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Sustainable Supply Chain Management: a Literature review on Brazilian publications

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ABSTRACT: Based on the progress in the international research on sustainability and supply chains, this paper aims to analyze how the concept of Sustainable Supply Chain Management has been explored in papers published in major Brazilian journals and conference proceedings, especially regarding the research areas of operations management and sustainability. Recognizing the theme as incipient in Brazil, there are few published studies, mainly in relation to journals, with a total of 44 papers focused specifically on the topic. The literature review indicates that the understanding of the topic includes recurrent discussions with environmental or economic dimensions. However, a comprehensive definition of the concept, i.e., including social issues, is lacking. Therefore, this creates a research gap and an opportunity for Brazilian researchers to contribute to the gradually developing field.

Keywords: *Supply Chain Management; Sustainability; Brazilian Publications.*

1. INTRODUCTION

Nowadays, frequent changes have occurred in several industries and organizational environments, requiring firms to continuously adapt their strategies to remain competitive. These adaptations can be identified in the relationships that organizations establish with each other in consequence of the evident transformation related to integration, collaboration, and information sharing among these actors and their stakeholders. In fact, the importance of inter-organizational relationships for developing new features and capabilities for companies is increasingly under discussion, both from current and future perspectives.

Thus, relevance has been given to supply chain management (SCM), in which the emphasis of competitive relationships has shifted from companies to supply chains. This inter-firm integration has become a promising strategic area capable of generating value and competitiveness for those involved (Brito & Berardi, 2010). Over time, even though supply chain structures and business processes remain in their current form, the reasons why organizations sought integration along their supply chains have changed.

As indicated by Pagell and Schevchenko (2014), besides showing satisfactory economic performance, organizations have also been held accountable for upholding a positive social and environmental performance in relation to their operations and, indirectly, to their partners' and suppliers' activities. As a result, the current attention directed to supply chains is related mainly to a more efficient, innovative, and sustainable process management (Carter & Rogers, 2008; Tsoufas & Pappis, 2006; Vachon & Mao, 2008; Vermeulen et al., 2010).

In parallel, the debates about sustainability are more widespread, since the individualistic characteristics are moving to a more collective perspective (Foladori, 2005). The inclusion of environmental and social issues in the economic debate has led to a wide range of concepts that have been applied to sustainability concerns in supply chain studies (Brito & Berardi, 2010). In many cases, focal companies have initially managed such environmental and social issues internally and over time started to involve a number of stakeholders in order to fulfill customer needs, either through networks or traditional SCM.

Discussions on the integration of sustainability strategies along the supply chain began to intensify

after the year 2000, with conceptual propositions based strongly on environmental and economic dimensions, e.g., Green Supply Chain Management (GSCM) (Sarkis, Zhu & Lai 2011; Srivastava, 2007; Zhu, Sarkis & Lai, 2007). Subsequently, the discussions were settled on the importance of considering the three dimensions of the Triple Bottom Line (TBL) (Elkington, 2002), presented alongside the concept of 'Sustainable Supply Chain Management' (Linton, Klassen & Jayaraman, 2007; Pagell & Wu, 2009; Seuring & Müller, 2008).

Their similarity has often led to a confusion regarding the use of these two concepts, mainly because it is still a new area of research and the initial studies usually refer to the terms "sustainability" and "environment" as synonymous (Ahi & Searcy, 2013; Carter & Easton, 2011; Seuring & Müller, 2008). Nevertheless, as research on "sustainability" advanced, international publications showed more clarity in using the TBL studies on supply chains (Ashby, Leat & Hudson-Smith, 2012; Beske, 2012; Carter & Easton, 2011; Carter & Rogers, 2008; Faisal, 2010; Markley & Davis, 2007; Pagell & Wu, 2009; Seuring & Müller, 2008; 2010).

Following the international debate, Brazil has also placed importance on sustainability management in the supply chain field. In the last years, a few researches have explored the importance of companies having projects on socio-environmental management integrated to their supply chains. To better analyze which issues in sustainability management have been explored in Brazilian supply chains, our paper presents the following research question: how have researchers explored the topic of sustainable supply chain management in major Brazilian academic conferences and journals so far?

The paper aims to analyze how the concept of Sustainable Supply Chain Management has been explored in papers published in major Brazilian journals and conference proceedings, especially regarding the research areas of operations management and sustainability.

We conducted a literature review on publications in selected national journals during a period of 15 years (2000-2014), totaling 37 Brazilian journals. Additionally, the proceedings of three national conferences related to operations management and sustainability were selected from a period of seven years (2008-2014).

As observed in the international scenario, this topic has increased in importance along the last years. New socio-environmental policies, stakeholders' requirements and consumer concerns about companies' actions are presented in most markets. This is also a result of supply chains being increasingly established in a global configuration. Many Brazilian companies are also part of these global supply chains and, therefore, it is natural that sustainability management will be part of their strategies over time. Studies exploring this empirical reality are in early stages and there is still much to be investigated. Thus, it is important to investigate what has been done and what is the potential for future research in the next years.

This paper is structured as follows: after this brief introduction, chapter two presents the concept of Sustainable Supply Chain Management and the main discussions in the field. In chapter three (method), we describe in detail how the literature review was carried out. In chapter four, we show the results and discussions. Finally, the conclusions from the analysis of data are revealed.

