

Analysis of Environmental Property Practices Across Upstream Supply Chain Management

Dhananjai Gupta*

ABSTRACT

In spite of the expansion within the body of inexperienced supply chain management, it's still tough to grasp the environmental property practices concerned in supply chain management (SCM) activities. This can be associate degree knowledge domain field and therefore the scope of GSCM practices is broad covering from inexperienced getting to integrated life-cycle management. This paper focuses on upstream supply chain management activities, that area unit typically answerable for dispersive environmental property practices across the provision base. Therefore, peer-reviewed papers targeted on the diffusion of environmental property practices across producing supply chain base area unit examined. It's found that this diffusion is sharply regarding the getting, performance assessment and collaboration. These upstream activities area unit tormented by internal functions and therefore the maturity level of environmental and culture of organization. Additionally, upstream SCM activities area unit higher designed taking under consideration the characteristics of product and processes, primarily in terms of the inputs and outputs environmental aspects. This analysis will facilitate manufactures to access example of environmental property practices usually reportable in supply chain management field.

Keywords: Environmental property, supply chain management, purchasing, performance assessment, collaboration.

॥ विद्वान्सर्वत्र पूज्यते ॥

*Assistant Professor, Department Of Business Administration, Pranveer Singh Institute of Technology (PSIT), Kanpur, Uttar Pradesh, India.

INTRODUCTION

The search to cut back the environmental burden and to increase the inter-organizational shared responsibility area unit core functions of inexperienced supply chain management (GSCM) [1,2]. As a consequence, environmental property practices are taken under consideration within the most ancient supply chain activities; admire getting and materials management, performance assessment and distribution.

In spite of the expansion within the body of GSCM, it's still difficult to grasp the environmental property practices concerned in supply chain management (SCM) activities. Firstly, this can be associate degree knowledge domain field; therefore each internal activity during a cross-functional approach and external activities area unit concerned in GSCM. Secondly, the scope of GSCM practices is broad covering from inexperienced getting to integrated life-cycle management [3]. Actually, upstream and downstream within the inexperienced supply chain have a {transparent} direct resonance with the merchandise life cycle [4].

This paper focuses on upstream supply chain management activities, that area unit typically answerable for dispersive environmental property practices across the provision base. [5] And to achieve higher levels of property [6]. Additionally, environmental property practices across upstream SCM area unit connected to input and output-oriented environmental factors [7]. As an example, input-oriented factors embrace energy (consumption and supply renewable or not), resource and materials, water (quality and demand) and output-oriented factors area unit regarding waste and pollution.

In this context, 3 core activities of upstream SCM area unit taken under consideration, particularly getting, performance management (supplier facing) and collaboration. Therefore, this paper reports on the analysis of environmental property practices across upstream supply chain management. Within the forthcoming section, the tactic of the systematic review adopted during this analysis area unit bestowed, followed by the results and discussion on the environmental practices adopted in upstream SCM activities.

METHOD

A systematic literature review (SLR) was conducted supported Tranfield et al. [8]. SLR follows a pre-determined specific methodology that should be replicable, transparent, and scientific [9].

The title and abstract were browse exploitation specific inclusion and exclusion criteria so as to pick relevant papers. Specifically, the paper required to supply any insight to the link between the focal company and member(s) of the provision chain of the producing base in terms of the diffusion of environmental property practices. Papers were excluded once they failed to cowl this relationship inside SCM domain. Different exclusion

criteria were: opinion of stakeholders on property and outsourcing, public getting and services supply chain (bank, hotel, food market, hospital, education, supply of water, e-market) and supply chain security.

UPSTREAM SUPPLY CHAIN ACTIVITIES CONCERNED WITHIN THE DIFFUSION OF ENVIRONMENTAL PROPERTY

Getting management

Activities concerned in getting play a vital role in addressing environmental property practices across supply chain, as an example in guaranteeing compliance with property criteria [10] additionally as in influencing environmental supplier's behavior [5]. Additionally, getting would possibly influence the dimensions of the environmental footprint of an organization [11].

