly published in scientific sources. When structured keyword searches in scientific databases are performed combining the terms "poverty", "human development", "local communities" or "vulnerability" with "supply chain" or "supply networks" few relevant results can still be found. Therefore, bibliometric techniques on this paper will be focused on the "supply chain sustainability" scope.

This paper will be structured as follows: Section 2 will introduce the methodology followed in the literature review. Next, in Section 3, a descriptive analysis of the information found is carried out. Section 4 presents a proposal of classification of this information. Concluding remarks and future research propositions form Section 5, the last section of this paper.

## **2. Research objectives and methodology**

The main objective of this paper is to review the literature in order to present what has been said about social impacts and issues in supply chain management. A classification of the main existing research trends is proposed afterwards, in order to summarize the research in this field.

The research methodology followed to carry out the literature review is based on the chapter 39 of the book "The SAGE Handbook of organizational research methods" written by Denyer and Tranfield [17]. The methodology proposed by Denyer and Tranfield contains:

- Question formulation and study scope
- Location of studies
- Study selection and evaluation
- Analysis and synthesis
- Reporting and using the results

The research we present in this paper has been designed according to this five-step methodology. First, the research question was formulated and the scope of the research was defined. The research question of the study was formulated as follows: "To what extent has the supply chain literature dealt with issues related to social sustainability?". In order to delimit this study, the research aimed at papers related to supply chain issues in peer-reviewed scientific journals in English. Papers with a technical or a political sciences focus were initially excluded, as well as books and practitioners' documents, although finally some of them were considered due to cross-reference

sourcing. Many interesting non-academic initiatives have been found in the practitioners' field, but this paper seeks to reveal the scientific knowledge on the subject.

Secondly, studies related to the research question were located and the most relevant were selected and evaluated. A structured keyword search in major databases was carried out. ISI Web of Knowledge, Scopus and Google Scholar were the mayor databases used to search for related articles. After a quick content check, articles were selected and analyzed, leading to the identification of five special issues in well-known magazines of the supply chain field focused on sustainable supply chain management. A deeper analysis was conducted on those special issues, selecting the papers that dealt with social issues. The references cited in the selected papers were used as a second source

Next, all the information was analyzed and synthesized. The analysis was carried out applying bibliometric techniques. As a synthesis, a classification of the existing literature on the subject was proposed. This paper presents the main findings of this study.

### **3. Descriptive analysis**

Publications related to sustainability in the supply chain field have increased considerably during the last decade. The sustainable supply chain management studies are focused either on environmental issues, on social issues, or on both of them. Some papers even study the trade-offs between the three branches of sustainability: economical, social and environmental.

Structured keyword searches in several databases have shown an escalation of the number of publications relating supply chain and sustainability. However, the study of environmental issues in supply chain management has experienced noticeably faster growth than socially focused research. The main reason for the existence of this gap is that the sustainability field has been identified only with environmental impacts for many years. Therefore, environmental concerns have been the focus of supply chain sustainability research while social issues have been pushed into the background.

The results showed in Figure 1 corroborate last paragraph statements. However, Figure 1 also demonstrates that social dimensions of sustainability have started to get the attention of research agendas from 2007, gaining momentum in recent years.

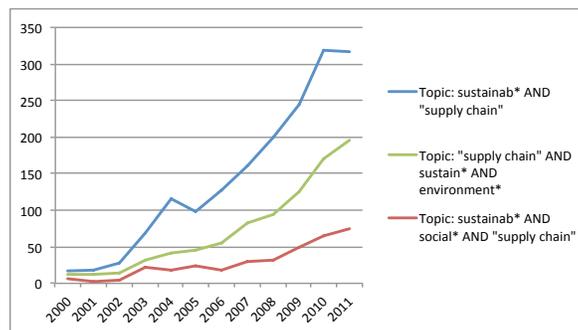


Figure 1: SCOPUS database answers to different search strings, distributed per year since 2000.