2. SUSTAINABLE SUPPLY CHAIN MANAGEMENT

Based on the current debates in operations research, supply chain management (SCM) and its relation to sustainability principles constitute a leading topic. Researchers have discussed the need for companies to manage aspects that go beyond the economic dimension, such as operational profitability and costs reduction. However, competitiveness and, in certain aspects, the availability of business, have to take into account the management of social and environmental aspects. Thus, by taking the precepts of the Triple Bottom Line (TBL) into SCM, the concept of Sustainable Supply Chain Management (SSCM) is derived (Linton et al., 2007; Seuring & Müller, 2008; Beske & Seuring, 2014; Seuring, 2011).

From discussions about sustainable supply chain management, the efficient management of processes along the supply chain should consider that sustainability needs to be analyzed not only on the basis of economic performance of the business but also of environmental and social performance (Ahi & Searcy, 2013; Beske, 2012; Beske & Seuring, 2014; Pagell & Schevchenko, 2014; Wolf, 2011). The evolution of supply chain management in relation to sustainability has shown greater clarification and con-

cern for the macroeconomic context of change, since businesses have become more complex in dealing with resources scarcity, greenhouse gas emissions, and consumers' awareness about labor issues.

The SSCM concept was widespread by Seuring and Müller's paper published in 2008. Based on an extensive literature review, the authors identified the need to address the strategic integration of the TBL dimensions into business. Thus, sustainable supply chain management is conceptualized as "the management of capital flows, materials and information, as well as cooperation between companies along the supply chain, seeking targets for the three dimensions: economic, environmental and social, which are requirements of customers and stakeholders" (Seuring & Müller, 2008, p.1700).

In the same vein, Pagell and Wu (2009, p.8) presented their contributions to the concept stating that a "sustainable supply chain should consider a good performance both in traditional measures of profit and loss, such as in the expanded conceptualization of performance with the inclusion of social and environmental dimensions". If a sustainable supply chain is one that performs well in all elements of the TBL, then SSCM refers to specific actions in terms of decision making and behavior changes towards the integration of social and environmental dimensions into the business management process, seeking to establish a more sustainable supply chain (Pagell & Wu, 2009).

Based on this understanding, in order to integrate sustainability objectives on the organizational and supply chain level, the initial impulse for corporate decisions comes from external pressures and stakeholder incentives (particularly customers and governments) (Seuring & Müller, 2008). According to these authors, when companies are under pressure, they tend to transfer part of it along their supply chains. Therefore, companies make use of two groups of strategies, which are: "supplier management for risks and performance" and "supply chain management for sustainable products" (Seuring & Müller, 2008).

On the one hand, companies will initially create sustainable strategies focused on the management of economic risks, long-term relationships and reduction of suppliers' base, creating win-win situations and positive performance in all the dimensions of the TBL along the supply chain (Beske, 2012). On the other hand, focal companies can also develop conditions to produce sustainable products, including all activities and inputs based on environmental and social standards in the manufacturing process (Seur-

ing & Müller, 2008). The requirements based on a Life Cycle Analysis (LCA) also involve efficiency in the process of communication, integration, and cooperation with suppliers in the supply chain.

Regarding the introduction of practices of sustainability in supply chains, Pagell and Wu (2009) proposed a model based on the integration of new values and capabilities, as well as the development of new behaviors along the supply chain. Thus the organizational capacity to innovate linked to a sustainability orientation reflect new values internally, which should be incorporated into the SCM. In line with these considerations, companies will be considered proactive and committed if their business model is aligned with environmental and social elements of sustainability (Pagell & Wu, 2009; Wolf, 2011).

According to Pagell and Wu (2009), from a new orientation the emergence of new behaviors lead to a reconceptualization of the supply chain and relationship continuity with suppliers. The authors highlight the integration of environmental agents, Non-Governmental Organizations (NGOs), community leaders, government agencies, and even competitors to evaluate opportunities and necessary changes along the chain. Regarding the continuity of relationships with suppliers, Pagell and Wu (2009) point out that long-term relationships facilitate transparency, traceability, certification and process of de-commoditization. Thus, the effective implementation of sustainability objectives in supply chains pervades the managerial decisions of the focal firm, responsible for defining action plans in different levels of interactions with its stakeholders.

Beske (2012) elucidated four main categories comprising the Sustainable Supply Chain Management concept, as follows: managerial orientation, continuity of the supply chain, risk management, and pro-activity. Following this research, Beske, Land and Seuring (2014) suggested a different approach to these categories. For them, a redefinition is necessary: strategic orientation, continuity, collaboration, risk management, and pro-activity (for sustainability). This change was conducted from a literature review including papers focused on the food industry. After that, Beske and Seuring (2014) presented a more advanced framework related to these categories. Now they are: orientation, continuity, collaboration, risk management, and pro-activity.

Also, three hierarchic levels are involved in the analysis of SSCM: strategic value, structure and processes. Beske and Seuring (2014) proposed to enhance the

analysis of sustainability in SCM, indicating theoretical consistence. Considering these discussions, it is clear that we have a sequence of international studies that demonstrate the advances in research on this topic. From all the previous considerations, in this study SSCM is understood as the management of capital flows, material, and information, as well as the cooperation between companies along the supply chain to achieve good performance in all elements of the TBL (economic, environmental, and social), as proposed by Elkington (2002), and to ultimately improve the sustainability of the supply chain.

In Brazil, many studies have discussed the importance of sustainability management in business (Junqueira, Maior & Pinheiro, 2011; Pereira et al., 2011; Silva et al., 2011). However, when it comes to linking sustainability dimensions to SCM, only a few studies address this topic (Abdalla & Barbieri, 2014; Adaime, Carvalho & Monzoni, 2011; Gonçalves-Dias, Labegalini & Csillag, 2012; Rocha et al., 2012). Considering this, our paper seeks to contribute to current discussions by analyzing the publications that approximate sustainability management to SCM. Also, this analysis allows us to identify the most studied issues in the Brazilian literature and contribute to future research on the topic.