Many authors gift a spread of activities concerned in getting management. As an example, selection, analysis and supplier development, were got wind by Walton et al. [11]. Besides these 3 activities, Zsidisin and Siferd [12] thought of in-bound distribution, packaging, recycling, reuse, resource reduction, and final disposal as getting activities. Igarashi et al. [13] thought of successively some getting procedures, namely: identification of desires and specifications, formulation of criteria, concern trends, qualification, final choice and analysis of performance. Koplin et al. [14] conjointly enclosed the analysis method of the compliance degree of the chosen needs.

Therefore, 3 activities in getting management area unit thought of during this paper, namely: supplier's needs and criteria definition, supplier's choice method, and supplier's observance.

SUPPLIERS' NEEDS

The institution of borderline needs associate degree choice supported an analysis may be a thanks to guarantee that the suppliers act per a group of standards [15]. Igarashi et al. [13] projected that the wants for suppliers' choice area unit divided in categories: criteria targeted on the merchandise characteristics and organisation/process. In general, organisation criteria area unit a lot of usually adopted to qualify supplier, whereas product criteria area unit utilized in the ultimate stage of choice. One common purpose for each product and method is expounded to the compliance with laws. Actually, this can be associate degree initial follow that coated each environmental and health and safety legislation [13]. Another necessary facet for each classes may be a smart understanding of suppliers operations [16].

In addition, the wants outlined to pick suppliers area unit connected to input and outputs-oriented environmental aspects [7]. Input-oriented factors typically embrace resource and output-oriented factors area unit connected any style of pollution (air emission, waste, wastewater, etc.).

In order to possess a transparent comprehension of the environmental follow as a demand for choice of suppliers, these practices area unit sorted exploitation the categorizations bestowed by Igarashi et al. [13] (Product or process) and geographic area et al. [7] (Inputs and outputs) . As an example, some practices targeted on each four classes, admire Life Cycle Assessment (LCA) studies on materials, environmental policy. These practices coated each the method and product characteristics and parts regarding inputs and outputs environmental aspects.

On the opposite hand, Environmental Management System (EMS – ISO 14001) is a lot of regarding method – inputs and outputs. However, one issue attached management sys- tem as a borderline demand is whether or not it'll be requested as a licensed system or not. The certification is conducted by a third-party company (Accreditation) according the specification of standards like ISO 14001 (communicated policy, records of performance against compliance problems, programmed for enhancements and regulars internal and external audits) [4]. However, the method to seeking EMS certification is an upscale primarily once taking account the dimensions and profit of suppliers [17].

Interestingly, during a survey conducted by Holt [18] in 149 little, medium and huge United Kingdom of Great Britain and Northern Ireland firms, just 7.78% of the sample believe that suppliers should have their EMS certified. Actually, ISO 14001 was established to qualify suppliers in- lieu of associate degree excluding issue (final selection). On the opposite hand, Darnall [19] found that 346 little, medium and huge certified America firms were a lot of active than un-certified firms in terms of operating with their supply network. The most environmental practices reportable were instituting procedures to assess suppliers, requiring suppliers to minimize their environmental impacts, and chase waste in their operational systems [19].

Finally, the poor development of environmental needs for suppliers'choice will cause some issues for each suppliers and focal firms (transactional value, behavioral uncertainty, issue in supportive whether or not compliance with agreements has taken place) [33]. Additionally, this would possibly cause issues regarding the understanding of needs by suppliers [34].

SUPPLIER'S CHOICE METHOD

The availability of environmental data on suppliers will facilitate the choice of suppliers with high environmental performance [35]. The literature suggests that the analysis of data has been created by each self-information by suppliers and well-structured processes. In self-information, suppliers typically gift written proof of demands from focal firms, admire questionnaires [4] and self- declaration on compliance with focal company's needs [9]. Questionnaires area unit in all probability the foremost ancient means adopted by supplier's choice method. It's comparatively straightforward to elaborate and therefore the application isn't pricey [36]. However, in some case, suppliers are challenged to answer totally different focal firms or patrons firms at constant time. Some sectors

have developed customary environmental questionnaires to assess suppliers, admire industry Quality Council [36].