An earlier growth can be observed for the papers relating supply chain, sustainability and environment. Around the year 2005, the curve representing the number of published papers in this field clearly increases its slope but social focused papers kept a low rate of apparition until more recent years. An increase in the number of these publications can be observed from 2007, and it has continuously incremented in the following years. This clearly reveals how the interest on the subject has recently grown within the academic community.

The structured keyword searches led to the finding of five special issues on sustainable supply chain management. These special issues were published in: International Journal of Production Economics 111 (2), International Journal of Production Research 45 (18-19), Journal of Operations Management 25 (6), Journal of Cleaner Production 16 (15), Supply Chain Management: An International Journal 14 (2). All five of them were analyzed in depth for this

study. These special issues were published between 2007 and 2009, coinciding with the sudden increase of publications referring to social issues within the supply chain management field. This rise in the number of articles on supply chains' social sustainability was clearly fostered by the call for papers of the special issues published in 2007.

A quantitative analysis of the contents of the special issues is shown in Figure 2.

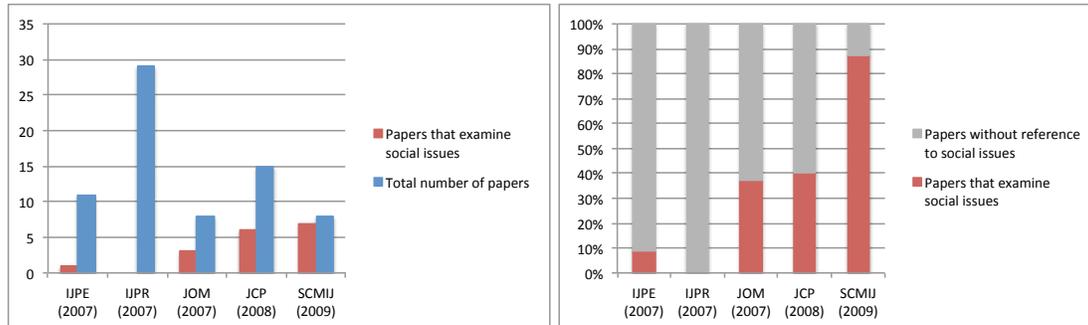


Figure 2: Number of papers related to social topics compares with the total of papers within each special issue.

It is important to point out that the papers classified as “social” in these special issues are not necessarily focused only on social aspects of supply chain. The papers considered related to social field are the ones alluding to these issues or dedicate them some section of the publication. In fact, there are several articles that approach both social and environmental issues.

We have noticed no social paper was included in the IJPR special issue. This was due to the emphasis given by the editors to the environmental dimension. Sustainability was solely understood as environmental sustainability, as can be remarked in the introduction of the issue [18], which talks only about environmental impacts, energy conservation and waste minimization, and considers green supply chains as a synonym of sustainable supply chains.

On the other hand, the JCP special issue presents 6 social related papers out of 15. In the introduction to the special issue it is pointed out that a concerted effort was made to “broaden the perspective to incorporate sustainability” [19]. It encouraged researchers to go beyond the environmental approach and incorporate social issues in their studies, as well as the trade-off dilemmas between the three pillars of sustainability.

#### 4. Discussion

After reviewing the literature, we found out that there was a great amount of different subjects that were considered to fall on the social branch of supply chain sustainability. We realized most of the topics that do not fit in the other categories of sustainability (economical or environmental) end up being included in the “social hodgepodge”. In order to clarify the main trends in the socially focused sustainable supply chain field, we have developed a classification proposal, which is the main result presented in this paper.

This categorization consists of three main parts:

- Social impacts and measuring
- Standards and codes of conduct
- Poverty and local communities

We do not consider papers treating issues like ethical constructs of purchasing, troubles caused by retailers' distribution, or public procurement policies belong to the field of social sustainability supply chain management.

