

Title: Implementing Green Human Resources Management in Global Value Chains

Track: Human Resource Management

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Summary

The world is currently facing several environmental challenges. Because of this, environment-friendly practices and sustainability initiatives are increasingly being emphasized in business. It is widely recognized that companies must minimize their carbon emissions and contribute towards sustainable development. In recent years, many companies have transformed their business operations to include green practices such as green HRM and supply chain management to achieve sustainability goals. Though earlier studies have focused on sustainability and green practices in business, implementing green practices such as green HRM in global value chains of firms is an understudied area. This paper explores various aspects of implementing green practices in companies' global value chains (GVCs) and details the cases of three US-based companies in different industries having operations in several parts of the globe, the location of the study being India.

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1. Introduction

Green human resource management (Green HRM) has gained much prominence in organizations across the globe in the past decade. Key reasons for the growing focus on sustainability and green practices are the world's pressing climate change challenges and other environmental problems (Ponte, 2019; Saeed *et al.*, 2022). Environmental sustainability is considered a distinctive part of the future of HRM (Schuler and E. Jackson, 2014). The notion of green HRM has emerged to indicate HRM practices with environmental concerns (Jabbour, Santos and Nagano, 2010). Studies have shown that HRM has great potential for incorporating sustainability since it plays a catalyzing role in enhancing organizational environmental sustainability (Rimanoczy and Pearson, 2010; Yusliza, Othman and Jabbour, 2017). Organizational practices such as green HRM practices and green supply chain practices are expected to contribute to climate change goals to a substantial extent (Saeed *et al.*, 2022). Moreover, green HRM is a key business strategy for companies as per the resource-based view of firms (Ahmad, 2015; Yusliza, Othman and Jabbour, 2017). In a globalized world, sustainable and green practices influence the entire value chain of a company (Bush *et al.*, 2015; Alexander, 2020; Chen *et al.*, 2022). In this regard, much research has focused on implementing green HRM in companies, its effects, consequences, etc. (Guerci, Longoni and Luzzini, 2016; Haddock-Millar, Sanyal and Müller-Camen, 2016; Dumont, Shen and Deng, 2017). Also, research has focused on studying the implementation of green and sustainable supply chain practices in global value chains (GVCs) (Bush *et al.*, 2015). However, little research has been done to understand how green practices such as green HRM are implemented in the global value chains (GVCs), the unique characteristics of the implementation process, and the effects and consequences of implementing such practices in GVCs.

Research on green practices, including green HRM in GVC firms, is important since such practices are increasingly emphasized by governments, society, and national and international policies (De Marchi, Maria and Ponte, 2013). Implementing green practices by firms involves environmental upgrading, which is the process by which companies move towards a system of production that reduces environmental damage from their products, processes and management systems (De Marchi *et al.*, 2019; Krishnan, De Marchi and Ponte, 2022). Green HRM, green marketing and green supply chain management are channels for companies to improve their environmental performance (Chan, He and Wang, 2012; Longoni, Luzzini and Guerci, 2018; Saeed *et al.*, 2022). The environmental performance comprises activities of companies to fulfill societal expectations for a clean, eco-friendly environment (Chan, He and Wang, 2012). The implementation of green and sustainable practices, such as green HRM, by companies is advantageous for promoting their image as environmentally conscious and responsible. Hence, such practices enhance the brand image of companies and improve their reputation (Tang *et al.*, 2018). Further, studies have shown that green and sustainable practices not only translate to environmental benefits but can also positively impact the economy and society. In today's globalized world, most companies are setting up manufacturing plants and offices outside their home location to reap the advantages of low cost and other economic benefits. The production processes of companies are increasingly fragmented across the globe, connected by spatially dispersed value chains (Kano, Tsang and Yeung, 2020). With rapid globalization and fragmentation of the global supply chain at several locations of the world, it is pertinent to see how green practices and sustainability initiatives are implemented across the supply chain. Further, it would be interesting to see whether such practices and initiatives are uniformly implemented across the global value chain or are differentially implemented in various locations and the consequences of the implementation.

This paper focuses on understanding the nature and the characteristics of the implementation process of green practices, such as green HRM, in the global value chains. Also, the consequences and effects of implementing such practices, especially those on economic and social upgrading, are explored. The paper describes the cases of three multinational companies in different industries- a financial services company, a technology and e-commerce company, and a manufacturing company, to understand the varied implementation process of green HRM and other green initiatives in GVC firms. These companies are headquartered in the US and have operations in countries across the globe, including India. This paper looks at the implementation and effects of green HRM and other green practices by the companies at their headquarters and India-based operations.