3. METHOD

This paper aims to analyze how the concept of Sustainable Supply Chain Management has been explored in papers published in major Brazilian journals and conference proceedings, especially regarding the research areas of operations management and sustainability. The research consists in a literature review conducted in two steps. First, suitable material was collected. Second, using a qualitative approach, we analyzed how conformable the concepts presented in the selected papers were to the SSCM concept. We employed a bibliometric approach because it is a research design that can indicate the scientific contributions to a certain subject (Araújo, 2006).

We also used a descriptive analysis approach by means of discussions and reflexive analysis of the researchers involved. The data was collected from journals in the fields of Management, Accounting, and Tourism graded A2, B1, and B2, according to the Brazilian journal classification (Qualis Capes 2012), graded as totaling 37 journals, all published in Portuguese (see Table 1). It is noteworthy that there was no national journal with Qualis A1 available for selection.

Table 1: List of selected journals and their Qualis Classification 2012			
Journal	Qualis	Journal	Qualis
<i>Brazilian Business Review</i> (Português)	A2	Revista de Negócios (Online)	B1
Gestão & Produção	A2	Revista Eletrônica de Administração	B1
Organização & Sociedade	A2	Revista Portuguesa e Brasileira de Gestão	B1
Revista de Administração Contemporânea	A2	Análise (PUCRS)	B2
Revista de Administração (SP)	A2	Base (UNISINOS)	B2
Revista de Administração de Empresas	A2	Contextus (Fortaleza)	B2
Revista de Administração Pública	A2	Economia & Gestão	B2
Cadernos EBAPE.BR (FGV)	B1	Pretexto (Belo Horizonte)	B2
Faces: Revista de Administração	B1	Revista Alcance	B2
Gestão & Regionalidade	B1	Revista Brasileira de Estratégia (REBRAE)	B2
Organizações Rurais e Agroindustriais	B1	Revista de Administração da UFSM	B2
Produção (São Paulo)	B1	Revista de Agronegócio e Meio Ambiente	B2
Revista Brasileira Gestão de Negócios	B1	Revista de Gestão (REGE USP)	B2
Revista Brasileira Gestão e Desenvolvimento Regional	B1	Revista de Gestão Organizacional (RGO)	B2
Revista de Administração e Inovação	B1	Revista de Gestão Socioambiental (RGSA)	B2
Revista de Administração Mackenzie (RAM)	B1	Revista Eletrônica de Ciências Administrativa (RECADM)	B2
Revista de Administração da Unimep	B1	Revista Iberoamericana de Estratégia (RIAE)	B2
Revista de Ciências da Administração (CAD/UFSC)	B1	Revista Produção Online	B2
Revista de Economia e Sociologia Rural	B1		

Besides the journals, additional material was collected from three major national conferences on the research topic. The selected conferences are:

- Simpósio de Administração da Produção, Logística e Operações Internacionais – SIMPOI (Production Management, Logistics and International Operations Symposium);
- Encontro Nacional da Associação Nacional de Pós-Graduação em Administração – EnANPAD (National Meeting of the National Association of Graduate Studies in Business Administration);
- Encontro Nacional de Gestão Empresarial e Meio Ambiente – ENGEMA (Business Management and Environment National Meeting).

The decision of using these data sources is justified by the relevance of the selected conferences and academic publications in Brazil, in which it is possible to identify papers that are related to Operations and Sustainability topics. Also, the journal publications were explored for a period of 15 years (2000-2014). We used this period trying to capture how the issue of SSCM has evolved since the 2000s. Concerning publications from conferences, a period of 7 years (2008-2014) was explored. Because of the international context, we decided that 2008 can be considered a milestone in SSCM research.

During data collection, papers were selected if they actually mentioned the topic of this study. The stated journals and conference proceedings were searched by the following keywords: ‘supply chain’, ‘supply chain management’, ‘sustainability’, ‘sustainability and supply chain’, and ‘sustainable supply chain management’. This search resulted in 86 papers. In a new filtering process, abstracts were scanned and, if necessary, the introduction. After this scanning process, 44 papers were selected. From this selection, all items were properly analyzed by the researchers, seeking to identify the relationship or proximity of the information found in the papers with the SSCM concept.

To analyze the data, a content analysis (Bardin, 2009) was performed, aiming to identify how sustainability has been applied in the supply chain and the impact of discussions around these themes. Furthermore, an analysis was conducted regarding the methods of research. For this purpose, we used the categories identified by Seuring and Müller (2008): (a) theoretical and conceptual, (b) case studies, (c)

surveys, (d) modeling papers, and (e) literature review. Thus, by carrying out a literature review, it is possible to understand the contributions of Brazilian publications and identify the implications for future research.

4. RESULTS AND DISCUSSION

To develop the analysis, we divided it in two phases. First, we present a discussion about SSCM publications in the selected conference proceedings and academic journals in order to specify what the focus of our research is and how academics position themselves in the current debate, aiming to build a pervasive discourse. Subsequently, in order to meet the objective of the proposed research and achieve a better understanding of the concept of SSCM in the Brazilian context, a more integrated discussion is brought forth between the reviewed papers and the items constituting SSCM, as previously discussed in this paper. In the following section, discourses and practices are discussed.