##### 4.1 Social impacts and measuring

The meaning of “social impact” is not yet well defined. There are two main literature trends that raise the subject: Corporate Social Responsibility (CSR) reporting and life cycle assessment (LCA).

The field of CSR presents different approaches to what social impacts are. For example, McElroy et al. [15] propose that any activity that has an effect on the anthro capital, is producing a social footprint (or social impact). Anthro capital is defined as non-financial capital, which consists of resources that people rely on in order to preserve or produce well-being. Lozano and Huisingh [20] classify social impacts according to the stakeholders involved, and emphasize the inter-linking nature of the three dimensions of sustainability, stating that the three categories should not be treated separately.

On the other hand, the field of life cycle assessment (LCA) has developed a new branch that incorporates social parameters, and the term “societal life cycle assessment” has been coined [21]. This research line focuses on adapting LCA methodology to measure not only environmental, but also social impacts throughout the supply chain. It stresses the interdependence among social, economic and environmental factors as the core of sustainability. Some authors declare that LCA fails to evaluate sustainability while it does not take into account social concerns [21, 22]. Hutchkins and Sutherland [24] consider the big changes happening in supply management, like the move from chains to networks, from adversarial relationships with suppliers to strategic partnerships and from an environmentally focused sustainability to a more holistic approach (including social issues); and propose indicators to evaluate social performance in these modern supply chain networks. In this paper, Millenium Development Goals [25] are the reference to define what social impacts are.

#### **4.2 Standards and codes of conduct**

How to manage supply chains to guarantee sustainability is one of the questions supply chain managers ask themselves. The sustainability in social terms is difficult to achieve because, as we just observed, social impacts are not even well defined yet. However, academic and practitioner communities have worked on the design and implementation of standards and codes of conduct applicable to supply chains.

Standards and codes of conduct linked to sustainability usually contain both environmental and social requirements or recommendations. In this paper, we have restricted our study to standards that consider social dimensions: UN Global Compact, GRI Guidelines, AA1000, SA8000 and ISO26000 are some of the best-known.

Nonetheless, sometimes global standards (like those mentioned above) are often not specific enough to be useful. For instance, when applied to highly dynamic industries (such as electronics industry) or to some particular sectors (such as the food sector) [11, 24], groups of companies can establish sets of standards which suit better their own context. In other cases, companies just use their own-developed code of conduct to apply to their supply chain (this is, for example, the case of IKEA [12]).

Firms use codes of conduct and standards as a tool for risk management, but also as a marketing instrument, in order to differentiate themselves from competitors in the market. Some authors proclaim codes of conduct can help a company to improve the information flows through the supply chain, building trust among different players and facilitating coordination [7].

Papers about codes and standards can be categorized in two groups: the ones which discuss the contents of the code and its level of adoption [26–28]; and the ones which deal with the way of implementing the code throughout the supply chain (suppliers acceptance) [10], [27, 28].

Globalization has caused the diffusion of supply chains to developing countries. Hazardous working conditions, child labor, low wages and excessive working hours in factories of these countries have lead to big scandals, consequences being suffered by the international companies which sourced from them [9], [25], [29]. Therefore, social issues considered in codes of conduct and international standards have been mainly focused on workers well-being (labor conditions, safety in the workplace, gender equity, etc.). Some codes mention philanthropy and relationship with the local community, but this matter is usually pushed into the background in favor of workers human rights concerns.

#### **4.3 Poverty and local communities**

The first papers relating to poverty concerns and supply chain management were those belonging to the Fair Trade trend. Fair Trade promotes a trading system model which seeks to provide producers in developing countries with a living wage for their work. This is achieved through helping them to get access to international markets and to

develop the necessary business capacity to compete in the global marketplace [30, 31]. In order to get the Fair Trade certification, all supply chain agents must adhere to determined standards, related to fair benefit distribution along the chain, proper labor conditions and low environmental impacts. Fair Trade has been traditionally fostered by NGO and development agencies.

