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Sustainable supply chain management in developing countries: An analysis of the literature

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Abstract

The purpose of this paper is to present an analysis of the academic literature addressing Sustainable Supply Chain Management (SSCM) practices in developing countries. A systematic literature review method was adopted; selected papers were reviewed from 2000 to 2016 that matched our inclusion criteria. Common themes across the literature were identified covering four factors regarding the adoption of SSCM: drivers, barriers, mechanisms and outcomes. A conceptual model integrating these factors and based on institutional theory was advanced to explain the adoption of sustainability practices along supply chains in developing countries. The paper concludes by identifying gaps in the literature that require further research on this topic, particularly for the context of developing countries. To the best of our knowledge this is the first paper reviewing the existing research on SSCM in developing countries that includes both social and environmental dimensions.

Keywords: Supply chain, developing countries; CSR; sustainability; systematic literature review; content analysis

1. Introduction

Sustainable supply chain management (SSCM) is defined by Seuring and Müller (2008: 1700) as “the management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements”. Different authors emphasize different dimensions of sustainability. When dealing with environmental issues, companies and academics refer to green supply chain management or environmental management programmes that aim to reduce harmful

effects to the environment (Brik et al., 2013; Mathiyazhagan et al., 2015; Zhu and Sarkis, 2004). Environmental initiatives include moves towards green purchasing, resource efficiency, product design for the environment, waste management, eco-efficiency in operations and reverse logistics (Hsu et al., 2016; Sen, 2009). When seeking the integration of environmental concerns into supply chain management, coordination among actors in the supply chain has been found to be the key (Zhu et al., 2010). Social sustainability is associated primarily with labour conditions, well-being, quality of life, equality, diversity and connectedness, both within and outside the community (Mani et al., 2016), with an emerging research area on integration of the local community into supply chain activities (Bendul et al., 2016). Finally, the economic dimension is usually measured in terms of sales, market share, operational efficiency, and upgrading (Gimenez and Tachizawa, 2012; Marchi et al., 2013).

SSCM is a research area that has received increasing attention in the last decade. A number of reviews of the literature have been published with different foci, such as the definition and measurement of SSCM (Miemczyk et al., 2012; Seuring and Müller, 2008), their environmental impacts, green supply chain management (Fahimnia et al., 2015), and green purchasing (Appolloni et al., 2014); while others are focused on the social impacts of SSCM (Yawar and Seuring, 2015; Zorzini et al., 2015). Finally, some articles discuss both environmental and social effects (Ashby et al., 2012).

In total, since 1992 there have been more than 900 papers in the management literature dealing with sustainable supply chains, with the most influential works coming from a handful of scholars, mainly from Europe, the U.S. and some regions in Asia (Fahimnia et al., 2015). Since SSCM is a topic of global interest, the lack of non-Western and non-Asian originated research is perceived as a gap, as well as a source of discontent by suppliers from developing countries who feel underrepresented in business policies and strategies towards sustainability (Bartley, 2010; Ras et al., 2007). Whilst there is abundant work on SSCM in the management and supply chain literature, it has been pointed out that this research does not adequately deal with the specific issues of SSCM in developing countries (Fahimnia et al., 2015; Khalid et al., 2015).ⁱ

Rapid urbanisation in developing countries and rising living standards bring associated dilemmas and threats to sustainability that may not be taken into account in global business scenarios (Abreu et al., 2012; Jayanti et al., 2014). Typically, the pursuit of fast economic development and poverty alleviation takes precedence over environmental protection (Brik et al., 2013). However, the relationship between

sustainable development and supply chain management does not only concern the development of local communities, it must also address a wide range of interconnected environmental issues that have global consequences (Bendul et al., 2016; Diniz and Fabbe-Costes, 2007; Tan, 2016). Since a large part of operations concerning extraction, production, and manufacturing are based in developing countries, it is important to recognise those countries as key players in global supply chains and to analyse their initiatives towards sustainable development, as they have increasing global relevance (Abreu et al., 2012; Zhu and Sarkis, 2006). SSCM practices present opportunities for exporting enterprises in developing countries to improve their environmental and social performance (Luken and Stares, 2005; Park et al., 2010), whilst improving their competitiveness and achieving their business goals (McMurray et al., 2014; van Hoof and Thiell, 2015). In this review we seek to fill the gap in the literature by analysing SSCM practices in the context of the global value chains that are supplied by developing countries.

To achieve this, a systematic review of previous articles focusing on SSCM in developing countries was conducted synthesising the major themes found in the extant research. The next section of this paper describes the methodology used to select the reviewed articles and their main characteristics. The conceptual framework is subsequently presented, followed by our findings, and a discussion of common themes and missing subjects. Finally the conclusions of the work are presented, highlighting research gaps in the literature and proposing future research directions to fill such gaps.

2. Method

A systematic literature review methodology provides collective insights on fields and sub-fields of inquiry by synthesizing theoretical and empirical work in a replicable and transparent process that reviews the existing literature based on a set of search criteria (Tranfield et al., 2003). The process began with a broad-based search using the databases SCOPUS and EBSCO. These databases cover a significant amount of the peer-reviewed published materials on SSCM (Hsu et al., 2013; Huq et al., 2014; Silvestre, 2015a).

The keywords used for the selection of articles belonged to three categories: developing countries, sustainability, and supply chain. Each category includes a variety of related keywords. The asterisk sign was used at the end of some keywords to include

multiple variations (e.g., Sustainab*: sustainable and sustainability). The keywords for each category are: (i) for developing countries: developing countries OR emerging markets OR emerging economies; (ii) for sustainability: Corporate Social Responsibility OR CSR OR Triple Bottom Line OR environment* OR sustainab*; and (iii) for supply chain: supply chain OR value chain OR procurement OR purchas*. The keywords search generated a total of 618 papers. Titles and abstracts of those papers were analysed and contrasted against the including and excluding criteria presented in Table 1 to determine the relevance of the paper for inclusion in this review. A total of 134 papers were shortlisted at this step. The selected papers were then read and analysed in full to make the final choice of **85** papers included in this review. Two researchers/co-authors went through the process independently and then reached agreement on all items based on the inclusion/exclusion criteria.

-Table 1 (see pp 24-42)

We carry out this review from an operations management rather than an operations research perspective, which informs our exclusion criteria. For example, we exclude mathematical models and simulations papers, which have a tendency to focus on optimisation of logistics and supply chains rather than on sustainability practice, i.e., how firms do it. Political and technical notes are also excluded as 1) they provide little value to our understanding of SSCM best practice in developing countries; 2) they are not based on rigorous academic research. What we are looking for is research containing empirical data and real life cases and best practice of sustainability in developing countries. Furthermore, we focus on sustainability practice papers in the private sectors of SSCM in developing countries and exclude those in public sector because SSCM in public procurement is normally dealt separately having significantly different characters from SSCM in private sector (Appolloni et al., 2014).

The period of analysis was between 2000 and 2016 (Figure 1). Even though there were publications in the 1990s, previous literature reviews show that SSCM research takes off after 2000 (Seuring and Müller, 2008). The review found that SSCM research for developing countries lags behind research for developed countries. Interest in the former has risen from 2004 onwards, and increased rapidly from 2008 (represented by the dotted line in Figure 1).

-Figure 1 (see pp.24-42)

Articles were published in a large variety of journals (57 in total), distributed among different disciplines and regions. Some of them are region-specific for Africa or Asia. The majority of papers come from a small list of journals that have been categorised within the top 25% of impact factor distribution featuring in Quartile 1 (Table 2). Very few come from highly ranked journals. This may indicate either insufficient access of scholars to supply chains in developing countries to conduct research that reaches top journals, or to a lack of funding or interest in the topic by the scholars working in the field.

-Table 2 (see pp.24-42)

Papers were coded according to their main discussion topics regarding the application of SSCM to the developing world context. Repeated ideas and concepts were identified resulting in four main themes for grouping: drivers, barriers, mechanisms, and outcomes for the implementation of SSCM in developing countries. Empirical papers dominate the literature (80%), with fewer theoretical papers (20%) that summarize empirical evidence or develop frameworks to understand the phenomenon. Research is typically conducted around a company and its initiatives to achieve sustainability, including actions taken to engage with suppliers. The literature is predominantly focused on the perspective of anchor companies from developed countries, with suppliers in developing countries receiving less attention. The main contribution of each of 85 papers has been summarised in Table 3, which also shows our coding. Some papers fall into two categories when, for example, the research explores drivers and barriers in a specific setting, or tries to link outcomes with implementation mechanisms.

-Table 3 (see pp.24-42)

3. Thematic findings

The broad theoretical framework adopted in this paper is informed by institutional theory, which identifies regulative, normative and cultural-cognitive pillars as the key to understanding the drivers to SSCM practice (Scott, 2013). Conceived in this way, sustainable supply chains are understood less as linear systems and more as a ‘supply-chain-as-a-network-of-organizations’ (Silvestre 2015b, 157). Through the perspective of the three pillars, sustainable supply chains as networks are understood as the coordinated activities of a wide range of organizations. The regulative pillar focuses on the formal rules and laws that support supply networks. The normative pillar emphasises the importance of norms that shape business organisations and executive decision-making within supply networks. The cognitive-cultural pillar takes a social-constructionist stance to understand how the supply network is embedded within the beliefs and values that are shared by supply chain actors to form institutional orders (Scott, 2013). Sustainable supply networks are more or less resilient in the face of pressures for change depending upon a wide range of institutional factors (Hsu et al., 2013). These factors are most notable in the first theme (i.e., drivers) within a fourfold conceptual framework that emerged from the literature. In the following four subsections, the four main themes that emerged from our coding of the literature are presented. Having discovered and reviewed these thematic priorities, Section 4 proceeds to build these themes into a conceptual model that demonstrates their inter-connection within the broad institutional theory approach.

