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MATERIALS MANAGEMENT REVIEW

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WORLD ENVIRONMENT DAY 2025

ENDING PLASTIC POLLUTION GLOBALLY

OPENING OF IIMM AJMER BRANCH

BRANCH ACTIVITIES

From the Desk of National President & Editor in Chief

Greetings from your National President!!!

World Environment Day 2025 in India, themed "End Plastic Pollution'," provides a great opportunity to address a global crisis while connecting with India's national commitment to environmental sustainability through Mission LiFE. (Mission LiFE stands for "LiFEStyle For Environment" It is a campaign initiated by the Central Pollution Control Board (CPCB) in India. The aim of Mission LiFE is to promote and support a sustainable and environmentally conscious lifestyle). The Indian campaign "One Nation, One Mission: End Plastic Pollution" aims to promote eco-friendly alternatives and sustainable practices and encourage individuals, communities and businesses to reduce plastic consumption and waste. This editorial looks at the importance of this issue, the potential for collective action and the steps India can take to lead the way in tackling plastic pollution.

The overwhelming amount of plastic waste, especially single-use plastic, poses a serious threat to the environment, ecosystems and human health. Plastic pollution permeates every corner of our planet, contaminating land, water and air and even accumulating in our food chain and bodies. The annual environmental and social costs of plastic pollution are estimated at between 300 and 600 billion dollars, highlighting the urgent need for action.

India, a country with rich biodiversity and a long history of environmental protection, is in a unique position to take a lead in the fight against plastic pollution. The "One Nation, One Mission: End Plastic Pollution" campaign, launched by the Ministry of Environment, Forests and Climate Change, fits perfectly with the Mission LiFE initiative, which emphasizes lifestyle changes to protect the environment. This campaign aims to raise public awareness of the dangers of plastic pollution and the importance of reducing the use of plastic. Promote alternatives to the use of environmentally friendly alternatives to single-use plastic, such as reusable bags, water bottles and food containers. Waste management to introduce effective waste management systems, including separation, collection, disposal and recycling of plastic waste. Promoting innovation to support the development of sustainable materials and technologies to reduce plastic consumption and waste.

The path to a plastic-free India requires a multi-pronged approach involving government initiatives, industry collaboration and individual responsibility, including implementing and enforcing regulations to restrict the use of single-use plastics and promoting the production of sustainable alternatives. Promote research and development of innovative technologies and materials that can replace plastics, such as bioplastics and recycled materials. Develop a solid waste management infrastructure, including collection systems, recycling facilities and waste incineration plants. Educate the public about the impact of plastic pollution and the importance of reducing its consumption and waste.

World Environment Day 2025 in India offers a unique opportunity to tackle the global challenge of plastic pollution and build a more sustainable future. By embracing the "One Nation, One Mission" campaign and adopting sustainable practices, India can play an important role in the journey towards a plastic-free world. This collective effort will not only protect the environment and human health, but also pave the way for a more prosperous and sustainable future for generations to come.

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REVOLUTIONIZING COLD CHAIN LOGISTICS: SUSTAINABLE SOLUTIONS FOR TEMPERATURE-SENSITIVE GOODS

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The life sciences and food supply industries are undergoing a significant transformation, with sustainability emerging as a critical focus. Companies are increasingly recognizing the need to transition from outdated packaging solutions to more sustainable and efficient alternatives. This shift is driven by growing consumer awareness, regulatory pressures, and the undeniable environmental impact of traditional packaging materials like expanded polystyrene (EPS).

The landscape of cold chain packaging is evolving rapidly. In life sciences, advancements in cell and gene therapy and Glucagon-like peptide-1 (GLP-1) treatments are reshaping how medicines reach consumers. Similarly, the food supply cold chain is adapting to meet the growing demand for fresh, temperature-sensitive products delivered directly to consumers. However, this progress comes with challenges. Many companies still rely on outdated packaging technologies with known environmental drawbacks, creating a paradox where life-saving medicines and essential food products are delivered using unsustainable methods.

Sustainability is no longer just a box to check off—it is becoming a business driver. Environmental, Social, and Governance (ESG) initiatives are proving to be more than just ethical imperatives; they align with efficiency, waste reduction, and productivity. For example, replacing 500,000 EPS cooler shipments with widely recyclable solutions can save approximately 800 metric tons of carbon emissions, equivalent to two and a half Olympic-sized pools of waste that would otherwise end up in landfills.

The benefits of sustainable packaging extend beyond environmental impact. Operational efficiency improves through optimized design, lower logistics costs, and simplified stock keeping unit (SKU) line ups. These changes not only enhance performance and profitability but also improve the consumer experience. Packaging waste is a common frustration for customers receiving deliveries, and making this experience easier can enhance brand loyalty and drive repeat business.

Several companies have already made the shift to sustainable packaging and experienced significant improvements. For instance, a global biotech company transitioned from petroleum-based EPS packaging to a more unified, modular, and streamlined solution, improving operational efficiency and better serving global markets. Another example is a leading reagents manufacturer that faced high inbound cold chain logistics costs due to bulky EPS coolers. By switching to flat-pack products, the company significantly reduced costs and improved efficiency, while recalibrating its full inbound operation for additional gains.

In the food supply cold chain, companies delivering fresh produce and meal kits have also embraced sustainable packaging solutions. For example, a meal kit provider extended its shipping range and expanded its market reach by adopting designs that improved temperature control and reduced waste. These changes not only drove top-line growth but also enhanced bottom-line efficiencies.

Switching to sustainable packaging is a major decision, and companies must ensure they choose credible solutions. Third-party validations, such as certifications from TÜV Austria, How2Recycle, and the U.S. Department of Agriculture (USDA), provide assurance of material sustainability. ESG reporting is also critical, as accurate and transparent data on emissions, labor

practices, and sourcing directly impacts Scope 3 emissions and overall supply chain health.

Looking ahead, the future of cold chain packaging in life sciences and food supply is promising. Sustainability will remain a priority, driven by internal goals, customer demand, and regulatory pressures. Extended Producer Responsibility (EPR) laws are gaining traction in the U.S., in India, SEBI ordered to top listed companies for sustainable reporting similar to financial reports that significantly impact packaging economics. Innovations in material science, such as biodegradable and bio-based materials, are improving performance at competitive prices.

Modularity and visibility will also play key roles in the evolution of packaging. Adaptable components like coolants, insulation, and boxes will ensure flexibility across supply chains, while digital trackers such as RFID tags will enhance responsiveness and adaptability. Circularity will be another focus, ensuring materials either break down naturally or re-enter the value stream.

By prioritizing efficiency, waste reduction, and end-of-life impact, companies across industries are driving meaningful change while delivering environmental and business benefits. Sustainable packaging is not just a necessity—it is an opportunity to innovate, improve operations, and create a better future for both businesses and the planet.

Source: " Pharmaceutical Commerce "

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HALF OF INDIAN FIRMS TO TEST 'NEW GEN SUPPLY CHAIN' AT POC LEVEL IN 2025

About 85 per cent of surveyed VCs and 70 per cent of surveyed executives in India feel that AI agents will make a major impact in the AI and data space in 2025

A new report by Capgemini Research Institute has revealed that 49 per cent of Indian organisations are going to adopt new generation supply chains at the proof of concept (POC) level in 2025, which is the same as the global trend. Nearly 80 per cent are planning to initiate PoCs or fully adopt AI agents.

The report titled top tech trends of 2025: AI-powered everything stated that 36 per cent of Indian organisations are going to partially adopt AI Agents in some parts of their company, which is the same globally as well. About 85 per cent of surveyed VCs and 70 per cent of surveyed executives in India feel that AI agents will make a major impact in the AI and data space in 2025.

In cybersecurity, 63 per cent of Indian organisations surveyed anticipate faster threat detection through the use of GenAI. Additionally, 92 per cent of executives from the retail sector rank GenAI among the top three trends in cybersecurity, closely followed by 91 per cent of executives from the telecom sector. Over 70 per cent of organizations in India are expected to implement AI/GenAI in cybersecurity by 2025.

The deployment of AI-powered robots is also on the rise in India, with more than 50 per cent of organizations planning to deploy AI-powered robots in 2025. Furthermore, 45 per cent of surveyed Indian firms are set to partially adopt AI-powered robots in certain parts of their companies.

Regarding the adoption of new-generation supply chains, over 75 per cent of organizations in India are currently at the Proof of Concept (POC) stage with limited use cases. Globally, 49 per cent of Indian organizations are expected to adopt the new-generation supply chain only at the POC level in 2025, reflecting a global trend.

On a global scale, 70 per cent of executives surveyed ranked AI agents and multi-agent systems as one of the top three tech trends for 2025 in the AI and data domain.

This trend is particularly prominent in sectors such as insurance (85 per cent), retail (81 per cent), consumer products (75 per cent), government/public services (74 per cent), energy/utilities (71 per cent), banking (71 per cent), telecom (68 per cent), industrial manufacturing (67 per cent), automotive (61 per cent), life sciences and healthcare (61 per cent), high tech (59 per cent), and aerospace and defence (59 per cent).

Additionally, 37 per cent of surveyed venture capitalists (VCs) and 32 per cent of global executives have ranked AI agents as the top trend in the AI and data space for 2025.

The focus on AI-powered robots is particularly strong, with 96 per cent of global VCs from the retail and telecom sectors ranking AI-powered robots among the top three trends in the industry and engineering domains. The new-generation supply chain also stands as a leading tech trend across sectors, with 80 per cent of global executives from the energy/utilities sector and 78 per cent of global executives from the retail sector believing it will be a top trend in 2025.

Furthermore, 70 per cent of global executives and 65 per cent of global VCs feel that the new-generation supply chain will make a major impact in 2025.

Source: www.businessworld.in

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INDIA'S DEFENCE DRONE INDUSTRY GAINS MOMENTUM, BUT REGULATORY CHALLENGES PERSIST

C P BALASUBRAMANYAM, JOURNALIST COVERING INDIAN TECH COMPANIES AND STARTUPS FROM BENGALURU.

India's military drone market is projected to reach $4,082 million by 2030, growing at a compound annual growth rate (CAGR) of 17.9% from 2025 to 2030.

India's defence drone sector took centre stage following the recent tensions between India and Pakistan. The successful deployment of indigenously developed drones during 'Operation Sindoor' to neutralise terror networks underscored their strategic importance.

However, the sector continues to face hurdles, including regulatory ambiguity, import restrictions, and limits on technology transfer, said retired Major General Mandip Singh, in an email interview with AIM. He's also the president of strategic alliance at Droneacharya Aerial Innovation Ltd.

Singh pointed to government initiatives like the Make in India campaign, the Atmanirbhar Bharat mission, and regulatory frameworks, such as the Drone Rules 2021 and the Defence Production and Export Promotion Policy (DPEPP) 2020, as gradually creating a more conducive environment for Indigenous manufacturers and encouraging local production and innovation.

"Further policy support is needed for R&D, skilling of our vast human resource, ease of procurement processes, and recognition for indigenous content," he added.

According to a Grand View Research report, India's military drone market is projected to reach $4,082 million by 2030, growing at a compound annual growth rate (CAGR) of 17.9% from 2025 to 2030. As of 2024, India holds a 3.8% share of the global military drone market.

Lessons from Indo-Pak border tensions

The recent border clashes underscored the critical role of drones in surveillance, situational awareness, and rapid response, Singh said.

"For startups, this reaffirms the need to focus on reliable, high-performance drones that can operate in challenging terrain and provide real-time intelligence," Singh said. "It reminds them that the future of modern warfare is increasingly reliant on cutting-edge drone technology."

Another key takeaway is the imperative for indigenous equipment and domestic supply chains—no nation can afford reliance on external sources during conflict. Since the tensions, Droneacharya has accelerated the integration of artificial intelligence into its projects.

"Intelligent drones with lethal precision neutralised enemy targets with zero collateral damage in this brief skirmish. This is set to become the new standard," Singh noted.

Counter-drone solutions

Addressing the rising demand for counter-drone systems, Singh said startups are innovating rapidly to meet defence requirements.

"This includes early detection, jamming, and neutralisation systems to secure critical airspace," he said.

With the Atmanirbhar Bharat and Make in India programmes, the industry is increasingly leveraging locally sourced components and indigenous manufacturing, aligning with the government's push for a robust domestic defence ecosystem.

Singh also warned that India's northern neighbour remains the world's largest producer, seller, and user of dual-use drones, which serve both commercial and military purposes.

R&D and strategic partnerships

India's push for indigenous drone capabilities dates back to the 1990s with DRDO's early UAV projects. National campaigns and updated regulations have since accelerated sector growth.

"Drones can be significant job creators and economic growth drivers," the Ministry of Civil Aviation noted in 2021, adding that India has the potential to become a global drone hub by 2030.

The Drone Rules 2021 also proposed establishing a Drone Promotion Council, which would bring together academia, startups, and stakeholders to foster an innovation-friendly regulatory environment.

Singh revealed that the Droneacharya's R&D efforts are focused on enhancing drone durability, range, and real-time data processing, alongside AI and machine learning integration for precise threat detection.

The company is also developing heavy-lifting drones and logistics drones.

DroneAcharya is actively exploring partnerships with both domestic and global technology leaders to strengthen capabilities and co-develop advanced defence-grade drones that align with the government's Make in India initiative and address emerging security threats to international standards.

When asked about investor interest following the border tensions, Singh said the situation has sparked renewed focus on defence technologies and mission-critical drones, positively impacting investor sentiment.

"We hope this momentum leads to policy reforms that incentivise MSMEs and SMEs to contribute to building a resilient drone ecosystem," he concluded.

Google Chrome to Use AI to Stop Tech Support Scams

"We believe we can leverage LLMs to help detect scams at scale and adapt to new tactics more quickly."

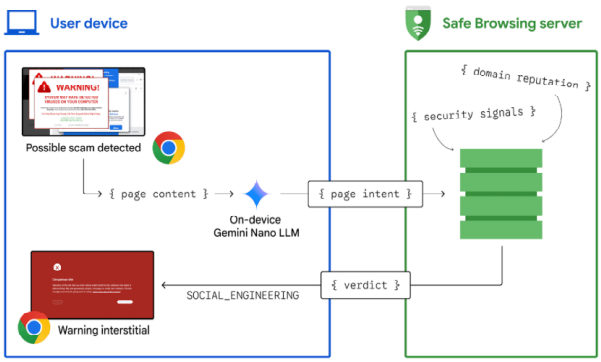
Ankush Das: Google Chrome is taking an AI-driven defence approach to help users protect against tech support scams. With the release of Chrome 137 this week (as a beta version), the browser will begin using Gemini Nano, Google's on-device large language model, to detect and block scam sites in real time.

Tech support scams have long relied on fear tactics such as full-screen takeovers, fake virus alerts, and even disabling input controls or giving up remote access. According to Google, these pages often change rapidly and avoid detection by evading security crawlers. "We've found that the average malicious site exists for less than 10 minutes," the company noted in its announcement.

The new AI-powered feature aims to outpace scammers by analysing suspicious pages locally on the user's device.

"We believe we can leverage LLMs to help detect scams at scale and adapt to new tactics more quickly. But why on-device? Leveraging LLMs on-device allows us to see threats when users see them.", the company stated in the blog post.

If Chrome detects behaviour typically associated with scams, like abuse of keyboard lock APIs, it will trigger Gemini Nano to evaluate the page.



"Chrome provides the LLM with the contents of the page that the user is on and queries it to extract security signals, such as the intent of the page.", mentioned the announcement.

The LLM summarises signals such as intent and page content, which are then sent to Google Safe Browsing for a final verdict. If deemed harmful, Chrome will display a warning.

Because the evaluation happens locally, threats can be identified as users experience them—an approach that offers both privacy and speed. Only users who opt-in to Chrome's Enhanced Safe Browsing will send these AI-generated signals to Google, though standard users will still benefit through improved blocklists.

Looking ahead, Google plans to expand this AI layer to catch other scam types, including package tracking fraud and unpaid toll schemes. Android support is expected later this year, and ongoing research is being conducted into improving resilience against prompt injection and other emerging threats.

Source: analyticsindiamag.com

SUCCESS THROUGH SUSTAINABLE SUPPLY CHAIN MANAGEMENT

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Abstract : This research mainly focuses on Sustainable Supply Chain Management (SSCM) practices and success factors. The concept of sustainable supply chain management including the economical sustainability, environmental sustainability and social sustainability are discussed. The steps in involved in creating SSCM are also discussed. The author has identified the factors and sub-factors into consideration for SSCM. The main factors are: i. Organizational strategy (OS), ii. Marketing Strategy (MS), iii. Supply chain strategy (SCS), iv. Govt. Regulations & Policies and Functional Interface (FI). The author has also included some of the companies like ITC, L&T, AWL, ARK, Mahindra Lifespace, DHL, Amazon, Allcargo, TCI, Essar Group, HPCL etc as examples and their practices in this paper. The SSCM benefits and its relevance to achieve circular economy is also discussed.

Keywords: Sustainable supply chain management, success factors

Introduction : A sustainable supply chain means that integration of environmentally responsible practices, socially / people centric and economic / profit orientation. A sustainable supply chain is one that uses environmentally and socially sustainable practices at every stage to protect the people and environments across the whole chain. This means an organization upholds environmental and social standards for their own operations and their suppliers' operations. Understanding all the three components are important to create a sustainable supply chains.

Sustainable Supply Chain Management aims to create a more sustainable value chain by promoting responsible sourcing, reducing waste and emissions, improving working conditions for employees, and increasing transparency. Supply chain sustainability is considered to be an important task. To improve supply chain sustainability, businesses should establish clear goals, implement sustainable procurement policies, promote transparency and collaboration, reduce waste and emissions, and invest in green technologies and ethical labor practices, while also measuring and reporting environmental performance.

Sustainable practices in supply chain management involve integrating environmental, social, and economic considerations throughout the entire supply chain, focusing on ethical sourcing, reducing waste, minimizing environmental impact, and promoting transparency and collaboration. Sustainable practices in SCM include: Green supply chain, green procurement, green design, green manufacturing, green logistics management, green warehouse management, transparency in business dealings, reducing carbon emissions, increased collaboration, circular economy principles implementation, communicate expectations and enhanced brand reputations. Figure 1 describes the three important pillars of supply chain sustainability.

Figure 1: Supply Chain Sustainability (www.3scsolution.com)

Sustainable supply chain management is the practice of integrating environmental, social and financial considerations into the sourcing, production and distribution of goods and services (IBM, 2025). According to a report by the Carbon Disclosure Project (CDP), companies' supply chains are responsible for up to 11.4 times their direct emissions—more than 90% of their total greenhouse gas emissions.1 Sustainable supply chain management initiatives reduce the environmental impact of business operations by minimizing carbon emissions and waste. Implementing a more sustainable supply chain can benefit businesses beyond lowering their carbon footprint. Some sustainability efforts can make operations more cost efficient—for example, by reducing waste and minimizing energy requirements—and improve reliability and resiliency within the supply chain. Figure 2 depicts the concept of circular economy and supply chains.

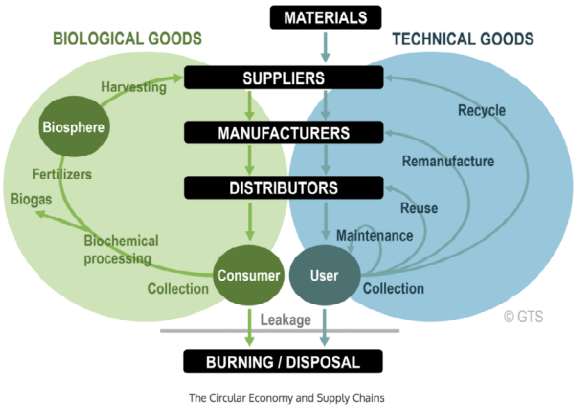

Figure 2: Circular Economy and Supply Chanis

Building Sustainable Supply Chains

Building sustainability in a supply chain is important. It involves a set of process steps:

Step 1: Identifying sustainability goals & objectives
Step 2: Creating sustainable policy
Step 3: Evaluation the existing processes
Step 4: Collaboration
Step 5: Moving for & Adapt (Implementation)

Benefits of SSCM : Sustainable Supply Chain Management benefits are: an i. Environment benefit, Improves brand value, makes the supply chain more visible, financially more rewarding with potential operations and enhances value chain resilience.

Business Success Factors : Key success factors in business are critical areas that, when focused on and managed effectively, provide a competitive advantage and drive long-term growth and success. These factors can include areas like strategic focus, operations, people, finances, marketing, and customer service. The five critical success factors are strategic focus, people, operations, marketing, and finances.

The term key success factors can be used in four different ways: a) as a necessary ingredient in a management information system, b) as a unique characteristic of a company, c) as a heuristic tool for managers to sharpen their thinking, d) as a description of the major skills and resources required to be successful in a given market (Grunert & Ellegard, 1992). The summary of key success factors are mentioned in the table 2.

Table 2: Summary of Key Success Factors

Sl. No	Key Success Factors	Remarks
1	Competitive Priorities : Cost, Quality, Delivery Schedule, Customer Sales Service, Product flexibility etc,	The competitive priorities enable the operational efficiency.
2	Product orientation – Innovative design, flexibility etc	Sony, Nikon, HP Products Apple, etc
3	Process orientation – Six sigma, Zero Defect and Zero Effect	Motorola, GE, Honda etc
4	Inventory Management - VMI	Maruti Suzuki India Ltd., HP, Dell Computers etc.,
5	Technology Adoption	Aamzon, Wal-Mart, Flip Kart, Big Basket etc.
6	Pricing – Every Day Low Price (EDLP)	Wal-Mart, e.Retail companies
7	Postponement Strategy – Keep the product as Generic till the order comes from the customer	Asian Paints, Some of the Food Chains etc.,
8	Business Models- Last mile delivery, embracing the technology, process automation etc	e- Retail giants like food supply chain, agro-produces supply chains, online business models etc.

(Source: Author's teaching notes on SCM)

Sustainable Supply Chain Management in Indian Context : The Indian supply chain sector boasts cutting-edge models and analytics, which are explicitly developed for achieving strategic advantage. Thanks to the surging customer base, varied business environment, and extensive trade distribution network, the country has emerged as a worldwide leader in SCM (Supply Chain Management). However, the sector contributes tremendously to the total pollution in the nation, accompanying some serious environmental consequences. On average, companies' value chain emissions in India outweigh their direct carbon effect by 11.4 times. This alarming concern has pushed Indian businesses to adopt greener solutions for proper resource utilization and mitigating ecological impacts.

Jing Wang and Jun Dai (2018) have conducted a study based on the data of 172 Chinese firms. It is found that environmental performance and social performance are positively related to economic performance.

Rajesh (2020) has identified the factors and sub-factors into consideration for SSCM. The main factors are: i. Organizational strategy (OS), ii. Marketing Strategy (MS), iii. Supply chain strategy (SCS), iv. Govt. Regulations & Policies and Functional Interface (FI). The weight ages for each factor are shown in table 3.

Table 3: Key factors and its weight ages

Sl. No	Factors	Weight-ages
1	Organizational Strategy (OS)	25 %
2	Supply Chain Strategy (SCS)	25 %
3	Marketing Strategy (MS)	12 %
4	Functional Interface (FI)	26 %
5	Govt. Regulations (GR)	13 %

Prasad D.S, Pradhan, R.P , Gaurav K et al (2018) have studied the various Departments of Tata Steel, SAIL, Essar and Jindal in India. The four important factors identified are: favorable organizational environment, Sustainable procurement initiatives, Compliances to Sustainable standards and external environmental pressures. They have also reported three important compliances, i.e environmental standards (ISO 14001 certification), Safety & Health focus (OHSAS 18001 certification) and top leadership commitment.

Challenges of Sustainable SCM in India have reported the key challenges faced by the companies in India. Table 4 shows the summary of key challenges with details.