2. Green Human Resource Management Practices

Green HRM practices involve environmental aspects embedded in HRM processes- recruitment and selection, training, performance appraisal, compensation, and rewards etc. (Jabbour, Santos and Nagano, 2010). Green HRM is defined as “HRM activities which enhance positive environmental outcomes” (Kramar, 2014). Green HRM practices are positively fostered by green employee empowerment (Yusliza, Othman and Jabbour, 2017). When employees are motivated and empowered to follow green HRM practices, they are likely to inculcate these into their day-to-day work life consciously. Also, the digitalization of HRM or e-HRM helps promote green HRM practices in the organization (Yusoff, Ramayah and Othman, 2015; Yusliza, Othman and Jabbour, 2017). Automating HRM processes reduces economic and social costs alongside environmental costs as it reduces processing time and documentation costs (Yusoff, Ramayah and Othman, 2015). Green HRM practices, in turn, positively influence employees' workplace green behaviors (Dumont, Shen and Deng, 2017). For example, environmental training is essential for implementing green supply chain management practices (Sarkis, Gonzalez-Torre and Adenso-Diaz, 2010). Environmentally friendly and sustainable practices in organizations, e.g., green HRM, green marketing and green supply chain management practices, have a positive impact on the business outcomes of the companies and help them gain sustainable competitive advantage (Yang *et al.*, 2013; Dumont, Shen and Deng, 2017). The strategic application of green HRM by firms to gain competitive advantages is explained by firms' Resource Based View (RBV) (Barney, 1991; Yusliza, Othman and Jabbour, 2017). Such practices not only reduce waste generated by companies but also help them achieve operational efficiency (Dumont, Shen and Deng, 2017). Many corporations have incorporated sustainability initiatives in their activities to enhance their competitiveness (Yang *et al.*, 2013). Companies integrate environmental concerns into their strategies while aiming at competitive advantage through environmental innovation fostered through R & D cooperation and networking activities (De Marchi, 2012). One reason for the enhancement of competitiveness of companies due to the implementation of green practices such as green HRM is improved employee performance resulting from higher job satisfaction and job involvement and a greater sense of organizational commitment experienced by the employees (Harvey, Williams and Probert, 2012).

3. Implementation of Green and Sustainable Practices in Global Value Chains and their Consequences

In the globalized era, there has been a rise in global value chains involving international production sharing, wherein the production stages for a single good or service are broken down and scattered across countries (Johnson, 2018; Tong and Seric, 2019). This fragmentation may be either with or without the separation of ownership (Gereffi, Humphrey and Sturgeon, 2006). As per (Gereffi, 2019), there are two main conceptual pillars of the GVC framework- the governance structure and the economic upgrading trajectory. The governance structure

includes the strategies of lead firms to orchestrate activities of the internationally dispersed firms which comprise their global supply chain (Gereffi, 2019). The types of governance structures of GVCs are market-based, captive, modular, relational, and hierarchy (Gereffi, Humphrey and Sturgeon, 2006). On the other hand, economic upgrading is the process by which the economic actors, i.e., the firm, nations, and workers, move from low-value to high-value activities in the global production network (Gereffi, 2019). The four types of upgrading are product, process, functional, and chain upgrading (Humphrey and Schmitz, 2002). Incorporating green and sustainable practices in global value chains is linked with both the governance structure and the economic upgrading trajectory of firms.

In terms of the governance structure, if the firm is hierarchical, i.e., there exists a high level of vertical integration and managerial control (Gereffi, Humphrey and Sturgeon, 2006), then the lead firm has greater control over the sustainability and green practices implementation in the local GVC firms. However, if the governance structure is market-based, the lead firms may have little control over implementing such practices in local GVC firms. Hence, there are higher chances for differential implementation of sustainability and green initiatives across the global value chains of companies in the case of a market-based governance structure. In this case, implementing green practices in GVCs depends on factors such as the relative power of the lead firm versus the local firms, the state regulations, the importance of such practices in enhancing the competitiveness and brand image of the firms, etc. The lead firms use several governing instruments and mechanisms to ensure that the suppliers contribute to their environmental pursuits. These are setting environmental and quality standards, the requirement to comply with third-party environmental certification, designing the product to reduce environmental impact, facilitating knowledge transfer, and supporting green technologies (De Marchi, Maria and Ponte, 2013). By doing this, they are moving away from a market-based structure while avoiding vertical integration (De Marchi, Maria and Ponte, 2013). The role of various actors in implementing green practices and sustainability initiatives in GVCs has been explained in the subsequent section.