3.1. Drivers

Pressures from external stakeholders have been found to be the most significant force when a company makes the decision to engage in sustainable practices (Mathiyazhagan et al., 2015). This pressure is higher for companies that are closer to consumers in the supply chain (i.e., retailers and manufacturers). Drawing upon Institutional Theory, pressures can be categorised depending of their origin in: Regulatory (law and regulation), Normative (from the market environment) and Cultural-Cognitive (internal pressures). Table 4 provides a description of the drivers found in the literature. Larger firms, facing large reputational risks or selling to large multinational corporations (MNCs) headquartered in the North, tend to be more committed to sustainable practices than smaller firms with only local markets (Aboelmaged, 2012; Lund-Thomsen and Nadvi, 2010b). Significant pressures also

arise from major environmental incidents, which negatively affect corporate reputation. In these cases, civil society and media pressure influence companies to change their health and safety approaches towards employees and environmental protection (Silvestre, 2015a). Strong regulatory institutions, non-government organisations (NGOs) and social movements in developed countries play a significant role influencing corporate behaviour towards sustainable development (Distelhorst et al., 2015). The government acts from both a mandatory and a voluntary standpoint, engaging with stakeholders and providing mechanisms that facilitate SSCM (Perry, 2012). In some countries, such as Brazil or Mexico, large buyers may not consider the regulatory framework as a crucial driver, but instead focus on the economic benefits, the desire to maintain a good reputation and to improve overall competitiveness and suppliers' performance (Bouzon et al., 2015; van Hoof and Thiell, 2015).

-Table 4 (see pp.24-42)

Once the buyer recognises these external pressures, it then transmits them to its suppliers, which may be in a developing country. This transmission is motivated by three factors. First is risk management. For example, garment industry production is typically located in countries such as Bangladesh or Pakistan, with higher risks in terms of labour rights (Turker and Altuntas, 2014). Second, companies may seek to enhance global reputation. Global firms with a world-known brand are more exposed to public scrutiny than local firms; any breakdown in the supply chain can significantly damage buyers' reputation (Aboelmaged, 2012). Third, companies may be motivated to act by supplier dependency. When buyers can only obtain a product from a single or limited range of suppliers, then they need to work in partnership with those suppliers to achieve continuous improvement in the supply chain (Perez-Aleman and Sandilands, 2008).

A supplier located in a developing country typically experiences three types of drivers that trigger its engagement in sustainable practices. The first are normative drivers that come from the buyer, through procurement policies, supplier's codes of conduct, and compliance with international standards, e.g., ISO 14001. Some buyers may ask for compliance with specific industry standards such as third-party certifications (Morris and Dunne, 2004). The second are regulatory drivers that come from regulators in importing countries, usually in the developed world. International regulation for some countries can be high and the threat of possible trade barriers in the

form of sanctions for non-compliance is a major concern (Lo, 2010). The third are normative drivers that come from the market environment and include the desire to gain competitive advantage through cost reductions, market differentiation and superior brand reputation (McMurray et al., 2014; Park et al., 2010).

Several authors have ranked these drivers in the order of importance for developing countries, with importing country regulation and buyer procurement policies reaching the top of the list (Brik et al., 2013; Lai and Wong, 2012; Lo, 2010; Mathiyazhagan et al., 2015; Sandhu et al., 2012; Tsoi, 2009). Drivers within the same industry tend to be similar, regardless of the supplier location and tend to be strengthened by factors such as institutional frameworks and rule-based governance systems (Abreu et al., 2012). This is the case of the chemical sector in both South Africa and Mexico, where the most important motivations for incorporating sustainable practices were to improve public image and to comply with regulation (Acutt et al., 2004). However, different sectors face different drivers, even within the same country (Zhu and Sarkis, 2006). For example, the manufacturing sector in Malaysia experiences competitor and customer pressure as the main driver to adopt sustainable practices (Hsu et al., 2013), while the hospitality industry reports little pressure from either customers or competitors (Kasim and Ismail, 2012). It is also found that companies in the private sector (e.g., manufacturing) perceive greater opportunities for and insist on more sustainable practices than companies in the public sector (e.g., government) (McMurray et al., 2014).

There are occasions when a driver that fits into the normative pillar becomes a regulatory one, because, from the supplier perspective, buyers' policies play the same role as national environmental regulations (Jeppesen and Hansen, 2004) and could become an even stronger factor if there are environmental regulations in place, enforced by buyers' policies (Lai and Wong, 2012). The literature suggests that public and private regulatory regimes act more in tandem as complementary signals for SSCM than as antagonistic rivals (Distelhorst et al., 2015).

There are also cultural-cognitive types of drivers, related to individual beliefs and values. We have identified internal leadership as one of the most frequently mentioned driver for the adoption of sustainable practices. Leadership is a reflection of the firm's values and the commitment of top management (Aboelmaged, 2012; Huq et al., 2014; van Hoof and Thiell, 2015). We have also found national culture and the collective sense of social responsibility as salient drivers (Geng et al., 2016; Hsu et al.,

2013; Sandhu et al., 2012). Religion is an important factor in places such as Sri Lanka (Perry, 2012) and Malaysia (McMurray et al., 2014), where it is argued that even without regulation, social responsibility practices are present due to principles of ethical conduct, fairness, and equity embedded in those countries' dominant religions (Perry, 2012).

Factors such as improving the working environment and the health and safety conditions for employees were also ranked as important drivers (Diabat et al., 2014; McMurray et al., 2014; Vermeulen and Ras, 2006). Most notably, health and safety drivers represented the primary motivations for small and medium sized enterprises (SMEs) to engage in sustainable practices, because employee welfare is a necessity when competing for skilled labour (Huq et al., 2014).

3.2. Barriers

The most frequently mentioned barrier found in the literature to implement SSCM is the generalised lack of political support in developing countries (Clarke and Boersma, 2015; Vermeulen and Ras, 2006). This includes the existence of low levels of regulation (Huq et al., 2014; Kasim and Ismail, 2012; Sandhu et al., 2012), but also weak enforcement of regulations (Ehrgott et al., 2013). Some countries report a lack of provision of financial aid (Ras et al., 2007) or incentives to increase sustainable practices, such as material recycling (Bouzon et al., 2015). As Asmat and Ha (2013) reported, countries like Bangladesh have a lack of control, monitoring and sanctions. In some cases, companies may prefer to pay the pollution fees/fines as these costs are lower than the clean up or prevention costs, since they do not reflect the pecuniary negative environment externalities (Lam, 2011). Some countries, such as China, also report a knowledge gap between top government officials at the national level and officials at the provincial or rural levels who do not apply all the concepts and norms that are agreed at the top level (Tsoi, 2009).

Lack of policy implementation can be explained in several ways. First, policymakers find it difficult to decide on a common goal to guide what regulations need to be in place (Li et al., 2015). Second, environmental legislation addressing industry emissions in developing countries is fairly recent, commencing in the 1990s and emerging slowly after the Kyoto Protocol was established in 1997, which means that enforcement is only just beginning (Soda et al., 2015). However, the literature

argues that, regardless of timing, the main barrier for policy enforcing is the insufficient resources available for inspection and monitoring (Azmat and Ha, 2013). Third, there is a challenge in adapting regulations to local contexts. It has been found that regulatory frameworks, taken from European countries, are met with high levels of non-compliance when applied to developing countries because they are not adapted to the local context. South Africa and Indonesia are cases in point, where farmers in the wine and forestry sectors struggle to meet European standards that do not adequately reflect production and extraction conditions in those countries (Bartley, 2010; Ras et al., 2007). Fourth, the regulatory framework tends to be more operationally-focused and weak in terms of promoting environmental sustainability (Mitra and Datta, 2014). In the case of the food industry, for instance, the relationship between food safety standards and sustainability requires better specification around which measures to include and exclude from national regulations and how to make both policies compatible (Bloom, 2015).

There is a general lack of awareness about sustainability in developing countries among suppliers and consumers (Soda et al., 2015) and a weak demand from consumers for sustainable products (Ehrgott et al., 2013; Tsoi, 2009), which is the result of both a lack of awareness about environmental issues (Kasim and Ismail, 2012) and the low buying power in those markets, where premium-priced green products become unaffordable for mass markets (Brik et al., 2013; Morris and Dunne, 2004). Due to their socio-economic conditions, consumers are more concerned with meeting their basic needs than with the quality of their purchases (Azmat and Ha, 2013). On the other hand, suppliers in developing countries lack the required knowledge, expertise and funds to adopt sustainable practices, given that implementation is not a simple task (Ras et al., 2007; Soda et al., 2015; Syuaib, 2016). There are also complains about the absence of guidance in relation to compliance with sustainable standards (McMurray et al., 2014). This reflects a need for continuous training and support in the absence of buyer involvement. Pressures from other external stakeholders such as media, NGOs and local communities are much lower compared to the ones experienced in developed countries (Sandhu et al., 2012; Tsoi, 2009).