Table 4: Challenges of Sustainable SCM in India

Sl. No	Key challenges	Details
1	Increased costs	Developing procedural processes tracking new metrics.· Engaging specialists to advise on new products and policies· Creating additional check points
2	Lack of Green Practitioners	Green consultants, Green developers, Green Architects etc,
3	Recycling products	Integrating trash (recycling) as raw materials in manufacturing is a significant problem for many firms
4	Fear of failure	Green drive will be a significant success or failure, i.e customers mind set has to be changed.

(Source: Akash Hegde, 2023)

Sustainable Supply Chain Management Companies in India : Several companies in India are actively implementing sustainable supply chain management practices. Some prominent examples include ITC, L&T, and AWL India, all of which are focused on minimizing environmental impact and promoting responsible business practices throughout their supply chains.

L&T is committed to drive sustainability across its supply chain partners, including vendors, contractors, service providers and distributors through a Green Supply Chain Policy and its Code of Conduct.

ARK India is at the forefront of green logistics solutions in India, redefining how businesses approach transportation and supply chain management. Our comprehensive services prioritize sustainability without compromising on effectiveness.

Mahindra Life Space has adopted three pronged approach i.e quality ISO 9001, Safety and Environment. Sustainability in Mehindra Life Space supply chain is driven by our Green Supply Chain Management Policy (GSCM), which ensures minimal environmental impact of products and services provided to us, and acts as a tool for managing our social and relationship capital. We also strive to reduce the embodied energy of our products by procuring 50% of the total building materials (by cost) from local suppliers within 400 km radius of the projects.

ITC works with its suppliers including farmers, third-party manufacturers, service providers, and transporters, suppliers of materials and capital goods, franchisees, dealers and distributors to scale up its sustainable supply chain initiatives. This includes identification of sustainability risks and opportunities through assessment of key value chain partners; conducting third-party assessments in line with international standards and obtaining certifications like Rain Forest Alliance and Forest Stewardship Council and implementing systems and processes for enabling supply chain oversight, transparency and traceability as well as measures for addressing identified risks and opportunities. ITC has implemented in its upstream, operations and downstream in a vertically integrated manner.

DHL, one of the world's largest international express delivery and logistics companies, has a strong network in India, which provides end-to-end logistics solutions such as warehousing, packaging, and transportation, amongst others. They have a modern logistics network

that differentiates them from their counterparts.

Many firms in India have adapted new ways of supply chain management to sustain and survive the highly competitive market. These examples illustrate how effective SCM can be in transforming business operations: They are Flipcatr, Dabur and Reliance Retail.

Allcargo Logistics is a specialist in the multimodal transport operations and offers several services ranging from logistics to global supply chain management. They are recognized for their well-established structure and their global presence.

TCI Supply Chain Solutions provides transportation, warehousing, and supply chain redesign and engineering services. Their approach is based on customer needs, which guarantees that every purchaser will receive a unique solution.

The transportation and logistics sector accounts for approximately 14% of India's total CO2 emissions, according to recent environmental assessments, as per the data by the United Nations Development Programme, India has pledged to reduce the emissions intensity of its GDP by 45% by 2030. This commitment has brought sustainable supply chain practices to the forefront of industry transformation.

Essar Group's GreenLine Mobility Solutions, a company specialising in sustainable transportation and logistics in India, is the first in the country to operate a fleet of LNG-powered heavy-duty trucks. Hindustan Zinc, India's largest producer of zinc, lead, and silver, recently partnered with GreenLine to integrate its LNG-powered fleet into the company's supply chain and transportation operations.

According to GreenLine, its LNG-powered trucks, manufactured by Blue Energy Motors, offer significant reductions in emissions compared to diesel: up to 30% in CO2, 100% in SOx, 59% in NOx, 91% in particulate matter, and 70% in CO.

Recently, Amazon India and Hindustan Petroleum Corporation Limited (HPCL) formed a strategic partnership to accelerate the development and adoption of low-carbon fuels (LCFs) for long-haul transportation in India.

Electric vehicles (EVs) integration represents the most transformative approach to sustainable logistics. According to a report by Wright Research, the EV Industry in India has witnessed remarkable growth, with projections indicating that the market is set to expand from $23.38 billion in 2024 to an impressive $117.78 billion by 2032.

The Indian government is also supporting the growth of the EV industry with initiatives like the FAME II scheme and the Electric Mobility Promotion Scheme (EMPS-2024). A key advantage of EVs is their substantially reduced carbon footprint compared to conventional fuel-powered vehicles.

Conclusion : Creating Sustainable Supply Chain Management is the need of hour. Sustainability includes Environmental sustainability, Social Sustainability and Economic Sustainability. These things help the firms to improve their business results. The entire spectrum of supply should focus on green initiatives i.e green procurement, green product design, green manufacturing, green logistics and green warehousing operations.

The organizational strategy, functional interface, supplies chain strategy, marketing strategy and govt. regulations. The companies should develop a road map to implement the sustainable business practices. Many key challenges have to face by the Indian companies in terms of increased costs, lack of green practitioners, recycling products and fear of failure.

The companies have to implement three critical success factors, i.e i.e environmental standards (ISO 14001 certification), Safety & Health focus (OHSAS 18001 certification) and top leadership commitment.

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UNLOCKING SUSTAINABILITY WITH 3P + 4R THINKING

SN PANIGRAHI, PMP®, ATP I (PMI - USA), FIE, C.ENG
LEAD AUDITOR ISO IMS (QMS+EMS+OHS)
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Abstract: In the contemporary business landscape, the integration of sustainability practices has become paramount. This article delves into the transformative approach of 3P + 4R thinking, amalgamating Profit, People, Planet, along with Reduce, Reuse, Recycle, and Regenerating/ Reproduce. By exploring each element and providing real-world examples, we aim to unravel the profound impact of this comprehensive framework on corporate sustainability.

Keywords: Sustainability, 3P + 4R Thinking, Profit, People, Planet, Reduce, Reuse, Recycle, Regenerate, Corporate Responsibility.

Introduction: As global challenges like climate change and resource depletion intensify, businesses are increasingly recognizing the need for holistic sustainability. The 3P + 4R framework emerges as a powerful tool, intertwining economic, social, and environmental considerations. Let's dissect each component and illustrate their application through current examples.

The 3P Framework: Balancing Profit, People, and Planet : The 3P framework posits that true success lies in achieving a harmonious balance between profit, people, and planet. This means:

Profit - Sustaining Financial Viability: Businesses must operate efficiently and generate financial returns to ensure their own viability and contribute to economic growth. In the realm of sustainability, Profit extends beyond mere financial gains. It encapsulates long-term economic viability intertwined with ethical business practices. However, profit should not come at the expense of the environment or social well-being.

Examples:

- Ø **Reliance Industries Limited (RIL) :** Reliance Industries, led by Mukesh Ambani, showcases a commitment to sustainable profit through its diversified business ventures. The company has made substantial investments in clean energy, including the development of the world's largest oil-to-chemicals complex with a focus on reducing environmental impact. RIL's integration of technology, innovation, and sustainable practices reflects a holistic approach to profitability aligned with environmental responsibility.
- v **Godrej Green Building (Mumbai):** This LEED (Leadership in Energy and Environmental Design) Platinum-certified office building maximizes energy efficiency through solar panels, rainwater harvesting, and innovative ventilation systems, demonstrating environmental responsibility and cost savings. LEED (Leadership in Energy and Environmental Design) is the world's most widely used green building rating system. LEED certification provides a framework for healthy, highly efficient, and cost-saving green buildings, which offer environmental, social and governance benefits.
- v **Hira Sweets**: Hira Sweets is a market leader in the sweets and snacks business in Delhi, established in 1912. This traditional sweets company sources ingredients locally and ethically, minimizes packaging waste through reusable containers, and invests in employee training, proving that sustainable practices can boost profitability.
- v **Fabindia (Pan-India):** This handicraft retailer collaborates with artisans across rural India, preserving traditional skills and providing fair

wages while achieving commercial success through high-quality, ethically sourced products.

People - Fostering Social Equity : People-focused sustainability endeavors involve nurturing human capital, promoting diversity, and ensuring fair practices. Prioritizing the well-being of employees, communities, and consumers is essential for sustainable development. This includes fair labor practices, responsible sourcing, and investing in social programs that improve lives.

Examples

- **Tata Group :** The Tata Group, under the leadership of various Tata companies, prioritizes people-centric sustainability. Through initiatives like Tata Consultancy Services' (TCS) community development programs and Tata Steel's efforts to enhance the well-being of local communities, the group emphasizes social responsibility. Their commitment to employee welfare, skill development, and community engagement exemplifies a holistic approach to fostering social equity.
- **Aravind Eye Care System (Madurai):** The group has vision of Provide compassionate and quality eye care affordable to all This network of hospitals provides affordable, high-quality eye care services to underserved communities, including free surgeries for the underprivileged, improving health outcomes and empowering lives. By prioritizing social responsibility, they reinforce the integral role of 'People' in the sustainability equation.
- **SELCO (Solar Electric Light Company) Foundation** (Bangalore, established in 1995): This organization provides solar lighting solutions to off-grid rural communities, improving access to education and livelihood opportunities while promoting clean energy adoption.
- **Self-Help Groups (SHGs): Community-Driven Development:** These microfinance groups empower women in rural areas through collective action, providing access to financial resources and income generation opportunities.
- **Telemedicine Initiatives:** Programs like **eSanjeevani** bring healthcare services closer to remote communities, bridging the accessibility gap.
- **Mid-Day Meal Scheme:** This program provides nutritious meals to children in government schools, improving nutrition and promoting education access for underprivileged families.
- **Barefoot College: Inclusive Skill Development:** A community-based grassroots organization working to make marginalized communities sustainable and self-sufficient since 1972. This organization empowers rural women by training them to become solar engineers, providing them with skills, income, and access to clean energy.

Planet - Preserving Environmental Harmony : Planet-centric strategies address ecological impact, emphasizing conservation and responsible resource utilization. Environmental stewardship is paramount. Businesses must minimize their environmental impact through resource conservation, pollution reduction, and responsible waste management.

Examples:

- **ITC Limited :** ITC Limited, a diversified conglomerate in India, has embraced sustainable practices to minimize its environmental footprint. Through the 'Responsible Luxury' initiative in its hotels, ITC integrates green building designs, water and energy conservation, and waste management. By aligning business operations with environmental preservation, ITC demonstrates how companies can contribute to the health of the planet while remaining economically viable.
- **Saahas Zero Waste (Bangalore):** This waste management company diverts over 90% of waste from landfills through composting, recycling, and upcycling initiatives, promoting resource recovery and circular economy principles.
- **Solar Power in Indian Railways**: India's ambitious plan to install solar panels across railway stations and trains aims to generate 100 GW of renewable energy by 2030, reducing carbon footprint and promoting clean energy transition. Indian Railways, in its ambitious move towards sustainability, has significantly ramped up its renewable energy capacity, by commissioning about 211 MW of solar plants and around 103 MW of wind power plants as of October 2023. The Guwahati railway station in the capital city of Assam is the first railway station in the country to be fully solar-powered.

4R - The Pillars of Circular Thinking : The 4Rs: **Reduce, Reuse, Recycle, and Recover / Regenerate / Repurpose**. They're the pillars of circular thinking, a revolutionary approach that challenges our linear "take-make-waste" model. **Reduce** our consumption, **reuse** what we have, **recycle** materials into new treasures, and **regenerate** natural resources for future generations. It's a closed-loop waltz, where every step is a twirl towards a greener, more vibrant future.

Reduce: Minimize the use of resources at the source. This involves designing products for durability, opting for reusable alternatives, and promoting mindful consumption habits.

Examples:

v **Coal Sector's Stride into Energy Efficiency; Steps towards Carbon Neutrality.**

Coal India Limited has entered into an **MOU with Energy Efficiency Services Limited** to implement comprehensive Energy Efficiency Programs at CIL and its subsidiaries. This initiative encompasses **Building Energy Efficiency Projects (BEEP),** the replacement of outdated fans, air conditioners, and conventional light fittings, motors, the adoption of electric vehicles, and the installation of distributed and rooftop solar projects.

From FY 2021-22 to December 2023, Coal/Lignite PSUs have made commendable efforts towards energy efficiency, including the replacement of 4.24 lakh conventional lights with LED lights, 5357 energy-efficient air conditioners, 83236 super fans, deployment of 201 electric vehicles, 1583 efficient water heaters, 444 energy-efficient motors for pumps, 2712 auto-timers in street lights and the installation of capacitor banks.

The adoption of energy efficiency measures led to notable accomplishments, **yielding a total energy savings of 14.34 crore kWh** and **financial savings amounting to Rs 107.6 crore**. Further, these endeavours played a vital role in promoting environmental sustainability, culminating in a collective **reduction of 1.17 lakh tonnes of CO2 equivalent in carbon emissions.**

v **Electric Vehicles (EVs)**: The widespread adoption of **Electric Vehicles (EVs)** is anticipated to contribute significantly to the reduction of carbon emissions. By replacing traditional internal combustion engines with electric powertrains, EVs eliminate tailpipe emissions, reducing the overall carbon footprint of transportation. Studies suggest switching from a petrol car to an EV in India can lead to a **60-70% reduction** in annual carbon emissions, depending on factors like driving patterns and electricity sources.

v **Alternative Energy Generation: Reduction in Emissions**

Solar Power: Solar photovoltaic (PV) systems can significantly reduce carbon emissions, with estimates suggesting a **reduction of approximately 90% compared to conventional fossil fuel-based electricity generation**. The process involves converting sunlight directly into electricity, emitting minimal greenhouse gases during operation. Compared to coal-fired power plants, **solar can avoid up to 0.8-1.2 tons of CO2 per megawatt-hour (MWh) of electricity generated.**

Wind Power: Wind energy is a clean and renewable source that produces electricity through the rotation of wind turbines. Wind power can achieve a **carbon emissions reduction of about 80% compared to traditional fossil fuel-based power generation**, as it involves no direct emissions during electricity production. **Compared to coal, wind power can prevent 0.6-0.8 tons of CO2 per MWh.**

Hydropower: Hydropower, generated by harnessing the energy of flowing water, is a low-carbon energy source. Large-scale hydropower projects can achieve **a reduction in carbon emissions of approximately 35-70% compared to fossil fuel-based electricity generation**, depending on factors like reservoir size and construction. Compared to coal, hydropower helps **avoid 0.9-1.1 tons of CO2 per MWh**.

Biomass Energy: Biomass energy, derived from organic materials, can vary in its carbon emissions reduction. While burning biomass releases carbon dioxide, it is considered carbon-neutral when the carbon released is balanced by the carbon absorbed during the growth of the biomass. Advanced technologies, such as gasification, can further reduce emissions. **Compared to coal, well-managed biomass can avoid 0.4-0.7 tons of CO2 per MWh.**

Reuse: Give materials a second life by finding new uses for them before discarding them. This can involve product repair, creative upcycling, and implementing sharing platforms. Reuse is a sustainable practice centered on extending the lifespan of products or materials by utilizing them for the same or similar purposes without significant alterations. Unlike recycling, which involves processing and transforming materials into new products, reuse focuses on preventing unnecessary waste and conserving resources. Embracing reuse not only reduces the demand for new raw materials but also minimizes energy consumption and environmental impacts associated with manufacturing. From repurposing containers for storage to refurbishing electronics, the essence of reuse lies in promoting a circular economy and fostering a culture of responsible consumption, where items are valued for their longevity and versatility.

Examples:

Ø "**Saahas Zero Waste**" in Bangalore: Used oil drums

find new life as water storage tanks in schools and community centers, tackling water scarcity and waste simultaneously.

- **Fabscrap:** This Delhi-based startup collects textile waste from garment factories and transforms it into stylish clothing and accessories, giving discarded fabrics a second life on the runway.
- **Oxfam India's 'Second Life' Project:** This initiative collects surplus food from weddings and events, repackages it hygienically, and distributes it to underprivileged communities, tackling food waste and food insecurity. Between 15-25 percent of the food in social gatherings is wasted, according to a survey (Report on Assessment of Wastage of Food and Ostentatious Behaviour During Social Gatherings (Marriages/Parties/Meetings, etc) in National Capital Region Delhi, by Department of Consumer Affairs).
- **Kabadiwalas 2.0:** These tech-enabled startups connect informal waste collectors ("kabadiwalas") with consumers, facilitating efficient collection and reuse of recyclable materials. They emphasize reusable packaging, reducing single-use waste and fostering a culture of sustainability.

Recycle: Recycling is the process of collecting, sorting, processing, and transforming used materials into new products, reducing the need for virgin raw materials and minimizing waste. It's the backbone of a **circular economy**, where resources are recycled after use, minimizing waste and environmental impact. In India, several initiatives exemplify the impact of recycling on environmental sustainability:

Examples:

- **"Bhool Na Jana, Plastic Bottle Lautana" - Coca-Cola & Reliance Retail – Joint Program:** Coca-Cola India and India's largest retailer, Reliance Retail, have launched a sustainability initiative for PET container recycling through reverse vending machines and collection bins titled "**Bhool Na Jana, Plastic Bottle Lautana**,"

  The project aligns with the government's Swachh Bharat Mission and has launched in 36 Reliance Retail stores including Smart Bazaar and Sahakari Bhandar stores in Mumbai and Delhi, and will expand to 200 stores across the country by 2025 with a target of collecting 500,000 PET bottles annually in the pilot phase.

  As part of the initiative, **Reverse Vending Machines (RVMs)** and collection bins will be installed in the participating stores, providing consumers with a convenient method to deposit used PET bottles.

  In return, **consumers will receive attractive discounts on Coca-Cola India products**. The collected PET bottles will be responsibly managed and recycled by Reliance Industries (RIL), a leader in polyester and plastics recycling.
- **Ecoware:** This company produces biodegradable and compostable tableware made from plant-based materials like sugarcane bagasse. They offer an alternative to single-use plastic plates and cups, reducing plastic waste significantly.

Recover / Regenerate: The concepts of Recover, Regenerate, and Reproduce in the context of recycling focus on reclaiming materials, restoring ecosystems, and sustainably reproducing products. Recovering involves the retrieval of valuable materials from discarded items; restoring or replenishing natural resources and ecosystems. By actively contributing to ecosystem restoration, businesses can play a pivotal role in replenishing the planet's resources.

Examples:

- **Ayodhya Ram Mandir - Floral Waste to Natural Incense Sticks:**

  Following the divine **Ram Pran Pratishtha Program**, with an anticipated daily influx of 22 lakh devotees to Ayodhya Dham, there was a concerted effort to ensure that the flowers that were offered did not end up as waste within the temples and shrines.

  The birthplace of Lord Shri Ram attracted numerous pilgrims annually who offered flowers in temples, generating tons of **floral waste**. To address this issue, the authorities implemented a system where the **collected flowers were sorted and transformed into certified natural incense sticks daily.**

  This processing initiative would **provide employment to women in self-help groups** and also **ensure cleanliness through proper recycling of floral waste**.

  According to estimates, after the Pran Pratishtha, **9 metric tonnes of floral waste is expected to be recycled** in all the temples of Ayodhya Dham, a significant increase from the current 2.3 metric tonnes.

  The responsibility for this environmentally-friendly initiative has been entrusted to an organization called '**Phool**,' which has signed a **Memorandum of Understanding (MoU) with the Ayodhya Municipal Corporation** for the collection and recycling of floral waste.
- **OIL, GMC sign MoU to Convert Municipal Solid**

Waste into CBG:

In a move towards environmental sustainability and cleaner energy solutions, Oil India Limited (OIL) and Guwahati Municipal Corporation (GMC) have inked a memorandum of understanding (MoU) on Saturday to collaborate on the transformation of municipal solid waste (MSW) into compressed bio gas (CBG).

This initiative aims to contribute significantly to the reduction of carbon footprint and promote a more sustainable and eco-friendly future.

One More R - Rethink! : Embracing the circular economy extends beyond closed material cycles and renewable energy—it necessitates a holistic approach rooted in systems thinking. Every participant in the economic landscape, be it companies, individuals, NGOs, or nations, is intricately interconnected, forming a network where the actions of one entity reverberate through others. Consequently, choices must consider both short and long-term consequences, recognizing the impact on the entire value chain. Rethinking involves a profound consideration of how our actions or inactions resonate with the environment.

Human activities significantly impact the physical environment through overpopulation, pollution, reckless use of natural resources, burning fossil fuels, and deforestation. These actions have precipitated climate change, soil erosion, compromised air quality, undrinkable water, and health hazards. It is imperative to rethink our roles and contributions to halt further deterioration and redirect our efforts toward positive change.

Change considerations include:

- **Educating employees on corporate sustainability.**
- **Informing consumers about responsible consumption practices.**
- **Fostering awareness among all stakeholders.**
- **Mobilizing a collective movement towards sustainability.**

By embracing these principles, we can actively contribute to a greater mission of halting environmental degradation and steering our collective efforts in the right direction.

LiFE- Lifestyle for Environment

The concept of '**Lifestyle for the Environment (LiFE)** was introduced by **Prime Minister Narendra Modi at COP26 in Glasgow on 1st November 2021**, calling upon the global community of individuals and institutions to drive LiFE as an international mass movement towards "**mindful and deliberate utilization, instead of mindless and destructive consumption**" to protect and preserve the environment.

LiFE puts individual and collective duty on everyone to live a life that is in tune with Earth and does not harm it. Those who practice such a lifestyle are recognized as Pro Planet People under LiFE.

Conclusion:

In conclusion, the 3P + 4R thinking framework provides a comprehensive guide for businesses to navigate the complex landscape of sustainability. Through profit, people, and planet considerations, coupled with the 4R principles, organizations can not only secure their financial future but also foster social equity and preserve the environment. Embracing this paradigm shift is not just a choice but a strategic imperative for businesses aiming to thrive in a conscientious and interconnected world.

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"SUSTAINABLE AND EMISSION-FREE LOGISTICS AND TRANSPORTATION DELIVERY"

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Introduction: The logistics and transportation industry in India is undergoing a significant transformation, driven by a growing focus on sustainability and environmental concerns. With the rise of e-commerce and increased urbanization, the demand for efficient and eco-friendly delivery solutions has never been greater. This case let explores the initiatives and challenges related to zero-emission delivery in the Indian context. Key Players:

1. E-commerce Giants: Companies like Flipkart, Amazon, and Reliance Retail are leading the way in transforming last-mile delivery to reduce emissions.
2. Startups: Numerous startups, such as Rivigo, Delhivery, and Zedpack, are innovating in electric vehicle (EV) technology and sustainable logistics.
3. Government: The Indian government is introducing policies and incentives to promote electric vehicles and green logistics.

Definition of zero emission: Zero emission refers to the concept of producing little to no harmful pollutants or greenhouse gases during the operation of various vehicles, technologies, or processes. This concept is crucial in the context of addressing environmental challenges, particularly climate change and air quality issues. Zero emission solutions aim to minimize or completely eliminate the release of carbon dioxide (CO2), nitrogen oxides (NOx), particulate matter, and other harmful emissions into the atmosphere. The key focus areas for zero emission initiatives include:

1. **Transportation**: The transportation sector is a significant contributor to greenhouse gas emissions. Zero emission vehicles, such as electric cars, hydrogen fuel cell vehicles, and electric bicycles, are designed to run without tailpipe emissions, helping to reduce air pollution and combat climate change.
2. **Energy Production**: Zero emission energy sources, like solar, wind, and hydropower, generate electricity without producing greenhouse gases. Transitioning from fossil fuels to these renewable energy sources is vital for achieving zero emission electricity generation.
3. **Industrial Processes**: Industries are increasingly adopting cleaner technologies and processes to reduce emissions from manufacturing and production. This includes using renewable energy, improving energy efficiency, and implementing carbon capture and utilization techniques.
4. **Building and Construction**: Zero emission building practices involve energy-efficient construction, renewable energy integration, and sustainable materials to minimize the environmental impact of structures. Smart building designs reduce energy consumption and emissions.
5. **Waste Management**: Sustainable waste management practices aim to reduce the generation of waste and promote recycling and composting to minimize emissions from landfills and incineration.
6. **Agriculture**: Zero emission agriculture focuses on reducing emissions of methane and nitrous oxide, potent greenhouse gases associated with livestock and agricultural activities. Sustainable farming practices and methane capture systems are employed.