Recently, trading relationships between modern organizations and impoverished populations have been explored by scholars focused on the so-called “base of the pyramid” (BOP) [34–36]. BOP scholars suggest that poverty could be reduced by incorporating impoverished communities in sustainable supply chains through innovative business models. The poor could be integrated as clients, suppliers or retailers of global supply chains. This trend has mainly been addressed by the development literature (for example Bolwing et al. [37] propose a framework to integrate poverty concerns into value-chain analysis).

Most sustainable supply chain scholars acknowledge the importance of integrating poverty concerns in supply chain management, but few have explored how to provide opportunities for impoverished communities. However, some papers about the subject have been recently published in supply chain management magazines [36, 37]. Hall and Matos [38] underscore the difficulties of incorporating poor communities as suppliers, as they often lack basic business knowledge and capacity, and entrepreneurial dynamics within these communities remains largely unexplored. A need of actors capable of bridging the gap between impoverished communities and the next agents of the chain has been identified. Shodi and Tang [40] propose social enterprises to play the role of supply chain enablers for the poor. Social enterprises could facilitate access to credit, information, clients and suppliers, fostering the opportunities of these communities to become part of global and demanding supply chains.

## **5. Conclusion**

This study has provided an overview of the sustainable supply chain field, with a special focus on the social sub dimension of sustainability.

First, a literature review on social sustainability of supply chains has been carried out. This literature review has evidenced that there has been an exponential growth in the field of supply chain sustainability, but the study of social issues has been quite limited. The main reason is that research efforts have been directed towards the study of environmental matters, leaving social issues in the background. However, an increasing interest on the social field has been detected during the last few years. The number of publications dealing with social matters has been continuously increasing since 2007. Several authors stress the need of dedicating more research endeavours to this field.

The main trends in this specific domain have been identified and a classification of the literature has been proposed. The suggested categorization consists of: social impacts and measuring, codes and standards, and poverty and local communities.

Codes and standards for sustainability have been largely studied in the literature, especially in the literature related to CSR. In our globalized world, codes of conduct cannot be local anymore, but they must be applied throughout all the supply chain, entailing big challenges for dominant companies.

However, this literature review leads us to conclude that the meaning of “supply chain social impact” is not well defined yet, and it leads to confusion. This is the reason why we found a great variety of matters while researching on the social sustainability supply chain field. The concept needs to be clarified and a wide consensus in the supply chain community should be achieved. An agreement on what social impacts of supply chains are would foster the research in this field.

Supply chain implications on poverty alleviation can be numerous. Different scholars are beginning to approach the subject, and we have observed that there is one sphere of knowledge associated with supply management and another one linked to development issues. We think it is in the interface between both domains where social sustainability research should be focused when talking about supply chain activities in developing countries. Seuring et al. [19], in the introduction of the JCP special issue on sustainable supply chain management, show a concern about the little work in the field that has been done from and about developing countries. There is a need of filling this gap. Most modern supply networks have become international. Nowadays the majority of supply chains are linked to Asia, Africa or Latin America, either because of their supplies or because of their final sales. Competitive

prices attract foreign buyers, low salaries attract foreign (and boost local) industry and the raise of a numerous middle-income class is encouraging retailers. Tremendous opportunities exist to influence the way local enterprises in developing countries operate, but a previous step needs to be taken. First of all, the meaning of social impact of supply chains needs to be determined. The link with development literature will be the following step to fill the gap.

The academic community is called to play an important dovetailing role in this scenario by advancing both conceptual and methodological contributions. In our globalized world, the existing links between companies of different countries are numerous and unpredictable. Working on the three pillars of sustainability, economical, environmental and social, is not only an ethical duty but also a way to achieve (and maintain) the success of any firm.

The original contributions of this paper are therefore a literature review of a field that has not been very studied yet and a classification of the main trends. We have also identified a further research question related to the need of defining “social impacts” There is an opportunity to fill this gap by developing a common sphere of knowledge in the interface between development and sustainable supply chain research fields.

