Sustainable Supply Chain Management Practices: Selective Case Studies from Indian Hospitality Industry

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[Abstract] Modern globalized world is moving towards greater environmental concern and awareness. The anti-environmental policies followed in the early stages of industrialization are no longer a viable option. It is becoming imperative that environment and industrialization must go hand in hand to achieve sustainable development. Nowadays organizations’ sole aim no longer can be just improvement of its performance but its policies must be environment friendly as well. Hence, the notion of Green Supply Chain Management (GSCM) has received increasing attention and acceptance from various quarters. As the public becomes more aware of environmental issues and the need to prevent global warming, consumers do ask questions about environmental impact of the products they are purchasing. Companies should anticipate questions being raised about how green their manufacturing processes and supply chains are, their carbon footprint and how they recycle. Further organizations need to be responsive towards the demands of various stakeholders of the society and need to install systems and processes which maximize environment conservation and minimize negative environmental impact of these processes.

The objective of this paper is to present conceptual clarity about GSCM as well as highlighting various efforts taken by Indian hospitality industry to green their supply chain. The paper adopts case study approach based on the conceptual framework green supply chain management as proposed by Hervani, Helms, and Sarkis, (2005), i.e. green procurement, green design, green manufacturing, green operations and reverse logistics and waste management.

[keywords] Green supply chain management, Indian hospitality industry, green procurement, green design, green manufacturing, green operations, reverse logistics, waste management

Introduction

Supply chain management has traditionally been viewed as a process wherein raw materials are converted into finished products and then delivered to the consumer. However, in the past few decades, the waste and emissions caused by the supply chain have become one of the main sources of serious environmental problems, such as global warming and acid rains. Hence, the need of environmental sustainability has been increasingly gaining ground among the prevalent business practices. In light of the above developments, “Green Supply Chain Management” (GSCM) has managed to capture the increasing interest among researchers and practitioners of operations and Supply Chain Management. GSCM covers all phases of a product’s life cycle from the design, production, and distribution phases to the use of products by the end users, and its disposal at the end of product’s life cycle (Borade & Bansod, 2007). GSCM is integrating environmental thinking into supply chain management (SCM) (Gilbert, 2000). So, basically, the following may be said:

\[\text{GSCM} = \text{Green purchasing} + \text{Green manufacturing/materials management} + \text{Green Distribution/marketing} + \text{Reverse logistics}.\]

In recent years, more and more customers are becoming conscious of green practices opted into by organizations in India. So, organizations need to focus on the utilization of energy and resources for making environmentally sound supply chains. The paper aims to identify the prevalent GSCM business practices by citing examples from organizations underlining the tangible and intangible benefits of GSCM, as well as identifying the direct and indirect costs associated with GSCM. The GSCM practices
can be classified as environmental management practices within the organization; GSCM practices relating to suppliers and customers, environmentally conscious products and process design. These may include practices viz. commitment of GSCM from senior and middle-level managers, environmental compliance, and auditing programs, ISO 14000 certification, cooperation with suppliers for environmental objectives, supplier’s ISO14000 certification, company-wide environmental audits, environmental management for suppliers’ internal management, training to build supplier environmental management capacity, cooperation with customers for eco-design and cleaner production, environmentally friendly raw materials, design of products for reduced consumption of materials and energy, design of products for reuse, recycle, recovery of material, and component parts and optimization of processes to reduce solid/liquid waste and emission. In the present time, there is a growing need for integrating environmentally sound choices into supply-chain management research and practice to achieve sustainable growth and development. This paper endeavors to take an integrated and fresh look into the area of GSCM by drawing examples from the hospitality industry in India.

Theoretical Framework

Supply Chain Management (SCM): Literature Review
SCM has been interpreted by various researchers. Ganeshan and Harrison (1995) defined SCM as a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Handfield & Nichols (1999) defined the supply chain as a process which encompasses all activities associated with the flow and transformation of goods from the raw material stage through to the end user, as well as the associated information flows. On the other hand, Christopher (1998) has defined the supply chain as the network of organizations that are involved (through upstream and downstream linkages) in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer. Hence, it may be concluded that Supply Chain Management (SCM) is an integrated approach to planning, implementing, and controlling the flow of information, materials, and services from raw material and component suppliers through the manufacturing of the finished products for ultimate distribution to the end customer.