Lack of adequate transport infrastructure to relay products from rural to urban areas and to export ports is a major barrier for the adoption of SSCM practices and for competitiveness in general. Roads in many countries are not well paved or maintained and are unable to cope with business expansion and the heavy demands associated with

rapid supply requirements (Bouzon et al., 2015; Lam, 2011; Silvestre, 2015b). Outdated telecommunication networks are also reported as an additional infrastructure barrier (Li et al., 2015).

Several countries report high levels of corruption and mock compliance among companies, certification bodies and the government in countries such as Brazil (Silvestre, 2015b), South Africa (Morris and Dunne, 2004), Indonesia (Bartley, 2010) and Bangladesh (Huq et al., 2014). Suppliers have been able to cheat and buy certification labels from third-party auditors without implementing the required practices (Morris and Dunne, 2004). Suppliers also resist changes in regulations in their favour, through irregular payments to government agencies (Azmat and Ha, 2013); presenting fake documentation during audits in order to become certified (Huq et al., 2014); or through a lack of transparency in their operations (Vermeulen and Ras, 2006). Otañez and Glantz (2011) presents an example of buyers that despite claiming SSCM practices, keep purchasing materials produced by child labourers and with high rates of deforestation.

The upfront costs of going green may be too high for companies in developing countries and the benefits may not be apparent or quick enough to achieve (Li et al., 2015; Nyuur et al., 2014; Perez-Aleman and Sandilands, 2008; Riisgaard et al., 2010). Therefore suppliers do not think it will be economically beneficial in the long run (Kasim and Ismail, 2012; Soda et al., 2015; Tsoi, 2009). Competitive advantage, in the sense of cost reductions associated with sustainability measures, are non-significant (Lai and Wong, 2012), given that returns on investment are perceived to take too long (Brik et al., 2013). Suppliers do not find any financial incentives to implement sustainable practices, since there is a lack of subsidies from the government or buyer companies to cover training/consultancy costs and certification labels (Li et al., 2015; Morris and Dunne, 2004; Soda et al., 2015), while concomitantly buyers create significant pressure to reduce suppliers' prices. For the case of agriculture, smallholders that are not organised into cooperatives or other kinds of networks, find themselves cut-off from upgrading possibilities and excluded from global value chains (Kleemann, 2016; Perez-Aleman and Sandilands, 2008; Sjauw-Koen-Fa et al., 2016).

A misalignment between sustainability standards and the local culture, due to a lack of local consultation, means that suppliers do not identify with standards and believe their real needs and concerns are not being addressed, creating high resistance to adoption (Huq et al., 2014; Ras et al., 2007; Vermeulen and Ras, 2006). This barrier

is also associated with a lack of trust and lack of continuity in supplier relations, lack of participation, credibility and transparency, with one factor reinforcing the other (Acutt et al., 2004; Ras et al., 2007; Vermeulen and Ras, 2006). Factors such as language, culture, education and pluralistic values can affect the process of negotiation and decision making (Nyuur et al., 2014), including accountability, access to information, disclosure, reporting and verification (Acutt et al., 2004). Internal misalignment between procurement and sustainability strategies also contribute to an unsupportive organisational culture (Lam, 2011; Tencati et al., 2008; Vermeulen and Ras, 2006). Table 5 provides a summary of the barriers found in the literature.

-Table 5 (see pp.24-42)

3.3. Mechanisms

Mechanisms have been divided into two categories: assessment and collaboration. Table 6 provides a brief description of the mechanisms identified in this paper. When talking about assessment, it is found that the purpose of some certifications is to standardize products and processes, thereby creating mass markets and price-based competition. Other standards aim to differentiate the products, thus establishing niche markets based on quality as a form of non-price competition (Bloom, 2015; Dolan, 2008; Vermeulen and Metselaar, 2015). In developing countries, voluntary sustainability standards primarily reach the export-oriented sectors. Industries producing for domestic consumption have been relatively untouched by the efforts in acquiring certification, as they do not face market pressures to adopt such instruments (Bartley, 2010; Vermeulen, 2010). Many firms view certifications as critical for their public image and use them to improve their reputation or to avoid scrutiny and criticism (Bartley, 2010). However, introducing supplier's codes of conduct and standards on sustainable practices does not necessarily improve livelihoods and working conditions for employees and smallholders in developing countries. For example, the factory-based model introduced in Pakistan for football stitching was designed to eliminate child labour, but had negative consequences for women who were no longer able to do the job from home, and could not commute to the factory (Lund-Thomsen et al., 2012). Codes of conduct fail in practice because of suppliers' traditions, beliefs, local demands and resource dependency (Soundararajan and Brown, 2016).

-Table 6 (see pp.24-42)

Having a certification label improves traceability and monitoring of quality standards, however it can have a downside for the supplier as the buyer is able to determine if a particular supplier is also supplying its competitors (Morris and Dunne, 2004). The structure of corporate sustainability strategies shows a tendency among companies to plan more towards environmental sustainability than towards social sustainability (Johnson, 2004; Mansi, 2015; Shen, 2014; Turker and Altuntas, 2014).

Big firms usually develop their own codes of conduct and perform their own monitoring and auditing activities, reporting higher levels of compliance in comparison to other factories that use third-party certification. However, the lack of third party verification renders civil society, NGOs and other stakeholders suspicious of the integrity of company schemes, because self-assessment may produce data that is unreliable, biased, and superficial, orientated more towards marketing purposes (e.g., green wash) than towards achieving substantial changes (Lund-Thomsen, 2008; Otañez and Glantz, 2011; Turker and Altuntas, 2014).

Other articles report collaboration with suppliers as the key to success and achieving higher levels of compliance with internal codes of conduct (Johnson, 2004; Kanapathy et al., 2016), arguing that a supportive approach is needed, based on collaboration and education adapted to local needs (Diniz and Fabbe-Costes, 2007; Huq et al., 2014). The engagement with local communities in value creation activities such as sourcing, production and distribution has been identified as a success factor in SSCM (Bendul et al., 2016; Gold et al., 2013; Majumdar and Nishant, 2008).

In collaborative approaches, companies seek assistance from other institutions such as NGOs and government agencies (Dahan et al., 2010; Luken and Stares, 2005). Companies state that they need help from NGOs and local governments to ensure transparency in their relationships with suppliers, because monitoring suppliers is not their core business (Perez-Aleman and Sandilands, 2008). NGOs, for example, are able to provide incentives and to enforce adoption (Bloom, 2015). MNC-NGO partnerships that actively engage suppliers in developing countries can effectively overcome supplier barriers to SSCM, by initially developing the standards with suppliers' participation and providing assistance to enable them to meet those standards. Communication is key to creating and sustaining such relationships with suppliers and

stakeholders (Khan and Nicholson, 2014). Companies may hold biannual compliance days to provide training and updates, supplier conventions, visits, personal cooperation, production rooms and research, with intranet and e-communication systems to maintain up to date information between all parties (Blowfield, 2003; Turker and Altuntas, 2014; van Hoof and Thiell, 2015).

3.4. Outcomes/Performance of implementation

Several papers measure outcomes through surveys with industry representatives in countries such as Brazil, China, India, Mexico, and Vietnam (Gualandris et al., 2014; Tencati et al., 2008). Findings typically show that companies with SSCM outperform their competitors economically (Esfahbodi et al., 2016; Gualandris et al., 2014; Huq et al., 2014; Luken and Stares, 2005) and report benefits such as a higher productivity, greater employee retention, fewer operational mistakes and fewer accidents (McMurray et al., 2014; Tan, 2016; Tencati et al., 2008). Some outcomes fulfil the expectations of the initial driver to implement sustainable practices, such as having a better reputation and gaining market shares (Bouzon et al., 2015). Table 7 provides a summary and description of the outcomes found in the literature.

-Table 7 (see pp.24-42)

It is unclear whether sustainable initiatives have a positive or negative impact on economic performance (Zorzini et al., 2015). Some argue that there is a direct impact on the firm's economic performance (Zailani et al., 2012) and that sustainability investments generate exceptional value to shareholders (Bouzon et al., 2015; Sen, 2009); however, this value is usually realised in the long term (Sen, 2009).

SSCM practices can install additional capabilities in the company and lead it to outperform competitors in terms of environmental efficiency and social responsibility (Gualandris et al., 2014). There are positive outcomes associated with social initiatives; for example, suppliers are in a better position to negotiate with buyers (Huq et al., 2014); working conditions in factories improve (Distelhorst et al., 2015); companies achieve a better position as a trustworthy and socially responsible corporate citizen in the community where they operate (Park et al., 2015). However, other research finds

that there is no link to better social conditions in the communities where eco-industrial parks are located (Lund-Thomsen and Pillay, 2012).

In terms of environmental impact, green supply chain management is one of the most effective ways to reduce pollution, waste and environmental deterioration (Sen, 2009; Soda et al., 2015). Specific practices have been linked to positive environmental performance: green logistics management (Lai and Wong, 2012), sustainable packaging (Zailani et al., 2012) and green purchasing (Zailani et al., 2012). Nevertheless, environmental investments in developing countries usually aim at reducing operational costs rather than protecting the environment. Policy makers emphasise economic cost-benefits as a more effective way to promote SSCM to companies that tend to prioritise economic outcomes over environmental ones.