Regarding the well-structured method, they're supported on-the-scene visits, audits and on-the-scene inspections to visualize the process and therefore the compliance with regulation associated [24]. Audits area unit recognised as a scientific reliable tool for management of compliance and basic environmental management [37] additionally as will scale back the danger from suppliers [38]. However, the shortage of resource limits the appliance in supplier's choice, therefore it's been applied a lot of usually inside strategic suppliers, in future relationships [37].

On the opposite hand, there's a lot of proof for the exploitation of the mixture of questionnaires and complementary documents (i.e. licenses, authorisations, reports of the extent of treatment of business wastewater). Additionally, visits to analyze the processes and materials, as well as chemicals and therefore the environmental regulation associated [11,24]. supported the analysis of questionnaires, documents or visit reports, suppliers are going to be classified and elite.

So, when qualifying the suppliers and checking the extent of compliance with needs, some instruments to ensure the dealing between patrons and suppliers area unit typically adopted. These instruments area unit classified in 2 categories: formal and informal [9]. Formal instruments area unit a lot of accept- impotence within the circumstance of risks or uncertainty additionally as once new relationships area unit established. So, contracts and standards are unit some examples. On the opposite hand, informal instruments, admire values, schema and culture, additionally as norms, area unit a lot of common in established relationships [9].

Therefore, the supply and responsibility of environmental data from suppliers would possibly facilitate the choice process. During this means, it's necessary to adopt some practices to possess a reliable method.

MONITORING

Monitoring may be a method to manage suppliers, as well as activities of gathering and process suppliers data [39] so as to visualize however well the provision complies with choose needs [40]. totally different approaches for the information collection are ascertained, that arise from coverage, surveys, audits to the integrated system. The analysis of coverage was highlighted by Srai et al. [41], WHO expressed that property coverage is that the follow of mensuration, disclosing and being responsible to internal and external stakeholders for organisational performance towards the goal of sustainable development.

Conducting surveys has been mentioned by some authors as a follow to watch suppliers [37]. as an example, Sony (Japanese physical science company), conducts elaborate surveys of its supply so as to grasp suppliers'

environmental performance, the employment of harmful substances, the employment of recyclable materials and waste management as well as utilisation of packing and final disposal of materials [38].

Monitoring the follow-up certification of EMS was presented by Vachon and Klassen [3] and Walton et al. [31] WHO investigated package and piece of furniture business, severally. Audits were conjointly the common practices thought of within the observance concerned within the getting method [34].

Wittstruck and Teuteberg [42] identified some software system that had been usually used across German electrical and electronic business; admire SAP GRC, Emos, Movex, and Gipa. Crotty [43] reportable the employment of International Materials system information by United Kingdom of Great Britain and Northern Ireland automotive manufactures. The employment of this information allowed the OEMs to identify all materials used inside their current production method.

SUPPLIER'S PERFORMANCE ASSESSMENT

To extend property across the provision chain it's necessary to adopt the suitable performance measuring system to spot what actions area unit required [44]. during this context, suppliers' performance management permits focal firms to gauge a supplier's performance, compare it with the performance of different suppliers, and supply suppliers with direction for enhancements [33]. This will embrace, for example the reduction of prices, disruptions within the supply system and environmental risk [38]. However, one challenge for these processes to assess performance additionally on develop suppliers in environmental management follow is to hold out these processes while not acquisition high dealing prices or disrupting the flow of production [33].

The literature shows a scarcity of agreement in relevancy metrics and KPI's in GSCM performance assessment additionally because the impact of the diffusion of specific environmental sustainability follow across supply chain within the overall performance of a focal company. As an example, Helmut Heinrich Waldemar Schmidt and Schwegler [45] propose the conception of additive eco-intensity with that environmental or property indicators area unit regarding the further price of economic activities. The model relies on the conception of additive eco-intensity, that takes under consideration environmental impacts and economic parts admire amount of materials equipped, turnover and worth.

Hervani et al. [1] offer an outline of the varied problems regarding environmental supply chain management performance measuring. This study was one amongst the primary studies that targeted on metrics and measures (e.g. GRI), style of indicators (e.g. EMS and ISO 14031) and style and evaluation of inexperienced supply chain management performance tools (analytical hierarchy process; balanced scorecard). In addition, ways to implement and report and communicate results were bestowed.