5. BRAZILIAN PUBLICATIONS ON SSCM WITHIN THE ANALYZED TIME FRAME

First, we carried out a review of major academic publications means in Brazil to verify the existence of papers on the theme of sustainable supply chain management. A total of 37 papers that somehow contribute to the understanding of sustainability in supply chains were identified in the three conferences analyzed. An overview of the selected papers is presented in Table 2. It is noteworthy to point out that in some papers; only certain aspects of SSCM could be identified. Furthermore, only seven papers were found in the analyzed journals.

Concerning sustainability, papers were identified in different areas at the EnANPAD conference. One out of eight papers was published in 2008, related to ‘Public Administration and Social Management’. Among the papers published between 2009 and 2014, six were found in the area of ‘Operations Management and Logistics’, addressing production and supply chains, SSCM in small and medium enterprises, the relationship between the external pressures and environmental practices in sustainable supply chain management, and relationships in the customer-supplier dyad or logistics integration. Two papers were related to ‘Strategy in Organizations’, one to corporate social responsibility with suppli-

ers, and the other to environmental practices and competitiveness. Finally, one article was published in the area of 'Science, Technology and Innovation'.

At the SIMPOI conference, the fourteen papers analyzed were published under the topic of 'Sustainability in Operations Management'. Besides this topic, SIMPOI suggested for the first time a central theme for the conference of 2008, named 'Sustainability and Operations'. It aimed at discussing sustainable supply chains, consolidating the theme in the conference. Four of the selected papers were published in 2011. Two other studies were presented in the 2010 and 2012 editions, which focused on 'Global Operations and International Networks'. Two studies were identified in 2013 and address sustainability and environmental responsibility in the supply chain. In 2014 the theme of the conference was 'Humanitarian operations and sustainable chains', and five papers were published.

The ENGEMA conference is associated with topics on 'Social and Environmental Strategy'. From the total of thirteen papers analyzed, nine were presented under the theme strategy and published in 2011, 2012, and 2013. While seven studies concentrated on supply chains (five empirical and two theoretical), one of them focused on production chain and the other on the customer-supplier dyad. Only three of these papers were related to concepts and practices aimed at sustainability in the supply chain. The other article published in 2010, which was presented under the topic 'Technical Approach and Environmental Management', addressed reverse logistics in the supplier-customer dyad. Three other studies were presented in the 2014 edition: two papers were presented under the theme 'Sustainable Operations' and another was found in the area 'Sustainable Innovations'. In short, these three conferences have specific, focused research areas relating to parts of the concept of sustainable supply chain management.

Table 2: List of papers identified in conference proceedings during the research

Conferences	Year of publication	Paper Title Translation ¹	Authors
SIMPOI ²	2008	The search for sustainable management in supply chains: initiatives and challenges	M. Dalmoro; D. Marconatto; V. Estivaleta
SIMPOI	2010	Analysis of the incorporation of sustainability in industrial supply chains in RS - Brazil	L. B. Dalé; P. Hansen; L. Roldan
SIMPOI	2011	Analysis of a organic supply chain oriented to sustainable development: a complex vision	L. C. Zucatto; E. Pedrozo
SIMPOI	2011	Social responsibility in relations between buyer and suppliers in the supply chain of organic products in Brazil	S. B. Silva; L. M. Vieira
SIMPOI	2011	Social and environmental issues and supply chain management: a case study on the productive chain of soybean in the Brazilian Amazon	P. Adaime; A. P. Carvalho; M. Monzoni
SIMPOI	2011	Evaluation of Brazilian cash operation by approach of sustainable supply chains	O. Cattini Jr; D. Okino
SIMPOI	2012	Closed-loop supply chain: rethinking the way we do the things	R. Bergel; U. Tortato
SIMPOI	2013	Sustainable Beef - How different stakeholders of the beef production chain are involved in practices for sustainability in RS - Brazil?	M. E. Silva; A. P. F. Alves; M. D. Barcellos

SIMPOI	2013	Governance in Sustainable Supply Chains: a conceptual discussion associated with Coordination and Collaboration	D. M. Neutzling; L. F. M. Nascimento
SIMPOI	2014	Sustainable Supply Chain Management: Multi Case Study	D. O. C. Moraes; F. R. Pinto; M. G. O. Carlos
SIMPOI	2014	Social Issues In Sustainable Supply Chain Management: A Brazilian Perspective	M. E. Silva; L. F. M. Nascimento
SIMPOI	2014	Integration in Sustainable Supply Chain Management: A Theoretical Approach	D. M. Neutzling; L. F. M. Nascimento
SIMPOI	2014	Sustainable Management in means of accommodation and its Supply Chain: A Study on the Northern Coast of São Paulo State	C. M. João; J. C. Barbieri
SIMPOI	2014	Determinants of Sustainable Supply Chain: An Analysis of Pressures Measurement Models and Social and Environmental Practice	E. C. Abdala; J. C. Barbieri
EnANPAD ³	2008	Brazilian organic meat from the Sustainability perspective	A. M. Abicht; A. C. Ceolin
EnANPAD	2009	Sustainability in Supply Chains: A comparative perspective of national and international publications	S. Gonçalves-Dias; L. Labegalini; G. Polidório
EnANPAD	2010	An analysis of the relationships between Buyer and Supplier in the supply chain of organic products in Brazil	S. B. Silva; L. M. Vieira
EnANPAD	2010	Innovations in Production Chain and the Consumption of PET Packaging	L. F. Nascimento; M. Trevisan; P. S. Figueiró; M. Bossle
EnANPAD	2010	Social Responsibility actions in relation to Supplier: A Case Study Based on the Ethos Indicators at O Boticário company	R. Nakayama; R. Teixeira
EnANPAD	2010	Environmental and Social Responsibility as part of Integrated Logistics: The Case of Export of Soy Complex by Bunge Alimentos S / A.	L. T. Robles; F. G. Borger; T. R. Machado
EnANPAD	2011	Criteria for Corporate Social Responsibility in the Supply Chain of Oil and Natural Gas industry: The Case of Pernambuco Suppliers of Petrobrás	E. Melo; M. Primo; C. Gómez; R. Amaro
EnANPAD	2012	Environmental Practices and their relationship with Competitiveness and Sustainability: a case study in an agribusiness company	M. F. Barbosa; G. A. Cândido
EnANPAD	2014	Sustainable Supply Chain: Management in SMEs	D. O. C. Moraes; F. R. Pinto; M. G. O. Carlos