Initiatives:

1. **Electric Delivery Vehicles**: E-commerce companies are rapidly adopting electric two-wheelers, three-wheelers, and even electric vans for last-mile deliveries. These vehicles significantly reduce emissions compared to traditional gasoline-powered vehicles.
2. **Charging Infrastructure**: To support electric delivery fleets, companies are investing in charging infrastructure. They are setting up charging stations at delivery hubs and partnering with existing charging networks to ensure uninterrupted operations.
3. **Route Optimization**: Advanced algorithms and data analytics are being used to optimize delivery routes, reducing mileage and emissions. This minimizes the time vehicles spend on the road and the associated carbon footprint.
4. **Packaging Innovation**: Companies are experimenting with sustainable packaging materials to reduce waste and environmental impact. This includes using recycled materials and designing packaging that is easy to recycle.
5. **Green Warehouses**: Warehouses are being equipped with solar panels and energy-efficient systems to reduce their carbon footprint. Energy

consumption is monitored and optimized to minimize waste.

Challenges:

1. **Infrastructure**: India's charging infrastructure for electric vehicles is still developing. This can limit the scalability of electric delivery fleets, particularly in remote areas.
2. **Costs**: Electric vehicles often have higher upfront costs compared to traditional vehicles. Companies need to weigh these costs against the long-term savings from reduced fuel and maintenance expenses.
3. **Battery Technology**: While EV technology is advancing, battery limitations such as range and charging times still pose challenges for last-mile delivery, especially in regions with inadequate charging infrastructure.
4. **Regulatory Hurdles**: Despite government incentives, there can be bureaucratic hurdles and regulatory challenges when it comes to adopting new technologies and green practices.
5. **Consumer Expectations**: Meeting delivery timeframes is crucial in the e-commerce industry. Electric vehicles may have limitations in terms of speed and range, which can affect timely deliveries.

At present, logistics sector uses ICE trucks, vans, cars, motorcycles, and bicycles to deliver parcel which require human intervention. The mode of delivery may depend upon their weight category and type of goods. There exist strong ties among the energy sources, public health expenditures, logistics operations and eco-environmental sustainability (Khan et al., 2020). For a smooth adoption of ZEVs, key barriers include the upfront purchase cost, technology uncertainty, lack of charging infrastructure and public awareness and education. The logistics industry also witnessed either the lack of policies and programs or the implementation to help overcome a number of these barriers.

Evolution of Engine/Motor Technology	Conventional	Hybrid	Plug-In Hybrid	Battery Electric	Other Zero Emission Vehicles
Utility	Personal/Public/ Cargo Transport	Personal/Public Transport	Personal/Public	Personal/Public/ Cargo Transport	Personal/Public/Cargo Transport
Source of energy	Petroleum Products (Fossil-Fuel)	Petroleum Products (Fossil-Fuel)	Petroleum Products (Fossil-Fuel) and Electricity	Electricity	Hydrogen/Electricity/Solar/ CNG/Wind
Consumption	Gasoline/Diesel/ LPG/Jet Fuel	Gasoline/Diesel/ LPG/Jet Fuel + Battery	Gasoline/Diesel/ LPG/Jet Fuel + Battery	Battery	Battery/Fuel Cells
Type of Vehicles	Car/Truck/Bus/ Van/Aircraft/Ship/UAV/Others	Car/Truck/Bus/ Van/Others	Car/Truck/Bus/ Van/Others	Car/Truck/Bus/ Van/Aircraft/UAV/Others	Car/Truck/Bus/Van/Aircraft /Ship/UAV/Others
Approximate Tailpipe Emissions	100%	50%	25%	0%	0%

Table1: Classification of transport vehicles by evolutions of engine or motor technology, purpose of vehicle utility, energy source used, type of fuel consumed, category or type of vehicles, and approximate tailpipe emissions during operation (Hong, Kuby and Murray, 2018; Khan et al., 2020; Litman, 2021; Pinto and Lagorio, 2022; Samarov and Verevkin, 2022).

Unmanned aerial vehicles: UAV's:

Remotely or automatically piloted miniature aircraft devices are known as UAVs. These are categorised according to the aircraft's weight and purpose. UAVs are employed in photography, videography, surveillance, geospatial technology, agriculture, and more recently for goods transportation because to their small size and autonomy. (Moshref-Javadi and Wenckebach). These UAVs are fuelled by fossil fuels, fuel cells, or batteries. The majority of UAVs in use today run on batteries. UAVs similarly to the autonomous ETs to carry products and services with maximum flexibility while avoiding congested road traffic. In the UAV business has experienced rapid expansion in recent years for a variety of civil applications. One of them a major focus is on delivery applications to complement current traffic and pollution concerns.

Advantages of UAVs:

- Compact and portable to operate
- Autonomous
- Zero tailpipe emission
- Energy efficient
- Programmed to operate simultaneously with multiple drones
- No delays due to road traffic blocks
- Low down time
- Less human intervention and last mile connectivity

Disadvantages of UAVs:

- Limited range of operations(10-50km)
- Limited weight caring capacity
- Dedicated infrastructure required
- Evolving technology
- High-capacity cost
- Slow return on investment
- High battery charging time

Ground based electric vehicles of advantages:

- Zero tailpipe emission
- Energy efficient
- Possibility of being autonomous
- Cost efficient
- Environmentally sustainable
- Economically viable over long period

Disadvantages:

- High battery charging/down time
- Limited range of operations
- Robust charging infrastructure required
- Adaptation challenges
- Sophisticated hardware, software required and battery technology
- High capital cost
- Slow return on investment
- Vulnerable to cyberattacks

Case Study: Amazon's Commitment to Zero Emission Logistics

Background: Amazon, one of the world's largest e-commerce companies, has made a significant commitment to zero emission logistics as part of its sustainability goals.

Actions taken:

1. **Electric Delivery Vans**: Amazon has ordered thousands of electric delivery vans from electric vehicle manufacturer Rivian. These vans will be deployed in Amazon's delivery network, helping to reduce emissions in the last-mile delivery process.
2. **Renewable Energy**: Amazon is investing in renewable energy projects to power its delivery operations sustainably. This includes solar and wind energy initiatives to offset the energy consumption of its logistics infrastructure.
3. **Efficient Routing**: Amazon is using advanced routing algorithms and technology to optimize delivery routes, reducing the number of miles driven and emissions produced.
4. **Green Packaging**: Amazon is working on sustainable packaging solutions to reduce waste and the carbon footprint of its deliveries.
5. **Innovation Hub**: The company has established an innovation hub called "The Climate

Pledge Fund" to invest in companies and technologies that accelerate the transition to a low-carbon economy, including innovations in logistics.

Challenges faced:

- Amazon faces challenges in scaling up its electric vehicle fleet rapidly, particularly in regions with limited charging infrastructure.
- Coordinating sustainability efforts across its extensive global supply chain is a complex task.
- The company must continually invest in research and development to stay at the forefront of zero emission logistics technologies.

Conclusion: Zero emission logistics is essential for reducing the environmental impact of transportation and supply chains. While there are significant challenges, companies like Amazon are making substantial efforts to transition to sustainable logistics solutions. Overcoming these challenges requires collaboration among governments, companies, and stakeholders to build the necessary infrastructure, incentivize innovation, and navigate regulatory complexities.

Zero-emission delivery in India's logistics and transportation sector is gaining momentum as companies recognize the environmental and economic benefits of sustainable practices. While there are challenges, continued innovation, government support, and increased consumer awareness about sustainability are expected to drive the adoption of green delivery solutions. The success of these initiatives will not only reduce emissions but also set a global example for sustainable logistics practices.

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SUSTAINABLE COLD CHAIN SOLUTIONS FOR A GREENER TOMORROW

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In today's rapidly evolving world, where sustainability is paramount, the cold chain industry stands at a pivotal junction. An efficient cold chain infrastructure is a crucial part of agriculture and other allied food sectors. Fresh produce like fruits and vegetables, horticulture, fish, raw meat & poultry, dairy etc. is perishable and requires a temperature-controlled supply chain involving efficient storage, transportation, and distribution to increase their shelf life.

Apart from the agriculture and allied industries, cold chain infrastructure is critical for processed food, QSR, HORECA, pharmaceuticals including vaccines and the chemical industry like enzymes used in food industry.

A sustainable cold chain is one characterized by minimal carbon footprint, achieving net zero operating parameters, high energy efficiency, robustness, flexibility, and reliability. Guided by these principles, Siddhi Cold Chain has undergone significant evolution across these fronts. A staggering 90% of our energy requirements are met through renewable sources. We also contribute to groundwater recharge initiatives through rainwater harvesting. Additionally, we have transitioned to eco-friendly refrigerants which are free of CFC options, thereby enhancing energy efficiency and curtailing environmental impact.

Maximizing energy efficiency entails reducing cooling loss during operations, which has led us to opt for high-performance insulation materials and cool roof coatings. This strategy effectively decreases heat ingress, resulting in lower overall energy requirements for maintaining desired temperatures.

Additionally, in the age of automation and IoT, conducting real-time monitoring of temperature, humidity, and energy is becoming increasingly convenient. This capability enables us to make proactive adjustments and optimize refrigeration systems, thereby minimizing waste and ensuring optimal product quality.

The Future: Emerging Technologies for Sustainability : The cold chain industry is constantly evolving, and the future holds many possibilities for sustainable solutions:

Cryogenic Cooling: This cutting-edge technology utilizes ultra-low temperatures achieved through liquid nitrogen or carbon dioxide, offering exceptional energy efficiency and minimal environmental impact.

Waste Heat Recovery Systems: These systems capture waste heat from refrigeration units and repurpose it for other uses within the facility, further optimizing energy usage.

Automated Storage and Retrieval Systems (ASRS):

This technology automates the storage and retrieval of goods, minimizing energy-intensive forklift journeys and maximizing storage capacity within a smaller footprint. A smaller building size translates to even lower energy needs.

Leading the Way in a Sustainable Cold Chain Future

Sustainable cold chain solutions are not just about environmental responsibility; they also create a more efficient and cost-effective operation. This translates to competitive business pricing and a future-proof cold chain for India. At Siddhi Cold Chain, we are actively pursuing a net zero future by implementing these best practices, contributing positively to the communities we serve.

Source: logisticsandscm.com

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UNDERSTANDING THE DIFFERENT TYPES OF SPEND ANALYSIS (AND HOW THEY UNLOCK PROCUREMENT INTELLIGENCE)

- **Effective spend analysis progresses from descriptive to prescriptive, transforming raw data into strategic action.**
- **Strategic spend analysis aligns procurement with organizational goals beyond mere cost savings.**
- **AI enhances spend analysis capabilities but remains most effective when combined with human expertise.**

Procurement Strategy : Organizations constantly look for ways to optimize costs while maximizing value. And one of the most powerful tools in this pursuit is spend analysis — a systematic process that transforms raw procurement data into actionable insights. As supply chains continue to become increasingly complex due to geopolitical conflicts and tariff wars, understanding the various types of spend analysis becomes critical for procurement professionals aiming to drive strategic value beyond mere cost savings.

What is Spend Analysis?

Spend analysis involves collecting, cleansing, classifying, and analyzing expenditure data to reduce procurement costs, improve efficiency, and monitor compliance. It provides visibility into what an organization buys, from whom, at what price, and under what terms. This intelligence enables data-driven decisions that can significantly impact the bottom line.

Types of Spend Analysis

From basic historical reviews to sophisticated predictive modeling, various analytical methods form a comprehensive toolkit that enables organizations to extract maximum value from their procurement data while addressing challenges at every level of complexity.

Descriptive Spend Analysis

The foundation of all spend analysis efforts begins with descriptive analytics. This approach answers the fundamental question: "What happened?" By examining historical spending patterns, procurement teams can identify:

- Total spend by category, supplier, department, and region
- Spending trends over time
- Compliance with existing contracts
- Maverick spend occurring outside approved channels
- Supplier concentration or even diversity metrics

Descriptive analysis provides the necessary visibility to understand current spending behaviors across the organization. For instance, despite having negotiated contracts with three primary supply vendors, individual departments are purchasing similar items from many other non-contracted suppliers at premium prices. This insight immediately highlights an opportunity for consolidation and savings.

Diagnostic Spend Analysis

Moving beyond what happened, diagnostic spend analysis delves into why it happened. This type of analysis involves deeper investigation into spending anomalies, cost drivers, and performance variances. Procurement professionals use diagnostic techniques to:

- Understand root causes of spending increases or decreases
- Identify factors driving price variations across locations
- Analyze supplier performance against contractual commitments
- Determine causes of non-compliance with procurement policies
- Evaluate cost structures within specific categories

For example, upon observing increasing costs for a direct material, diagnostic analysis might reveal that the price increase stems not just from market conditions but from a shift to rush orders due to poor inventory management — an internal process issue that can be fixed.

Predictive Spend Analysis

Forward-looking organizations leverage predictive spend analysis to answer: "What will happen?" Using statistical models, machine learning, and historical data patterns, this approach forecasts future spending scenarios, helping procurement teams to:

- Anticipate future price trends and market conditions

- Forecast demand for specific categories and items
- Predict potential supply disruptions
- Identify categories at risk for cost increases
- Project the financial impact of changing suppliers or contracts

A retail chain might employ predictive spend analysis to forecast seasonal packaging needs based on historical purchasing patterns combined with projected sales growth, enabling them to negotiate volume-based discounts well in advance of peak periods.

Prescriptive Spend Analysis

The most advanced form of spend analysis is prescriptive, which recommends specific actions to optimize outcomes. This approach combines insights from descriptive, diagnostic, and predictive analysis to suggest:

- Optimal sourcing strategies for different categories
- Timing for contract negotiations based on market conditions
- Specific suppliers to consolidate or diversify
- Areas where standardization could drive savings
- Strategic make-vs-buy decisions

A technology company utilizing prescriptive analysis might receive recommendations to consolidate software license purchases across divisions, standardize on fewer configurations, and time renewals to coincide with the vendor's fiscal year-end to maximize discounts.

Strategic Spend Analysis

While not always categorized separately, strategic spend analysis deserves special mention. This approach aligns procurement activities with broader organizational goals by examining:

- Total cost of ownership beyond purchase price
- Supplier relationship value beyond transactional costs
- Innovation opportunities through supplier collaboration
- Risk exposure across the supply base
- Sustainability and social responsibility impacts

For instance, an automotive manufacturer might perform strategic spend analysis to evaluate moving from numerous regional steel suppliers to a single global supplier. Beyond comparing direct costs, they would assess impacts on supply chain resilience, carbon footprint, innovation capability, and alignment with corporate sustainability goals.

Comparative Spend Analysis

Organizations increasingly benefit from comparative or benchmark spend analysis, which contextualizes internal spending against external reference points:

- Industry spending benchmarks and best practices
- Peer organization performance metrics
- Market pricing indexes and trends
- Cross-division or cross-regional internal benchmarks
- Historical performance versus current state

A professional services firm might compare its travel expenditures against industry benchmarks to discover that while their air travel costs are competitive, their hotel spending exceeds peer organizations by a considerable margin, pointing to a specific opportunity for negotiation.

How AI is Shaping Advanced Spend Analysis

Artificial intelligence is transforming spend analysis from a retrospective accounting exercise into a dynamic, forward-looking strategic tool. Machine learning algorithms now automatically classify thousands of transactions with unprecedented accuracy, identifying patterns invisible to human analysts. Natural language processing extracts valuable information from unstructured contract documents, while advanced analytics engines generate insights and recommendations without human intervention.

However, procurement leaders should maintain perspective when implementing AI-powered spend analysis. The most effective approach combines AI's processing power with procurement professionals' experience and business acumen.

The Future of Spend Analysis

As organizations continue to refine their procurement practices, spend analysis will evolve beyond cost management into a strategic driver of business value. Future-focused companies are already developing integrated approaches that connect spending data with broader business outcomes, supplier innovation capabilities, and sustainability metrics.

The organizations that gain the most competitive advantage won't be those with merely the most data or the most sophisticated analytics tools, but those that cultivate the organizational capability to translate spending insights into strategic action.

Source:gep.com

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ACCELERATING ACTION ON CHEMICALS, WASTE AND POLLUTION MANAGEMENT

INGER ANDERSEN

Excellencies, Distinguished Participants, Dear Friends,

When waste is not managed in an environmentally safe manner, people and planet pay the price. And while chemicals play an important role in our societies, when improperly managed they drive the triple planetary crisis. The crisis of climate change. The crisis of nature, biodiversity and land loss. And the crisis of pollution and waste.

Sustainable solutions to this crisis arise from multilateral environmental agreements, such as the Basel, Rotterdam and Stockholm (BRS) conventions, which protect human health and the environment from the risk of exposure to hazardous chemicals and wastes.

We at UNEP are proud to host the Secretariat of the BRS Conventions, and indeed proud to host 17 other conventions and platforms that Member States have entrusted to us.

The BRS Conventions play a critical role across the spectrum of conventions and other frameworks we host, from the CBD and its Kunming-Montreal Global Biodiversity Framework (GBF) to the Global Framework on Chemicals. And they are linked to the instrument to end plastic pollution and the Science Policy Panel on chemicals, waste and pollution prevention – both under negotiation.

Today, you will consider ways to expand and strengthen solutions through the BRS Conventions, in the areas of pollution control, circularity and financing. Before you begin your discussion, please allow me some reflections in these areas.

I come to you with three priorities that we must tackle.

First, strengthening action on preventing pollution and chemical exposure.

Pollution hazards and exposure present real risks. Persistent organic pollutants (POPs), for example, accumulate in living organisms, which means higher health risks – such as cancer, endocrine disruption and birth defects. This imposes a heavy economic burden on healthcare systems. And a heavy toll on the families and communities impacted.

The Stockholm Convention is phasing out POPs and now covers 34. But the impacts of pollution and exposure cannot be solved fast enough through a chemical-by-chemical approach alone. So, as you look at the span and effort of the Stockholm Convention, let's look at safety across the entire sector.

The Global Framework on Chemicals provides an opportunity to do that. Let us also not forget that green chemicals exist, but they are a niche market. So, we must explore how we build on this new sector and leapfrog to the broader safety such chemicals can provide.

The questions we need to answer include: how can the BRS Conventions help to ensure environment and human safety across entire sectors? Can governments create policy incentives to promote innovation from industry to scale green and safe chemicals?

Second, boosting circularity.

The Basel Convention is ensuring ensure proper transboundary movement where facilities exist to process the waste. The Rotterdam Convention is ensuring prior informed consent. But we cannot expect these two conventions to do it all.

Each year, two billion tonnes of municipal solid waste are generated. Plastic waste and E-waste are rising. Recycling rates are low across the board. So, we must avoid producing waste in the first place – through smart upstream Extended Producer Responsibility (EPR), to name just one entry point.

We have seen progress in waste as a resource in national jurisdictions. And efforts to grow circular economies are popping up everywhere. There are many new jobs coming online from innovations – in product safety and in products designed for durability, reuse and easier recyclability.

But my question is: how can governments further incentivize circular markets?

Third, creating the right fiscal environment for reducing pollution and waste, and for increasing sound management of chemicals.

The Global Environment Facility (GEF) has been critical in supporting the BRS Conventions, particularly the Stockholm Convention. The next GEF replenishment is key. Moving to chemical safety across entire sectors will require the GEF 9 strategy to evolve, guided by governments and will require significant replenishment.

Beyond this, governments need to create the right fiscal policy environment and unlock innovative financing.

Here, as we see in many countries, EPR can make companies responsible for financing waste management and circular economic approaches. Over 60 countries now have EPR in place. Allocations from public budgets can leverage private sector financing, as can fiscal policy.

My question to governments is: how can you leverage finance from other sectors, such as insurance companies, banks of all stripes, export credit entities, securities and exchange commissions?

Excellencies and friends,

Strong efforts in these areas – moving to sectoral chemical safety, unlocking new circular economy market opportunities, and unleashing the power of fiscal policy and public funds – can make a massive difference.

To supporting the work of the BRS Conventions. To backing other global goals that are linked to chemicals, waste and pollution management. And to the health and wealth of every nation and person on this planet.

As I close, I extend my deep appreciation to Switzerland, host to five UNEP conventions: the BRS, CITES and Minamata – and a place of environmental activism. Switzerland generously reached out to host the last round of negotiations on the plastic pollution instrument, INC 5.2, here in beautiful Geneva. Here, in this city, we know we have the wind at our backs and the support of our hosts.

I look forward to successful BRS COPs and a successful INC 5.2.

Source: UNEP

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WORLD ENVIRONMENT DAY 2025: UNITE TO #BEAT PLASTIC POLLUTION – A GLOBAL CALL FOR ACTION

BALA DATT

World Environment Day, observed annually on June 5th, is a powerful platform to raise awareness and inspire global action for environmental protection. The 2025 theme, **"Beat Plastic Pollution"**, highlights the urgent need to address the plastic crisis threatening our planet. This year, **South Korea** is the official host country, organizing a series of global events to accelerate solutions and innovations to combat plastic pollution. This article explores the history, significance, theme selection process, key facts, and impactful ways to contribute to World Environment Day 2025.

What is World Environment Day?

World Environment Day (WED) is the **flagship campaign of the United Nations Environment Programme (UNEP)**, celebrated every year on **June 5th** since 1973. It serves as a global reminder of the importance of caring for nature and encourages individuals, communities, and governments to take meaningful environmental action. Each year, a specific theme is chosen to spotlight a pressing environmental issue.

World Environment Day Why June 5th?

United Nations Conference on the Human Environment held in **Stockholm in 1972.** June 5 was selected as World Environment Day in Stockholm conference in 1972. It's a landmark event that marked the beginning of international environmental policy. The first celebration took place in **1973** under the theme **"Only One Earth."** Since then, it has become the largest global platform for environmental outreach, celebrated by millions in over 150 countries.

Theme of World Environment Day 2025: "Beat Plastic Pollution"

The **2025 theme, "Beat Plastic Pollution" (#BeatPlasticPollution)**, emphasizes the global crisis caused by plastic waste. From our oceans to our plates, plastic has become deeply embedded in our environment, threatening ecosystems, human health, and biodiversity.

The goal of this theme is to:

Encourage **global efforts to reduce plastic usage world vide** ,

Promote **sustainable alternatives**,

Improve **waste management infrastructure**,

Inspire **collective action** to resolve plastic pollution at international level.

World Environment Day Host Country 2025: South Korea

South Korea, a nation committed to sustainable innovation and environmental resilience, will host World Environment Day 2025. The country previously hosted the event in **1997**, and now, in 2025, it is stepping up once again to lead the charge against plastic

pollution. A range of national and international initiatives, awareness campaigns, and policy dialogues are planned throughout the year.

Plastic Pollution: A Global Crisis

11 million metric tons of plastic waste enter every year in marine ecosystems .

Microplastics available in our food, water, and even the air we breathe.

Marine life suffers immensely, with countless animals entangled in or ingesting plastic.

Only **9%** of plastic produced globally is actually recycled. The rest ends up in oceans, landfills, or the environment, persisting for centuries.

Eye-Opening Facts and Insights

Microplastics in the human body: Studies show that microplastics have been detected in human blood and organs, raising concerns about long-term health effects.

Biodegradable alternatives are emerging: Many nations and companies are adopting **eco-friendly materials** such as bamboo, paper, and natural fibers.

Policy shifts around the world: Several countries have already imposed **bans on single-use plastics** and are enforcing strict waste management regulations.

Who Decides the Theme?