In terms of operational performance, companies have been incorporating sustainability into business performance measures (Prasad et al., 2016). MNCs codes of conduct help to increase quality and speed of operations, which in turn allows code operating companies to receive more orders and increase revenue (Turker and Altuntas, 2014; Younis et al., 2016). The implementation of SSCM practices increases the efficiency of operations in warehouse, distribution and logistics (Soda et al., 2015). Some authors, however, argue that operational improvements cannot be fully attributed to SSCM. There are many factors that influence operational outcomes and various components work together alongside SSCM in an organisational setup (Jaikumar et al., 2013; Zailani et al., 2012).

Higher frequency of contact within collaborative relationships with suppliers fosters greater levels of organisational learning about the business context, including legal, political and social dimensions. Organisational learning enhances a company's overall ability to manage relationships with partners and creates higher levels of trust (Ehrgott et al., 2013; van Hoof and Thiell, 2015). Some companies claim that the greatest outcome of SSCM is to improve supply chain relationships (van Hoof and Thiell, 2015). Learning increases due to the development of rare and valuable capabilities during the implementation of SSCM (Gualandris et al., 2014), which in return leads to innovation and improved performance (Mitra and Datta, 2014; Silvestre, 2015a; Yang et al., 2016).

Negative outcomes of collaboration were also found, highlighting power distribution dynamics along the supply chain. When buyers do not share any of the costs of implementation (Huq et al., 2014) it can take suppliers who cannot afford to

invest in sustainable practices out of the market (Tencati et al., 2008). Despite the benefits that buyers reap from suppliers' investments in corporate social responsibility, they continue to seek lower prices in their negotiations with suppliers (Huq et al., 2014). Suppliers regard this behaviour as unfair (Otañez and Glantz, 2011) and they claim that corporate social responsibility should not be imposed, but rather be a partnership arrangement with MNCs (Tencati et al., 2008).

4. Discussion and development of a conceptual model

We developed an integrated conceptual model that synthesises the four themes of SSCM in developing countries: drivers, barriers, mechanisms and outcomes (Figure 2). The conceptual model brings together the independent themes in an attempt to better explain the bigger picture of SSCM in developing countries. It represents the process from start (drivers) to finish (outcomes) taking into account the mechanisms for implementation and the barriers that may exist at different points of the process.

Drivers refer to the pressures, either internal or external, that lead a company to the adoption of SSCM. We categorise the drivers utilising Scott's (2013) institutional framework of normative, regulatory and cultural-cognitive pillars in order to better understand where the pressures to instil SSCM are coming from. Regulative drivers follow the regulatory process of rule-setting, monitoring conformity and rewarding or sanctioning activities with the objective of influencing future behaviour. These rules, laws and sanctions are usually set by governmental organisations. Normative drivers specify how things should be done, defining not only an objective but also providing the route to achieve it. They include the use of certification, accreditations and company's goals. External drivers are composed by regulatory and normative elements and are exercised by external stakeholders such as governments, NGOs, social movements, civil society and the media. Internal drivers are mainly cultural-cognitive and come from within the company in the form of culture, values and policies that reflect the company's performance and leadership (see Table 4 for a description for each driver with the source references where they are discussed).

Barriers are obstacles that prevent or slow down the adoption of SSCM in developing countries. Barriers were classified into ex-ante and ex-post factors, as these factors may either prevent implementation or, once initiated, make sustaining SSCM difficult. Ex-ante barriers are broader and usually eliminated during the process of

implementing sustainability measures, leaving ex-post barriers as the key obstacles to achieving sustainability in the long term (see Table 5 for a description of barriers)

Mechanisms refer to the methods or approaches through which buyers introduce sustainability measures to suppliers. Gimenez and Tachizawa (2012) identify two key approaches: assessment and collaboration. The approach chosen to introduce SSCM is influenced by the governance in the value chain (Lund-Thomsen and Nadvi, 2010a). Our review of the literature found that the preferred method adopted by companies (e.g., buyers) was collaboration (58% of papers), but still there is a large percentage (42% of papers) that cite assessment as the primary governance method for SSCM implementation. A smaller number of papers (15%) cited examples of buyers using both methods, for example using collaboration to train and instil assessment methods in the suppliers. The arm's length hierarchical approach to managing the supply chain has been heavily criticised by suppliers (Huq et al., 2014). Different types of assessment mechanisms were identified in the literature. A classification is provided by Rueda et al. (2017), which recognise internal codes of conduct, third party certifications, industry standards and designation of origin as common mechanisms used by companies to certify sustainable sourcing and SSCM. Less analysis has been given to collaboration mechanisms. Collaboration exists not only between buyers and suppliers, but also with a third parties, namely NGOs or government institutions. Collaboration between suppliers and engagement with non-supply chain stakeholders (e.g., government and NGOs) were also identified as mechanisms used by the company to adopt sustainable practices (Gong et al., 2018).

In Figure 2, the vertical double-headed arrow between the two mechanisms indicates that both methods (i.e., assessment and collaboration) can be combined ex-ante or ex-post, according to business requirements. The suggested process is to use assessment as a first step to identify breaches in operational practices and then to implement improvement plans through collaboration (Gimenez and Tachizawa, 2012). This process varies according to the expectations of local stakeholders and market dynamics which affects the level of the buyer's engagement with suppliers (Kao et al., 2012). Some companies decide to establish direct contact with suppliers through internal policies or codes of conduct, while other companies engage with NGOs to deliver initiatives.

-Figure 2 (see pp.24-42)

Figure 3 presents the mechanisms identified in the literature mapped against the buyer's level of engagement with suppliers. Indirect mechanisms are more common and could be interpreted as a way to divert responsibility for their value chain to other institutions, such as industry associations, private auditors and government. The literature also finds examples of companies with programmes applying several mechanisms in combination and engaging with different stakeholders (Johnson, 2004). One of the most common combinations is highlighted by the ellipse in Figure 3, which starts with companies creating an internal code of conduct and policies (i.e., assessment) followed by a direct investment in supplier training and development to enable suppliers to comply (i.e., collaboration). Due to the high level of investment required, this is a path applied mainly by MNCs.

Outcomes are the result of adopting SSCM. Dimensions of sustainability performance include economic, environmental and social outcomes, along with others found in the literature. Operational performance is usually represented by efficiency gains and translated into economic or environmental benefits. The impact on public image and organisational and supply chain learning are usually overlooked because of their intangible or qualitative nature, however, they contribute positively to the buyer-supplier relationship in the long term and so are included in the model. Gosling et al. (2016) provide an initial discussion of how supply chain learning at inter-firm and network level is an integral part to SSCM strategies. Gong et al. (2018) empirically answer the question of how MNCs orchestrate internal and external resources to achieve sustainability by emphasising three dimensions of resource orchestration, i.e., breadth, depth and project lifecycle.

-Figure 3 (see pp.24-42)

5. Conclusion and Future research

This study makes a number of theoretical contributions to SSCM in developing countries. First, it is the first literature review (to the best of our knowledge) that examines existing literature addressing SSCM with a focus on developing countries for both, social and environmental sustainability using a systematic approach. Previous reviews have focused either on the definition of SSCM (Seuring and Müller, 2008) or

examples for either environmental or social sustainability (Fahimnia et al., 2015; Yawar and Seuring, 2015; Zorzini et al., 2015). We found that there is little research based on private sectors in developing countries, with the extant research largely spread across different journals and disciplines. Case studies tend to be documented in journals with a regional or local remit. Second, this paper provides a comprehensive conceptual framework integrating drivers, barriers, mechanisms and outcomes for both buying firms from developed countries sourcing from developing economies and supplying companies in developing countries. In this framework, drivers are classified using institutional theory foundations. The division of ex ante and ex post barriers present novel ways of examining barriers while implementing a sustainability effort. The classification of instruments according to their compulsory/collaborative nature, as well as the inclusion of economic, social and environmental outcomes provides a comprehensive framework for future research and reference. Third, based on the literature review a number of actionable directions for future research, linked to the aforementioned research themes, are suggested for researchers to address in the future.

5.1. More empirical research in developing countries

In terms of developing countries, there is little research about sustainable supply chain initiatives from both buyers and supplier's perspectives. Countries like Brazil, China, India, Malaysia, and South Africa' have a growing representation in the literature with specific case studies and the utilization of survey-based methods. However, since SSCM initiatives are context specific, more examples are needed from these and similar countries to identify trends and pathways to achieve sustainability. More research in developing countries will contribute to addressing global issues with more inclusive practices. It is particularly important to understand the different logics through which developed and developing countries are regarding initiatives towards sustainable development. This emphasis is also called for by Brik et al. (2013) and Esfahbodi et al. (2016), who propose repeating their studies in other developing countries in order to increase generalisability and create comparative studies.

Buyers in developed countries, such as multinational corporations, have different pressures to promote sustainable practices than the buyers based in developing countries. In order to understand the dynamics of SSCM in developing countries more empirical research on local buyers as well as suppliers is required. Research could use our proposed conceptual model to explore different case studies of buyer companies in

developing countries and their relationship with their suppliers, paying special attention to the mechanisms as well as enablers/barriers and outcomes used under specific contexts. In this paper, a set of drivers that are absent in the developing country context, such as consumer demand and competition in the domestic market, were identified. Deeper understanding about these pressures and drivers and the reason for their absence is also necessary to provide managerial advice to stakeholders in developing countries.