Hassini et al. [29] recommend a composite indicator system to summarise advanced and multi-dimensional indicators. 3 dimensions of property and 4 supply chain partners (suppliers, manufactures, distributor, retail merchant and customers) area unit concerned. Sub-indicators are unit patterned in every partner. These sub-indicators area unit then aggregate to create a supply chain composite indicator. However, the paper simply gave this general summary while not that specialize in samples of KPI's.

In addition, some surveys have assessed however GSCM affects the company performance of a focal company, such as [3,5,39,46]. However, totally different environmental property practices were thought of, admire eco-design, EMS certified, EMS not certified, eco-labeling, and therefore the waste management arrange.

COLLABORATION

Collaboration includes direct engagement between the various levels of the provision chain, within which the focal company commits itself to the development of its suppliers environ- mental performance [39,42]. Vachon and Klassen [39] considered essential characteristics of the collaboration: it's a method of learning of own environmental practices across supply chain, and probably capture the further price by the decrease of environmental impact.

However, the adoption of cooperative practices depends on sure aspects. Firstly, a better relationship with suppliers is required and is helpful for the self-made outcomes of comes [37]. Additionally, Kogg and Mont [10] highlighted the necessity of relative power from focal company to have interaction its sup- pliers and therefore the choice of product classes. The dimensions of supply chain base was got wind by Vachon and Klassen [39]. Per them, smaller supplier base expedited bigger environmental collaboration. Finally, investment to rising supplier's property performance is associated to tooling, instrumentality and structure procedures that area unit unambiguously tailored to the link with a private supplier. This would possibly represent a powerful deterrence to alter sup- pliers [33].

Some case studies of collaboration were found within the literature. General Motors started a programmed to assist its suppliers to boost energy potency and materials utilization, and to cut back pollution in 1996 [36]. After that, a bunch with eight key-suppliers was shaped to explore ways in which gramme might work effectively with suppliers to integrate environmental issues into the look, sourcing and producing pro- cesses. This cluster had known opportunities for collaboration among gramme and its suppliers on EMS, style for environment, and environmental metrics throughout the provision chain [36]. Hyundai motors requested all initial tier suppliers to implement associate degreed certify an EMS - ISO 14001 in 2003. The corporate supported suppliers by coaching, workshops and regularly conferences. When 5 years, the quantity of suppliers certified exaggerated dramatically, growing from thirty fourth in 2003 to ninety nine in 2008 [50].

DISCUSSION AND CONCLUSION

This paper has supplied a comprehensive review on however environmental property practices area unit subtle across supply chain base through the 3 core upstream supply chain management activities – getting management, performance assessment and collaboration.

Selected environmental needs area unit established in order to qualify and sense suppliers. These needs area unit primarily influenced by specific inputs and outputs environmental aspects of the processes and therefore the product (e.g. water and energy consumption, GHG emissions, etc.) [7]. In addition, the definition of those needs is expounded to the environmental stance and culture of focal firms. During this sense, the focal company should go with these requirements foremost before it requests its suppliers to abide by [14]. Actually, a scarcity of internal consistency can result in lower perception and motivation for suppliers to adopt environmental property practices [59]. Finally, the poor style of environmental needs may well be tough to assess the compliance with the chosen needs. additionally, transactional value and uncertainties in terms of supplier's behavior may well be exaggerated.

In line with performance assessment, reports (e.g. GRI), studies (e.g. LCA, Carbon footprint), measuring of KPI's (e.g. Eco-efficiency, ISO 14031) area unit the foremost environmental property practices adopted. There's a powerful effort to assess if environmental practices have an effect on the performance of the focal firms. However, totally different environmental practices are taken under consideration. so as to possess a higher diffusion of environmental practices, it's expected a well-structured system to assemble and share reliable data with a transparent definition of KPI's (overall regarding the borderline needs and inputs and outputs environmental aspects of processes and products).

Finally, the diffusion of environmental property practices is powerfully influenced by the extent of collaboration. This activity primarily focuses on environmental enhancements in terms of processes and product. It's usually helped by coaching, technical support and therefore the use of integrated databases, particularly so as to share data. Collaborations with strategic partner's area unit a lot of common however not forever adopted.