Each year, the theme for World Environment Day is selected by **UNEP**, considering the most urgent environmental issues facing the planet. The decision involves consultation with environmental scientists, policy experts, and partner organizations, aiming to unite global stakeholders under a common cause.

Why World Environment Day Matters

World Environment Day is more than just a symbolic occasion. It is a **call to action**, urging every individual and institution to reflect, reimagine, and reform their relationship with the environment. The 2025 theme serves as a timely reminder that **plastic pollution is not just a waste problem — it's a planetary emergency**.

How You Can Take Action

Avoid single-use plastics in routine life.

Support and advocate for policies banning harmful plastics.

Choose products with minimal or sustainable packaging.

Participation in local clean-up drives or to participate in recycling programs.

Educate others and spread awareness about the plastic pollution and relation with our health.

Frequently Asked Questions (FAQs)

Q1: When is World Environment Day celebrated?
A: World Environment Day is celebrated every year on **June 5th** to raise awareness about pressing environmental issues and encourage action.

Q2: What is the theme for World Environment Day 2025 and goal of theme ?

A: The theme for 2025 is **"Beat Plastic Pollution"**, focusing on ending plastic waste and promoting sustainable alternatives.

Q3: Who selects the theme for World Environment Day each year?

A: The theme is selected by the **United Nations Environment Programme (UNEP)** based on global environmental priorities.

Q4: Which country is hosting World Environment Day in 2025?

A: South Korea is the host country for the 2025 celebration of World Environment Day.

Q5: How can we reduce plastic pollution?
A: Solutions include reducing the use of single-use plastics, improving recycling systems, adopting biodegradable alternatives, and enforcing environmental laws and policies.

Conclusion:

World Environment Day 2025 is a **movement to beat plastic pollution** . The theme **"Beat Plastic Pollution"** requires action instead of only awareness . Every plastic bottle refused, every policy supported, and every piece of trash removed from nature is a step closer to a cleaner, healthier planet. Let us unite globally and act locally — because our Earth deserves better.

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Source: prakritidarshan.com

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AIR FLOW DESIGN IS THE QUIET CHAMPION OF CLIMATE RESILIENCE

NICK WIRTH, FOUNDER OF WIRTH RESEARCH

Computational Fluid Dynamics (CFD) helps simulate how air, water, and heat move around objects and can be employed in climate-resilient cities, infrastructure, and buildings by optimising ventilation, temperature regulation, and structural stability, supporting climate adaptation.

When we can understand and predict how air and liquids move, we can better design for climate resilience. I know this first-hand.

I started my engineering career designing Formula One race cars. My teams developed a secret advantage; by the mid-2000s, we did not need to deal with the costs and wait times of a wind tunnel. Instead, I was able to model race cars through simulation alone. The method, known as computational fluid dynamics (CFD), allowed us to accurately forecast how air would flow around the car, meaning we could iterate our designs faster – and cheaper – than our competitors.

But the potential of CFD stretches far beyond fast cars. Understanding how air, water and heat flow holds the secrets to designing more resilient homes, cities and critical infrastructure in light of a rapidly accelerating climate crisis.

What Is Computational Fluid Dynamics?

Computational Fluid Dynamics uses mathematics and computer simulations to replicate the behavior of gases and liquids in a virtual environment. This allows us to test the aerodynamic properties of certain designs. Beyond race cars, it allows us to simulate – for example – how wind flows through a city or how water might flow through coastal regions during a flood.

In the media, solutions that help mitigate climate change get the lion's share of coverage. However, climate change is no longer a future problem; it is unfolding now, making adaptation technologies just as important.

CFD Can Design Cooler, Resilient Cities

Climate change affects cities disproportionately.

58% of the world's population lives in cities, with the figure set to hit 62% by 2035. While covering less than 1% of global land surface area, they account for 67-72% of global carbon dioxide emissions. And as the urban population continues to grow, its environmental footprint will expand significantly.

Cities absorb heat, and as temperatures rise, millions around the world will be exposed to a phenomenon known as the urban heat island effect.

Urban heat islands can make cities up to 10C hotter than neighboring areas. This can create a vicious cycle, whereby hotter cities lead to greater usage of ventilation and air conditioning, which in turn drive up emissions. Often, it is lower-income, densely populated areas that are disproportionately affected, and least able to afford air conditioning systems and the energy that powers them.

Two of the key causes of urban heat islands are poor ventilation and choice of surface materials. CFD can help city planners decide where to locate parks, reflective surfaces and ventilation corridors. For example, Singapore's urban planners used CFD to design wind corridors that channel cooling breezes through dense neighborhoods.

CFD can be used to make buildings more resilient to stronger winds, too. It can be used to test how buildings respond to wind loads, which will prove crucial in cities that are more exposed to hurricanes, cyclones, and other high-wind events.

CFD can lower temperatures in houses, too. By understanding how air flows through a house, windows, corridors and bedrooms can be placed in a way that promotes even air movement throughout a house, further reducing reliance on ventilation systems.

Many of these techniques were pioneered by

ancient architects. For example, the Romans and Greeks were skilled at creating structures like atriums and colosseums that created natural ventilation. Nowadays, we can use CFD to understand why these methods worked and, more importantly, how to replicate them.

Designing For Flood Resilience

Floods are the most common and costly natural disaster. Between 2000 and 2019, floods accounted for 44% of all recorded disasters. Like other extreme events like droughts and hurricanes, a warming climate is making floods more frequent an intense.

Most cities are woefully ill-designed for flood resilience. For example, Dubai's poor drainage system left it uniquely vulnerable to the floods of 2024.

CFD can simulate how water will flow through a city during extreme rainfall or rising tides. These simulations are vital for designing flood defences, green stormwater systems, and so-called "sponge city" infrastructure, which absorbs water instead of deflecting it.

Take Rotterdam; some parts of the city sit 7 metres below sea level, making it vulnerable to flooding and sea level rise. The city has used CFD technologies to simulate water flow and flood risks. Armed with a greater understanding of how a flood could and would permeate the city, Rotterdam urban planners have built "green blue" corridors – watercourses and pounding areas made to capture excess water. They have designed underground car parks that can capture rainfall, and even engineered floating structures designed to be resilient in case of flood.

These structures use buoyant platforms and flexible anchoring systems to stay stable on the water. For example, some homes are designed to float on a concrete hull fixed to the shore.

With cities increasingly expanding out to coastal regions, CFD will prove an invaluable tool for designing flood-proof cities in the future.

Wildfire Management

Wildfires are becoming larger, faster, and more destructive. In 2023, Canada lost over 4.3 million hectares of forest to wildfires. Similarly, the more recent fires in Los Angeles, California served as a reminder that everyone, regardless of wealth or status, is vulnerable to the fallout of climate change.

CFD can help us understand how wind carries both fire and smoke. These models can help to predict fire patterns, guide the placement of firebreaks, and design evacuation strategies. They also aid in building fire-resilient structures by simulating how embers and heat might travel in complex terrain.

Wildfires can also be the result of controlled burns that go wrong. For example, the Calf Canyon/ Hermits Peak Fire – the largest wildfire in the history of New Mexico – was started by two distinct instances of controlled burns, both intentionally started by the US Forest Service. In this case, CFD can be used to better control these burns, reducing the risk of them spiralling out of control.

Future Outlook

This list does not cover the full potential of CFD for climate resilience. CFD remains under-used primarily because of its complexity, and the high computer-processing power it demands. But this is set to change.

Ongoing improvements in hardware are lowering CFD's cost and energy intensity. High-performance computing chips are becoming exponentially cheaper and more powerful. Similarly, high-performance computing clusters and cloud-based supercomputing platforms are becoming faster and more efficient.

They are becoming easier to use, too. Artificial intelligence will increasingly make CFD accessible to those with limited coding skills. The wealth of online tutorials, community support, large language models and freely available datasets all mean that open-source CFD are becoming more accessible for urban planners with limited budget and training. Of course, as with any new technology, those new to CFD must be wary of poorly analyzed CFD systems, as this can lead to faulty or dangerous design.

Ultimately, the accessibility of CFD will rise exponentially. As more people use it, more pre-validated models and standardized datasets will emerge. This shared knowledge base can significantly reduce trial-and-error cycles.

Source: earth.org

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ENDING GLOBAL PLASTIC POLLUTION – WORLD ENVIRONMENT DAY

World Environment Day 2025 is more than just a date on the calendar. Celebrated every year on June 5th, it is a heartfelt call to all of us, individuals, communities and nations, to come together and protect the only home we have: our beautiful planet. It is a day to pause, reflect and renew our commitment to caring for the environment so future generations can enjoy the same natural wonders we cherish today.

Importance of World Environment Day 2025

The true importance of World Environment Day 2025 lies in its power to awaken our collective consciousness. It reminds us that every small action counts, from planting a tree to reducing waste to choosing sustainable options. When combined, these actions create a ripple effect of positive change. It is a day that inspires hope, unity and responsibility. Together, we can heal the earth, protect wildlife and create a cleaner, healthier environment where children can grow up breathing fresh air and drinking clean water.

Brief History and Global Participation in World Environment Day 2025

Since it began in 1972 at the United Nations Stockholm Conference, World Environment Day has grown into the world's largest environmental movement, embraced by over 150 countries. Each year, people from all walks of life join hands across cities and continents to make a difference. The celebrations are filled with passion and purpose, including community clean-ups, tree planting drives and awareness campaigns that educate and empower. World Environment Day 2025 continues this inspiring tradition and shows that when we come together, our collective efforts can spark meaningful and lasting change.

Why Plastic Pollution is the Focus for World Environment Day 2025?

Plastic pollution is not just an environmental issue, it is a deeply emotional crisis that affects us all. The oceans, rivers and forests we cherish are being suffocated by plastic waste. Marine life struggles to survive amid plastic debris, waterways are clogged and landscapes are marred by trash that does not disappear.

For World Environment Day 2025, the theme "**Ending Global Plastic Pollution**" shines a powerful light on this urgent challenge. It calls on each of us, individuals, communities, industries and governments, to take responsibility, rethink our habits, reduce single-use plastics and push for better solutions to this growing crisis.

This year, the **Republic of Korea** proudly hosts the global celebrations, showcasing its commitment to sustainability and innovation in tackling plastic pollution. The Republic of Korea has been actively addressing plastic pollution through national policies, including reducing reliance on single-use plastics and investing in recycling infrastructure. Jeju Province itself has committed to becoming plastic-free by 2040.

Protecting our planet from plastic pollution means protecting our health, preserving wildlife and safeguarding the legacy we leave for future generations. Together, through awareness, action and innovation, we can turn the tide on plastic pollution.

What is Plastic Pollution?

Plastic pollution refers to the accumulation of plastic waste in our environment that negatively impacts wildlife, ecosystems and human life. From the deepest oceans to the highest mountains, plastic waste is now found everywhere. It clogs rivers, litters landscapes and harms animals that mistake it for food. As we approach World Environment Day 2025, it is important to understand the roots of this crisis and the many ways plastic affects our world.

Origins and Rise of Plastic Production

Plastic was first developed in the early 1900s as a revolutionary material that was lightweight, durable and inexpensive. Its use expanded rapidly after World War II. By the 1950s, plastic production exploded, providing solutions for packaging, construction, transportation, healthcare and more.

Today, global plastic production exceeds 400 million tonnes per year. Much of it is used for disposable items that are discarded within minutes, yet remain in the environment for hundreds of years. What once seemed like a miracle material has become one of the planet's most pressing environmental threats.

Types of Plastics

Single-Use Plastics: These are items used once and thrown away, such as plastic bags, straws, cutlery and packaging. They make up a significant portion of plastic waste found in oceans and landfills.

Microplastics: Tiny plastic particles less than 5 millimeters in size, microplastics come from broken-down larger plastics or are intentionally added to products like cosmetics and cleaning agents. They are invisible to the naked eye but present in water, soil and even the air.

Industrial Plastics: These include larger items like plastic bottles, containers and industrial materials. Over time, they break into smaller pieces, worsening the pollution problem.

Sources of Plastic Pollution : Consumer Waste: Items like bottles, wrappers and bags that are improperly discarded or not recycled end up in natural environments.

Industrial Waste: Factories release plastic pellets, packaging and scraps into waterways and soil, often without proper regulation.

Fishing Gear: Abandoned fishing nets, lines and traps, also known as ghost gear, float in the oceans, trapping marine life and damaging coral reefs.

Textiles and Clothing: Synthetic fabrics like polyester shed microplastics during washing, which then flow into rivers and oceans.

Why Plastic Persists in the Environment?

Plastic does not biodegrade in the way organic materials do. Instead, it breaks down into smaller fragments over time through exposure to sunlight, wind and water. These fragments, known as microplastics, can linger in the environment for hundreds or even thousands of years.

Because plastic is designed to be durable and resistant to natural degradation, it accumulates rather than disappears. Wildlife often mistake it for food and microplastics are now being found in human blood, lungs and food sources. The long-lasting nature of plastic pollution makes it especially dangerous and difficult to manage.

Impact of Plastic Pollution : Environmental Impact: Plastic pollution has reached every corner of the Earth. In our oceans, plastic waste kills marine animals who eat or get entangled in it. Coral reefs suffer, fish populations decline and shorelines become dumping grounds instead of peaceful habitats. The land is not spared either. Plastic waste clogs rivers, litters forests and destroys soil health, affecting agriculture and biodiversity.

Human Health Impact: Plastics are breaking down into invisible threats. Microplastics are now found in our food, our water and even in the air. They carry toxic chemicals like phthalates and BPA that can interfere with human hormones and lead to long-term health problems such as cancer, infertility and developmental issues.

Global Efforts to End Plastic Pollution

UNEP and the Global Plastics Treaty: The United Nations Environment Programme (UNEP) is leading a historic effort to create a legally binding Global Plastics Treaty. This treaty aims to address the full life cycle of plastics, from production to disposal. Negotiations involve over 175 countries and bring together governments, scientists, industries and civil society. The treaty is expected to set global targets for plastic reduction, promote sustainable alternatives and hold polluters accountable. It represents hope for a cleaner future, where plastic waste no longer threatens our oceans, our climate or our health.

Regional Policies and National Bans: Many countries are taking bold steps to combat plastic pollution. Rwanda and Kenya have set strong examples by banning plastic bags and enforcing strict penalties. The European Union has implemented sweeping regulations to phase out single-use plastics and invest in alternatives. In India, the ban on certain single-use plastic items took effect in 2022 and continues to evolve through policy and public action.

Innovations in Bioplastics, Recycling and the Circular Economy: Innovation is a powerful force in the fight against plastic pollution. Scientists and startups across the globe are developing biodegradable plastics made from seaweed, corn starch and even banana peels. These alternatives are compostable and pose far less harm to nature. In the recycling space, new technologies like chemical recycling and AI-driven sorting systems are making it easier to recover and reuse plastic materials. Circular economy models are gaining ground, encouraging companies to design products that last longer, are easier to repair and can be fully recycled. Brands are rethinking packaging. Refill stations, compostable wrappers and reusable containers are becoming part of mainstream business strategies. These innovations are reshaping the way we consume and dispose of plastic, offering new paths toward sustainability.

The Role of NGOs, Corporations and Communities: Around the world, non-governmental organizations (NGOs) are raising awareness, pressuring policymakers and mobilizing clean-up efforts. Groups like Break Free From Plastic and Plastic Pollution Coalition are uniting voices globally to demand system-wide change. Corporations are increasingly being held accountable. Many are signing plastic pacts, committing to reduce virgin plastic use and adopting eco-friendly packaging. Some companies are partnering with grassroots organizations to support waste workers and build circular supply chains. But real change also begins at the community level. From coastal clean-ups in the Philippines to zero-waste campaigns in Germany, people everywhere are stepping up. Schools, local governments and volunteers are leading efforts that transform awareness into action.

How Can You Help?

Every action we take can either add to the problem or become part of the solution. The good news is that each of us has the power to make a difference. Here are some practical and impactful ways you can contribute.

1. Embrace Sustainable Lifestyle Changes

. Say no to single-use plastics. Bring your own cloth

bags, reusable bottles and containers wherever you go.

- Choose products with minimal or eco-friendly packaging. Support brands that prioritize sustainability.
- Buy in bulk, reuse and recycle properly. Learn your local recycling guidelines and follow them carefully.
- Compost organic waste. Reducing food and packaging waste lowers the demand for plastic use.

2. Get Involved in Local Clean-Ups and Campaigns

- Participate in beach, river and neighborhood clean-up drives.
- Volunteer with local NGOs or environmental clubs.
- Help organize awareness walks, poster competitions or eco-events in schools and societies.

3. Support Innovation and Push for Policy Change

- Support businesses that use biodegradable packaging or run refill stations.
- Vote for leaders who prioritize climate action and plastic regulation.
- Sign petitions and write to policymakers urging for stronger plastic bans and producer responsibility laws.

4. Educate and Inspire Others

- Share articles, videos and facts about plastic pollution on social media.
- Talk to your children about the importance of protecting nature.
- Host film screenings, quizzes or discussions around World Environment Day 2025.

Conclusion

The fight against plastic pollution is not limited to governments or global organizations. It belongs to all of us. Every individual, every community, every business has the power to create change. Whether it is refusing a plastic straw, joining a beach clean-up or supporting innovative solutions, your actions matter.

Source: sheeltechnologies.com

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THE FUTURE OF SUPPLY CHAIN MANAGEMENT: INNOVATIONS AND TRENDS IN 2025

AAKANKSHA GUPTA, SENIOR CONTENT SPECIALIST, WAREHOUZEZ

The supply chain industry is on the verge of a major transformation. The year 2025 will mark the beginning of a new era of efficiency and transparency. As consumer expectations evolve and global trade expands, the supply chain system is set to experience substantial changes. In 2025, adoption of breakthrough technologies will be a key focus. Artificial intelligence (AI), blockchain, and the Internet of Things (IoT) will further enhance accuracy, flexibility, and speed. Alongside these advancements, emerging trends like sustainability and risk management will reshape how companies approach their logistics operations.

In this blog post, we will explore the expected supply chain challenges followed by the latest trends that will define supply chain management in 2025. So, let's get started!

Common Supply Chain Challenges and Disruptions : It's not secret that change always brings its own set of challenges. Let's take a look at some of the obstacles that supply chain companies might face in the years to come.

Shifts in Consumer Demand - Consumer expectations are continuously evolving. Their preferences are leaning toward faster and more flexible delivery options. In 2025 and beyond, supply chains will need to be more adaptable and responsive to meet consumer and market demands.

Labor Shortages - Labor shortages have already been a pressing issue in recent years, particularly in warehousing and distribution. By 2025, automation and robotics may alleviate some of this strain, but the human element will still be crucial, especially for roles that require problem-solving.

Climate Change and Environmental Pressures - Extreme weather conditions and environmental regulations are pressuring companies to adopt sustainable practices. From sourcing materials responsibly to minimizing emissions in transportation, climate-related challenges will require significant adjustments across the supply chain. This drive toward sustainability will be both a challenge and a key area for innovation.

Regulatory and Trade Changes - With geopolitical tensions and changing trade agreements, supply chains are constantly impacted by new tariffs, regulations, and compliance requirements. Navigating this complex

environment will be essential to avoiding costly delays or penalties.

Supply Chain Technologies and Trends in 2025 : In 2025, technology will certainly be the cornerstone of supply chain management. Let's take a look at the major trends that are set to revolutionize the SCM industry:

Artificial Intelligence (AI) and Machine Learning (ML) - AI and ML are absolute game-changers, transforming how supply chains operate by making processes more efficient. Through data analysis, these technologies can predict demand and optimize inventory levels. For example, AI can help warehouses arrange stock based on demand forecasts, reducing storage costs and preventing stockouts. Machine learning algorithms can also improve predictive maintenance, reducing unexpected equipment downtime and optimizing the supply chain's flow.

Blockchain for Enhanced Transparency - Blockchain technology offers a secure, decentralized ledger that can track goods at every stage of the supply chain. This transparency enables greater trust among stakeholders, as they can verify product origins, monitor handling, and ensure regulatory compliance. In industries like food and beverages and pharmaceuticals, blockchain can prevent fraud and improve quality assurance by tracking every detail, from raw material sourcing to final delivery.

Cloud Computing for Seamless Collaboration - Cloud computing enables SCM partners to collaborate in real-time, regardless of their location. By centralizing data, cloud platforms improve information flow across suppliers, manufacturers, and distributors. This allows for quick decision-making and enhances flexibility in managing unexpected disruptions.

Implementation of IoT for Real-Time Tracking - The Internet of Things (IoT) enables devices and sensors to collect and share data, providing visibility into the value chain. IoT devices can track goods in transit, monitor storage conditions, and even detect potential hazards. For instance, a sensor in a refrigerated truck can alert managers if the temperature goes above safe levels. This will help prevent spoilage and ensure product quality.

Autonomous Vehicles and Drones for Faster Delivery - Autonomous vehicles, delivery robots, and drones are gradually entering mainstream logistics operations. They promise faster yet more cost-effective last-mile deliveries. While there are regulatory hurdles to overcome, these technologies could play a significant role in reducing delivery times, especially in hard-to-reach areas.

Digitization for Improved Efficiency - Digitizing supply chain processes improves efficiency by reducing paperwork, human error, and delays. By shifting to digital platforms, companies can automate inventory management, order processing, and customer service. Digitization is expected to improve response times and customer satisfaction. This makes it an important trend for companies looking to stay competitive.

Sustainability Initiatives - Sustainability has moved beyond being a buzzword; it's now a necessity for businesses in 2025 and beyond. Companies are investing in eco-friendly packaging, optimizing routes to reduce emissions, and using renewable energy in their warehouses. Consumers are clearly favoring companies with strong sustainability commitments. Thus, green supply chains are not only environmentally responsible but also a business requirement.

On-Demand Warehousing - On-demand warehousing allows companies to access warehouse space on an as-needed, flexible basis. They can scale their storage capabilities up or down as needed. This trend is extremely beneficial for e-commerce businesses, which experience seasonal fluctuations. With on-demand warehousing services, companies can reduce costs and improve operational efficiency. This flexi-warehousing model also enables businesses to adapt to changes in demand without being tied down to long-term contracts.

Growth of Third-Party Logistics (3PL) - As supply chains become more complex, many companies are turning to 3PL service providers for support. In 2025, we can expect continued rapid growth in the 3PL market. These providers offer specialized services that enable businesses to focus on their core operations. 3PL companies take care of everything from warehousing to transportation. They are undoubtedly the most valuable partners for organizations seeking expertise and flexibility.

Rationalizing the Supply Chain Base - In an effort to build more resilient supply chains, many companies are rationalizing their supplier base by working with fewer yet more reliable partners. This consolidation reduces risk, improves supplier relationships, and enables better quality control. Companies are also diversifying their sourcing to avoid over-reliance on any single region, which could be disrupted by trade or climate-related events.

Bottom Line - The future of supply chain management in 2025 is better and brighter. It is filled with groundbreaking innovations to address age-old challenges. Supply chain companies will need to navigate shifts in consumer demands, climate concerns, and regulatory landscapes. But the adoption of advanced technologies promises a more efficient, resilient, and transparent supply chain. Companies that embrace these trends—investing in AI, blockchain, IoT, and sustainability—will not only meet the demands of the modern market but also thrive in an increasingly complex and interconnected world.

Source:: www.warehouzez.com

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WORLD ENVIRONMENT DAY 2025: TURNING THE TIDE ON PLASTIC POLLUTION

World environment Day is celebrating on June 5 to inspire unity, action and innovation as the world works together to end Plastic Pollution and restore the Planet

Introduction : World Environment Day isn't just a day on the calendar; it is a global green fiesta that brings 150+ countries together every **June 5** to cheer for our only home: Earth. Wondering **why is World Environment Day celebrated** with such energy? Well, it is a day that turns cities into eco-stages, people into planet heroes, and ideas into action. From schoolkids planting trees to cities banning plastic, this monumental day is where we all hit the refresh button for nature.