5.2. Inclusion of supplier perspective in the research

One of the gaps found in the literature is the lack of supplier's voices, which are seldom heard by the academic community and buyers. Researchers usually conduct empirical studies from the buyer's perspective, sometimes intentionally ignoring suppliers in developing countries due, in part, to the difficulties of accessing data. The perspective of the suppliers is missing in the literature with a few exceptions (e.g., Huq et al., 2016), giving priority to top down approaches and ignoring the claims of suppliers in developing countries who do not feel represented in the creation of sustainable practices. In some cases, suppliers state that the initiatives implemented by buyers do not meet their needs due to a lack of consultation. The lack of equality and equity in collaboration creates resistance in the implementation of sustainable initiatives from the suppliers. Therefore, future research could use empirical methods to explore the buyer-supplier relationship from both parties' perspectives. More focus on the supplier's perspective would help to evaluate buyer's initiatives and to propose mechanisms for a bottom up approach that is inclusive of suppliers. International OM/SCM journals are increasingly requiring researchers to collect dyadic level data (from both buyers and suppliers) and multi-response data (Hsu et al., 2013; Silvestre, 2015a). Future SSCM research will need to give more attention to supplier's perspectives in developing countries.

5.3. Research on outcomes and links to applied mechanisms

Outcomes were identified not only for the sustainability performance, but also for operational performance, public image and organisational learning. Outcomes are under-researched in the literature. It has been argued that it is too soon to evaluate outcomes, since sustainable practices tend to pay back in the long term (Sen, 2009). The majority of studies examining outcomes utilises data from buyers, because there is little data available directly from suppliers in developing countries. More research,

therefore, is needed to determine the link between outcomes and specific SSCM mechanisms, whether it is assessment, collaboration, or a combination of both. Research should also include examples of direct and indirect engagement in the buyer-supplier relationship. To achieve these goals requires developing improved approaches to assess sustainability performance using quantitative measures and also longitudinal multi-period studies to evaluate mechanisms and future outcomes, e.g., event studies (Orzes et al., 2017; Singh and Trivedi, 2016).

5.4. Research on industry specific drivers, barriers and mechanisms

Our review reveals that companies in the same industry tend to have similar initiatives for sustainability regardless of the country of operation (developed or developing country), while different industries face different sustainability challenges and therefore have different approaches towards sustainability in the same country. Many commodities are produced in different contexts and commercialised all over the world. It would be necessary, in this instance, to explore how production and consumption are inter-connected with sustainability outcomes across different country's contexts and in collaboration with NGOs and regulatory bodies. There is a need, therefore, for industry specific SSCM research to start in developing countries. Industry associations should feature prominently in this type of research, as they promote the development and growth of the sector through cooperation (Lo, 2010). These associations have played an industrial ambassadorial role where government has failed to respond to market strains in developing countries (Schwartz and Bar-El, 2015). Industrial associations have been linked to the expansion of innovation activities and are identified as an important external source of information on sustainability to buyers and suppliers in specific industries (Craig and Allen, 2013). More research is required to understand what roles industrial associations can play in the adoption of SSCM, oscillating from putting pressure on members to developing practices to provide information or consultancy services during implementation.

5.5. Research on social sustainability and the trade-off between social and environmental sustainability

Research is usually focused on environmental sustainability, mainly because there has been greater consensus on environmental issues and acceptance of what constitutes the best practices (Blowfield, 2000), which has been difficult to emulate in

social standards due to cultural differences among countries. Social sustainability is an ambiguous term open to different interpretation depending upon the standpoint of the research paradigm and the admixture of measures used in methodologies that seek to measure this aspect of sustainability. Consequently the task of assessing trade-offs between social and environmental sustainability is complex and an underdeveloped aspect in the literature.

At the outset of the paper, it is suggested that suppliers and governments in developing countries tend to prioritise economic gains above those of environmental sustainability. Where social and environmental outcomes are viewed as mutually incompatible or in competition, it remains to be seen how suppliers and governments evaluate the relative merits of each in developing country contexts. It is envisaged that social sustainability in global supply chains may be approached using the theories and methods adopted in development economics and agricultural economics, which have examined the phenomenon for decades (e.g., Lund-Thomsen et al., 2012). This suggests that inter-disciplinary research is required to develop research into social sustainability.

5.6. Internal management issues of SME suppliers in developing countries

In terms of research where organisations are the unit of analysis, there are two aspects that need more consideration. First, understanding how SMEs tackle sustainability issues and how they manage the relationships with their suppliers. SMEs are important contributors to developed and developing countries' economies, however their environmental impact is usually overlooked as insubstantial when considered on a firm by firm basis (Kasim and Ismail, 2012). SMEs have a lower level of awareness of sustainability issues and a constrained capacity to implement sustainable practices (Mathiyazhagan et al., 2015; Munguía et al., 2010). However, they can receive significant benefits from the early adoption of sustainable practices (e.g., waste reduction, energy savings and employee retention) (Luken and Stares, 2005). Research needs to pay more attention to SMEs, not simply because they are a vector of achieving sustainable outcomes, but also because their aggregated impacts are likely to be considerable in size.

Second, the adoption of SSCM is an evolutionary journey that requires deeper analysis regarding its trajectory, pace of adoption and requirements for internal change at a firm level (Silvestre, 2015b). This is especially the case where SSCM is deeply embedded in the organisational culture, for example in business models where

environmental sustainability is integrated with social and economic outcomes (Zailani et al., 2012). This area requires further academic research in order to understand how companies change internally during the process of integrating SSCM.

5.7. Understanding barriers and methods to overcome them

Finally, the biggest challenge in the developing country's context is to overcome the long list of barriers that inhibit businesses from applying sustainable practices along their supply chain. First, a better understanding and identification of barriers in developing countries is needed, along with comparative research between developing countries. Both *ex-ante* and *ex-post* barriers require further attention, especially to understand how *ex-ante* barriers are overcome during the implementation process and avoided in the long term. *Ex-post* barriers need more analysis since they are the ones that prevail over time and could potentially cause the business to abandon sustainable practices. The study of *ex-post* barriers requires a multi-stakeholder approach to understand how various stakeholders can play a role in overcoming them.

Finally, this paper is not exempt from limitations. Although we have tried our best to be inclusive of the widest range of relevant research, the keywords used may not be exhaustive. Expanding the keywords to include the names of developing countries and a variety of others could result in a more exhaustive review of the field. Our strict focus on operations management research may have excluded some relevant papers that may exist in technical notes and policy orientated papers. Furthermore, some public sector related research may be relevant where government procurement and supply have begun to address sustainability measures.

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Tables and Figures

Table 1. Inclusion and exclusion criteria in the SLR process

Including criteria	Excluding criteria
Peer reviewed English journals Sustainability practice from developing countries Studies focusing on private sector	Conference papers Political and/or technical focus Sustainability studies in public Procurement Mathematical modelling and simulations Suppliers relationships not related to sustainability

Table 2. Distribution of papers in the journals with more publication on SSCM in developing countries.

Journal	No. papers	Impact factor	Quartiles
Journal of Cleaner Production	9	4.959	Q1
Journal of Business Ethics	5	1.837	Q1
International Journal of Operations and Production Management	4	2.252	Q1
Business Strategy and the Environment	3	3.479	Q1
International Journal of Production Economics	3	2.782	Q1
Development and Change	2	1.720	Q1
International Business Review	2	1.669	Q1
Journal of Environmental Management	2	3.131	Q1
Journal of Purchasing and Supply Management	2	2.562	Q1
Supply Chain Management: An International Journal	2	4.571	Q1
Sustainable Development	2	1.554	Q1
California Management Review	1	1.109	Q1
Development Policy Review	1	0.831	Q2

Table 3. Main contribution and coding of reviewed papers.
Type of article: E: Empirical, T: Theoretical, LR: Literature review
Themes: D: Drivers, B: Barriers, M: Mechanisms; O: Outcomes

	Paper	Main Contribution	Type of article	Country of Research	D	B	M	O
1	Blowfield, 2000	Examines the reasons behind the divergence in social and environmental standards, providing reasons for integration.	E	Developing countries		x	x	
2	Blowfield, 2003	It explores the challenges of ethical trade with smallholder tea, coffee and cocoa growers in Asia, Africa and South America.	T	Asia, Africa and South America		x	x	
3	Johnson, 2004	It present in detail a case study for ethical sourcing and implementation with a combine mechanisms of assessment and collaboration.	E	Developing countries			x	
4	Zhu, 2004	Analyse the role of quality management and just-in-time practices as moderators in the adoption of GSCM	E	China			x	x
5	Jeppesen, 2004	Examines the dynamics of environmental upgrading caused by linkage between MNC and third world enterprises.	T	Developing countries			x	
6	Morris, 2004	It explores the barriers of pushing certification and standards from retailers to manufactures in developing countries, excluding from access to market to noncompliant	E	South Africa		x	x	x
7	Acutt, 2004	It compares the chemical industry in two developing countries finding similarities and differences in drivers and practices.	E	Mexico and South Africa	x	x	x	
8	Luken, 2005	Present the results of a demonstration project in developing countries to help SMEs to develop sustainability initiatives without losing their competitive edge.	E	India, Pakistan, Sri Lanka, Thailand			x	
9	Vermeulen, 2006	It highlights cultural differences and corruption as barriers to work in collaboration with supplier in emerging economies	T	South Africa		x		
10	Zhu, 2006	Exposes the differences between industries in the adoption of GSCM practices. Although drivers tend to be similar, the adopted practice are specific for the industry.	E	China	x		x	
11	Ras, 2007	Identify the lack of consultation to farmers in the process of setting up standards as a major barrier for its adoption	E	South Africa		x		