Green Supply Chain Management (GSCM): Literature Review
Supply chain management has traditionally been viewed as a process wherein raw materials are converted into finished products, then delivered to the consumer (Beamon, 1999). This process involves extraction and exploitation of the natural resources (Srivastava, 2007); this can’t be ignored, as environmental sustainability has become an important issue to business practice. Since the early 1990’s, manufacturers have been faced with pressure to address environmental management (EM) in their supply chains (Wu & Dann, 1995). This led to adding the “green” concept to the “supply chain management,” which gave birth to green supply chain management. Since then, green supply-chain management (GSCM) has been gaining interest among researchers and practitioners of supply-chain management. The growing importance of GSCM is driven mainly by the escalating deterioration of the environment, e.g. diminishing raw material resources, overflowing waste sites, and increasing levels of pollution. However, it is not just about being environment friendly; it is about good business sense and higher profits. In addition, the regulatory requirements and consumer pressures are driving GSCM. Hence, the scope of GSCM ranges from reactive monitoring of the general environment management programs to more proactive practices implemented through various Rs (Reduce, Re-use, Rework, Refurbish, Reclaim, Recycle, Remanufacture, Reverse logistics, etc.).

GSCM Vs Traditional SCM
GSCM and traditional SCM differ in various ways. GSCM takes into consideration the ecological aspects and economy as objectives, while traditional SCM is usually concentrated on economy as the single objective. GSCM practices are green, integrated, and ecologically optimized, while traditional SCM does
not take into consideration eco-friendly practices (Beamon, 1999; Gilbert, 2000; Ho, Shalishali, Maurice, Tseng, & Ang, 2009). Traditional SCM concentrates more on controlling the final product, no matter how harmful its effects are to the environment during production and distribution. Also the authors pointed out that ecological requirements are key criteria for products and productions and, at the same time, the company must assure its economic sustainability by staying competitive and profitable. From the above-mentioned points, the differences between GSCM and SCM may be summarized as presented in Table 1.

Table 1

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Characteristics</th>
<th>Green Supply Chain Management</th>
<th>Traditional Supply Chain Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Objectives</td>
<td>Ecological and Economic</td>
<td>Economic</td>
</tr>
<tr>
<td>2</td>
<td>Ecological Impacts</td>
<td>High Ecological Impacts</td>
<td>Integrated Approach Low ecological impacts</td>
</tr>
<tr>
<td>3</td>
<td>Supplier Selection</td>
<td>Eco logical Aspects Long Term relationship</td>
<td>Price Switching suppliers quickly Short term relationship</td>
</tr>
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</table>


Benefits of Adopting Green supply Chain Management

The Green Supply Chain, coupled with good environmental practices, benefits businesses; also, developing green supply chain management strategies reduces negative environmental impacts on the ecosystems and assist in improving the health of the environment. Today’s economic, social, and regulatory dynamics are putting real pressures on companies to be both lean and green in their product sourcing, logistics, distribution, and operational practices. Further, it is found that without any new technologies being utilized, just a move to the GSC can reduce costs by 5-20%. The adoption of new technologies, however, can take cost reductions to a whole new level. In addition, by raising their green credentials among customers, employees, government authorities, and other stakeholders, organizations ensure a sustainable and successful future. Here are some successful examples from corporate arena wherein benefits have been received by adopting GSCM practices.

McDonald’s, one of the pioneers in adopting green practices, enabled its potato supplier in Austria to process all of the liquid and solid waste from potatoes in the supplier's own biogas plant. The solid material waste generated is converted into gas, which is used to provide electricity to the public grid and also create heat that is used to preheat the dryer for the French fry production process. The residue from the conversion of potatoes to gas is provided to potato farmers for use as a fertilizer. The heat recovery process that powers the dryer produces 4.2 gigawatt hours a year, and the energy created from potato waste covers about 40% of the facility’s electricity and energy needs. Further, serving of salads in cardboard instead of plastic bowls and recycling of the frying oil (that is left over from its process) towards creation of biofuel to power its logistical operations have been some of the other proactive green initiatives from McDonald’s. The power of green is indeed unprecedented. Accepting this fact, Coca-Cola has reached out to more than 80,000 untapped villages in India through its solar powered coolers. With 30% population of the country living with a minimal supply of electricity, Coca-Cola has coupled a social initiative with lucrative business scalability. The company has developed a new vending machine that can operate without power for cooling for up to 16 hours per day. Through the use of insulation materials, the products need to be cooled only during the night when power supply is adequately available.