Beyond the buzz of June 5, a happy World Environment Day acts as a launchpad for positive change. Lasting pledges like India's single-use-plastic ban and Jeju Island's "Plastic Zero" vision show how one day's energy can shape policies, products, and personal habits long after the hashtags fade.

Together, these efforts set the stage for understanding what World Environment Day is all about. But what's the story behind this global day, and why is the World Environment Day celebrated on 5th June? Grab your reusable bottle and let's explore the roots, relevance, and revolutions of the 5th June World Environment Day, and how you can be more than just a bystander.

What is World Environment Day, and its significance?

World Environment Day is the United Nations' flagship day for promoting environmental awareness and action, celebrated every year on June 5. First observed in 1973 under the slogan "Only One Earth," it commemorates the vision set at the landmark UN Conference on the Human Environment held in Stockholm in June 1972 for an annual celebration to honor the planet. **World Environment Day is celebrated on 5 June** to commemorate that moment. Today, people in over 150 countries, from governments and organizations to communities and individuals, unite under a common World Environment Day theme to advocate for a healthier planet through activities ranging from tree planting and plastic clean-up campaigns to international conferences, climate action, and social media movements. It's like a yearly Earth "check-up day" where everyone is encouraged to do something positive for the environment, no matter how small.

All you need to know about World Environment Day 2025

Overview of World Environment Day 2025

World Environment Day 2025 is gearing up to be a truly global and impactful event. The **Republic of Korea** is the official host country this year, marking the first time in 28 years that South Korea has hosted World Environment Day. The main celebrations will take place on Jeju Island, famously known for its "Plastic Zero" vision, where international delegates, environmentalists, and other dignitaries will gather on June 5.

Notably, this year's event also comes at a critical time, just two months before world leaders reconvene to negotiate a global treaty to end plastic pollution **in Geneva**, Switzerland, in August. Thus, adding extra significance to the 2025 celebrations.

Decoding the World Environment Day 2025 theme

The **World Environment Day 2025 theme** is "Ending Plastic Pollution," promoted with #BeatPlasticPollution. This theme highlights how plastic waste has infiltrated every corner of our world – from oceans and coastlines to the food we eat. The campaign calls on governments, industries, communities and individuals to refuse, reduce, reuse, recycle and rethink plastic use.

Plastic also poses climate and health risks, with microplastics found in human bodies. As nations negotiate a global plastics treaty, the campaign showcases solutions such as biodegradable materials and advanced recycling systems to inspire urgent change and work towards a future free of plastic waste. In short, the theme is a bold reminder that **solving the plastic problem** is within our reach if we all pitch in.

Let's shine a spotlight on how Korea is exemplifying the spirit of "plastic-free" through its ambitious "Plastic Zero Island" vision

Host spotlight: Korea's "Plastic Zero Island" vision

When it comes to tackling plastic pollution, Jeju Island is leading by example as host for World Environment Day 2025. In 2022, Jeju unveiled its "2040 Plastic Zero Island" vision to eliminate plastic waste by 2040, phasing out single-use plastics and overhauling waste management. Households must drop off trash at designated recycling centers, a strict separation system that has dramatically boosted recycling rates and cut litter.

Jeju was the first in Korea to introduce a disposable cup deposit-refund scheme, encouraging residents and tourists to return cups for refunds rather than discarding them. Local authorities are motivating businesses to reduce plastic packaging and offer eco-friendly alternatives in daily life. Through the Plastic Zero Island initiative, Korea shows how community vision and action can help an island or planet break free from plastic dependence.

Jeju's bold vision is just one piece of the puzzle. All around the globe, people are celebrating World Environment Day and turning awareness into action. Let's take a tour of some real-world impact stories

Impact of World Environment Day across countries

Every World Environment Day, the planet comes alive with thousands of events and millions of participants taking action for the Earth. The scale of engagement is truly inspiring. The 2024 edition, for example, saw a **record 3,854 official events** and tens of millions of people involved worldwide. This global participation is not just for show. Beyond the festivities, World Environment Day has a track record of spurring **real-world impact**.

India : On World Environment Day 2018 (the theme was Beat Plastic Pollution), host country **India** made headlines with an ambitious pledge to eliminate all single-use plastics **by 2022**. This commitment, announced by India's Prime Minister on June 5, 2018, set in motion nationwide efforts to curb plastics, including bans on plastic bags and cutlery in various states. It was hailed as a "phenomenal commitment" that ignited real change. This success story shows the power of collective focus when the world comes together on June 5, **awareness turns into action**. Policies are influenced, community projects bloom, and countless individual habits begin to change for the better.

United Kingdom : On World Environment Day 2021, the UK Department for Environment, Food & Rural Affairs and the Foreign, Commonwealth & Development Office announced over GBP 8 million of new funding to protect rare wildlife and vulnerable habitats across the globe. This boost targeted projects in the UK's Overseas Territories, safeguarding species like whales, marine turtles, and sharks, and restoring critical habitats from coral reefs to tropical forests. By channeling government resources into international conservation, the announcement underscored how a single day of global focus can translate into tangible support for biodiversity and ecosystem resilience.

These examples prove that collective focus on the **5th June World Environment Day** transforms awareness into action. Now, let us explore some simple ways that can help you contribute to World Environment Day.

Celebrate World Environment Day and make a difference

Not sure how to get involved in World Environment Day? Here are a few fun and meaningful ways to celebrate and make a positive impact:

1. Plant a tree : Trees are nature's helpers – they absorb carbon dioxide and release oxygen, helping fight climate change. Join a local tree-planting drive or plant one in your community garden. You'll be leaving a green legacy for future generations while improving air quality and habitat for wildlife.

2. Join a community clean-up event : Grab some friends and clean up a nearby park, beach, riverbank, or your neighborhood streets. Even a few hours of picking up litter can make a huge difference in reducing pollution. By removing plastic bags, bottles, and other trash, you'll protect local wildlife and beautify your surroundings.

3. Reduce, Reuse, Recycle : Make **every day** a mini environment day by cutting down on waste. Carry a reusable shopping bag, water bottle, or coffee cup to avoid single-use plastics. Try to repair or repurpose items instead of throwing them away. And of course, recycling properly. It keeps materials out of landfills and gives them a second life. Small habit changes, like composting kitchen scraps or choosing products with less packaging, add up to big impacts.

4. Get creative and educate : Use art and creativity to spread the message. You could organize an eco-themed poster or painting competition at school, create upcycled crafts from old materials, or make a short video about an environmental issue. Display your work in the community or share it online to encourage everyone to think about protecting the planet.

5. Spread the word : One of the easiest ways to celebrate World Environment Day is to start a conversation. Share facts or tips on social media (using the **#WorldEnvironmentDay** hashtag), talk to your friends and family about why protecting the environment matters, or even host a small webinar/meet-up. By educating and encouraging others, you create a ripple effect of awareness.

Feel free to come up with your own unique way to honor the day. Whether it's switching to a bike for your commute, planting wildflowers for bees, or simply taking a walk in nature to appreciate its beauty, **World Environment Day** is all about taking **positive action** for the planet.

Feeling inspired to go green? Individuals can do a lot, but so can organizations.

Powering communities, restoring ecosystems with Tata Power

Tata Power's initiatives are aimed at mobilizing sustainable change – from planting trees and conserving wildlife to empowering people with climate education. Here are a few notable green initiatives and how they are making a difference:

Tree Mittra : Tree Mittra is Tata Power's flagship volunteering program for afforestation and green cover. It's a virtual tree-plantation drive encouraging individuals to adopt, plant, and nurture trees locally. Employees, families, and customers register planted trees through a mobile app and track growth. Tree planting is a year-round activity rather than a one-day event. In FY2023, over 600,000 trees were planted under Tree Mittra, boosting reforestation and biodiversity across multiple states. Tree Mittra helps absorb carbon emissions and foster greener communities by making it easy and engaging to grow trees.

GhanVan : Project GhanVan is an ambitious tree-planting and habitat restoration project by Tata Power with the ICICI Foundation. Focused on India's Western Ghats, a UNESCO biodiversity hotspot, it aims to plant 250,000 indigenous trees across 75 acres of Maharashtra's hydro catchment areas over three years. GhanVan, meaning "dense forest," boosts green cover, supports soil conservation, and enhances local water resources. Using drip irrigation and prioritizing native species ensures sapling survival. Local communities maintain plantations, fostering biodiversity and conservation awareness. Ultimately, GhanVan restores degraded land into lush forests, benefiting wildlife and people.

Climate Crew : Climate crew goes beyond an initiative; it's a movement at Tata Power. This sustainability platform empowers thousands of employees to live and work sustainably. Employees join and pledge habits like saving energy, reducing plastic, and carpooling, then share progress. Tata Power's sustainability team provides spaces for employees to challenge one another. Inspired by the CEO's vision to walk the talk, over 11,500 employees have pledged to shrink their carbon footprints, sparking a domino effect in communities. Climate Crew shows that small actions by individuals can lead to significant carbon savings.

Mangrove conservation : Tata Power is invested in protecting vital coastal ecosystems, such as Mumbai's mangrove forests. In a pioneering public-private effort in Navi Mumbai, the company funded the restoration of 25 hectares of degraded coastline with 50,000 mangrove saplings. The project cleared blockages to restore tidal flow and natural regrowth, and experts trained local community members to join the restoration. This corporate-led conservation has enhanced biodiversity, bringing back birds and marine life, and strengthened coastal defenses against erosion and extreme weather.

Gaja Sanrakshana : Gaja Sanrakshana, meaning Elephant Protection in Sanskrit, is Tata Power's flagship initiative across Odisha to safeguard India's native gentle giants. Launched in collaboration with the Odisha state government and conservation groups, it aims to reduce deadly human-elephant conflict and protect elephant populations near power lines and substations. The program installs active early-warning systems to continuously alert communities of approaching herds and builds barriers or safe passages to keep elephants away from highways and villages. Tata Power also upgrades its infrastructure by insulating or raising power lines to prevent wildlife electrocutions. Gaja Sanrakshana not only supports endangered species but also embodies harmony between human development and wildlife conservation.

Each of these initiatives highlights a different aspect of environmental sustainability. They show that Tata Power's experience demonstrates that **sustainability is attainable** when it's built into the mission, whether through engaging volunteers or partnering with NGOs and governments.

Join us on our journey to build a sustainable world

As World Environment Day 2025 reminds us, protecting our planet is a shared responsibility and a shared celebration. Over the years, it has evolved into much more than a date. It is a symbol of hope, unity, and action for a **sustainable future**. This day underlines how urgent and universal environmental challenges have become, and the good news is that we have the solutions and the collective will to tackle them.

The bottom line is that **every action counts**. World Environment Day is a chance for everyone – from individuals to large organizations – to pause, reflect, and take action, however small, to protect our planet. Let's carry its inspiration beyond just one day. After all, it is up to us to protect and cherish it.

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8 BEST BENEFITS OF SUSTAINABLE SUPPLY CHAINS FOR BUSINESSES

SNEHA CHUGH

According to a report by HSBC, Indian manufacturing businesses need to stay aware of global sustainable supply chain practices to establish their position in the international market and cater to international clients. Moreover, with large MNCs like Samsung and Apple setting up their manufacturing units in India, the demand for sustainable supply processes is likely to increase further. Hence, sustainability has become the leading supply chain trend in India. This article discusses the meaning of a sustainable supply chain, its practices, benefits, and challenges.

What is a Sustainable Supply Chain?

The concept of sustainability in supply chain management is associated with organizations' Environmental, Social, and Governance (ESG) goals and objectives and corporate responsibility. Sustainable supply chain refers to integrating sustainable and good governance practices in supply chain management processes to create a positive social and environmental impact.

Building a sustainable supply chain involves making conscious investment, operational, and procurement decisions throughout the lifecycle of goods and services. Therefore, sustainable supply chain management helps reduce carbon footprint, increase business efficiency, enhance customer loyalty, and help organizations build better investor relations.

Some of the most significant examples of sustainable supply chain management practices are:

- Reducing waste carbon emissions
- Eliminating child labor
- Ensuring diversity in supplier relationships and networks
- Sustainable sourcing of raw materials for production and packaging
- Using renewable sources of energy

What are the Main Benefits of Implementing a Sustainable Supply Chain?

By integrating sustainable supply chain practices, organizations reduce greenhouse gas emissions, decrease carbon footprints, and build better stakeholder relationships. Let's discuss how these actions impact businesses.

1. Higher Business Efficiency : Supply chain sustainability means optimizing processes to reduce carbon footprint, energy consumption, and environmental impact. Therefore, businesses find new tools and strategies for communication and collaboration, thus increasing overall business efficiency.

2. Improves Customer Satisfaction : According to a report by PwC, current consumer behavior trends involve conscious buying practices and using products that do not harm the environment. Moreover, consumers also tend to engage with companies that support social causes and take accountability for their actions that impact the environment. Therefore, a sustainable supply chain helps organizations gain their customers' trust and increase customer satisfaction and loyalty.

3. Facilitates Business Innovation : Integrating sustainable supply chain practices requires businesses to assess their existing processes, strategies, and potential risks. Therefore, mapping the entire supply chain lifecycle helps businesses find potential growth and innovation opportunities.

4. Increases Access to Capital : Investors seeking sustainable business practices are one of the key drivers for the growth of sustainable supply chain trends in India. Therefore, organizations focusing on sustainability have better access to investment and can easily expand their business.

5. Better Market Reputation : Using sustainable supply chain practices helps businesses gain trust in the market and build a better reputation. Moreover, organizations can expand their market share and enter into new industries because of credibility among customers, investors, and government agencies.

6. Increase Resilience : Sustainable supply chain practices help businesses build resilience by assessing and mitigating potential risks. For example, procuring material from various sources reduces the risk of price fluctuation.

7. Attract and Retain Quality Talent : It is not just customers who want to engage with companies that focus on corporate responsibility and ESG goals. Modern professionals also seek value and purpose at work and, therefore, want to work with companies with integrated sustainable practices. As a result, a sustainable supply chain helps companies attract and retain skilled talent and build an efficient workforce.

8. Cost Savings : Cost savings is one of the most significant long-term benefits of transitioning to a sustainable supply chain. It reduces energy consumption, minimizes product waste, and facilitates compliance with regulatory practices, thus increasing cost savings.

How Can Companies Measure the Environmental Impact of Their Supply Chain?

Businesses often view supply chain sustainability from a compliance or regulatory perspective. However, sustainability plays a critical role in helping organizations gain a competitive advantage. Therefore,

companies should measure their supply chain environmental impact. Here are some popular ways to do so:

1. Set Key Performance Indicators (KPIs) : First, organizations need to set KPIs and goals to effectively measure the environmental impact of a supply chain. These KPIs can include reducing carbon emissions by X%, ethical and sustainable product sourcing, reducing water usage, and increasing labor welfare.

2. Use Frameworks : Global frameworks such as Life-Cycle Assessment (LCA), Environmental Impact Assessment, and Social Impact Assessment help quantify sustainability measures. LCA provides insights on how much energy has been consumed or the percentage of carbon emissions. For example, Levi's revealed that washing jeans after wearing them 10 times reduces water usage and energy consumption by up to 80% compared to washing jeans after wearing them twice.

3. Measure Recycling Rates : Another effective way to measure the environmental impact of the supply chain is to check the recycling rates of products used in the supply chain management process. If a product can be recycled multiple times, it has a low environmental impact. Similarly, nonrecyclable products have a more harmful impact on the environment.

What are Some Best Practices for Integrating Sustainability Into Supply Chain Management?

Organizations planning their sustainable supply chain management strategies usually revolve around three key objectives—waste reduction, decarbonization, and better labor conditions. Some of the best sustainability practices are:

1. Set a Supplier Code of Conduct : Maintaining supplier relationships is an essential part of sustainable supply chain management. However, suppliers need to follow similar ethics and compliance standards as the organization. Therefore, organizations can prepare and circulate a supplier code of conduct to ensure that the suppliers follow certain ethical and sustainable standards. A code of conduct includes a list of compliances suppliers must follow, such as labor, environmental, and data privacy.

2. Green Packaging : This practice involves packing products using eco-friendly items such as containers or wrappers. Many organizations use biodegradable plastics, paper-based packaging, or compostable packing materials.

3. Sustainable Sourcing of Products : Organizations should also implement sustainability product procurement practices to reduce their carbon footprint. These practices include using waste or byproducts generated by other organizations as raw materials and procuring them from suppliers closer to the plant site.

4. Green Logistics : Ensuring a sustainable supply chain requires end-to-end focus on the entire lifecycle. Therefore, businesses must also adopt green logistics practices for sustainable production and transportation of goods from the warehouse to suppliers or customers. Green logistics activities include pooling warehouse and logistics resources, increasing nighttime goods transportation to reduce fuel consumption, sending orders in batches, allocating specific routes, and doing hyperlocal deliveries from nearby stores.

5. Stakeholder Engagement : Regular stakeholder engagement also helps optimize supply chain management. This forms a part of Corporate and Social Responsibility (CSR) activities in which businesses engage with the stakeholders by contributing to social and environmental initiatives. Moreover, organizations can brainstorm strategies for sustainable supply chain management by engaging with different stakeholders such as laborers, customers, investors, and government agencies.

How Does Government Regulation Play a Role in Promoting Sustainable Supply Chains?

Regulatory factors are an important external element to promote the growth of sustainable supply chains. Government regulations and sustainability standards make it mandatory for businesses to adopt sustainable supply chain practices. Even though many Indian businesses voluntarily practice sustainability, a significant number of businesses are unable to optimize their supply chain because of several challenges. Adhering to government regulations for supply chain sustainability will increase the environmental impact.

What are the Challenges Companies May Face When Transitioning to a Sustainable Supply Chain Model?

Even though a sustainable supply chain is beneficial, many businesses hesitate to implement it because of the following challenges:

1. High Initial Costs : Switching to sustainable practices, tools, and resources requires elaborate planning, budgeting, and investment in research and development. Moreover, businesses also have to invest a large sum upfront. Therefore, small businesses are unable to implement sustainable supply chain practices.

2. Lack of IT Infrastructure : Transitioning to a sustainable supply chain model required a robust IT infrastructure and heavy machinery. Setting up the processes and tools requires time and resources. Therefore, organizations struggle to change their existing supply chain models.

3. Lack of Skilled Resources : Sustainable supply chain management requires creating efficient policies, strategies, frameworks, and workflows. Lack of skilled and experienced employees or consultants is another common hindrance to adopting supply chain practices.

Therefore, organizations seek supply chain management professionals to optimize their supply chain and achieve corporate responsibility goals. However, such roles require extensive knowledge of the latest supply chain trends and skills such as resilience planning and data analytics. Emeritus' online supply chain management courses can help you learn relevant skills, techniques, and strategies to advance your career in sustainable supply chain.

Source: emeritus

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ENVIRONMENTAL SUSTAINABILITY IN LOGISTICS

Supply chain sustainability can mean a lot of things to a lot of people. As I have written about before, supply chain sustainability, or the notion of going green, is a hot topic as companies and countries look at their overall carbon footprint and look for ways to be more environmentally friendly. A few ways companies can begin to offset their carbon footprint is to take a deeper look at product packaging, energy efficiency, alternative fuels, route optimization, and returns and recycling programs. However, sustainability in logistics goes well beyond these initiatives.

Today's article is the third part in a series featuring surveys from APQC on supply chain topics including last mile and digital transformation. APQC conducts research on supply chain and logistics to help organizations assess the performance of their own processes and functions compared to their peers. Most recently, the APQC has conducted best practice and benchmarking research on environmental sustainability. The report provides a cross-industry perspective on environmental sustainability in logistics including fuel consumption, screening logistics providers, packing material, sales order delivery, and reverse logistics based on 1,157 valid participants.

In the survey, APQC used a series of performance metrics, including net promoter score, customer retention rate, perfect order performance, and on-time delivery among others, to identify the top performing companies. Below are the results from the cross-industry report for environmental sustainability.

Sustainability in Logistics Results

Logistics providers contribute to the total picture of sustainability for many organizations. However, at the median, only 42 percent of respondents screen new logistics providers using environmental sustainability criteria and only 50 percent regularly assess existing logistics providers for environmental sustainability. However, for top performing companies, these percentages jump to 52 percent and 60 percent respectively.

One area of concern for the long-term health of the world is the use of packaging in both the manufacturing and shipping of products. Many companies have seen both the inefficiencies of their packaging, as well as the wastefulness, and taken this as a direct challenge for major improvements. One way that companies are trying to alleviate packing waste is through the use of recycled, re-used, and renewable packing materials. For respondents at the median, 80 percent of total annual packing material consumed comes from recycled or re-used materials and 60 percent comes from renewable sources. For the top performers, however, 90 percent of total annual packing material consumed comes from recycled / re-used materials, and 74 percent comes from renewable sources.

A TMS can save shippers money in a lot of ways, including simulation and network design, load consolidation and lower cost mode selections, and multi-stop route optimization. Load consolidation means less trucks on the road to deliver the same freight, which is important as far as carbon emissions. With an eye toward reducing carbon emissions, for respondents at the median, 75 percent of sales orders are delivered to customers all in one delivery (as opposed to multiple trips/deliveries to the customer for a single order). By comparison, 85 percent of orders are accomplished in one delivery for those at the 75th percentile.

Companies are also looking at ways to make last mile deliveries more sustainable, and vehicle capacity plays a key role. This measure refers to capacity utilization when the vehicle has been loaded at a departure location (such as a plant or fulfillment center) and is departing to deliver products to their final destinations. The average vehicle capacity for vehicles departing for the last mile delivery is 85 percent for respondents at the median, while top performers hit 90 percent average vehicle capacity.

The APQC report on sustainability in logistics finds that renewable energy from alternative fuels can play an important role as organizations seek to reduce greenhouse gas emissions. As a percentage of the total fuel consumed in transportation and warehousing, respondents report that currently only 7 percent comes from renewable sources (at the median). This percentage does not vary much for those respondents

at the 25th or even 75th percentiles. This shows that all companies still have a long way to go when it comes to fuel consumption from renewable sources.

A final way to improve supply chain sustainability is by optimizing returns at the store and warehouse level. According to research I did around omni-channel returns management, it became clear that sustainability practices are also an important aspect of returns management. Companies need to decide what they will do with the returned item, which will vary based on the type of product. Per our survey, 64.2 percent of respondents indicated they re-use the returned item, and sell it "as is." According to the APQC report, reverse logistics can also play a role in helping organizations reduce their environmental footprint. The percentage of total annual logistics and warehousing costs associated with physical transportation, storage, or handling of returned product is typically quite low – totaling just 5 percent of costs for those at the median. However, as the use of e-commerce increases, so does this percentage. Currently, only about half of respondents are using the same network for reverse and forward logistics, but as supply chains become more circular, this will likely change.

Final Thought

The APQC report on sustainability in logistics sheds new light on a hot topic. While we all know about the importance of sustainability, it is critical for companies to continue to innovate and push for more sustainable packing and delivery options. The results of this survey are a starting point for being able to measure the impact of sustainability in logistics, and hopefully we will be able to update this article next year to see how the market has changed.

Source: logisticsviewpoints.com

Trump's Tariffs Trigger Market Shockwaves, Supply Chains Brace for Turmoil - Jim Frazer

In a significant escalation of trade tensions, President Donald Trump's newly implemented tariffs took full effect just after midnight Eastern Time, sending immediate ripples through financial markets and global supply chains.

Key Developments in the Last 24 Hours:

Tariffs Now Active – Up to 104% on Key Imports
The U.S. has officially imposed massive "reciprocal" tariffs on imports from China, Japan, Vietnam, India, and other countries. These duties, reaching 104% on some goods, apply across a broad swath of products—from electronics and automotive parts to textiles and industrial machinery.