12	Diniz, 2007	Explores the barriers in development projects aimed at low income farmers highlighting the lack of supply chain orientation and management skills. Training need to be adapted to local necessities	E	Brazil			x	
13	Dolan, 2008	It exposes that Fairtrade tea producer in Kenya do not understand the Fairtrade model of community development and therefore do not engage in the project.	E	Kenya			x	
14	Tencati, 2008	the imposition to suppliers in developing countries to apply CSR practices may be counterproductive without the required support and collaboration from the buyer company	E	Vietnam				x
15	Perez-Aleman, 2008	Explains the mechanisms of collaboration between MNCs and NGOs to develop and implement a set of standards for coffee production	E	Mexico		x	x	
16	Lund-Thomsen, 2008	Discusses five myths about sustainability and CSR providing recommendations to address them	T	Pakistan			x	
17	Majumdar, 2008	Visualise the base of the pyramid as a business partner in the supply chain through social entrepreneurship	E	India			x	
18	Sen, 2009	Evaluate the link between the adoption of GSCM practices and shareholder value creation, which is positive in the long run.	E	India			x	x
19	Dahan, 2010	Creates a category of business models emerging from collaboration between MNCs and NGOs. It provides a framework of strategic imperatives required for successful partnership.	T	Developing countries			x	
20	Vermeulen, 2010	Introduce the concept of supply chain governance system (SSCG) and its shift from state towards market and from national towards global governance.	T	South Africa	x	x	x	
21	Tsoi, 2010	Identify three types of partnerships between MNCs, NGOs and local government to implement sustainable practices in the field.	E	China	x		x	
22	Bartley, 2010	Analyse the use of third party certification as a mechanisms to adopt SSCM practices highlighting the low level of adoption in emerging economies and examples of mock compliance.	E	Indonesia		x		
23	Lo, 2010	Despite the absence of local regulation in emerging economies, companies join and comply with voluntary agreements on GHG reduction following international market pressures and industry associations lead.	E	Taiwan	x			
24	Lund-Thomsen, 2010	It distinguishes between highly and less visible types of value chains exploring their drivers and mechanisms to adopt SSCM	E	Bangladesh, Cambodia, Kenya, Pakistan and India	x		x	

25	Park, 2010	Analysis of the emerging integration of business value and environmental returns in the context of China's Circular Economy policy.	E	China			x	
26	Munguía, 2010	Exposes the weak regulation enforcement existing in emerging economies where 64% of SMEs owners were not aware of existing environmental and occupational regulation applicable to the, nor either to the negative consequences of ignoring regulations	E	Mexico		x		
27	Lund-Thomsen, 2010	The mechanisms to put SSCM in place are influenced by the governance in the value chain, divided in vertical or horizontal.	E	South Africa			x	
28	Riisgaard, 2010	Presents a strategic framework and step-by-step practical guide for designing and implementing action research in value chains in a way that integrates poverty, gender, labour and environmental concerns.	T	South Africa		x	x	
29	Zhu, 2010	Highlights the benefits of adopting SSCM in collaboration with supplier while adopting circular economy principles for e.g. Product development.	E	China			x	
30	Lam, 2011	Presents the barriers faced by MNCs trying to implement CSR programmes in emerging economies starting with an unsupportive organisation culture and lack of integration of sustainability in the core business.	E	China		x		
31	Otañez, 2011	The use of self-assessment measurements and reporting may be seen as greenwashing when the drivers is mainly to improve company's reputation.	E	Tanzania	x		x	x
32	Kao, 2012	By comparing two case studies, the paper presents the different approaches to sustainability according to their stakeholder's expectations.	E	China			x	
33	Lai, 2012	Identify customer pressure as the main driver to implement green logistics management in exporting companies in China. It links the adoption of GLM to environmental and operational outcomes.	E	China	x			x
34	Sandhu, 2012	It differentiates two levels of sustainable practice implementation in complying with regulation and going beyond regulation. The first is adopted by market drivers while the second one by cultural drivers.	E	India	x		x	
35	Zailani, 2012	Evaluates the links between SSCM practices and outcomes in the economic, environmental, social and operational performance	E	Malaysia			x	x
36	Abreu, 2012	It compares two emerging economies (China and Brazil) finding out that the differences in the national system, including political, financial, education, labour and culture factors are determinant for the different paths in SSCM adoption.	E	Brazil and China		x		
37	Perry, 2012	The adoption of SSCM is context specific. Three key influences were found key in Sri Lanka: 1) Strict government regulation, 2)Religious persuasion (Buddhism) and 3) government provision to socio economic development	E	Sri Lanka	x			

38	Lund-Thomsen, 2012	Explains the similarities and differences in work conditions of football stitches in China, Pakistan and India with the intertwined factors of industrial upgrading, Global value chain governance and types of local production organisation.	E	Pakistan, India and China			x	
39	Lund-Thomsen, 2012	Reviews the literature on social responsibility in industrial clusters in developing countries, finding a lack of engagement in questions about social development and poverty reduction.	T	Developing countries			x	
40	Aboelmaged, 2012	Explores the drivers for the adoption of SSCM. Recognise internal leadership as an important one. Pressure from the government leads to reactive practices rather than proactive approach	E	United Arab Emirates	x			
41	Kasim, 2012	Environmental impact caused by small firms are usually overlooked and therefore there are not enough pressures on them to adopt SSCM practices	E	Malaysia	x	x		
42	Ehrgott, 2013	Link the outcomes of improved company reputation and organisational learning to the antecedent of internal leadership from middle managers.	E	Developing countries	x			
43	Brik, 2013	Identify three main drivers to implement GSCM in emerging economies namely: import country regulation, MNCs policies and internal leadership.	E	United Arab Emirates	x	x	x	
44	Azmat, 2013	Presents a framework of the relationship between CSR vs customer trust and loyalty in the food supply chain. Identify the challenges to incorporate CSR in developing countries	T	Bangladesh	x	x		
45	Hsu, 2013	Links drivers with mechanisms. It states that competitor's pressures is the main driver to introduce green purchasing policies	E	Malaysia	x		x	
46	Gold, 2013	Base of the Pyramid project only address the social and economic dimension of sustainability, usually excluding environmental issues. Thinking of BoP not only as consumers but also as producers	E	Developing countries			x	
47	Jaikumar, 2013	The paper identify that the factors of pollution intensity, company size, collaboration with foreign company and ISO 14000 certification have a positive impact on the environmental performance of a company.	E	India	x			
48	Diabat, 2014	Identify five enablers for the implementation of SSCM acknowledging that they are all related to employees engagement.	E	India	x	x	x	
49	McMurray, 2014	It highlights religion as a driver to implement SSCM practices because it influences the actions of the procurement directors.	E	Malaysia	x	x		
50	Huq, 2014	Analyse drivers, barriers and enablers of SSCM in the ready made garments industry in Bangladesh	E	Bangladesh	x	x		

51	Nyuur, 2014	Analyse the barriers to implement sustainable practices in sub-Saharan Africa. Lack of project management skills and lack of stakeholders engagements were the most relevant	E	Ghana, Kenya, Malawi, Mozambique, Namibia, South Africa		x		
52	Khan, 2014	Evaluates a supplier development programme in Pakistan. Open communication and knowledge transfer are key elements for a successful interaction.	E	Pakistan			x	
53	Mitra, 2014	Buyer-supplier collaboration, product design and logistics for environmental sustainability stand out as the most important KSF (key success factors) impacting firm performance.	E	India			x	
54	Gualandris, 2014	Explores the impact that SSCM has on company's sustainability performance. Finding that companies with SSCM outperform their competitors	E	Developing countries				x
55	Turker, 2014	Presents a content analysis of the sustainability reports of fast fashion companies analysing their SSCM implication. Words may speak louder than actions.	E	Developing countries			x	
56	Shen, 2014	Present a detail example of the sustainability strategy of a fashion company. 80% of the focus is in environmental concerns such as materials, green distribution and retailing. Only 20% is focus in sustainable manufacturing in developing countries.	E	Developing countries			x	
57	Khalid, 2015	It explores the literature of SSCM and Base of the Pyramid exposing that despite clear interlinks among both research steam they remain separate in the literature.	T	Developing countries			x	
58	Mathiyazhagan, 2015	It provides a rank of importance for the drivers to adopt GSCM in the mining and mineral industry in India. Pressure from NGOs is first and financial factors are last.	E	India	x			
59	van Hoof, 2015	Anchor company involvement is crucial for the dissemination of sustainable practices among suppliers. Initial drivers to engage in the programme differ from benefits perceived after it.	E	Mexico	x		x	x
60	Li, 2015	It explores the barriers to implement environmental practices in eco-industrial parks. It argues that Intellectual property rights (IPR) limit the access to information and new technologies.	E	Taiwan		x		