In another example from India, HUL has a well established recycling program to dispose of the waste generated at its national headquarters in Mumbai in an eco-friendly manner. HUL uses an in-vessel vermiculture system in which the organic waste is converted into vermicompost organic fertilizer and vermi-wash liquid fertilizer. The high nutrient fertilizer is consumed internally by the large landscaped...
gardens that surround the office building. The inorganic waste, including paper and cardboard, is sent for recycling. This reduces carbon footprints and greenhouse gases by a large extent. HUL India has also entered into an unlikely partnership with the penniless ragpickers, offering a hint of a fix to India’s 12,000 tons a day plastic junk pile-up. The program was initially rolled out at the stockist and warehouse level, where ragpickers would collect all the damaged packs from these stocking processes and warehouses would sort and segregate them and eventually sell them to paper mills. The municipal corporation by itself would be unable to manage such large volumes of junk. HUL is trying to create market value for discarded sachets and lighter plastic packaging so that ragpickers will find incentive to collect them from the streets. It has also partnered with a company in Chennai to turn such flexible plastic waste into fuel oil at a viable cost. HUL’s factory in Pondicherry has been using this fuel to power its boilers.

**Green Supply Chain Management Practices Prevalent in the Hospitality Industry in India**

*Hospitality Industry in India*

The Indian hospitality industry has emerged as one of the key industries driving growth of the services sector in India. It has evolved into an industry that is sensitive to the needs and desires of people. The fortunes of the hospitality industry have always been linked to the prospects of the tourism industry, and tourism is the foremost demand driver of the industry. Tourism in India is an employment generator and a significant source of foreign exchange for the country, apart from being an economic activity that helps local and host communities. In 2013, the travel and tourism industry contributed Rs 2.17 trillion (US$ 36 billion), about 2 percent to the country’s gross domestic product (GDP). This is expected to rise to Rs 4.35 trillion (US$ 72.17 billion) in 2024. Recently, the Ministry of Tourism has set the specific agenda to promote tourism in the country in a responsible and sustainable manner, and stimulated by this mandate, promotion of ecotourism assumes larger importance. Eco-tourism has been broadly defined as tourism which is ecologically sustainable. Furthermore, in recent years, the hotel industry has begun to “green up” operations in response to guests’ demands for a healthier and greener lifestyle. There is a conscious effort to be less harsh on available resources and nature.

**GSCM Practices in Hospitality Industry of India**

The conceptual framework for studying GSCM initiatives in the Indian hospitality industry was developed considering the framework of GSCM as proposed by Hervani, Helms, and Sarkis, (2005). They postulate GSCM elements as involving green procurement, green design, green manufacturing, green operations, reverse logistics, and waste management. Hence, GSCM practices in the hospitality industry in India may be illustrated below:

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<tbody>
<tr>
<td>GSCM Practices in Indian Hospitality Industry</td>
<td>Green Procurement</td>
<td>Green Design</td>
<td>Green Manufacturing</td>
<td>Green Operations and Reverse Logistics</td>
<td>Waste Management</td>
</tr>
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</table>


**Green Procurement.** Green procurement is defined as an environmental purchasing consisting of involvement in activities that include the reduction, reuse, and recycling of materials in the process of purchasing. Besides, green procurement is a solution for environmentally concerned and economically conservative businesses, and a concept of acquiring a selection of products and services that minimize the
environmental impact (Salam, 2008). In the process of purchasing and procurement, suppliers must consider the ultimate disposition of the materials and components that enter the firm and purchasing managers can ask upstream members of the supply chain to commit waste reduction and provide environmentally friendly product. Suppliers, e.g. transport service suppliers and product suppliers, can impact firms’ green purchasing activities (Carter, 1998) and drive green supply chain management (Walker et al., 2008). To achieve an effective environmental performance, the purchaser must take and be given the responsibility and resources for educating suppliers and demonstrate an on-going commitment (Murray, 2000).

In the Indian hospitality industry, the concept of "green products" is even catching up with cleaning chemicals and equipment used for hotels cleanliness. For example, the new range of green cleaning products used by Grand Hyatt, Goa, have positive environmental attributes like biodegradability, low toxicity, and low volatile organic compound (VOC) content. Using eco-friendly products for daily housekeeping not only reduce the impact of cleaning on the environment, but also help address the broader guest health concerns that can be aggravated by traditional formulations. In line with the above developments, several hotels in India are modifying green procurement components of their supply chains. Table 3 lists some examples of the leading players in the hospitality sector who have paved the way for others to follow in green procurement practices.