EnANPAD	2014	Pressures and Environmental Practices in the Context of Supply Chain Management: A case study of the relationship between determinants and sustainable actions in Minas Gerais industries	E. C. Abdala; J. C. Barbieri
ENGEMA ⁴	2010	Post-Consumer Reverse Logistics : relations between an industry and its suppliers	P. Figueiró; L. F. Nascimento; M. Trevisan; M. Bossle
ENGEMA	2011	Inter-organizational relationships at Rede Justa Trama as a success factor in the production and marketing of eco-cotton products	M. Bossle; L. F. M. Nascimento
ENGEMA	2011	Sustainability management in the broiler supply chain in Mato Grosso, Brazil	D. M. Neutzling; E. A. Pedrozo
ENGEMA	2012	Supply Chain Management and Sustainability: A bibliometric study of publications in the Web of Science database	A. C. Rocha; L. Rosa; J. Zamberlan; C. Camargo
ENGEMA	2012	Social and environmental aspects of the Brazilian beef chain	O. Faro; R. C. Calia
ENGEMA	2012	Selection of green suppliers: literature review, classification and analysis	T. F. Quilice; J. Salvini; C. J. Jabbour
ENGEMA	2012	Building a supply chain of the future: a case study of Wal-Mart Brazil	I. Teixeira; R. C. Calia; M. F. Neves
ENGEMA	2013	Reflections and approaches between Sustainability and Supply Chain	M. E. Silva; L. F. M. Nascimento
ENGEMA	2013	The case of a Cleaning Industry and its Sustainable Supply Chain Management within the framework of Seuring and Muller (2008)	D. O. C. Morais; F. R. Pinto; M. G. O. Carlos
ENGEMA	2013	Repositioning the floodlights of proactive behaviour: from an environmental focus to sustainable practices	A. P. F. Alves; M. E. Silva
ENGEMA	2014	Assessment Tool for Sustainable Supply Chain Management a Multicase Study	D. O. C. Morais; M. G. O. Carlos; F. R. Pinto
ENGEMA	2014	Sustainable Innovation in Supply Chain Management	P. Dias
ENGEMA	2014	Sustainable Supply Chain Practices of a Manufacturing Industry	C. Dullius; P. R. Schaeffer; C. L. Viana

¹ The titles presented here were free translated by the authors of this paper. The original titles in Portuguese are presented in the appendix (Table 4)

² Simpósio de Administração da Produção, Logística e Operações Internacionais (SIMPOI); ³ Encontro Nacional da Associação Nacional da Pós-Graduação em Administração (EnANPAD), and ⁴ Encontro Nacional de Gestão Empresarial Meio Ambiente – (ENGEMA)

The analysis revealed that SIMPOI and ENGEMA stand out for the largest number of papers focusing on sustainability and environmental responsibility in the supply chain. It can be justified by the subject areas covered at these conferences; the first is related to operations management and the second to the relationship between organizational and environmental management. When it comes to the EnANPAD

conference, only few studies (as presented in Table 2) address the customer-supplier dyad or the relationship with stakeholders, or adopt a supply chain approach. Moreover, some studies addressed only one sustainability dimension with chain actors, social or environmental. Furthermore, only seven papers were identified in national journals. They are presented in Table 3.

Table 3: List of papers identified in journals during the research			
Journal	Year of publication	Paper Title Translation¹	Authors
Revista de Administração da USP	2007	Reverse supply sustainability: a case study of the Plasma Project	M. Pedroso; R. Zwicker
Gestão & Regionalidade	2008	Socio-Environmental Responsibility in the Tobacco Supply Chain in Brazil	S. M. Santos; C. Ferrari; G. Giacomini Filho
Revista de Administração de Empresas	2010	Competitive advantage and sustainable supply chain management: a meta-analysis	R. Brito; P. Berardi.
Revista de Administração da Unimep	2012	The role of logistics operators in Sustainability actions	M. Vivaldini
Produção	2012	Sustainability in supply chains: a comparative perspective in domestic and international journals	S. Gonçalves-Dias; L. Labegalini; J. M. Csillag
Revista de Administração e Inovação	2013	Social and Environmental innovations in Supply Chain: A case study on the role of focal company	A. P. Carvalho; J. C. Barbieri
Gestão & Produção	2014	Analysis of sustainability practices used in supply chain management: a field research in the Brazilian automotive sector	R. M. Vanalle; L. B. Santos

¹ These titles were presented both in English and Portuguese. The original titles in Portuguese are shown in the appendix (Table 5)

Therefore, we can notice a difference between national and international discussions regarding the use of TBL. This fact can be explained as follows: in the 2000s, a limited number of seven papers were published in the 37 Brazilian journals. In 2008, Seuring and Müller's (2008) literature review on SSCM marked a milestone in the research area. In fact, until

this moment, it is the most cited paper in the Journal of Cleaner Production. Nevertheless, the most significant studies in Brazil have only emerged after 2010. If new researchers use a more critical analysis in their publications, a better contribution can be created to improve the matching between the previously developed and future research on the SSCM concept.