In summary, the diffusion of environmental property practices across supply is sharply regarding the getting, performance assessment and collaboration. These upstream activities area unit tormented by internal functions and therefore the maturity level of environmental and culture of the organisation. additionally, these activities also are higher designed taking under consideration the characteristics of product and processes, primarily the inputs and outputs environmental aspects.

It is necessary to contemplate getting, performance assessment and collaboration to diffuse environmental sustainability practices across supply base. As a consequence, a higher style of clear alignment of needs with environmental strategy of the focal company may well be done. additionally, the compliance with these elite

needs and therefore the overall environmental performance of suppliers may well be assessed. supported that, sound choices on priorities to boost the environmental performance of suppliers by collaboration may well be created.

Future work ought to concentrate on empirical studies of the integration of buying, suppliers' performance assessment and collaboration with suppliers so as to grasp the way to strengthen the link with suppliers.

REFERENCES

- [1] A. A. Hervani, M.M. Helms, J. Sarkis, Performance measurement for green supply chain management, *Benchmarking An Int. J.* 12 (2005) 330–353.
- [2] S.K. Srivastava, Green supply-chain management: A state-of-the-art literature review, *Int. J. Manag. Rev.* 9 (2007) 53–80.
- [3] Q. Zhu, J. Sarkis, K. Lai, Confirmation of a measurement model for green supply chain management practices implementation, *Int. J. Prod. Econ.* 111 (2008) 261–273.
- [4] R. Lamming, J. Hampson, The Environment as a Supply Chain Management Issue, *Br. J. Manag.* 7 (1996) 45–62.
- [5] D. Hollos, C. Blome, K. Foerstl, Does sustainable supplier co-operation affect performance? Examining implications for the triple bottom line, *Int. J. Prod. Res.* 50 (2012) 2968–2986.
- [6] S.-Y. Lee, R.D. Klassen, Drivers and Enablers That Foster Environmental Management Capabilities in Small- and Medium-Sized Suppliers in Supply Chains, *Prod. Oper. Manag.* 17 (2008) 573–586.
- [7] M. Brandenburg, K. Govindan, J. Sarkis, S. Seuring, Quantitative models for sustainable supply chain management: Developments and directions, *Eur. J. Oper. Res.* 233 (2014) 299–312.
- [8] D. Tranfield, D. Denyer, P. Smart, Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review, *Br. J. Manag.* 14 (2003) 207–222.
- [9] C. Pilbeam, G. Alvarez, H. Wilson, The governance of supply networks: a systematic literature review, *Supply Chain Manag. An Int. J.* 17 (2012) 358– 376.
- [10] B. Kogg, O. Mont, Environmental and social responsibility in supply chains: The practise of choice and inter-organisational management, *Ecol. Econ.* 83 (2012) 154–163.
- [11] S. V. Walton, R.B. Handfield, S. a. Melnyk, The Green Supply Chain: Integrating Suppliers into Environmental Management Processes, *Int. J. Purch. Mater. Manag.* 34 (1998) 2–11.
- [13] M. Igarashi, L. de Boer, A.M. Fet, What is required for greener supplier selection? A literature review and conceptual model development, *J. Purch. Supply Manag.* 19 (2013) 247–263.
- [14] J. Koplin, S. Seuring, M. Mesterharm, Incorporating sustainability into supply management in the automotive industry – the case of the Volkswagen AG, *J. Clean. Prod.* 15 (2007) 1053–1062.