### Table 3
**Green Procurement Practices in Indian Hospitality Industry**

<table>
<thead>
<tr>
<th>No.</th>
<th>Hotel</th>
<th>Green Procurement Practices</th>
</tr>
</thead>
</table>
| 1.  | The Taj Residency Hotel Bangalore, India | • All the hotel’s serviettes, tissues, toilet tissues and paper towels are made from 100% recycled paper.  
• All spa beauty products provided to guests are natural and preservative free.  
• The hotel uses eco-labeled weedicide and fungal, rodent and insect killers. |
| 2.  | ITC Chain of Hotels, India | • ITC Gardenia & ITC Windsor, Bengaluru, ITC Rajputana, Jaipur, ITC Maratha, Mumbai and ITC Grand Chola, Chennai operate on wind energy; the largest self owned wind farms (29.5 MW) by any hotel chain in the world, for captive consumption.  
• Use of LED light fixtures in the guest rooms and public areas for energy efficiency  
• 60% of room stationery and consumables used are either sourced locally, certified or with recycled content  
• Low VOC (Volatile Organic Compounds) paints and certified wood are used in guest rooms and public areas |
| 3.  | Lemon Tree Chain of Hotels, India | • LED lighting in public areas  
• Trane Cen Tra Vac chillers in air-conditioning systems that reduce the energy consumption to 0.57 KW per ton |
| 4.  | Oberoi Udaivilas, Udaipur, India | • The resort uses a traditional and natural lime wash for all of its interior and exterior walls  
• Bottled drinking water is made domestically at a centralized facility by Oberoi Hotels and Resorts for use in their hotels which reduces greenhouse gas emissions associated with water imports.  
• Solar panels placed on building roof tops are used to heat the resort’s pools.  
• Waste heat is recaptured from the chillers and used to heat all domestic hot water. |
| 5.  | Our Native Village hotel, Bangalore, India | All the soaps and shampoo in the rooms are 100% natural, chemical free, and handmade exclusively for Our Native Village hotel. |
Green Design. Green design denotes the systematic consideration of design issues associated with environmental safety and health over the full product life cycle during new production and process development (Fiksel, 1996) considering environmental risk management, product safety, occupational health and safety, pollution prevention, resource conservation, and waste management. The efforts taken in Indian hospitality industry to reduce energy and water consumption resulted in smaller carbon footprint, as well as lower operational costs. For instance, using locally sourced or indigenous building material as used by Oberoi Udaivilas, Udaipur not only shaves off transportation costs, but is also using a more efficient way to tackle the elements.

Leadership in Energy and Environmental Design (LEED) is a green building certification program that recognizes best-in-class building strategies and practices across the globe. It gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings’ performance. LEED promotes a whole-building approach to sustainability by recognizing performance in six key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, indoor environmental quality, and innovation in design. Projects are awarded a Certified, Silver, Gold, or Platinum certification depending on the number of credits they achieve. This comprehensive approach is the reason LEED-certified buildings have reduced operating costs, have healthier and more productive occupants, and have conserved natural resources. A list of several Indian hotels rated by LEED is presented in a tabular form:

<table>
<thead>
<tr>
<th>No.</th>
<th>Hotel</th>
<th>Green Design</th>
<th>LEED Certificate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Park Hotel, Hyderabad, India</td>
<td>• Day lighting, solar gain and local climate were considered in the design of the building to maximize light and minimize heat gain.</td>
<td>LEED GOLD certified</td>
</tr>
<tr>
<td>2.</td>
<td>Nameri Eco Camp, Nameri, Assam, India</td>
<td>• The ethnic cottages and thatched tents blend into the verdant surroundings and make for an ideal setting for 300 odd bird species that inhabit the sanctuary.</td>
<td></td>
</tr>
</tbody>
</table>
| 3.  | ITC Grand Chola, Chennai, India | • 100% of the electrical energy demands are met through renewable energy resources.  
• Reduces use of water (about 35%) through efficient fixtures.  
• 100% of the hotel’s waste is recycled. | LEED Platinum  
(ITC Chain of Hotels, India has total 11 LEED platinum rated hotels in India) |
| 4.  | Leela Palace, New Delhi | • The hotel uses ozone-friendly, CFC-free refrigerators and air conditioners  
• Building Management System to reduce energy wastage and placing energy-efficient insulation on the roof and walls to reduce cooling requirement inside the building. | LEED Gold |
| 5.  | Green Leaf Hotel, New Delhi | • Zero waste in the hotel’s construction | LEED Platinum |