Markets React Swiftly but Show Fragile Resilience
Stock futures plunged in premarket trading, with the Dow and S&P 500 falling over 2% before partially recovering. The Nasdaq 100, sensitive to global tech trade, wavered at the flat line. The short-lived rebound was attributed to China's decision to avoid immediate retaliation, instead publishing a white paper calling for "dialogue and consultation."

Global Supply Chain Disruptions Begin to Materialize
Freight forwarders and procurement managers are reporting early signs of supply reallocation efforts, as importers scramble to reroute orders through lower-tariff regions like Mexico or Eastern Europe. Some U.S. ports have flagged increased inquiries about customs reclassification and bonded warehousing strategies.

Oil Prices Sink Below $60 – A Mixed Signal for Logistics
Crude oil dropped to its lowest level since 2021, closing below $60 per barrel, as fears of a global slowdown weighed on demand forecasts. While this drop could ease transportation fuel costs, it is also seen as a signal of deteriorating trade health.

Fed and CPI Data Laster Today

Minutes from the Federal Reserve's March meeting, due later today, and tomorrow's Consumer Price Index report are now in sharper focus. Stakeholders are looking closely for signs of stagflation—a toxic mix of inflation and slow growth—that could arise from trade-related cost shocks.

What This Means for Supply Chain Leaders:

- **Expect Near-Term Volatility in Freight Volumes and Pricing** : As buyers accelerate shipments or divert goods from tariffed routes, logistics providers may face congestion, imbalanced flows, and urgent capacity demands.
- **Revise Risk Assessments and Trade Compliance Strategies** : Regulatory teams should immediately audit sourcing exposure to newly affected countries and reassess trade route viability.
- **Watch for Delayed Retaliation** : China's pause in retaliation may be strategic. Prepare for countermeasures that could hit key U.S. exports like agriculture or semiconductors

Source: logisticsviewpoints.com

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INDIA'S DEFENCE SECTOR READY TO PLAY IMPORTANT ROLE IN GLOBAL SUPPLY CHAIN RESILIENCE, SAYS RAJNATH

THE HINDU BUREAU

Defence Minister noted that domestic defence capabilities serve as credible deterrence, maintaining peace and tranquillity in a dual bid to ensure national security and strategic autonomy.

India is focusing on indigenisation, innovation, and global leadership not only to secure its borders but also to position itself as a key player in the international defence ecosystem, Defence Minister Rajnath Singh said.

Speaking at a defence conclave organised by The Week, Mr. Singh stated, "Today, while India's defence sector is moving ahead on the path of self-reliance, it is also ready to play a very important role in making global supply chains resilient." He added, "The day is not far when India will not only emerge as a developed country, but our military power will also emerge as the number one in the world."

Mr. Singh outlined the goal of reducing import dependency by building a defence industrial complex that meets domestic requirements and enhances export potential. Noting that India currently exports defence products to approximately 100 countries, he set export targets of 30,000 crore for the current year and 50,000 crore by 2029.

While highlighting technological advancements in the defence domain, the Minister acknowledged that manufacturing aero engines remains a significant challenge. He pointed to progress on the indigenous Kaveri engine project, developed for aircraft and Unmanned Combat Aerial Vehicles (UCAVs), and ongoing discussions with global firms such as Safran, General Electric, and Rolls-Royce aimed at developing domestic capabilities in this sector.

The push for domestic defence manufacturing serves the dual purpose of ensuring national security and strategic autonomy while insulating the sector from global supply chain disruptions, Mr. Singh explained. "Our defence capabilities are like a credible deterrence, to maintain peace and tranquillity. Peace is possible only when we remain strong," he stated.

Addressing the evolving nature of warfare, Mr. Singh cautioned that future conflicts are likely to be more violent and unpredictable. He highlighted the emergence of cyber and space as new battlegrounds, alongside the increasing importance of narrative and perception warfare globally.

Detailing the ongoing indigenisation drive, Mr. Singh referred to the five Positive Indigenisation Lists (PILs) issued by the armed forces and another five by Defence Public Sector Undertakings (DPSUs), which reserve specific items for procurement from domestic sources. He stated that the Services' lists include 509 major equipment, weapon systems, and platforms, while the DPSU lists cover 5,012 items, including strategically important Line Replacement Units, sub-systems, spares, and components.

The Minister highlighted the growth in domestic defence production from 40,000 crore in 2014 to over 1.27 lakh crore currently. "This year, defence production should cross 1.60 lakh crore, while our target is to produce defence equipment worth 3 lakh crore by the year 2029," he added.

Source: www.thehindu.com

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'DEVELOPMENT OF SUSTAINABLE SUPPLY CHAINS IS THE FUNDAMENTAL RESPONSIBILITY OF EVERY BUSINESS'

VASANTH SRINIVASAN

The rapid infra strides made by India, marked by the expansion of digital networks and logistics systems, provide a fertile ground for the implementation of advanced digital solutions, says Kuehne + Nagel's MD David Roussiere

Switzerland-headquartered global transport and logistics major Kuehne + Nagel wants to be the most trusted supply chain partner supporting a sustainable future by 2030. And, India, with its vast talent pool and "remarkable opportunities" is central to its global plans. In an email interaction with businessline, David Roussiere, Managing Director, Kuehne+Nagel India, Sri Lanka, and the Maldives, shared his insights on the emerging trends in the global logistics industry and the company's blueprint for sustainable growth.

Q. You went through a bit of a rough patch coming out of the pandemic. Can you tell us how well are road logistics, sea logistics and air logistics — your mainstays — doing, as an industry?

The Indian logistics sector has demonstrated a gradual recuperation, with projections pointing towards a 10 per cent CAGR between 2022 and 2025. All three modes of transportation — road, sea and air — have exhibited signs of improvement.

Predominantly, road logistics holds a significant position in India, contributing to more than 60 per cent of total freight traffic. Notably, this sector has exhibited the swiftest recovery post Covid, with traffic volumes nearly reaching pre-pandemic levels. Sea logistics has also shown signs of recovery, though not as robust as road logistics due to significant interruptions in the worldwide shipping industry caused by the pandemic and global trade disputes, among other things. Air logistics have encountered a more extended recovery process post Covid. Despite this, the Indian logistics sector stands at the cusp of multiple growth opportunities. The surge of e-commerce and the intricacies of last-mile delivery, coupled with the escalating demands from the service sector, are promising avenues.

Q. Given how big and how fast the e-commerce segment has grown in India, how do you plan to ride the boom?

The rise of e-commerce is not a new phenomenon, but the pandemic has undoubtedly accelerated it. Customers nowadays expect not only quick deliveries but also quick and simple returns. This change in consumer behaviour causes organisations to relook their strategies and supply chain management, and the technology investments required to meet this demand. This has prompted logistics players and brands to reconsider their strategies. Logistics service providers are required to be more technologically savvy to meet the delivery needs of online retailers at competitive prices. Investment in advanced technologies such as warehouse management systems, automation, and last-mile delivery solutions has become critical to optimize inventory, improve order accuracy, and expedite deliveries. With the evident surge in industry demand, e-commerce undoubtedly takes precedence at Kuehne+Nagel, forming an integral component of our overarching vision to empower our clients in maximising their market opportunities. Our e-commerce services are designed to enhance the 3PL (Third-Party Logistics) value chain, and place special emphasis on catering to the needs of small and medium-sized enterprises. Simultaneously, we are bolstering our customs clearing operations, a facet experiencing significant demand. We are committed to adding value to our customers to the e-commerce supply chain by developing the infrastructure required for geographic expansion, product launches, and sales channel development.

Q. Are you planning to replicate your Paris Fashion Centre of Excellence model in India?

Our Paris Fashion Centre of Excellence is a great illustration of Kuehne+Nagel's ability to concentrate different expertise with high-added value to meet customers' needs. It enables businesses to thrive or start their business with customised solutions. It offers a one-of-a-kind network of innovative multimodal transportation solutions, allowing our customers to control costs, delivery times, seasonal changes, and carbon emissions while maintaining a high level of personalisation. Whether the model will be replicated in India depends on our customers' supply chain needs. We would be happy to support them.

Q.Given India's talent base and the country's rapidly transforming infra landscape, how do you plan to leverage your India presence?

The combination of India's burgeoning talent pool with the rapidly expanding infrastructural landscape presents us with a remarkable opportunity. With India's huge array of skilled experts in numerous technology fields, our goal is to build an environment of creativity that propels our digital initiatives to new heights. Through collaboration with local talent, we aspire to create solutions that cater to the evolving demands of both our clients and the broader logistics landscape. The burgeoning infrastructural advancements in India, marked by the expansion of digital networks and logistics systems, provide a fertile ground for the implementation of advanced digital solutions. Seamlessly integrating these innovations into our operations streamlines processes, heightens efficiency, and enriches the overall customer experience. By synergising the expertise of local talent with the evolving infrastructural dynamics, we are well-positioned to drive meaningful progress that seamlessly aligns with our Roadmap 2026, and ultimately, achieving our Vision 2030 of becoming the most trusted supply chain partner supporting a sustainable future.

Q. What kind of changes has the deployment of AI brought about in the logistics industry?

AI's ability to process vast amounts of data has revolutionised route optimisation, reduced transit times, and cut fuel costs. Predictive analytics, empowered by AI, has modernised demand forecasting, preventing inventory imbalances. Automation has undergone a remarkable shift through AI. Tasks like inventory tracking and order processing can now be automated, enabling human resources to focus on strategic activities. Robotics and autonomous vehicles, driven by AI, are enhancing warehouse efficiency and last-mile delivery.

Q. Talking about logistics in the age of climate change, what's cooking on the ESG front? Any plans to roll out the "book and claim" model on sustainable fuel usage in India?

In today's competitive and complex business environment, the development and maintenance of sustainable supply chains is the fundamental responsibility of every business. At Kuehne+Nagel, sustainability is the foundation of everything we do. As part of our efforts, in line with the Science Based Targets initiative (SBTi) and commitment to a low carbon business model, we are continuously developing easy and transparent sustainable shipping options so that our customers have choices of how they can minimise the environmental impact of their shipments. In addition, logistics companies must adopt approaches that result in long-lasting environmental solutions. A prime example is the earnest pursuit of employing alternative, cleaner fuels to drastically curtail carbon emissions. Notably, Sustainable Aviation Fuel (SAF) is a cleaner substitute for conventional jet fuel and a key part of the aviation industry's plan to reduce carbon emissions in the coming decade. In 2021, Kuehne+Nagel became the first air logistics provider to offer its customers the option to purchase SAF for each shipment, thus reducing carbon emissions.

We use the "book & claim" approach to apply SAF in our customers' shipments to reduce CO2 emissions generated. After the shipment, we furnish a certificate with a unique number that shows the amount of SAF used and the reduction in CO2 emissions. This certificate also includes all the necessary details to ensure transparency. In India, our customers are already using this model and supporting the environment. Q

While companies are still in the process of diversifying their supply chain, what kind of opportunities and challenges do cross-border logistics throw up?

Cross-border logistics involves the movement of goods and resources across international borders. In the context of India, it's a gateway to harnessing diverse markets and resources that align well with India's economic ambitions and "Make in India" initiative. Logistics firms are drawn in by the prospect of market expansion, cost reduction, and access to specialised resources, all of which can boost industry competitiveness and resilience. It also opens doors to tap into its burgeoning consumer base, skilled workforce, and expanding infrastructure. At Kuehne+Nagel, we explore new territories to grow our business further and to grow our cross-border network in Asia such as the Indo-Nepal & Indo-Bangladesh trade lanes that facilitate $25b annual trade between BBIN countries. On the flip side, challenges arise from the complexities of diverse regulatory environments, demanding meticulous attention to navigate trade agreements, customs procedures, and compliance issues. Managing logistical intricacies tied to differing infrastructure, languages, and cultural norms requires adept adaptation. Therefore, for businesses to build resilient and sustainable supply chains, they need to have a complete plan that tackles problems head-on while seizing opportunities.

While cross-border logistics open doors to global growth, successful navigation requires a balance of strategic foresight, operational agility, and a comprehensive understanding of the multifaceted landscape. In embracing the complexities and harnessing the opportunities, businesses can build bridges across borders, enabling them to thrive in an interconnected world.

Source: www.thehindubusinessline.com

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HOW IS INDIA PROGRESSING TOWARDS SUSTAINABLE SUPPLY CHAIN MANAGEMENT WITH CONSTANT RISE IN DEMAND?

AKASH HEGDE,CO-FOUNDER, SHAKEDEAL

The Indian supply chain sector boasts cutting-edge models and analytics, which are explicitly developed for achieving strategic advantage. Thanks to the surging customer base, varied business environment, and extensive trade distribution network, the country has emerged as a worldwide leader in SCM (Supply Chain Management). However, the sector contributes tremendously to the total pollution in the nation, accompanying some serious environmental consequences. On average, companies' value chain emissions in India outweigh their direct carbon effect by 11.4 times. This alarming concern has pushed Indian businesses to adopt greener solutions for proper resource utilization and mitigating ecological impacts.

This article will highlight some of the integrative SCM models in the Indian context for adopting decarbonization strategies and also discuss some issues the country faces while implementing these models.

Challenges of sustainable SCM in India : Implementing sustainable SCM comes with a list of challenges, some of which are listed below.

Increased costs : Cost is the biggest predicament in implementing sustainable SCM in India. Here are some real cost pressures faced by the nation:

- Tracking new metrics
- Hiring specialists to advise on new protocols and policies
- Creating additional checkpoints
- Developing procedural processes

Lack of green practitioners : Due to the lack of green practitioners like green consultants, green architects, green developers, and more, businesses are apprehensive about adopting green solutions in their operations.

Recycling Products : Incorporating product recycling is a crucial component of green SCM. Integrating trash (recycling) as raw materials in manufacturing is a significant problem for many businesses.

Fear of failure : The dread of failing is another biggest challenge. Organizations debate whether the green drive will be a significant success or failure.

Ways to make India's supply chain sustainable : Despite the above challenges, India is leaving no stone unturned to move towards sustainable SCM. Here are some of the prominent ways in which the country is aligning businesses with the goal of environment-friendly practices:

Changing consumer behaviour : According to a report, 78% of Indian consumers are the most likely to alter their shopping habits to lessen their impact on the environment. People in India who were polled displayed greater awareness and care for sustainable choices across a range of factors relating to their lifestyle decisions and shopping habits.

Introducing sustainability-driven rules & regulations : With the introduction of various sustainability-driven rules and regulations, companies are prompted to integrate green strategies into their operations actively. For instance, certain companies are subject to sustainability reporting requirements under the Companies Corporate Social Responsibilities Policy Rules (2014) and the Companies Act (2013). These businesses must establish a CSR Committee, allocate at least 2% of their yearly net income to CSR projects, and include a CSR report every year in their annual board reports.

Integration of sustainability tracking : By incorporating sustainability tracking into their supply chain management systems, Indian businesses have started to examine the environmental impact of their products, from incoming raw materials to last-mile home delivery.

Commitment to net zero emissions : Logistics businesses are already considering lowering their carbon footprints as India aims to net zero emissions across all sectors. India is implementing GPS-enabled toll payments to ensure that there is a minimum fuel wastage and associated emissions from the country's numerous toll plazas.

Usage of EV vehicles : Online retailers have pledged to carry 30% of their shipments using electric vehicles. It perfectly aligns with the government's goal to decarbonize the transportation sector by 2030.

Promotion of LNG as an alternative fuel : Due to its lower cost and lower emissions, the Indian government plans to promote LNG (Liquified Natural Gas) as an alternative fuel and build 1,000 LNG stations over the next two-three years.

Robust initiatives by B2C companies : By employing best practices like auditing suppliers, investing in renewable energy sources, developing eco-friendly products and packaging, and more, B2C companies aim to achieve supply chain sustainability.

Integrating modern technologies : Intelligent workflow and blockchain platforms are assisting in creating a sustainable ecosystem, while AI-powered analytical engines are increasingly assisting in creating eco-friendly shipping solutions for developing a sustainable, transparent, and responsible supply chain.

Conclusion : Amidst the unpredictable environmental challenges, India is progressing towards garnering manifold profits and sustainable business operations for the long run. Since green consumerism is skyrocketing in India, it's a win-win for businesses to cultivate a dynamic culture of sustainable SCM in the coming years. As the Indian supply chain sector is entering a new era of opportunities and challenges, the future unquestionably lies in prioritizing sustainability at every stage of SCM operations.

Source: timesofindia.indiatimes.com

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WTO UPDATE

SUSTAINABILITY DISCUSSIONS FOCUS ON TRADE POLICY CONSIDERATIONS AND PRACTICES

WTO members participating in the Trade and Environmental Sustainability Structured Discussions (TESSD) met on 12-13 May to continue discussing four key sustainability topics. Discussions covered subsidies for the decarbonization of maritime transport, challenges and opportunities faced by developing economies regarding trade and circular economy, experiences with facilitating trade in environmental goods and services, and interoperability of trade-related climate measures. Members also reviewed first drafts of possible outcomes for the working groups.

Richard Tarasofsky of Canada, a co-convener of TESSD, together with Costa Rica, thanked the facilitators of the working groups for advancing the outcome documents. "I encourage all of you to engage actively, (as) we are now less than one year away from MC14 ," he said.

The four TESSD working groups held technical discussions on their respective topics and exchanged views on the first drafts of possible outcome documents in line with guidance provided by the high-level plenary meeting on 4 December 2024.

In the Working Group on Subsidies, members explored the role of trade policy and international cooperation in decarbonizing maritime transport. They focused in particular on subsidies and other policy incentives for sustainable marine fuels, port infrastructure and green corridors, as well as on the role of financing and technical assistance to support developing economies in this regard.

Setting the scene, the International Maritime Organization (IMO) introduced the new IMO Net-Zero Framework with mandatory emission limits. The European Union presented its policies and measures to support sustainable marine fuels, while DNV, a Norwegian private company, and the Global Maritime Forum (GMF), a not-for-profit organization, introduced their work in supporting the establishment of green shipping corridors. MSC Group presented the actions being taken to decarbonize their global fleet and the necessity for regulatory certainty and clarity for private sector investments related to decarbonization. Regarding a possible working group outcome, members considered key design elements in subsidies, including considerations for effective subsidy design and related practices among members.

The Working Group on Circular Economy – Circularity heard about technical assistance projects offering insights into trade and circular economy, including from the International Trade Centre (ITC) and Mauritius on trade policy and regional cooperation in recycling lithium-ion batteries of electronic vehicles. UN Trade and Development (UNCTAD) also shared perspectives on trade-related aspects of circular economy in developing economies, highlighting opportunities for technology transfer for water treatment and textile circularity. In terms of a possible working group outcome, members focused on trade-related practices in priority sectors, such as textiles, batteries, electronics and renewable energy.

In the Working Group on Environmental Goods and Services (EGS), members shared experiences of identifying and facilitating trade in EGS. Jaime Coghi Arias from Costa Rica, Chair of the Joint Initiative on Services Domestic Regulation, highlighted the link between good regulatory practices and environmental services. Switzerland introduced approaches used for identifying EGS under the Agreement on Climate Change, Trade and Sustainability (ACCTS) undertaken by Costa Rica, Iceland, New Zealand and Switzerland. The United Kingdom shared insights into EGS for climate adaptation in the water sector, and Argentina outlined its work in relation to sustainable agriculture. Members also reviewed suggestions on the working group's draft outcome document.

In the Working Group on Trade-Related Climate Measures (TrCMs), members heard presentations on border carbon adjustments (BCAs), with a focus on carbon standards and measurement methodologies. The International Institute for Sustainable Development (IISD) introduced its work on interoperability in its "Global Stakeholder Dialogues". The Organisation for Economic Co-operation and Development (OECD) highlighted the importance of cross-border data-sharing through digitalization and customs cooperation. With regard to the first draft for an outcome, members brainstormed on how to compile policies in relation to climate objectives.

Concluding the two-day meetings, Ana Lizano of Costa Rica, co-convenor of TESSD, said: "It was very encouraging to see the participation of the private sector and the sharing of experiences by developing economies across all four groups, even from non-co-sponsors. Looking ahead, we have made significant progress on the outcome documents, reflecting members' inputs. We look forward to your collective support in refining the documents to ensure they are fit for purpose."

Presentations and documents related to the working group meetings are available here.

Guided by their 2021 Ministerial Statement, TESSD seeks to complement the work of the WTO Committee on Trade and Environment and advance discussions at the intersection of trade and environmental sustainability towards identifying concrete actions that members could take individually or collectively. The initiative, which is open to all WTO members, is currently co-sponsored by 78 members representing all regions and all levels of development.

Source: WTO Website

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PEER TO PEER OR PURCHASE TO PAY PROCESS IN SUPPLY CHAIN: (P2P)

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In supply chain network having up to date and prompt information is very crucial for minimizing the bullwhip affect, inventory cost, and out of stocks, and true cost of information supply chain management is highly involved. The complex process of involving collaboration and information sharing between distributed partners with Radio Frequency Identification, and the new internet technology supply chain management, process has bear significantly being streamlined. The major challenge in Radio Frequency Identification based supply chain management is resolving the data stored in the Radio Frequency Identification to actual location of the data in the network.

Peer to Peer has been the application to many of the corporate supply chains, that to provide flexible communications medium that may overcome some of the problems in supply chain management.

The Purchase to pay process known as P2P process connects the procurement of the entire supply chain, within the company ambit, through goods receipt, and final payment to vendors: Purchase to Pay or P2P: 1. Reducing over-all supply chain, and inventory performances: 2. Improve operational performances: 3. Improve financial problems:

Purchase to pay is the entire procurement connects to supply chain process in an organization, through goods receipt, and finally payment to the vendor, thus reducing overall supply and inventory costs.

Supply chain transactions are information's systems that sometime lack real-time transparency, and often centralized and include large number of small and medium size, companies.

The peep to peer supply chain address is increasingly forms a critical part in global supply chain. This leverages the advantage of the network through flexible peer to peer through a server in order to share supply chain, physical distribution information.

Peer to Peer system bring together buyers, suppliers, financial providers to deliver a smart way to business to finance the supply chain, building on time the financial strength, helps buyers a simpler, and cost effective transacting processing.

Keeping allowing buyers a good relationship, with suppliers mutually benefit, so that factors, tide long payment, which does not affect the environment of the organization. The introduction of Just-in-Time, finance in supply chain, aligning with the suppliers, with significant benefit can be developed, and if the increased frequency, longer payment terms, which can normally cause problems, in supply chain cash flows.

With increased longer payments the organization can overcome by giving supplier access to funds, and provide Peer to Peer basis of financing providers including investment opportunities with low risk, high yield, opportunities to support supply chains.

The use of cloud based technology which becomes inherently flexible, and gives created control over the cash flow, and assist in good cash management.

Supply chain function are backed by data analytics, and in depth, and the expertise, facilities capabilities by sourcing items from contract management, performance management, financial management, relationship management. The change in volume of procurement in supply will significantly increasing the spending, and improve the velocity by which savings from project sourcing is realized.

With the introduction of decentralized logistic, which accelerate the impact of integration, and advances in communication technology to multi-modal, freight operations. The essence of Peer to Peer framework distributes the management, of logistic operations to nullify factors according to communication technology. The latest communication technology data, block-chain, internet of things, are used for building up necessary blocks, and create, and manage decentralized operations.

Block chain handles agreements between parties; Internet of Things gathers data from logistic network, which can be exchanged or used for managing decisions, making related decisions to control freight transportation activities in Peer to Peer activities.

Digitalized logistic transportation, has reduced manual work, and optimizes the Peer to Peer from the logistic process, and transport routes, enabling real time, monitoring transportation flow and avoids unexpected circumstances, and are result of integration of communication technology improves cost effectiveness.

The main challenges in transportation are that independent parties are the involvement of freight forwarders , 3rd Party logistics providers, multi-model transport carriers, where communication between the

parties needs to be accurate, and necessary to create a common to locate a where information can be shared.