- [15] S. Seuring, M. Müller, From a literature review to a conceptual framework for sustainable supply chain management, *J. Clean. Prod.* 16 (2008) 1699–1710.
- [16] S. Hajmohammad, S. Vachon, R.D. Klassen, I. Gavronski, Lean management and supply management: their role in green practices and performance, *J. Clean. Prod.* 39 (2013) 312–320.
- [17] K. Polgreen, Social and environmental supply-chain management: an overview, *Small Enterp. Dev.* 13 (2002) 25–33.
- [18] D. Holt, Managing the interface between suppliers and organizations for environmental responsibility – an exploration of current practices in the UK, *Corp. Soc. Responsib. Environ. Manag.* 84 (2004) 71–84.
- [19] N. Darnall, G.J. Jolley, R. Handfield, Environmental management systems DQG JUHHQ VXSS\N FKDLQ PDQDJHPHQW: FRPS\HPHQW IRU VXVWDLQDELOLW\ ", %XV. *Strateg. Environ.* 17 (2008) 30–45.
- [20] H. Min, W.P. Galle, Green purchasing practices of US firms, *Int. J. Oper. Prod. Manag.* 21 (2001) 1222–1238.
- [21] B. Ageron, A. Gunasekaran, A. Spalanzani, Sustainable supply management: An empirical study, *Int. J. Prod. Econ.* 140 (2012) 168–182.
- [22] C.M. Rosen, J. Bercovitz, S. Beckman, Environmental Supply-Chain Management in the Perspective, *J. Ind. Ecol.* 4 (2001) 83–103.
- [23] M.S. Forman, M., Jorgensen, Organising environmental supply chain management: experience from a sector with frequent product shifts and complex chains, *Greener Manag. Int.* 45 (2004) 43–62.
- [24] F. Testa, F. Iraldo, Shadows and lights of GSCM (Green Supply Chain Management): determinants and effects of these practices based on a multi- national study, *J. Clean. Prod.* 18 (2010) 953–962.
- [25] C.R. Carter, J.R. Carter, Interorganizational Determinants of Environmental Purchasing: Initial Evidence from the Consumer Products Industries, *Decis. Sci.* 29 (1998) 659–684.
- [26] D. Harms, E.G. Hansen, S. Schaltegger, Strategies in Sustainable Supply Chain Management: An Empirical Investigation of Large German Companies, *Corp. Soc. Responsib. Environ. Manag.* 20 (2013) 205–218.
- [27] M.J. Hutchins, J.W. Sutherland, An exploration of measures of social sustainability and their application to supply chain decisions, *J. Clean. Prod.* 16 (2008) 1688–1698.
- [28] R.P. Côté, J. Lopez, S. Marche, G.M. Perron, R. Wright, Influences, practices and opportunities for environmental supply chain management in Nova Scotia SMEs, *J. Clean. Prod.* 16 (2008) 1561–1570.
- [29] E. Hassini, C. Surti, C. Searcy, A literature review and a case study of sustainable supply chains with a focus on metrics, *Int. J. Prod. Econ.* 140 (2012) 69–82.
- [30] D. Holt, A. Ghobadian, An empirical study of green supply chain management practices amongst UK manufacturers, *J. Manuf. Technol. Manag.* 20 (2009) 933–956.
- [31] C.-C. Chen, Incorporating green purchasing into the frame of ISO 14000, *J. Clean. Prod.* 13 (2005) 927–933.
- [32] C.V. Seuring, S., Ossietzky, Industrial ecology, life cycles, supply chains: differences and interrelations, *Bus. Strateg. Environ.* 319 (2004) 306–319.