61	Silvestre, 2015	Explores the barriers to adopt sustainable practices from the perspective of a buyer company located in an emerging economy, where the business and political environment are very volatile.	E	Brazil		x	x	
62	Bouzon, 2015	Economic benefit related to material value recovery is the main driver for the adoption of reverse logistics in Brazil	E	Brazil	x		x	x
63	Distelhorst, 2015	It investigate the effects of transnational private regulation in shaping workplace outcomes in emerging markets. Highlights civil society freedom as a key driver to improve labour conditions	E	China	x			
64	Park, 2015	Analyses of sustainability practices employed by MNCs in developing countries, calling for a balance between centralised and decentralised governance to success of sustainability strategy	E	Indonesia			x	
65	Zorzini, 2015	Systematic LR in socially responsible sourcing highlighting the lack of research in terms of how can SRS be achieved in practice	T	Developing countries		x		
66	Silvestre, 2015	SSCM is analysed with an evolutionary approaches. The way that the buyer company manager and is influenced by its established network of relationships shaping the evolution of SSCM trajectory	E	Brazil		x		
67	Soda, 2015	Describes the evolution of the adoption of GSCM practices in India and states operational efficiency as a primary driver. Points out the lack of literature devoted to the topic in emerging economies.	T	India		x		
68	Bloom, 2015	It highlights the crosspoints between food safety and sustainability standards. Implementation through MNCs-NGOs partnership.	E	Honduras			x	
69	Mansi, 2015	Analyse the sustainability reports of 50 companies owned by the Indian government finding a general low adoption. Proposes a sustainable procurement index.	E	India			x	
70	Vermeulen, 2015	Present a methodology to assess sustainable supply chain governance systems based on their coverage, precision and compliance control	T	Developing countries			x	
71	Hsu, 2016	It present eco-reputation and eco-innovation strategic orientation as new drivers for the adoption of SSCM and reverse logistic	E	Malaysia	x		x	x
72	Bendul, 2016	Develops sustainable supply chain models for BOP markets in developing countries, integrating BOP in the value creation activities of sourcing, production and distribution.	E	Developing countries			x	
73	Clarke, 2016	The paper exposes barriers in the implementation of codes of conducts along the supply chain, highlighting mock compliance justified in lack of government regulation	E	China		x		

74	Esfahbodi, 2016	The adoption of SSCM practices result in higher level of environmental performance in emerging economies, but at the expense of cost performance	E	China and Iran				x
75	Geng, 2016	Explores drivers and barriers for the adoption of GSCM in the Asian emerging economies, incorporating Guanxi - a cultural norm - as a moderator at the individual and firm level.	T	China, Taiwan, India, Malaysia, Indonesia, Thailand and South Korea	x	x		
76	Kanapathy, 2016	Investigates the adoption of GSCM practices in the region of Southeast Asia highlighting buyer-supplier collaboration as a win-win relationship.	E	Malaysia, Singapore, Thailand, Vietnam and Indonesia			x	
77	Kleemann, 2016	It evaluates the feasibility of organic certification for pineapple production in Ghana, finding that for smallholder farms, organic production is more advantageous than conventional production.	E	Ghana			x	
78	Mani, 2016	Develops a 20-item scale for measuring upstream and downstream supply chain social sustainability (SCSS) using six dimensions namely equity, safety, health and welfare, philanthropy, ethics and human rights.	E	India			x	
79	Prasad, 2016	It assess the applicability of lean and green practices in the foundry industry finding that they should be linked for implementation to enhance operational and environmental performance.	E	India			x	
80	Sjauw-Koen-Fa, 2016	Identifies critical success factors to bring smallholders into MNCs supply chains, including upgrading, collaboration, creation of smallholders cooperatives and access to finances.	LR	Developing countries			x	
81	Soundararajan, 2016	Codes of conducts fail in practice in emerging economies because of suppliers' traditions, beliefs, local demands and resource dependency. Buyers-Supplier collaboration and trust is needed to improve practices	E	India			x	
82	Syuaib, 2016	It discussed current agricultural condition in Indonesia and explores challenges and barriers to adopt sustainable practices.	LR	Indonesia		x		
83	Tan, 2016	Link the adoption of GSCM practices such as green production and green purchasing to positive outcomes in terms of firm competitiveness. Reverse logistics didn't have an impact since it was evaluated from the firm's point of view rather than the supply chain as a whole.	E	Malaysia			x	x
84	Yang, 2016	Explores the relationship between sustainability approaches and three intangible resources: innovation, human capital and ethical culture. Uses a	E	China			x	

		case study from high tech corporations in China to explain collectivistic values.						
85	Younis, 2016	Investigates the impact of GSCM practices on corporate performance. Provides practical advice on what practice a company should adopt according to the desired outcome	E	United Arab Emirates			x	x

Table 4. Description of drivers to adopt SSCM initiatives

Drivers	Description	References
<i>Regulatory</i>		
National regulation	National government law in environmental pollution and labour rights. Usually poor in developing countries, either for lack of regulation or lack of enforcement.	Acutt, 2004; Hsu, 2013; Perry, 2012; Zhu, 2006
Import country regulation	Regulation for international trade. One of the most important drivers for supplier in developing countries that export to developed countries.	Brik, 2013; Disethorst, 2015; Lo, 2010; Lund-Thomsen, 2010; Tsoi, 2010
<i>Normative</i>		
Buyer (MNCs) pressure	Internal codes of conducts or policies to comply with environmental and social principles.	Brik, 2013; Jaikumar, 2013; Morris, 2014; Sandhu, 2012; Hsu, 2013
Competitive advantage	Either by operational efficiency or product differentiation.	Huq, 2014; Hsu, 2013; McMurray, 2014; Morris, 2004; Vermeulen, 2010
NGO and civil society	Campaigns that expose corporate bad practices and harm their reputation or that promote sustainable practices and look for corporate sponsors. Low in developing countries.	Disethorst, 2015; Huq, 2014; Mathiyazhagan, 2015; Silvestre, 2015a
Market position	Maintain or improve position in the market against their competitors by improving overall reputation and marketing of differentiated products.	Acutt, 2004; Bouzon, 2015; Hsu, 2016; McMurray, 2014; Morris, 2014

Economic incentive	In the form of subsidies from buyer companies or the government, e.g. Tax reduction when ISO 14001 certified.	Bouzon, 2015; Huq, 2014; Mathiyazhagan, 2015; Silvestre, 2015; van Hoof, 2014
Industry association	Industry best practices linked to membership to industry association and global representation for lobbying.	Lo, 2010
<i>Cultural-Cognitive</i>		
Internal leadership	Leadership from owner or top manager in both, buyer and suppliers.	Aboelmaged, 2012; Brik, 2013; Kasim, 2012; Perry, 2012; Zhu, 2006
Intrinsic concern	Sustainability embedded in the company values and core business.	Jaikumar, 2013; Morris, 2004; Perry, 2012; Geng, 2016
Health & Safety	Proactive actions to exceed requirement for health and safety in the workplace. Starting point to express concern about sustainability.	Diabat, 2014; McMurray, 2014

Table 5. Description of barriers to adopt SSCM initiatives in emerging economies

Barriers	Description	References
Lack of political support	Absence of national regulation in developing countries. It includes the lack of financial support and weak institutions and law enforcement.	Abreu, 2012; Azmat, 2013; Kasim, 2012; Nyuur, 2014; Ras, 2007; Vermeulen, 2006
Lack of knowledge and awareness	Lack of understanding about sustainability issues and the importance of sustainable practices among consumers, suppliers and employees in developing economies, which is transform into a low demand from consumers and resistance from suppliers.	McMurray, 2014; Perez-Aleman, 2008; Ras, 2007; Soda, 2015; Zhu, 2006
Lack of infrastructure	Lack of adequate roads to transport products from rural to urban areas as well as poor telecommunication infrastructure.	Lam, 2011; Li, 2015; Silvestre, 2015b
Social barriers and unsupportive culture	Separation of sustainability strategy from the core business of the buyer. Misalignments between global standards and local needs. Resistance to change among employees in supplier's facilities.	Kasim, 2012; Lam, 2011; Nyuur, 2014; Syuaib, 2016
High economic cost	Upgrading cost is usually too high for suppliers in developing countries, especially when the buyer continues to ask for a lower price.	Abreu, 2012; Hus, 2014; Li, 2015; Perez-Aleman, 2008; Ras, 2007; Soda, 2015; Syuaib, 2016; Zorzini, 2015
Corruption and mock compliance	Falsification of documents for audits and illegal payments to the local government or certification bodies.	Azmat, 2013; Bartley, 2010; Morris, 2004; Silvestre, 2015

Table 6. Description of Mechanisms to implement SSCM in emerging economies

Mechanisms	Argument	References
<i>Assessment</i>		
Internal code of conduct	Buyer internal procurements policies and codes of conduct for suppliers. Audit by buyer.	Johnson, 2004; Kao, 2012; Sen, 2009; Soundararajan, 2016; Turker, 2014; Zailani, 2012
Third party certification	Set of standards to meet in terms of environmental or social management that is audited and validated by a third independent party.	Blowfield, 2000; Blowfield, 2003; Dolan, 2008; Lund-Tomsen, 2010; Morris, 2004
Industry standard	Best practices promoted by industry associations.	Acutt, 2004; Lund-Thomsen, 2010; Riisgaard, 2010
Designation of origin	Certification given to a product that it is distinctive because of the region where it has been produced.	Kleeman, 2016
<i>Collaboration</i>		
Direct supplier development	Buyer direct engagement with supplier to provide support in the implementation of internal codes of conducts.	Dahan, 2010; Jeppesen, 2004; Johnson, 2004; Kanapathy, 2016; Mitra, 2014; Park, 2015; Shen, 2014; van Hoof, 2014
Buyer-NGOs partnership	Buyer seeks assistance in NGOs or other organisations to deliver supplier development programmes.	Dahan, 2010; Bloom, 2015; Luken, 2015; Otañez, 2011; Perez-Aleman, 2008; Tsoi, 2010
Supplier networks	Platform to bring suppliers together and create a network to help each other. Usually supervised by NGOs, government or buyer.	Hsu, 2013; Johnson, 2004; Silvestre, 2015; van Hoof, 2014; Sjauw-Koen-Fa, 2016
Stakeholder engagement	Buyer participation in community development and engagement in government consultations.	Otañez, 2011; Turker, 2014; Tsoi, 2010