To handle logistic the alternative solution is in a Peer to Peer, and this will understand the crowd sourced transportation, and concentrate on conventional transportation industry. The essential is that Peer to Peer approach is that the logistic management is fully distributing to computational resources.

Lean concept involves the reduction of waste. Waste is characterized in two categories non value added activities, non-value added necessary activities, and this should focus generated in the organization on a long term, which is attributed to:

Production: manufacturing or creating more than required this may be due to complete sourcing of projects, but not fully implementing in the organization, and also if duplication of work done across the organization.

Waiting :For an activity for purchase order requisition, for an approval for invoice, and subsequently, invoice for approval of payment:

Transportation: conveyance for moving unwanted material or items by use of transportation.

Processing: unwanted process, leading to unwarranted approvals, like Purchase orders, and approval of contracts:

Inventory: abundance of work-in-progress, those are incomplete which needs Purchase Orders to be converted in to orders, coordinating with supplier to extend supply chain facilities.

Correction; errors that are to be corrected, and incorrect information in Purchase Order to be deleted, in order to avoid complication with supplier or manufacturer.

Common Purchase to Pay that might benefit proper requisition, which will limit sending Purchase Order cycle time, and have large similar of suppliers, and this can simplify that requisition process through introduction of guiding buying procedure.

Purchase order process should not have longer cycle time, and the type of orders, should be perfect with adequate catalogue details. Reviewing of number of Purchase Order, and coordinating with supplier is necessary.

Receipt processing as there is bound to be high receipt mismatches from incomplete receipt processing, and lengthy procedure, it is necessary to conduct a root cause of receipts, which may require for all purchases, and evaluate good and services.

Invoice receipt entry which is wrongly entered, and payment to suppliers become duplicate, invoices printed incorrect, incorrect payment terms, it becomes necessary to do invoice reconciliation, since high proportion of invoice are generated, and exceptions of the type of invoice should be given a solution.

Payment should also be Purchase to Pay part of the late payment or early payment to supplier discount, and high volume of calls from suppliers, and this should be received without causing undue advantage to suppliers, payment can also be done electronically, which also become a Peer to Peer strategy in supply chain. .

In supply chain Peer to Peer financing is creating an edge on supply chain. It aims at financing from a wider point of view within supply chain, factoring and discounting invoices focus on receivable accounts in supply chain, and these are the concept of steps adopted in Purchase Order, which have a greater optimization, and financing factor for supply chain.

The technology of Peer to Peer is to create a lending network for everyone involved in supply chain, and allow investors to provide finance, and every step is taken care, and additional provision are provided in supply chain, with standards and schedules.

Peer to Peer of lending has become a greater diversification within supply chain financing, and has the potential to stabilize, and enhance process in supply chain.

Digitization of Peer to Peer, which integrate investors, suppliers, sub-contractors, digital technology are creating financial network, to make cash available in supply chain process, and for suppliers this means early payment, approval of invoice, and for investors to access to new investment, and opportunities to invest in supply chain, where global supply chain, and its means of cutting down costs, by bringing in digitization in supply chain.

Peer to Peer system in distribution and transportation includes automated storage, retrievable system from racks, pick-up point in the aisle, in batch or kits in stock up points, picking order fulfillment, and reshuffling polices of warehouse operations, and using pallet strategies, and this is with improved routing and scheduling methodically that have to be implemented n a warehouse.

Collaboration is not new ideas with emergence of technology that enable low cost electronically communication and information. Collaboration is certainly a powerful concept in supply chain, and the improved information, and better coordination in supply chain activities, makes it possible for lower cost, customer service. Collaboration includes decreasing inventory by levels, more predictable order cycle time, elimination of redundant activities increased product availability in supply chain.

The most visible area of collaboration is the Collaboration planning, forecasting, replenishment, which are not adopted by consumer goods manufacture ring, which enable to joint planning, and demand,

forecasting and thus synchronizing material in end-to-end supply chain.

In Peer to Peer information system electronically, will be through direct data exchange, between the systems, instead of data through servers, and centralized databases, clients communicate among themselves, and can act as client server in supply chain, performing efficient task to be performed.

Peer to Peer has been developed for improving supply chain management by exchange of sales forecast, between retailers and suppliers. If a supplier wants to forecast data from different retailers or manufactures, then connection can be made to each retailer or manufacturer thereby permitting supplier, to the forecasting information. The connection can be made separately to even if three different supplier to retailer or manufacturer who would like to have information by identification, by internet to receive information in a Peer to Peer in supply chain.

In supply chain Peer to Peer happenings, short lead times are often standardized for custom built items though they can be assembled to order, since in short of period of time. Between order and shipment, change management in relation to the intensive of shifting of quantities, delivery date, and the occasions of cancelling, changes in design, specification of the item, can happen in supply chain projects.

The happening in bigger projects where complex items or materials with frequent changes, that happens after order is placed with many suppliers in a supply chain, and this complex of dealing with change, becomes a continuous process till the material or product is installed and performance is achieved.

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WORLD ENVIRONMENT DAY 2025 EXPLAINED: WHAT, WHEN, WHY AND ITS TRUE IMPORTANCE

YOGESH KHASTURI

Every year, as June 5 approaches, our hearts brim with **Environment Day thoughts** about protecting our precious planet. We're reminded that every small step, like carrying reusable bags or planting a tree, can spark a ripple of change.

In 2025, **World Environment Day** puts a spotlight on **Ending Plastic Pollution**, a theme that touches us all. Why? Because plastics now "permeate every corner of the planet—even in our bodies", and the coming year brings critical talks on a global plastics treaty. This year's theme is a wake-up call: we must act, not just muse.

What is World Environment Day?

Environment Day (officially World Environment Day) is a United Nations–backed global observance held every June 5th. It's not just another holiday – it's the biggest international day for the environment, supported by governments, NGOs, and people everywhere. On this day, the world comes together to raise awareness about nature's issues and encourage action.

For example, WED provides a theme each year (like ending plastic pollution in 2025) and invites schools, companies, and cities to plan events. It's a platform for public outreach – think rallies, beach clean-ups, eco-fairs, and viral social media campaigns – all aimed at protecting our world. By keeping Environment Day alive in our thoughts and plans, we help keep environmental issues alive on the global agenda.

When We Celebrate Environment Day : We celebrate Environment Day on June 5th each year, marking the anniversary of its 1973 launch. The date is set by the UN, so it doesn't change – it's always the fifth day of June. That means our 2025 calendar has this important date circled.

Every year on this day, millions of people around the world pause to reflect on the planet and what we can do. (Incidentally, in 2025, June 5th falls on a Thursday!) Since 1973, it's been a fixed date, as constant as any birthday, making it easy to plan yearly activities: schools teach lessons, offices organize pledges, and families talk about reducing waste. The point is clear: June 5th is the day we all think global and act green.

When was the First World Environment Day Celebrated?

The idea of a Global Environment Day began in the early 1970s. In fact, **June 5, 1973**, marked the first World Environment Day celebration. (The date honors the United Nations' landmark 1972 Stockholm Conference on the Human Environment.)

Think of it as a birthday for our environmental

awareness: on that day in 1973, nations around the globe lit the torch of conservation together. Since then, every June 5th has become an annual reminder of our planet's needs.

Why is World Environment Day Celebrated?

World Environment Day is celebrated because our world has one earth, and it's up to all of us to protect it. This "World" day is about global solidarity against threats to our planet. Each year a host country (for 2025, it's the **Republic of Korea**) takes the lead, giving focus to issues that affect everyone.

Since the first celebration, WED has been a platform for exposing big problems – from marine plastic pollution and climate change to overpopulation and loss of biodiversity – and rallying people to solve them. It's a day to remember that our forests, rivers, and oceans are interlinked; pollution knows no borders.

By dedicating a day to the environment, the UN encourages politicians, businesses, and individuals to walk the talk on green policies. In 2025, that means everyone will be talking about how to beat plastic pollution – and turning those words into deeds.

Why Do We Carve Out a Day for the Environment?

Simply stated, it's a global wake-up call. **World Environment Day 2025** encourages awareness and action for protecting nature. It's the UN's way of gathering millions of voices for one cause.

As the UN notes, WED is "the biggest day for positive environmental action" – a chance for each of us to step up and become an agent of change. On this day, people organize clean-ups, plant trees, and launch campaigns to tackle issues from deforestation to wildlife crime. In short, we celebrate Environment Day to remind ourselves that every action counts. It unites communities worldwide (over 143 countries participate each year) under one simple truth: our well-being depends on a healthy planet.

Importance of Environment Day : Environment Day matters now more than ever. It serves as a powerful reminder of both problems and solutions. Key reasons it's so important include:

Global awareness and focus : Each year, WED brings the spotlight onto an urgent issue. In 2025, that issue is plastic pollution. Consider this hard fact: every day, the equivalent of 2,000 garbage trucks of plastic waste are dumped into our lakes, rivers, and oceans.

Each year, 19–23 million tonnes of plastic leak into aquatic ecosystems. By highlighting such statistics on Environment Day, people wake up to the scale of the crisis. Awareness is the first step toward change.

Inspiring real action : Environment Day isn't just for thoughts; it's a springboard for deeds. After awareness comes action – recycling more, refusing single-use plastics, planting trees, or supporting eco-projects. For 2025 in particular, the hope is to inspire citizens and leaders to embrace the UN's **#BeatPlasticPollution** call.

(In fact, countries will meet that summer to negotiate a global plastics treaty.) Every small change counts – switching to a metal water bottle or joining a clean-up. WED reminds us that thoughts plus action can move mountains.

Empowering communities : From schools to workplaces to villages, WED rallies communities together. When neighbors join hands to clean a park or a company switches to eco-packaging, it shows the power of collective effort. The Day highlights heroes – from conservationists to everyday citizens – and spreads success stories that can be emulated elsewhere.

It's an occasion for everyone to speak up: write a blog post, draw a poster, launch a local campaign. This communal energy can lead to lasting environmental initiatives long after June 5th has passed.

Education and inspiration : Each Environment Day theme comes with educational material. People learn how their choices affect nature. For example, 2025 materials stress that by 2025 the world will consume an estimated 516 million tonnes of plastics – a mind-boggling amount.

Schoolchildren might learn about microplastics, or adults might watch a documentary prompted by WED campaigns. This learning fosters new ideas ("Why not ban those plastic bags?") and a deeper respect for the planet.

Connecting to life on Earth : Perhaps most important is the emotional reminder: we have only one Earth and we share it with billions of other lives. On **World Environment Day 2025**, people are asked to imagine the world 50 years from now. Will our children see oceans filled with life, or tangled in plastic?

These thoughts — **Environment Day thoughts** — can stir our hearts. They remind us that protecting nature isn't just a scientific necessity but a moral duty.

Source: www.pashoopakshee.com

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THE FUTURE IS GREEN: INDIA'S SUPPLY CHAIN TRENDS EMBRACING SUSTAINABILITY

NANCY JOHRI

India's supply chains are experiencing a paradigm shift driven by a mix of corporate accountability, government initiatives, and changing consumer preferences. This transformation is critical as the country aims to balance its rapid economic growth with environmental sustainability.

Economic and Environmental Context : India's Gross Domestic Product (GDP) grew at 7.2% in 2022-2023, one of the highest among large economies. However, this growth comes at an environmental cost. According to the Centre for Science and Environment's (CSE) State of India's Environment Report 2022, India is the third-largest emitter of greenhouse gases globally, with the supply chain sector accounting for a significant share of carbon emissions. Transitioning to sustainable supply chains can play a crucial role in reducing these emissions.

Corporate Commitment to Sustainability : Several Indian businesses are leading the way in green supply chain practices:

- ITC Limited: ITC's commitment to a low-carbon economy is evident in its "Well-being Out of Waste" initiative, which processes over 20,000 tons of post-consumer waste annually.

- **Mahindra Group**: It aims to become carbon neutral by 2040 and has already implemented measures like solar-powered warehouses and optimized logistics to cut fuel consumption.

- **Tata Steel**: The company has integrated circular economy principles by utilizing industrial by-products in manufacturing, reducing waste, and minimizing environmental impacts.

The CII (Confederation of Indian Industry) GreenCo Rating System has incentivized over 500 companies to adopt eco-friendly practices, demonstrating industry-wide enthusiasm for green innovations.

Consumer Preferences Driving Change : According to a report by NielsenIQ (2023), 77% of Indian consumers prefer buying from companies that are environmentally conscious. This growing demand compels businesses to incorporate sustainable practices in their supply chain to remain competitive. Eco-packaging, transparent sourcing, and reduced emissions in product transportation have become non-negotiable aspects for customer-centric companies.

Policy and Regulation : India's policy framework actively supports sustainable supply chain practices. Key initiatives include:

- Faster Adoption and Manufacturing of Electric Vehicles (FAME) II: Promoting the use of EVs for supply chain logistics to lower carbon footprints.

- **Extended Producer Responsibility (EPR) Rules**: These ensure companies account for the end-of-life disposal of products, reducing landfill waste.

- **National Logistics Policy (2022)**: This aims to achieve a carbon-efficient logistics sector while reducing costs from the current 13-14% of GDP to 8%.

Statistics on Current Trends

- The renewable energy share in India's energy mix is growing, with solar power accounting for 21% of total renewables in 2023.

- Logistics accounts for about 10% of India's carbon emissions. Shifting to EVs for last-mile delivery has the potential to reduce this by 15-20% by 2030 (World Bank).

- By 2025, India is expected to see a 200% increase in green warehousing demand due to automation and eco-friendly practices (JLL).

Global Collaborations : India's participation in international initiatives amplifies its efforts. Through partnerships such as the Coalition for Disaster Resilient Infrastructure (CDRI) and commitments under the Paris Agreement, India aligns itself with global sustainable development goals. A standout initiative is the partnership with the EU under the "India-EU Clean Energy and Climate Partnership," focusing on reducing supply chain emissions in key industries like steel and cement.

Technology and Sustainability : Digital tools and technologies like blockchain, artificial intelligence (AI), and the Internet of Things (IoT) are becoming essential for tracking sustainability metrics in supply chains:

- **Blockchain**: Ensures transparent tracking of ethically sourced materials.
- **AI**: Predicts energy and fuel consumption patterns, helping reduce wastage.
- **IoT**: Monitors environmental impacts in real-time, such as temperature and emission levels.

A report by Gartner predicts that by 2026, 75% of large global organizations, including Indian firms, will use digital technology to transition to more sustainable supply chains.

The Future Outlook

India's move towards sustainable supply chains is not just a trend but an urgent need. The Global Supply Chain Report 2023 by CDP revealed that if supply chain emissions were mitigated by just 20% worldwide, it could save companies up to $120 billion annually in operational costs. This resonates strongly with the country's ambitions to position itself as a global supply chain hub while adhering to eco-friendly standards.

Source: thecsruniverse.com

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KOLKATA BRANCH

Industries Visit DMLM Students on 26th April, 2025 At: Eveready Industries India Ltd : IIMM, Kolkata branch , organised an industry visit of its students of DMLM on 26th of April 2025 at the Kolkata plant of Eveready Industries India ltd , one of reputed brand and leader in dry cell battery and flashlight market in India. 22 students along with its faculty Mr Indranil Roy and administrative officer Mr Sudip Sengupta visited the organisation's manufacturing plant. Students were taken around the shop of the battery manufacturing process along with its warehouses . Students got an insight of the process flow along with its procurement process and stores operations. This will be of tremendous help for the students of supply chain, as they could relate their classroom learning with what is practiced in reality. Mr Indranil Roy also made of brief presentation to Eveready management on behalf of IIMM , Kolkata branch ,of its educational and other activities .The arrangement made by Eveready management was meticulous and the hospitality provided to IIMM visitors was amazing. Excellent feedback was received from all the participants on the visit.

Kolkata Branch of **Indian Institute of Materials Management (IIMM)** has observed its most auspicious day celebration of 23rd April, which is known as **'Materials Management Day' (MM Day) on 23rd April, 2025** at the Institute Hall. Theme of this year MM Day celebration was **"SUCCESS THROUGH SUSTAINABEL SUPPLY CHAIN MANAGEMENT"**

Mr. Prasun Ganguly, Chairman, Membership and PR Committee conducted the program in a very graceful manner. It was attended by dignitaries, members, many past and present students. It was a full house.

The program was graced by the presence of Chief Guest Mr. Lalitendu Mahanty, Facility Head, All Cargo Terminal Limited and Guest of Honour Mr. B. G. Sengupta past chairman and NC Member of IIMM Kolkata Branch.

In absence of Branch Chairman, Vice Chairman, Mr. Kaushik Mukherjee delivered the welcome speech. Chief Guest Mr. Lalitendu Mohanty while addressing the gathering highlighted the role of Sustainable Supply Chain Management. Guest of Honour Mr. B G. Sengupta delivered his speech mainly by informing the role of IIMM and how the membership engagement can be improved.

We were really happy that few of our ex-students have participated in this occasion as speakers. The program concluded by one more event to mark the occasion as 'SUPPLY CHAIN MANAGEMENT QUIZ". Mr. Rajeev Kumar, the senior member, conducted the show as quiz master. He was assisted by Mr. Siddhartha Biswas. The vote of thanks was given by Mr. Sanjay Gupta. Guests and participants attended the high tea ceremony.

VADODARA BRANCH

IIMM Vadodara Branch Celebrated MM Day with Theme "Success Through Sustainable Supply Chain Management" at Hotel Tara Suns on 23rd April 2025 from 6.00 pm to 8.30 pm. Shri Ajaykumar Gupta, Executive Director & Chief Manufacturing Officer, Aarti Industries was the invited Chief Guest.

During the MM Day celebration, Text Book on Logistics Management, which is Paper IV of One Year PDSM Course, upgraded by Shri L.L. Notani was launched. Also, Shri L.L. Notani was felicitated in recognition of his valuable services in the field of Materials Management.

Cash Awards in the name of Late Shri H.M. Bhatt was given to the first and second rank holders of PGDMM (Post Graduate Diploma in Materials Management) by Chief Guest Shri Ajaykumar Gupta. 1st Ranker Ms. Pranita Saha – 76.75% (Cheque of Rs.6,500) & 2nd Ranker – Ms. Antima Gupta – 74.55% (Cheque of Rs.5,500/-) were awarded. Both the students have given their exams from Vadodara Centre. Felicitated New Life Members.

Special Achievement Awards were given to the persons who have proved their talent in the areas of Sports, Entrepreneurship, Education & Social Work.

This year, as a part of celebration of MM Week, IIMM Vadodara Branch initiated an online quiz competition for the members through Google Form in order to increase the involvement of all Members in MM activities. The Winner and Runner up were felicitated with Gift Vouchers. The Programme was followed by a delicious dinner.

IIMM Vadodara Branch organized an **Evening Talk on "Health-Wellness Talks" - "Perennial War: Spine vs Ergonomics" & Life Style Diseases** – Blood Pressure, Diabetes Mellitus & Heart Diseases" on 17th May, 2025 at IIMM Class Room.""Dr. Kiran Jayswal, Endoscopic Spine Surgeon has very nicely explained about endoscopic spine surgery & its procedures, endoscopic surgery vs open surgery, its success rate, post-surgery care, recovery period, etc.""Dr. Abhishek Kahar, General Physicians & Critical Care Specialists talked about Life Style Diseases. In his speech, he emphasised more on dietary part (prioritize fruits, vegetables, whole grains, and lean proteins, while minimizing sugar, salt, and unhealthy fats), eating habits, regular physical activity, quitting smoking and managing stress to keep away the life style diseases. ""Around 30 members have attended the Evening Talk.

NALCONAGAR BRANCH

"Materials Management (MM) Day" Celebration : Indian Institute of Materials Management (IIMM), Nalconagar Branch/ Bhubaneswar Chapter celebrated " Materials Management (MM) Day" on 4th May 25 at Hotel " New Marrion", Bhubaneswar.

A Seminar was organised on the Theme: " Success through Sustainable Supply chain Management". The programme started at 9.30 and was inaugurated with lighting of auspicious lamp by the Chief Guest,Mr Sadashiv Samantaray, Director (Commercial), NALCO accompanied with other distinguished guests, dignitaries and office bearers of the branch followed by National Anthem.

The ceremonious event was overwhelmingly participated by members, large Institutional members, working professional Members from Nalco, PPA,IOCL,OMC, OPGC, OHPC, OPTCL, OSMC, IFFCO, PPL, Rungta Mines, BRPL, BAL, Tata Steel, AMNS, IMFA, VISA Steel, XIMB, BCCM, Nova Ltd, OMFED & East Coast Railway etc.

Dr(Er) Dibakar Swain, Chairman of the branch placed the profile of the branch in brief and its major activities.Dr Swain then also welcomed the Chief Guest, Distinguished speakers, Dignitaries, Members, large Institutional members and the august learned audience.

Mr S. Samantaray, Chief Guest and, Director (Commercial),Nalco addressed the professional gathering with emphasis on the importance of sustainability of supply chain management in the perspective of success of industry and business from his long journey of experience in one of the largest public sector of the country. He also briefed about the Golden Jubilee celebration of IIMM and encouraged to accelerate the growth of this profession.

Prof. Ramakrishna Padhy, Indian Institute of Management (IIM), Sambalpur, our distinguished learned speaker outlined the very important features of sustainable supply chain management with live illustrations. It was very educative with learning inputs.

Prof. Pritish Kumar Sahu,Professor(Economics), International Management Institute (IMI), Bhubaneswar, our other eminent learned Distinguished Speaker spoke about trade, commerce and tariff in national and global context starting from history of economic scenario with reference to tariff till the present situation.Prof. Sahu well presented his thoughts, analysis and research before the galaxy of captains in commercial domain.

Following presentations,an interactive session and deliberations with the elite audience by the learned speakers brought more insight and clarity on the subjects.

Dr S.K.Tamotia,former CMD, Nalco and distinguished member of IIMM encouraged all with his august presence in the event. Mementos were presented to the chief guest and the distinguished speakers as a token of professional bondage. Mr S.N. Baghar, Secretary of the branch proposed vote of thanks.

Sri Baghar appreciated the participation in large numbers from all across the state and expected this in days ahead.The programme was concluded with lunch co- sponsored by NALCO. Soon after the Lunch, meeting of the Executive Committee of the branch was held at the same venue.

CHANDIGARH BRANCH

We are thankful to all members of Chandigarh Branch for their whole heartedly support and participation in the celebration of an important event at Hotel K C cross roads Sec 10 Panchkula. This platform provided opportunity to meet and share old memories of the Last five decades. More than hundred members participated in celebration.

Mr N.K.Sharma Former Chief Parliamentary Secretary Government of Punjab was the chief guest and he recalled his association with IIMM for the last 14 years ànd appreciated the vital role of IIMM in Industry and growth of Nation. Mr Jas Karan Sahni Executive Director Windsor Industries Guest of Honour expressed his gratitude for launching Lean Green ànd Zero Defect Certification program which helped MSME to improve productivity and eliminate wastages. Four Former Presidents V.k.Jain, s.k.sharma , Dr Suresh Kumar Sharma, O.P.Longia and Mr L.R.Meena, National President IIMM shared their experiences ànd narrated some interesting events of last fifty years.

Other social and business dignitaries have also graced the occasion. Mr Rajesh Gupta recalled the history of Chandigarh Branch ànd S.K.Sharma FNP highlighted important milestones at national and international level. Mr T.K. Magazine founder member of Vizag and Chandigarh branch and Distinguish member was Master of ceremony. On this occasion under CSR, renowned social worker Mr Bharat Hiteshi was honoured with a prestigious award for Social Service for his yeoman services to the society.