- [33] D.F. Simpson, D.J. Power, Use the supply relationship to develop lean and green suppliers, *Supply Chain Manag. An Int. J.* 10 (2005) 60–68.
- [34] J.M. Cramer, Organising corporate social responsibility in international product chains, *J. Clean. Prod.* 16 (2008) 395–400.
- [35] A.B.L.S. Jabbour, C.J.C. Jabbour, Are supplier selection criteria going green? Case studies of companies in Brazil, *Ind. Manag. Data Syst.* 109 (2009) 477–495.
- [37] D. Nawrocka, T. Brorson, T. Lindhqvist, ISO 14001 in environmental supply chain practices, *J. Clean. Prod.* 17 (2009) 1435–1443.
- [38] R. Handfield, R. Sroufe, S. Walton, Integrating environmental management and supply chain strategies, *Bus. Strateg. Environ.* 14 (2005) 1–19.
- [39] S. Vachon, R.D. Klassen, Extending green practices across the supply chain: The impact of upstream and downstream integration, *Int. J. Oper. Prod. Manag.* 26 (2006) 795–821.
- [40] D. Gallea, A. Ghobadian, W. Chen, Corporate responsibility, supply chain partnership and performance: An empirical examination, *Int. J. Prod. Econ.* 140 (2012) 83–91.
- [41] J.S. Srari, L.S. Alinaghian, D. a. Kirkwood, Understanding sustainable supply network capabilities of multinationals: A capability maturity model approach, *Proc. Inst. Mech. Eng. Part B J. Eng. Manuf.* 227 (2013) 595–615.
- [42] D. Wittstruck, F. Teuteberg, Understanding the Success Factors of Sustainable Supply Chain Management: Empirical Evidence from the Electrics and Electronics Industry, *Corp. Soc. Responsib. Environ. Manag.* 19 (2012) 141–158.
- [43] J. Crotty, Greening the supply chain? The impact of take-back regulation on the UK automotive sector, *J. Environ. Policy Plan.* 8 (2006) 219–234.
- [44] C. Gimenez, E.M. Tachizawa, Extending sustainability to suppliers: a systematic literature review, *Supply Chain Manag. An Int. J.* 17 (2012) 531–543.
- [45] M. Schmidt, R. Schwegler, A recursive ecological indicator system for the supply chain of a company, *J. Clean. Prod.* 16 (2008) 1658–1664.
- [46] S. Vachon, R.D. Klassen, Environmental management and manufacturing performance: The role of collaboration in the supply chain, *Int. J. Prod. Econ.* 111 (2008) 299–315.
- [47] B.M. Beamon, Designing the green supply chain, *Logist. Inf. Manag.* 12 (1999) 332–342.
- [48] S. Shaw, D.B. Grant, J. Mangan, Developing environmental supply chain performance measures, *Benchmarking An Int. J.* 17 (2010) 320–339.
- [49] G.J.L.F. Hagelaar, J.G.A.J. Van Der Vorst, Environmental supply chain management: using life cycle assessment to structure supply chains, *Int. Food Agribus. Manag. Rev.* 4 (2002) 399–412.
- [50] K.-H. Lee, I.-M. Cheong, Measuring a carbon footprint and environmental practice: the case of Hyundai Motors Co. (HMC), *Ind. Manag. Data Syst.* 111 (2011) 961–978.

- [51] M. Salvá, S. Jones, R.J. Marshall, C.F.H. Bishop, An audit tool for environmental measurement in the UK food sector, *Int. J. Food Sci. Technol.* 48 (2013) 1509–1518.
- [52] Q. Zhu, J. Sarkis, K. Lai, Green supply chain management: pressures, practices and performance within the Chinese automobile industry, *J. Clean. Prod.* 15 (2007) 1041–1052.
- [53] C.M. Dües, K.H. Tan, M. Lim, Green as the new Lean: how to use Lean practices as a catalyst to greening your supply chain, *J. Clean. Prod.* 40 (2013) 93–100.
- [54] U. Okongwu, R. Morimoto, M. Lauras, The maturity of supply chain sustainability disclosure from a continuous improvement perspective, *Int. J. Product. Perform. Manag.* 62 (2013) 827–855.
- [55] E.F. Bowen, Horses for courses: explaining the gap between the theory and practice of green supply, *Greener Manag. Int.* 35 (2001) 41–60.
- [56] M.J. Tachizawa, E. M., Thomsen, C.G., Montes-Sancho, Green Supply Management Strategies in Spanish Firms, *IEEE Trans. Eng. Manag.* 59 (2012) 741–752.
- [57] R.D. Klassen, S. Vachon, Collaboration and Evaluation in the Supply Chain: the Impact on Plant-Level Environmental Investment, *Prod. Oper. Manag.* 12 (2009) 336–352.
- [58] K. Nakano, M. Hirao, Collaborative activity with business partners for improvement of product environmental performance using LCA, *J. Clean. Prod.* 19 (2011) 1189–1197.
- [59] D.E. Boyd, R.E. Spekman, J.W. Kamauff, P. Werhane, Corporate Social Responsibility in Global Supply Chains: A Procedural Justice Perspective, *Long Range Plann.* 40 (2007) 341–356.

॥ विद्वान्सर्वत्र पूज्यते ॥