Table 7. Description of Outcomes after implementing SSCM in emerging economies

Outcomes	Argument	References
Economical	Increased shared value, new revenue stream, profits, cost saving.	Zorzini, 2015; Zailani, 2012; Sen, 2009; Bouzon, 2015; Turker, 2014; Gualandris, 2014
Environmental	Reduction of pollution and waste compare to base line. Carbon neutrality.	Sen, 2009; Soda, 2015; Lai, 2012; Zailani, 2012; Gualandris, 2014; Abreu, 2012; Kasim, 2012; Jaikumar, 2013
Social	For employees either in the buyer or the supplier company: general improvement of working conditions. Supplier's power increases. Impact in the community is not clear since it has been harder to measure.	Gualandris, 2014; Huq, 2014; Distelhorst,2015; Park,2015; Lund-Thomsen, 2012
Operational	Improved efficiency, quality and speed of operations, which in turn allow suppliers to process more orders.	Turker, 2014; Soda, 2015; Jaikumar, 2013; Zailani, 2012
Public image, Company reputation	Improved global and regional reputation of the buyer company. Recognition in the industry for adopting actions towards sustainability.	Bouzon, 2015; Sandhu, 2012; Turker, 2014
Organisational learning	Experience of a strengthened relationship with suppliers, higher levels of trust and a better understanding of the supply chain have all been mentioned as positive outcomes.	van Hoof, 2015; Ehrgott, 2013; Gualandris, 2014; Mitra, 2014; Silvestre, 2015a

Figure 1. Distribution of reviewed papers per year

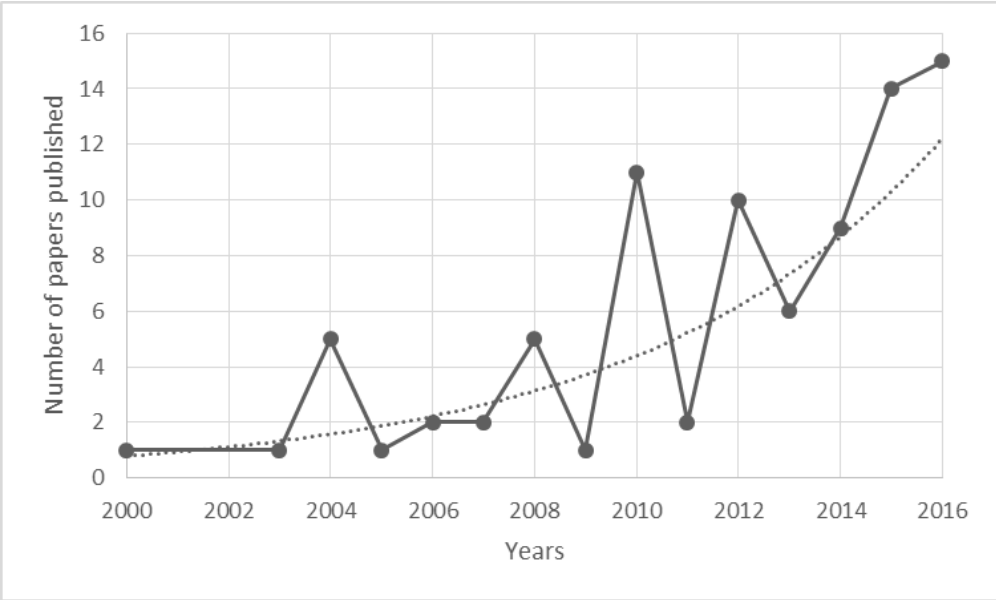


Figure 2. Conceptual model for instil SSCM in emerging economies

Drivers

Institutional Theory

Regulatory

National regulation
Import country regulation

Normative

Buyer (MNC) pressure
Competitive advantage
NGO and civil society
Market position
Economic incentive
Industry associations

Cultural - Cognitive

Internal Leadership
Intrinsic concern
Health & Safety

Mechanisms

Internal code of conduct
Third party certification
Industry standard
Designation of origin

Assessment

Collaboration

Direct supplier development
Buyer-NGOs partnerships
Supplier networks
Stakeholders engagement

Outcomes

Economic
Environmental
Social
Operational
Public
image/Reputation
Organisational learning

Barriers

Lack of political support and corruption
Lack of knowledge and awareness
Lack of infrastructure – roads and technology
Lack of engagement and unsupportive culture
High economic cost

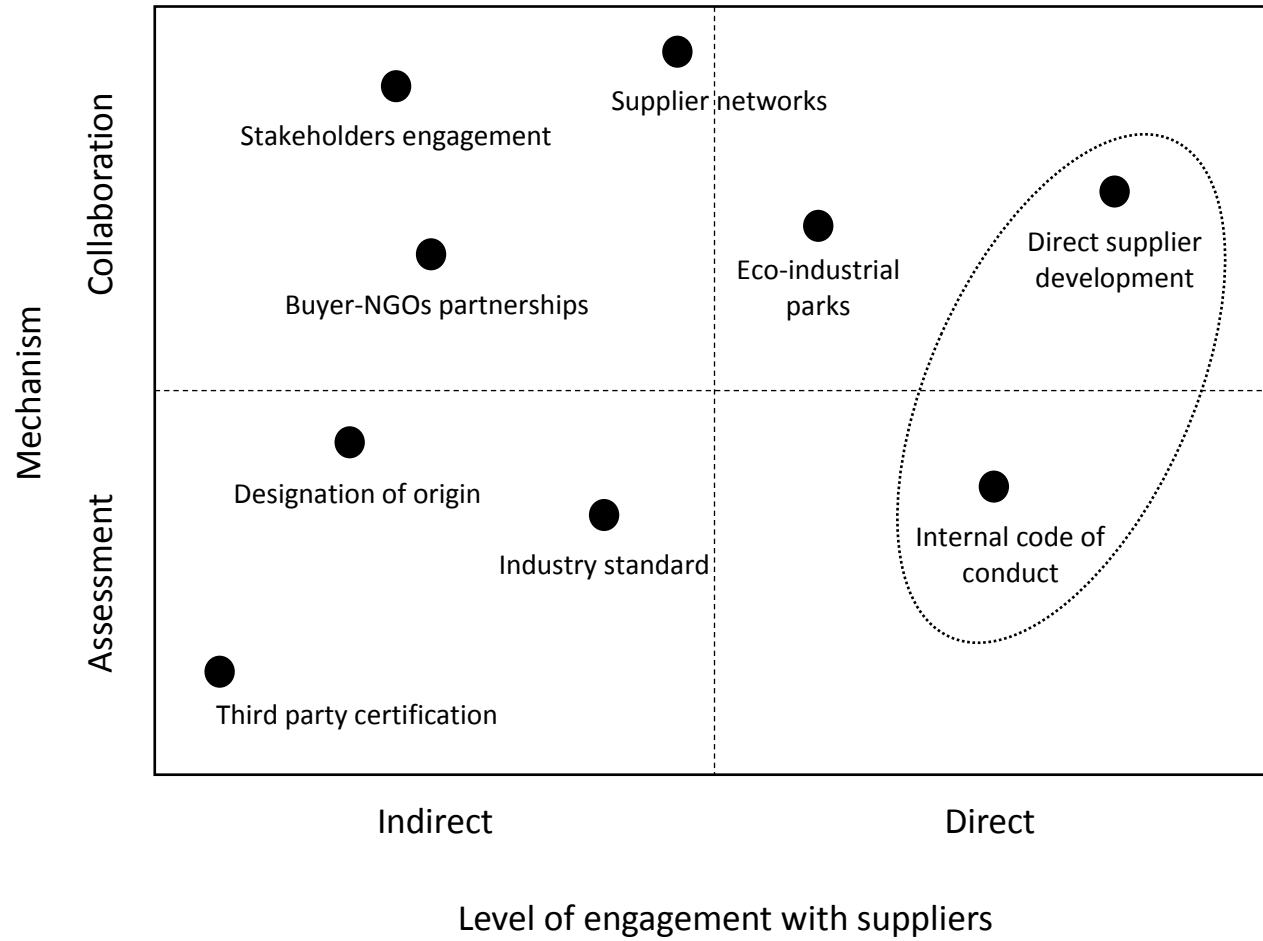
Barriers

Corruption and mock compliance
Lack of engagement and unsupportive culture
High economic cost

Ex-ante

Ex-post

Figure 3. Mechanisms according to the buyers' level of engagement with suppliers



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[i] In this paper, developing countries refers to the World Bank list of low and middle income countries, which are those in which 2015 gross national income per capita was \$12,475 or less. See <http://data.worldbank.org/income-level/low-and-middle-income> (accessed 30 May 2017)