Future work might improve this study by deepening on the literature review, including other scientific fields as well as non-scientific sources. Other future lines of research could be taking a closer look on the categories which have been defined. Our line of research will continue on the interface between development and supply chain issues, we will try to determine which are the potential social impacts of supply chains in developing countries and how poverty can be alleviated through the incorporation of local communities into supply chains.

## References

1. Carter, C.R., and Jennings, M.M., 2004, “The role of purchasing in corporate social responsibility: a structural equation analysis”, *Journal of Business Logistics*, vol. 25, no. 1, p. 145.
2. Carter, C.R., and Easton, P.L., 2011, “Sustainable supply chain management: evolution and future directions”, *International Journal of Physical Distribution & Logistics Management*, vol.41, no.1, pp.46-62.
3. 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. 1699-1710, Oct.
4. Brundtland, G. H., 1987, “Our Common Future—Call for Action”, *Environmental Conservation*, vol. 14, no. 4, pp. 291-294, Dec.
5. Elkington, J., 1998, “Cannibals with forks: The triple bottom line of sustainability”, Gabriola Island: New Society Publishers.
6. Eltantawy, R.A., Fox, G.L., and Giunipero, L., 2009, “Supply management ethical responsibility: reputation and performance impacts”, *Supply Chain Management: An International Journal*, vol. 14, no. 2, pp. 99-108.
7. 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. 117-127.
8. Olson, D.L., and Wu, D.D., 2010, “A review of enterprise risk management in supply chain”, *Kybernetes*, vol. 39, no. 5, pp. 694–706.
9. Locke, R., and Romis, M., 2007, “Conditions in a Global Supply Chain Improving Work Conditions in a Global Supply Chain”, *MIT Sloan Management Review*, no. 48212.
10. 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. 109-116.
11. Maloni, M.J., and Brown, M.E., 2006, “Corporate Social Responsibility in the Supply Chain: An Application in the Food Industry”, *Journal of Business Ethics*, vol. 68, no. 1, pp. 35-52, Jul.
12. 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.
13. Porter, M.E., and Kramer, M.R., 2011, “The big idea: Creating shared value”, *Harvard business review*, vol. 89, no. 1-2.
14. United Nations Development Programme (UNDP), 2008, “Creating value for all: strategies for doing business with the poor”.
15. Mcelroy, M.W., Jorna, R.J., and Engelen, J.V., 2008, “Sustainability Quotients and the Social Footprint”, *Corporate Social Responsibility and Environmental Management*, vol. 234, no. 2007, pp. 223-234.