Green Manufacturing. Green manufacturing is defined as the application of production processes that use inputs which are highly efficient, have relatively low environmental impact, and generate little or no waste or pollution. Green manufacturing can lead to lower raw material costs, production efficiency gains, reduced environmental and occupational safety expenses, and improved corporate image (Atlas & Florida, 1998). Green manufacturing aims to reduce the ecological burden by using appropriate materials and technologies, while remanufacturing refers to an industrial process in which worn-out products are restored to like-new condition (Lund, 1984). For instance, the Leela Palace at New Delhi has an in-house
water treatment plant that recycles 100% of used “gray” water for landscaping irrigation and non-potable needs, such as toilet flushing. Also, the toilets have a flow setting, adjustable to maximize flushing efficiency while reducing water consumption. In Table 5 are some more examples from the Indian hospitality industry that have led the way in practicing green manufacturing to fulfill their social obligation towards checking environmental degradation.

Table 5
Green Manufacturing Practices in Indian Hospitality Industry

| No. | Hotel                  | Green Manufacturing Practices                                                                                                                                                                                                 |
|-----|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------
| 1.  | The Rain tree,         | The hotel group is 100% energy self-sufficient. It produces energy through its own windmills, generating exactly as much energy as it requires. By reducing the flow rate of bathroom showerheads and washbasin taps from the standard 12-15 litre per minute to 8-9 litre a minute, has cut its water consumption by half. |
|     | Chennai                |                                                                                                                                                                                                                                |
| 2.  | Leela Palace,          | The hotel has an in-house water treatment plant which recycles 100% of used “gray” water for landscaping irrigation and non-potable needs, such as toilet flushing. The toilets have a flow setting, adjustable to maximize flushing efficiency while reducing water consumption. |
|     | New Delhi              |                                                                                                                                                                                                                                |
| 3.  | Taj Coromandel,        | Generates energy from windmills & biogas plants which runs on kitchen waste.                                                                                                                                                     |
|     | Chennai, India         |                                                                                                                                                                                                                                |
| 4.  | Our Native Village,    | Generates around 70% of electricity independently using a wind mill and solar panels. Most of the used water is rainwater that is harvested from the roofs and stored in an 84,000 liter underground tank.                                    |
|     | Bangalore, India       |                                                                                                                                                                                                                                |
| 5.  | Taj West End,          | The hotel uses solar water heating systems and a biogas plant, which runs on kitchen waste.                                                                                                                                     |
|     | Bangalore              |                                                                                                                                                                                                                                |

**Green Operations and Reverse Logistics.** Green operations relate to all aspects related to product manufacture/remanufacture, usage, handling, logistics, and waste management once the design has been finalized (Lund, 1984). Some of the key challenges of GSCM, such as integrating remanufacturing with internal operations (Ferrer & Whybark, 2001), understanding the effects of competition among remanufacturers (Majumder & Groenevelt, 2001), integrating product design, product take-back and supply chain incentives (Guide & van Wassenhove, 2001, 2002), and integrating remanufacturing and reverse logistics with supply chain designs, are posed in this area. Rogers and Tibben-Lembke (1999) define reverse logistics as the process of planning, implementing, and controlling the efficient, cost-effective flow of raw materials, in-process inventory, finished goods, and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal.
Table 6
Green Operations and Reverse Logistics Practices in Indian Hospitality Industry

<table>
<thead>
<tr>
<th>No.</th>
<th>Hotel</th>
<th>Green Operations and Reverse Logistics Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Rain tree, Chennai</td>
<td>A sewage treatment plant recycles water, which is used for the air conditioners. The heat generated by the air conditioners in turn warms the water in the bathroom.</td>
</tr>
</tbody>
</table>
| 2.  | The Taj Residency Hotel Bangalore, India | • The hotel has installed a heat exchanger to recover heat from the site’s air conditioning refrigerant. This heat is used to preheat water used to feed its boiler.  
• The hotel’s effluent and pool backwash water is sent to an onsite single phase treatment plant where it is treated to a quality suitable for reuse on the hotel’s gardens and in the site’s cooling tower.  
• The hotel’s dishwasher collects final rinse water for reuse for the next load’s initial wash. |
| 3.  | The Serai, Jaisalmer         | The hotel practices rainwater harvesting and uses waste paper as fuel for heating to preserve precious groundwater, has installed a state-of-the-art water recycling and filtration system for its swimming pool. |
| 4.  | Lemon Tree Chain of Hotels   | The hotels use approximately 30 per cent of the recycled water from Sewer Treatment Plant (STP) in the garden and flush systems. |
| 5.  | The Oberoi, Mumbai           | The hotel uses water from the sewer treatment plant (STP) for cooling towers. |