6. THE BRAZILIAN VIEW ON SUSTAINABLE SUPPLY CHAIN MANAGEMENT

The study of SSCM requires a clear understanding of some theoretical issues, such as sustainability, supply chains and strategy. Thus, we highlight our comprehension about sustainability, which goes beyond the concept reported in the Brundtland Report. From the TBL perspective, we understand that sustainability takes into consideration what has been discussed by Hopwood, Mellor and O'Brien (2005). These authors believe that sustainability should be seen under a macro transformation framework, despite being a slow process, which is related to the non-maintenance of the *status quo* in terms of economy and society organization.

An in-depth analysis of the selected papers shows us that there is a misunderstanding related to sustainable practices that focus only on the environmental dimension. This finding can be related to the argument presented by Carter and Easton (2011) when discussing the continuing confusion between the environmental dimension and sustainability in general. According to the authors, the confusion can be observed in many papers. However, the finding relates to the argument presented by Ashby et al. (2012). These authors hypothesized that the environmental dimension of sustainability is substantially more represented than the social dimension, as its principles and practices are covered more in the literature.

Aiming to solve such misunderstanding, we highlight that the concept of Green Supply Chain Management (GSCM) can be used as the concept that directly represents a discussion of the environmental dimension in supply chains. In fact, GSCM was presented in some of the analyzed papers. Nevertheless, it would be necessary to observe the overlap of authors who discuss the topic (i.e. GSCM and SSCM) separately. For instance, some of the papers discuss Sustainable Supply Chain Management but use the concept of Green Supply Chain Management as a translation of SSCM to Portuguese, which indicates that there is a lack of theoretical and epistemological alignment of these themes. Actually, a deeper understanding is needed. For GSCM and SSCM, it is necessary to reach an effective comprehension of the subject.

Also, the analysis revealed the prominence of sustainability as a rather separate topic, lacking a stronger emphasis on the supply chain concept itself. More specifically, the article published at 'Revista de Administração da Unimep' by Pedroso and Zwicker

(2007) was the one closest to the discussion related to sustainability and clearly relevant concepts in the operations area. Another paper that should be highlighted was published by Brito and Berardi (2010) at 'Revista de Administração de Empresas'. This paper presented a discussion about SSCM from a competitive advantage perspective, centering the discussion around the study of Seuring and Müller (2008). This article (third in Table 3) as well as the paper published at 'Revista de Administração e Inovação' by Carvalho and Barbieri (2013) used the concept of sustainable supply chain management.

Some of these papers have translation problems, where it is necessary to observe the motivation as well as the objective of the research. This argument shows that the discourse on the subject is not yet aligned with sustainability because there are some comprehension problems, but it is in a process of change. In the international debate, there are advances on such discussions. However, from the SSCM perspective, the main contribution should be towards fully understanding the theme in emerging countries (including Brazil), especially with regard to social aspects. Thus, what would be the understanding of SSCM? It could be said that the understanding is in the observation of TBL aspects since the focus is both on environmental and social dimensions.

In addition to understanding what and how Brazilian researchers carry out their research, we identified the need for analyzing the search process. In this context, the methodological approach of the papers was analyzed. Regarding the methodological type of the papers, analysis revealed a predominance of research classified as case studies (26 papers). Within this category of publication, topics on supply chains, organic food products and commodities were emphasized. Also, a total of 15 conceptual studies, including literature review and/or theoretical papers, were identified, and more than half of these papers were published during 2012. Moreover, we observed that in 2013, three (out of 15) of the published papers are considered as conceptual/theoretical. In 2014, three of the selected papers conducted a survey, showing that this is an emerging method of analysis within the topic area.

Given these considerations, we can see that researchers started to understand the theoretical background of the subject. Furthermore, with an analysis of the nature of the research, there is a concentration of case study research papers (59.09%), corresponding to a total of 26 papers, which is a finding already ex-

plained by the prior choice of article type. Also, conceptual/theoretical and literature review research (34.09%) was featured in 15 papers, and three surveys (6.82%) were identified. Therefore, national papers using secondary type techniques, focus group, experiment, and action research could contribute to future advances in the field of Sustainable Supply Chain Management.

This analysis highlights the concentration of studies in methodological terms (case studies) and in relation to the object of the studies (supply chains in the primary sector). The analysis also confirms that the methodological concentration partly explains the development of the research field, with Brazil still being in the initial stage of SSCM research. Recognizing that Brazil is still in the early stages of SSCM research justifies the use of bibliographical studies and literature reviews. In this circumstance, the results show the issues that have been discussed relating to SSCM in order to build a national discourse in Portuguese. When performing a search for publications of Brazilian researchers in English, different results may arise because there are studies that are directed accordingly. Thus, debates about the academic implications of this analysis are valid.

7. ACADEMIC IMPLICATIONS

Considering the arguments used so far, a broad field of research on Sustainable Supply Chain Management clearly exists. It should be clear to researchers in the area which field of research they contribute to, meaning operations or corporate strategy. The former focuses on improvements of operational aspects – which is the quest for direct results and with the least possible impact – while the latter field considers sustainability from a strategic perspective, which understands sustainability as a means to reach a certain result, thus taking a performance view regardless of the field.