16. Clay, J.W., 2005, "Exploring the links between international business and poverty reduction: A case study of Unilever in Indonesia", Oxfam.
17. Denyer, D., and Tranfield, D., 2009, "Producing a systematic review", in *The Sage Handbook of Organizational Research Methods*, A. Buchanan, D. and Bryman, Ed. London: Sage Publications Ltd, pp. 671-89.
18. Clegg, A.J., and Rahimifard, S., 2007, "Aspects of sustainable design and manufacture", *International Journal of Production Research*, vol. 45, no. 18-19, pp. 4013-4019, Sep.
19. Seuring, S., Sarkis, J., Müller, M., and Rao, P., 2008, "Sustainability and supply chain management – An introduction to the special issue", *Journal of Cleaner Production*, vol. 16, no. 15, pp. 1545-1551, Oct.
20. Lozano, R., and Huisinigh, D., 2011, "Inter-linking issues and dimensions in sustainability reporting", *Journal of Cleaner Production*, vol. 19, no. 2-3, pp. 99-107, Jan.
21. Hunkeler, D., 2006, "Societal Life Cycle Assessment (Subject Editor: David Hunkeler) Societal LCA Methodology and Case Study", *International Journal*, vol. 11, no. 6, pp. 371-382.
22. O'Brien, M., Doig, A., and Clift, R., 1996, "Social and environmental life cycle assessment (SELCA)", *The International Journal of Life Cycle Assessment*, vol. 1, no. 4, pp. 231-237.
23. Matos, S., and Hall, J., 2007, "Integrating sustainable development in the supply chain: The case of life cycle assessment in oil and gas and agricultural biotechnology", *Journal of Operations Management*, vol. 25, no. 6, pp. 1083-1102, Nov.
24. Hutchins, M.J., and Sutherland, J.W., 2008, "An exploration of measures of social sustainability and their application to supply chain decisions", *Journal of Cleaner Production*, vol. 16, no. 15, pp. 1688-1698, Oct.
25. United Nations Millennium Summit, 2000, "United Nations Millennium Declaration", New York.
26. Lee, K.H., and Kim, J.W., 2009, "Current status of CSR in the realm of supply management: the case of the Korean electronics industry", *Supply Chain Management: An International Journal*, vol. 14, no. 2, pp. 138-148.
27. Emmelhainz, M.A., and Adams, R.J., 1999, "The apparel industry response to 'sweatshop' concerns: A review and analysis of codes of conduct", *Journal of Supply Chain Management*, vol. 35, no. 3.
28. Castka, P., and Balzarova, M., 2008, "ISO 26000 and supply chains—On the diffusion of the social responsibility standard", *International Journal of Production Economics*, vol. 111, no. 2, pp. 274-286, Feb.
29. Ciliberti, F., Pontrandolfo, P., and Scozzi, B., 2008, "Logistics social responsibility: Standard adoption and practices in Italian companies," *International Journal of Production Economics*, vol. 113, no. 1, pp. 88-106, May.
30. Ciliberti, F., Pontrandolfo, P., and Scozzi, B., 2008, "Investigating corporate social responsibility in supply chains: a SME perspective," *Journal of Cleaner Production*, vol. 16, no. 15, pp. 1579-1588, Oct.
31. Locke, R., Kochan, T., Romis, M., and Qin, F., 2007, "Beyond corporate codes of conduct: Work organization and labour standards at Nike's suppliers", *International Labour Review*, vol. 146, no. 1.
32. Mckone-sweet, K.E., 2004, "Lessons from a Coffee Supply Chain", *Supply Chain Management*, vol. 8, no. 7.
33. Kilian, B., Jones, C., Pratt, L., and Villalobos, A., 2006, "Is sustainable agriculture a viable strategy to improve farm income in Central America? A case study on coffee", *Journal of Business Research*, vol. 59, no. 3, pp. 322-330, Mar.
34. Prahalad, C., 2005, "The Fortune at the Bottom of the Pyramid", Pearson Education/Wharton School Publishing, pp. 401.
35. Karnani, A., 2005, "Misfortune at the Bottom of the Pyramid", *Greener Management International*, vol. 51, p. 99.
36. London, T., and Hart, S.L., 2004, "Reinventing strategies for emerging markets: beyond the transnational model", *Journal of International Business Studies*, vol. 35, no. 5, pp. 350-370.
37. Bolwig, S., Ponte, S., Toit, A., and Halberg, N., 2010, "Integrating Poverty and Environmental Concerns into Value-Chain Analysis: A Conceptual Framework," *Development Policy Review*, vol. 28, no. 2, pp. 173-194.
38. Hall, J., and Matos, S., 2010, "Incorporating impoverished communities in sustainable supply chains", *International Journal of Physical Distribution & Logistics Management*, vol. 40, no. 1/2, pp. 124-147.
39. Vachon, S., and Mao, Z., 2008, "Linking supply chain strength to sustainable development: a country-level analysis," *Journal of Cleaner Production*, vol. 16, no. 15, pp. 1552-1560, Oct.
40. Sodhi, M. S., and Tang, C. S., 2011, "Social enterprises as supply-chain enablers for the poor," *Socio-Economic Planning Sciences*, vol. 45, pp. 146-153, Apr.