Waste management. Waste management may be defined as the collection, transport, processing, and recycling, disposing of, and monitoring of waste materials (Sasikumar, 2009). Baker (2005) pointed out that “costs in hospitality industry can be greatly reduced by waste reduction and replacing conventional waste disposal activities with practices aiming for reuse, disassembly, recycling and composting.” Proper waste management is a cost-cutting measure, as well as an environmental impact-reducing measure. Much of the waste created in hotels stems from either food and beverage-handling (generating materials such as packaging and food waste, aluminum cans, glass bottles, corks, and cooking oils), or from the housekeeping department (creating waste such as cleaning materials and plastic packaging). Waste is not only created in guest rooms, but also in public areas, hotel gardens (anything from engine oils, pesticides, paints and preservatives to grass and hedge trimmings) and offices (toner cartridges, paper and cardboard waste). Regular refurbishment adds TVs, minibars, carpets, towels and linens, and much else into the equation.

Further Baker (2005) has identified four categories of waste creation in hotels:

1. As a result of site clearance;
2. Throughout the operational life of a hotel;
3. During refurbishment: and
4. At the end of the building’s life or if there is a change in use.

He also stated that the majority of waste will be created throughout the operational life of a hotel. As such, waste management systems should be implemented at a very early stage of hotel development. The four "r" system of reducing, reusing, recycling and recovering has gained increasing attention over the past decade (Webster, 2000; Stipanuk, 2002; Greenhotelier, 2004). Minimizing waste starts in the procurement department, ensuring that only products with minimal packaging are acquired (Stipanuk, 2002). Working with suppliers that have the proper environmental policy in place is also necessary. The increase in price of raw material can immediately make a recycling and reusing program more attractive (Webster, 2000).

Given below are some examples from the Indian hospitality industry that have put waste management concepts to practical use within their premises.
**Concluding Remarks**

Greening of the supply chain is an initiative that manufacturing as well as service industries cannot ignore. The need to focus on GSCM has augmented especially during recent times when the conservation of environment and the need of maintaining a sustainable development have found vociferous support amongst the various stakeholders of the society. Thus, the GSCM practices covering the entire gamut of supply chain activities viz. purchasing, manufacturing, materials management, distribution and reverse logistics have been adopted by the corporate sector as is evident from the examples quoted from the hospitality sector in India.

The benefits that can be attained from GSCM have led to these practices being increasingly adopted worldwide. The practitioners of GSCM have devised newer and more innovative ways for reducing their carbon footprints. This paper has illustrated a number of unique green practices which have paved the way for other practitioners to follow. Although the leading players in the various industries have demonstrated their environmental sensitivity, the usage of GSCM practices in the medium and small-scale industries is still to increase manifold. Also, with the increasing linkages being found between GSCM and the enhancement of economic performance and competitiveness, this concept may become a popular trend in the future.

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**Table 7**  
*Waste Management Practices in Indian Hospitality Industry*

<table>
<thead>
<tr>
<th>No.</th>
<th>Hotel</th>
<th>Waste Management Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Orchid, Mumbai</td>
<td>The hotel has an ongoing vermiculture project on site that not only eliminates the garbage but also takes care of the gardens in and around the hotel.</td>
</tr>
</tbody>
</table>
| 2.  | Our Native Village, Bangalore, India | • The hotel adopted a Zero Waste policy  
• Food waste goes into bio gas plant and for composting; all paper waste is used for the bon fires  
• The flush water from guest rooms goes into leech pits that convert the waste to manure over time,  
• All grey water from the showers and hand wash water, goes through reed beds and is used to recharge the ground water  
• All kitchen water is used for gardening                                                                                                                                                                                                 |
| 3.  | The Oberoi, Mumbai           | All printed stationery, after being screened and processed, is reused as note pads for photocopying, facsimile printouts, and posters for internal use.                                                                                                                                                                                                                  |
| 4.  | The Leela Palace, Delhi      | The vegetation waste is shredded and used for making compost Polythene bags used for plant propagation are re-used after the plants are transplanted; used engine oil lubricates wheels of hand carts, and trolleys and banquet set-up garbage is handed over to an agency that builds huts and sheds for poor people.                                                                                                               |
| 5.  | ITC Grand Central, Mumbai    | The hotel has organic waste converter (OWC). Food waste comprising of vegetable waste, bone waste, and other organic waste, are completely processed through the OWC and converted into manure, which is being used by the hotel for horticulture.                                                                                                                                    |
References