As discussed by Ashby et al. (2012), the second perspective is the one that can reach further progress. This perspective considers that sustainability can be examined from organizational relationships, referring to human aspects (social) and environmental factors that are part of the whole process and not just the result generated by a specific vision. From a more operational perspective, there is still a focus on organizational development and performance (Rocha et al., 2012). As mentioned in the theoretical discussion, Seuring and Müller (2008) present the

possibility of changes in the relations of the supply chain according to strategies for suppliers and products (Seuring & Müller, 2008).

Furthermore, another research approach on the subject is based on the theoretical categories presented by Beske (2012), namely: continuity in supply chains, guidance, risk management, and proactivity. Although Beske (2012) presented a more focused discussion on the idea of dynamic capabilities and focused on the contribution of innovation strategies to deal with sustainability, such categories can guide new research as well. By the same logic, Pagell and Wu (2009) demonstrate a more consistent theory on the subject, in which it is clear to understand how it should be treated in the chain, the supply chain's re-conceptualization, and its total contribution in a changing scenario.

Recent examples of a national research are two groups, as follows: (1) Fundação Getúlio Vargas, in São Paulo (FGV/SP), in which in the last years at least two thesis were presented using specifically the SSCM theme; (2) Federal University of Rio Grande do Sul, in Porto Alegre, in which only in 2014 one doctoral thesis and one master's dissertation were presented. Therefore, in 2013 both groups were engaged in projects with Professor Dr. Stefan Seuring, a renowned author in the field who conducted a workshop on Sustainable Supply Chain Management, demonstrating an alignment with the field of research and involving researchers from all over Brazil in the discussion of this area.

Therefore, in addition to the required theoretical approaches, the use of alternative methods for carrying out research – besides case studies and literature reviews presented in the previous section - is still needed in order to bring new studies and approaches to the area (Pagell & Schevchenko, 2014). Furthermore, we believe that research should be conducted not only with a primary focus on sectors or in accordance with simple relationships. Research needs to be encouraged on issues involving supply chains with demands of different sectors according to energy resources, materials and also the potential impact on the three dimensions of TBL. Thus, the subject needs to be further discussed in order to improve Brazil's representativeness in relation to the world.

8. FINAL REMARKS

Increasingly more studies discussing sustainability have been conducted in the Business Administra-

tion field. The same is true regarding SCM research. However, the effective contribution of the studies on the development or the essence of the topic to incorporating this theme in the SSCM research is not yet clear-cut. It was possible to see that in Brazil there have been publications on this topic mostly because it is an “emerging” topic, which can lead to misunderstandings, particularly in the distinction of what has been discussed in an environmental sphere or/and in a sustainable sphere. As indicated by Carter and Easton (2011), sustainability can be considered a “license” to operate a business in the 21st century but requires a consistent theoretical outline to this end.

According to Gold, Seuring and Beske (2010), the literature on the subject still has limitations, which does not leave Brazilian research too far from a possible breakthrough in the coming years. If national researchers became more involved in the field, Brazil could play a prominent role in the international debate. Therefore, the actual introduction of the SSCM concept needs to be performed since only one of the identified papers (Brito & Berardi, 2010) showed a relationship between management, sustainability, and supply chain in relation to SSCM and the theoretical discussion presented earlier.

When we seek to understand the relation of sustainability management in the integration of members in a supply chain, such a discussion should be held. It is necessary to think about what is meant by empirical applications and how it can contribute to academic discussions. Based on this, an in-depth discussion on Brazilian publications and a reflexive analysis were performed, seeking to understand the context of Brazilian academic publications and indicating potential topics of research.

It is noteworthy to mention that when collecting papers we could see many studies addressing specific points in supply chains; however they were not selected because they were directly related to environmental aspects (i.e. ISO 14000, Life Cycle Analysis, Reverse Logistics) and did not mention the focus of this research, namely sustainability. Thus, the search was constrained to the theme of sustainability and operations. Moreover, considering the fact that not all journals ranked by Qualis Capes 2012 were scanned for potential papers to be reviewed is yet another limitation, as additional discussions could have been brought forth. Also, the inclusion of other conferences as a source for papers could have extended the results of the research.

Therefore, the research contributions of this study include the following: (1) recognizing previous academic contributions to the subject in the Brazilian context, (2) discussing the existence of alignment with the SSCM in the researches, (3) demonstrating the main methodological research designs, and (4) emphasizing the need for a more fully developed introduction to the topic, seeking to achieve more consistent research. Thus, further studies may be based on considerations of academic implications as previously presented. Moreover, from this type of research, companies may better recognize existing gaps that can be worked on throughout the supply chain.