KANPUR BRANCH

GOLDEN JUBILEE IIMM DAY CLEBRATAION BY KANPUR BRANCH : Indian Institute of Materials Management Kanpur Branch had conducted branch executive meeting on 13th april 2025 at Hotel Jasn Kanpur to discuss the various activities of Kanpur branch in year 2025.Indian Institute of Materials Management is celebrating

Golden Jubilee year in 2025 . All the branches are celebrating this event on his own way. .Kanpur branch also celebrated this event on 13th April'2025 in the presence on branch executive committee and other members .Eminent personalities were also invited on this occasion . Mr G K Agnihotri NC Kanpur branch and Vice President (North) has also grace this occasion.

Mr G K Agnihotri Ji V P north has deliberated about the various on-going activities at NHQ level to the all the present members and every one was benefitted.

The discussion and deliberation has also been made by Mr Sampurnanand Sharma Dy General Manager (IMM) HAL Kanpur on the theme "**Success through sustainable supply chain management in particular to PSU** " among the Senior Integrated Materials Management officials of Hindustan Aeronautics Limited Kanpur with all present members and deliberation was very fruitful.

In addition to above Mr R K Dixit pollution consultant has made detailed presentation on the subject' **Requirement of Environmental awareness and water conservation being maintained in all the Industries**" to all the present members. His talk on the subject was very much was appreciated .

The IIMM day celebration were concluded by Vote of Thanks by Dr P K Mehrotra followed by Dinner.

CHENNAI BRANCH

IIMM Chennai - SCM Quiz: A Celebration of Supply Chain Excellence : Date: April 6, 2025
Venue: IIMM Chennai - Hariharal Hall, India
Event: Materials Management Day Celebrations

The yearly **Supply Chain Management (SCM) Quiz**, organized by the Indian Institute of Materials Management (IIMM), Chennai, was held on **April 6, 2025**, as part of the **Materials Management Day Celebrations**. The event, which brought together corporate professionals from the SCM industry, served as a platform to celebrate knowledge, expertise, and innovation in the field of materials management.

The quiz saw participation from six teams, each comprising **corporate SCM professionals** from various industries. These professionals, with years of experience and expertise, showcased their knowledge and skills across a broad range of **supply chain management (SCM)** topics, making for a thrilling and highly competitive event.

The event was skillfully conducted by **Mr. T K Padmanabhan**, a renowned and distinguished Quiz Master with nearly **four decades of quizzing experience**. Mr. Padmanabhan's background in **engineering** and his extensive experience in **Supply Chain Management (SCM)** across various industries made him an ideal host for this prestigious event. Over the years, he has conducted quiz programs on platforms such as **All India Radio (AIR)**, **Doordarshan**, private television channels, **business schools**, and **corporate events**. His vast experience and engaging style ensured the quiz was both educational and entertaining, leaving participants and spectators equally captivated. Notably, Mr. Padmanabhan is also a proud **member of IIMM Chennai**, and his involvement in the event added immense value to the proceedings.

Engaging Quiz Content: A Test of SCM Knowledge

The quiz covered an extensive range of topics crucial to modern supply chain management. The questions were carefully curated to test participants' depth of knowledge in key areas, including **Inventory Management, Logistics Management, Incoterms**, **Lean Manufacturing Tools, etc.**

These topics not only emphasized the technical and operational aspects of SCM but also highlighted the strategic importance of supply chains in today's global economy. The questions were designed to challenge the participants and stimulate deep thinking, ensuring that the quiz was a true reflection of the expertise required in the supply chain profession.

The competition among the participating teams was intense, with each team displaying exceptional proficiency in SCM concepts. The participants were tested on their ability to recall facts, apply problem-solving techniques, and demonstrate strategic thinking in a variety of supply chain scenarios.

In the end, it was the team from **Carborundum Universal Limited** that triumphed. The winning duo, **Mr. Anandaraji M** and **Mr. Mohanbabu V**, stood out with their remarkable knowledge and skill in the field of SCM, earning the coveted title of quiz champions.

The **runner-up** position was claimed by the team from **Wheels India Pvt Ltd**, consisting of **Mr. Vignesh A** and **Mr. Krishnakumar N**. Their excellent performance throughout the competition earned them well-deserved recognition and the runner-up trophy.

The winners and runners-up were honored during a **Prize Distribution Ceremony**, which took place on **April 23, 2025**, at the **Madras Management Association Hall** in Chennai. The ceremony, held as part of the **Materials Management Day function**, was an occasion to celebrate the outstanding achievements of the SCM professionals who participated in the quiz.

The **IIMM Chennai SCM Quiz** not only recognized the winners but also underscored the importance of continuous learning, skill enhancement, and the pursuit of excellence in the field of supply chain management. The event reinforced the critical role of SCM professionals in ensuring the smooth flow of goods and services across industries, especially in an increasingly complex global supply chain environment.

A Platform for Professional Growth and Networking

The IIMM Chennai SCM Quiz served as an invaluable opportunity for corporate SCM professionals to demonstrate their expertise, while also learning from their peers. The quiz fostered healthy competition, encouraged the sharing of knowledge, and helped enhance participants' understanding of vital SCM concepts.

Moreover, the event provided a unique networking opportunity for professionals from various sectors of the supply chain industry to interact and exchange ideas, strategies, and best practices. It was clear that the quiz was not only a competition but also a celebration of the importance of **continuous development and innovation** in the field of supply chain management.

The successful conclusion of the SCM Quiz was a testament to the importance of events like this in the development of SCM professionals. By encouraging participants to stay up-to-date with industry trends and sharpening their expertise, IIMM Chennai continues to make a meaningful contribution to the growth of the supply chain community.

As the event came to a close, the message was clear: **continuous learning** is the key to success in the ever-evolving field of supply chain management. The IIMM Chennai SCM Quiz stands as a symbol of this commitment to excellence and serves as a reminder of the immense value that knowledgeable and skilled professionals bring to the supply chain industry.

Event Report: Spectrum 2025 – Driving Sustainable Supply Chain: The Road to Green SCM

Spectrum 2025, the 17th edition of the Indian Institute of Materials Management (IIMM) Chennai's annual flagship conference, was held to mark a significant milestone—**60 years of excellence** by IIMM Chennai in the field of materials management and logistics education. Themed **"Driving Sustainable Supply Chain – The Road to Green SCM,"** the event served as a convergence of thought leaders, industry practitioners, academics, and policymakers to discuss the pressing need for greener and more resilient supply chain systems.

The day commenced with a **soulful invocation** by Ms. Divya, creating a serene and respectful atmosphere. In recognition of her performance, she was honored by Mr. K. Nagappan, Chairman of IIMM Chennai. This was followed by the **lighting of the traditional Kuthuvilakku**, symbolizing knowledge and enlightenment, performed by a distinguished group of dignitaries: Mr. P M Biddappa (Senior Vice President, IIMM), Mr. R. S. Rastogi (National Secretary & Treasurer), IIMM), Mr. K. Nagappan (Chairman, IIMM Chennai), Mr. T. Sornakumar (Chairman, Spectrum 2025), and Mr. R. Balakrishnan (Chairman, Content Committee – Spectrum 2025).

The **Welcome Address** was delivered by Mr. K. Nagappan, who extended his gratitude to the attendees and underscored the importance of collaboration and continuous learning in addressing global sustainability challenges. Mr. T. Sornakumar then traced the journey of the Spectrum conference, emphasizing how it has grown in stature and relevance since its inception in 2008. He highlighted how each edition is carefully curated to align with evolving industry needs and global developments in supply chain management.

Mr. R. Balakrishnan elaborated on the significance of this year's theme, stressing the urgent need for organizations to embrace environmentally and socially responsible supply chains. He outlined how the day's sessions would focus on practical innovations and case studies that could drive operational excellence while reducing environmental impact. To further contextualize the theme, a **short video presentation** was screened, showcasing the critical role of sustainable supply chains in responsible business practices and environmental stewardship.

In his **Presidential Address**, Mr. Biddappa provided a broader perspective on the institute's contributions at the national level, particularly through professional development programs, certifications, and the creation of a knowledge-sharing ecosystem that promotes sustainable logistics and supply chain practices.

The **Chief Guest**, Dr. Karunamoorthy Neethimani, Managing Director of Windplus Group, delivered an insightful keynote address. He began by outlining India's evolving logistics framework under the **National Logistics Policy (NLP)**, aimed at reducing logistics costs and improving infrastructure efficiency. He discussed the impact of key government initiatives such as **PM Gati Shakti**, designed to build multimodal infrastructure, and **PLI schemes**, which aim to boost domestic manufacturing and supply chain resilience. He also touched upon the strategic importance of **Dedicated Freight Corridors (DFC)** and the **Unified Logistics Interface Platform (ULIP)** as transformative digital enablers. Dr. Neethimani concluded his keynote by emphasizing the critical need for **green logistics**, including route optimization, fleet electrification, and support for logistics startups driving sustainable innovation.

Following this, Ms. Anju Mary K., Director of Danfoss India Region, delivered a keynote titled **"Why Generative AI is Essential for the Future of Supply Chain Management."** She highlighted the powerful role of AI in optimizing demand forecasting, inventory management, and logistics planning. She introduced the audience to the concept of **digital twins**, AI-powered scenario simulations, and risk analysis tools that help businesses prepare for supply chain disruptions. Ms. Anju also underscored the value of conversational AI and intelligent dashboards that augment human decision-making, making supply chains more agile, responsive, and predictive.

To recognize the contributions of key individuals, **mementos** were presented to the Chief Guest, the keynote speaker, and the members of IIMM's National Executive Committee. One of the day's most memorable moments was the **unveiling of IIMM Chennai's 60th Year Commemorative Logo and Souvenir**, marking six decades of pioneering work in supply chain education and practice.

The **morning session** concluded with a **Vote of Thanks** delivered by Mr. N. Swayambhu, former Chairman of IIMM Chennai and former Vice President (South), followed by a group photograph and a networking tea break that allowed attendees to connect and reflect on the morning's insights.

The **afternoon session** featured a series of **technical and panel discussions**, each designed to explore a specific dimension of sustainable supply chain management.

In **Session 1**, Mr. Ganesh Kumar Elangovan, Founder and Director of SupplyVantage Solutions, provided a comprehensive analysis of **global disruptions and policy**

shifts affecting supply chains. He discussed the implications of geopolitical developments such as the US-China trade war and Brexit and presented strategic responses like dual sourcing, automation, and digital traceability.

Session 2, chaired by Mr. P. Y. Venkateswaran and featuring speaker Mr. P. S. Suresh, focused on **sustainability in e-commerce and quick commerce (Q-commerce)**. The session began with an engaging icebreaker by Mr. Karthik Dore and emphasized the rising consumer demand for ethical practices, eco-friendly packaging, and responsible sourcing in the online retail sector.

Session 3 was a **panel discussion on sectoral sustainability**, moderated by Mr. P. Rajenthiran, Chief Assets Officer at Everrenew Energy. Mr. Thanu T. S. discussed sustainable manufacturing practices including waste minimization and lean production. Mr. K. Nagappan addressed eco-friendly strategies in the medical supply chain, particularly the safe handling of pharmaceuticals and medical waste. Ms. Divya Kalyanakrishnan shared insights on digital transformation in the services sector, emphasizing energy efficiency and remote work solutions.

In **Session 4**, chaired by Dr. B. Ramesh, Mr. Kannan Kumaraswamy, Head of Global Product Development at TVS Supply Chain Solutions, spoke about **innovations in green logistics**, including the integration of electric vehicles, collaborative delivery networks, and multimodal transport systems.

The final session, **Session 5**, featured Mr. R. Ravindran, Vice President at Bridge Green Upcycle, who delivered a compelling talk on **circular economy and sustainable value chains**. He illustrated how businesses can convert waste into valuable resources and build closed-loop systems that extend product life cycles and minimize environmental impact.

The conference concluded with a **feedback session**, during which participants praised the event's organization, content quality, speaker expertise, and relevance to current global supply chain trends. The **final Vote of Thanks** was delivered by Mr. J. Ravishankar, former Chairman of IIMM Chennai, who expressed sincere appreciation to the organizing committee, volunteers, speakers, sponsors, and attendees for making the event a resounding success.

Spectrum 2025 reinforced IIMM Chennai's enduring commitment to leadership, innovation, and sustainability in the field of supply chain management. The event provided not only a platform for knowledge exchange but also a blueprint for action, driving home the message that the future of supply chains must be **green, digital, inclusive, and resilient**. With strong participation, cutting-edge discussions, and a clear focus on both environmental and operational excellence, Spectrum 2025 proved to be a landmark event in the institute's rich history.

AJMER BRANCH

National President of the Indian Institute of Materials Management (IIMM), Lalit Raj Meena, inaugurates the Ajmer Branch."Representatives from various industries, including Hindustan Zinc Ltd., Shree Cement, and RSWM, were present.""Singawal – 18/05/2025"The Ajmer branch of the Indian Institute of Materials Management (IIMM) was inaugurated by National President Lalit Raj Meena at the Regional Driving Training Center, located at Singawal Chauraha (crossroad)."Ritu Chauhan, Director of the "Regional Driving Training Center," welcomed all guests, including Chief Guest Lalit Raj Meena, at the inauguration ceremony.""Meena shared that the institute has 10,000 members and 53 (Ajmer is 54th branch) branches across India. Its main objective is to promote competitiveness and cost-effective Supply Chain in Indian industries to boost the export of Indian goods. Government-recognized courses of IIMM will now also be offered at the Ajmer branch. These courses aim to train manpower locally, contributing to skill development and helping industries get trained personnel.

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He also elaborated on how industries can reduce supply costs. In the presence of the National President, the Ajmer branch members unanimously appointed: Ritu Chauhan as Branch Chairperson Alok Khatri as Hon. Secretary Suryapal Singh as Hon. Treasurer Vikram Singh and Vinesh Jain as Executive Members Dr. Bhawani Singh was nominated as the Branch Representative to the National Council. Post inauguration, various logistics-related courses will be introduced, including Industrial Supply Chain Management. Notable attendees included: Devendra Kumar, Logistics Head, Hindustan Zinc Ltd., Agucha Nikan Kumar, Associate Manager Vikas Singhal, Unit Head, Shree Cement Ltd., Beawar Anand Sharma, Logistics Head Sanjay Tiwari, Unit Head, RSWM R.C. Dugad, Senior General Manager V.P. Singh, President, Ajmer Industrial Association Rajeev Toshniwal, CEO, Toshniwal Industries Rahul Dev Singh, General Manager, District Industries Centre of Bhilwara & Chittorgarh Dr. Ganpat Singh, HOD Civil, Government Engineering College, Ajmer Alok Khatri, HOD Mechanical Vinesh Jain, HOD Electronics Kuldeep Mathur from IT Industries Dr. Bhawani Singh Rathore, Deputy GM, JSW Energy Rosie Barolia, Rajasthan's first transgender passport holder and Founder of Nayi Soch Nayi Shakti Foundation Entrepreneur Surendra Pipada Dr. Naval Singh Jain from Pragya Jain Samiti"

The Regional Driving Training Center team Several journalists and distinguished industrialists. All guests addressed the gathering and pledged to support the growth of the Institute. Mementos and helmets were presented to the guests. Vikram Singh Rathore, Project Coordinator of RDTC, extended a vote of thanks to all dignitaries.

UDAIPUR BRANCH

Materials Management Day celebration was organized by Indian Institute of Material Management, Udaipur Branch at Hotel Regenta Central, Udaipur on 28th April, 2025"The theme of this year's Materials Management Day celebration is "Sustainability in Supply Chain Management". ""To celebrate the Materials Management Day this year, the Udaipur branch of IIMM decided to add to the celebration with a fervor. One knowledge sharing session was planned on "Contracts in Material Management: Strategic Control in Complex Supply Chains" by an external subject expert CA Saurabh Jain. It was an interactive session of sharing and exchanging insightful wisdom in the ambit of drafting meaningful "Contracts" in the course of trade and business transactions. Not that we don't know about it, but the nuances were enlightening and enriching. The whole event was organized by the Chairman, Shri Anil Mishra, Secretary Shri P.P. Bhattacharya, National Councilor Mrs. Priya Mogra along with Executive Committee of Udaipur branch of IIMM.

ALWAR BRANCH

Indian Institute of Materials Management Alwar Branch celebrated its Foundation day and Golden Jubilee celebrations of IIMM at Hotel Moti Dungri Palace, Moti Dungri Alwar. Panel discussion was organised on the Golden Jubilee celebrations theme. " Success through sustainable Supply Chain Management" "Representatives from CSIR, Eicher, Arawali Group,Pharma , Metso Rajesh Pharma and JIT processor attended the program."All Former Chairman's of the Branch were presented memontos. Mr. Lalit Raj Meena Founder Chairman and National President IIMM was the chief Guest "Vote of thanks was given by Mr. Chandan Kathuria. Meeting was followed by dinner

Celebrations of IIMM Alwar foundation day , Materials Management Day and Golden Jubilee celebrations of IIMM at. Hotel Moti Dungri Palace "Alwar on 30th April 2025.

Indian Institute of Materials Management

MISSION

- To promote professional excellence in Materials Management towards National Prosperity through sustainable development.

OBJECTIVE

- To secure a wider recognition of and promote the importance of efficient materials management in commercial and industrial undertakings.
- To safe guard and elevate the professional status of individuals engaged in materials management faculty.
- To constantly impart advanced professional knowledge and thus improve the skill of the person engaged in the materials management function.
- Propagate and promote among the members strict adherence to IIMM code and ethics.

CODE OF ETHICS

- To consider first the total interest of one's organisation in all transactions without impairing the dignity and responsibility of one's office :
- To buy without prejudice, seeking to obtain the maximum ultimate value for each rupee of expenditure.
- To subscribe and work for honesty and truth in buying and selling; to denounce all forms and manifestations of commercial bribery and to eschew anti-social practices.
- To accord a prompt and courteous reception so far as conditions will permit, to all who call up on legitimate business mission.
- To respect one's obligations and those of one's organisation consistent with good business practices.

EXECUTIVE HEALTH

HEALTHY LIVING AND DISEASE PREVENTION

Medical Author: Charles Patrick Davis, MD, PhD
Medical Editor: Melissa Conrad Stöppler, MD

What is healthy living?

Healthy living involves more than physical health, it also includes mental and emotional health.

"Healthy living" to most people means both physical and mental health are in balance or functioning well together. In many instances, physical and mental health are closely linked, so that a change (good or bad) in one directly affects the other. Consequently, some of the tips will include suggestions for emotional and mental "healthy living."

This article is designed to give tips to readers about how they can improve or augment actions in their life to have a healthy lifestyle; it is not meant to be all inclusive but will include major components that are considered to be parts of a lifestyle that lead to good health. In addition to the tips about what people should do for healthy living, the article will mention some of the tips about avoiding actions (the don'ts) that lead to unhealthy living.

Healthy eating (diet and nutrition) : All humans have to eat food for growth and maintenance of a healthy body, but we humans have different nutrition requirements as infants, children (kids), teenagers, young adults, adults, and seniors. For example, infants may require feeding every 4 hours until they gradually age and begin to take in more solid foods. Eventually they develop into the more normal pattern of eating three times per day as young kids. However, as most parents know, kids, teenagers, and young adults often snack between meals. Snacking is often not limited to these age groups because adults and seniors often do the same.

Tips for everyday healthy eating:

- Eat three healthy meals a day (breakfast, lunch, and dinner); it is important to remember that dinner does not have to be the largest meal.
- The bulk of food consumption should consist of healthy foods, such as fruits, vegetables, whole grains, and fat-free or low-fat milk products.
- Incorporate lean meats, poultry, fish, beans, eggs, and nuts (with emphasis on beans and nuts) into a healthy diet.
- Choose foods that are low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars; look at the labels because the first listed items on the labels comprise the highest concentrations of ingredients.
- Control portion sizes; eat the smallest portion that can satisfy hunger and then stop eating.
- Healthy snacks are OK in moderation and should consist of items like fruit, whole grains, or nuts to satisfy hunger and not cause excessive weight gain.
- Avoid sodas and sugar-enhanced drinks because of the excessive calories in the sodas and sugar drinks; diet drinks may not be a good choice as they make some people hungrier and increase food consumption.
- Avoid eating a large meal before sleeping to decrease gastroesophageal reflux and weight gain.
- If a person is angry or depressed, eating will not solve these situations and may make the underlying problems worse.
- Avoid rewarding children with sugary snacks; such a pattern may become a lifelong habit for people.
- Avoid heavy meals in the summer months, especially during hot days.
- A vegetarian lifestyle has been promoted for a healthy lifestyle and weight loss; vegetarians should check with their physicians to be sure they are getting enough vitamins, minerals, and iron in their diet.
- Cooking foods (above 165 F) destroys most harmful bacteria and other pathogens; if you choose to eat uncooked foods like fruits or vegetables, they should be thoroughly washed with running treated (safe to drink) tap water right before eating.
- Avoid eating raw or undercooked meats of any type.

Tips for special situations:

- People with diabetes should use the above tips and monitor their glucose levels as directed; try to keep the daily blood glucose levels as close to normal as possible.
- People with unusual work schedules (night shifts, college students, military) should try to adhere to a breakfast, lunch, and dinner routine with minimal snacking.
- People who prepare food should avoid using grease or frying foods in grease.
- People trying to lose weight (body fat) should avoid all fatty and sugary foods and eat mainly vegetables, fruits, and nuts and markedly reduce his/her intake of meat and dairy products.
- Seek medical advice early if you cannot control your weight, food intake, or if you have diabetes and cannot control your blood glucose levels

Source: www.medicinenet.com

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IIMM **Research Centre**

CENTRE FOR RESEARCH IN MATERIALS MANAGEMENT (CRIMM)

IIMM has set up CRIMM in Kolkata jointly with the Techno India University which is one of the renowned and largest Private University in West Bengal. A MOU was signed with TIU on 17th of November, 2017. Techno India University, West Bengal, promoted by the well-known Techno India Group is a leading Private University in the state and the country

Objectives and Activities of CRIMM in brief

- To promote research in materials management discipline.
- To collaborate with industry for furthering the academic advancement of materials management and its application to industry.
- To render assistance to industries in problem solving projects, development activities, etc
- To take up project consultancy work in Materials Management. Centre will act as a nodal point for co-ordination and integration of research information in the field of Materials Management for on-going and completed research work in other countries

Research Fellowship

The candidate should have a Master Degree in any subject/discipline or equivalent professional Management qualification i.e. PGDBM, PGDMM etc. with at least 50% marks in aggregate at the graduation and post-graduation level. The candidate should have experience in working in Materials Management discipline or allied areas in industries. In case of highly experienced candidate in the field of Materials Management, and/or Engineering Graduates, Master Degree may be dispensed with. Preference will be given to industries sponsored candidates

The fees for such research studies will depend on the specific problem/area and the tenure, which will be borne by the sponsoring organisation. Those who will take up such Fellowship research studies on their own expenses, will have to bear the expenditure on their own. Successful Research Fellow from CRIMM shall have the unique opportunity to pursue PhD in Techno India University, West Bengal with condensed course work.

Governing Committee

A steering Committee has been constituted to oversee the working of the centre consisting of nineteen members, eight from Techno India University, West Bengal, eight from IIMM, and three from industry.

For more information please contact

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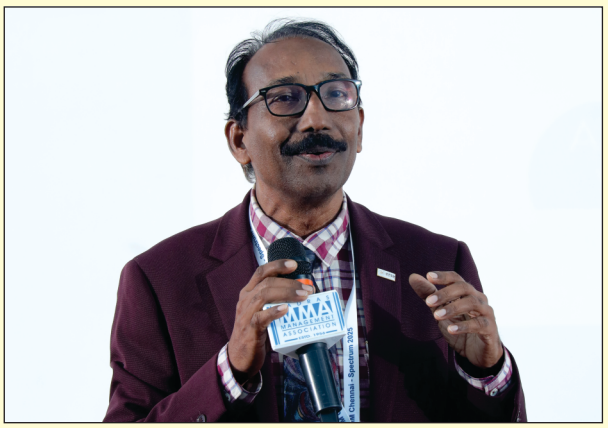

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