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Appendix

Table 4: List in Portuguese of papers identified in conference proceedings during the research		
Conferences	Year of publication	Paper Title in Portuguese
SIMPOI ¹	2008	A busca de uma gestão sustentável em cadeias de suprimentos: iniciativas e desafios
SIMPOI	2010	Análise da incorporação da sustentabilidade em cadeias de suprimentos industriais do RS
SIMPOI	2011	Análise de uma cadeia de suprimentos orgânica orientada para o desenvolvimento sustentável: uma visão complexa
SIMPOI	2011	Responsabilidade social nas relações entre comprador e fornecedores na cadeia de suprimentos de produtos orgânicos no Brasil
SIMPOI	2011	Temas socioambientais e gestão de cadeia de suprimento: um estudo de caso sobre a cadeia produtiva de soja na Amazônia brasileira
SIMPOI	2011	Avaliação da operação de numerário brasileira pela abordagem de cadeias de suprimento sustentáveis
SIMPOI	2012	<i>Closed-loop supply chain</i> repensando a maneira como fazemos as coisas
SIMPOI	2013	<i>Sustainable Beef</i> – Como diferentes <i>stakeholders</i> da cadeia de carne bovina gaúcha estão envolvidos com práticas para a sustentabilidade?
SIMPOI	2013	Governança Em Cadeias de Suprimento Sustentáveis: uma discussão conceitual associada aos aspectos da Coordenação e Colaboração
SIMPOI	2014	Gestão da Cadeia de Suprimento Sustentável Estudo Multicaso
SIMPOI	2014	Social Issues In Sustainable Supply Chain Management: A Brazilian Perspective
SIMPOI	2014	Integração na Gestão de Cadeias de Suprimentos Sustentáveis: Uma Abordagem Teórica
SIMPOI	2014	A Gestão Sustentável em Meios de Hospedagem e Sua Cadeia de Suprimentos – Um Estudo no Litoral Norte do Estado de SP
SIMPOI	2014	Determinantes da Cadeia de Suprimentos Sustentável: Uma Análise de Modelos de Mensuração de Pressões e Práticas Socioambientais
EnANPAD ²	2008	A Carne Orgânica Brasileira Sob a Ótica da Sustentabilidade
EnANPAD	2009	Sustentabilidade em cadeias de suprimentos: Uma perspectiva comparada de publicações nacionais e internacionais
EnANPAD	2010	Uma análise dos relacionamentos entre Comprador e Fornecedores na cadeia de suprimentos de produtos orgânicos no Brasil
EnANPAD	2010	Inovações na Cadeia de Produção e Consumo de Embalagens PET
EnANPAD	2010	Ações de Responsabilidade Social com Relação ao <i>Stakeholder</i> Fornecedor: Estudo de Caso Baseado nos Indicadores Ethos na Empresa O Boticário

EnANPAD	2010	A Responsabilidade Socioambiental como Componente da Logística Integrada: O Caso da Exportação do Complexo Soja pela Bunge Alimentos S/A.
EnANPAD	2011	Crítérios de Responsabilidade Social Corporativa na Cadeia de Suprimentos do Setor de Petróleo e Gás Natural: O Caso dos Fornecedores Pernambucanos da Petrobrás
EnANPAD	2012	Práticas Ambientais e suas Relações com a Competitividade e a Sustentabilidade: um estudo de caso em empresa agroindustrial
EnANPAD	2014	Cadeia de Suprimento Sustentável: Gestão em PMEs
EnANPAD	2014	Pressões e Práticas Socioambientais no Contexto da Gestão da Cadeia de Suprimentos: Um Estudo da Relação Entre os Determinantes e as Ações Sustentáveis em Indústrias de Minas Gerais
ENGEMA ³	2010	Logística Reversa de Pós-Consumo: relações entre uma indústria e seus fornecedores
ENGEMA	2011	As relações interorganizacionais na Rede Justa Trama como um fator de sucesso na produção e comercialização dos produtos do algodão ecológico
ENGEMA	2011	Gestão da sustentabilidade na cadeia de suprimentos do frango de corte em Mato Grosso
ENGEMA	2012	Gestão da Cadeia de Suprimentos e Sustentabilidade: Um estudo bibliométrico da produção científica na base <i>Web of Science</i>
ENGEMA	2012	Aspectos socioambientais da cadeia de suprimentos da carne bovina brasileira
ENGEMA	2012	Seleção de fornecedores verdes: revisão da literatura, classificação e análise
ENGEMA	2012	Construindo a cadeia de suprimentos do futuro: um estudo de caso do Walmart Brasil
ENGEMA	2013	Reflexões e aproximações entre Sustentabilidade e Cadeia de Suprimentos
ENGEMA	2013	O caso de uma Indústria de Limpeza e sua Gestão da Cadeia de Suprimentos Sustentável à luz do <i>framework</i> de Seuring e Muller (2008)
ENGEMA	2013	Reposicionando os Holofotes do Comportamento Proativo: de um foco ambiental para práticas sustentáveis
ENGEMA	2014	Ferramenta de Avaliação para a Gestão da Cadeia de Suprimentos Sustentável: Estudo Multicaso
ENGEMA	2014	Inovação Sustentável na Cadeia de Suprimentos
ENGEMA	2014	Práticas de Gestão Sustentável na Cadeia de Suprimentos de uma Indústria de Transformação
¹ Simpósio de Administração da Produção, Logística e Operações Internacionais (SIMPOI); ² Encontro Nacional da Associação Nacional da Pós-Graduação em Administração (EnANPAD) and ³ Encontro Nacional de Gestão Empresarial e Meio Ambiente – (ENGEMA)		

Table 5: List in Portuguese of papers identified in journals during the research		
Journal	Year of publication	Paper Title in Portuguese
Revista de Administração da USP	2007	Sustentabilidade na cadeia reversa de suprimentos: um estudo de caso do Projeto Plasma
Gestão & Regionalidade	2008	Responsabilidade socioambiental na cadeia de suprimentos do Tabaco no Brasil
Revista de Administração de Empresas	2010	Vantagem Competitiva na gestão sustentável da cadeia de suprimentos: um metaestudo
Revista de Administração da Unimep	2012	O papel de Operadores logísticos em ações de sustentabilidade
Produção	2012	Sustentabilidade e Cadeia de Suprimentos: uma perspectiva comparada de publicações nacionais e internacionais
Revista de Administração e Inovação	2013	Inovações Socioambientais em cadeias de suprimentos: um estudo de caso sobre o papel da empresa focal
Gestão & Produção	2014	Análise das práticas de sustentabilidade utilizadas na gestão da cadeia de suprimentos: pesquisa de campo no setor automotivo brasileiro

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