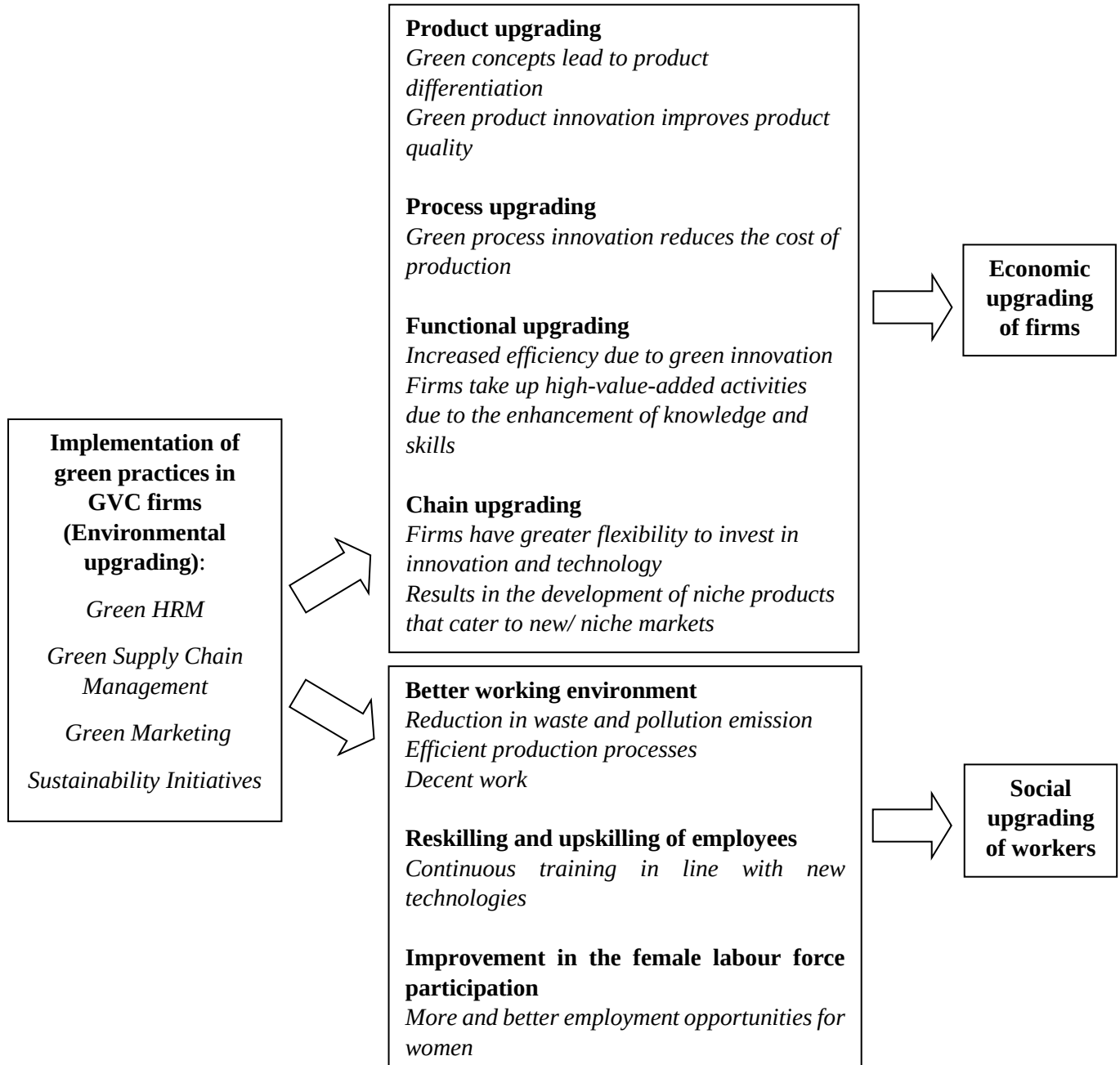
Incorporating green and sustainable practices involves changes in product, process, functional, and chain upgrading (Humphrey and Schmitz, 2002; BARRIENTOS, GEREFFI and ROSSI, 2011; Blažek, 2016). The products must be environmentally friendly and give a higher value to the customers. Integrating green concepts into product features such as design and packaging can provide differentiation advantages and enhance product quality (Chen, 2008). Further technological improvements and innovations resulting from adopting green practices, also called green product innovation, may also lead to improved product quality (Huang and Li, 2017; Hu *et al.*, 2022). Process upgrading happens with the inclusion of environment-friendly production practices. In this regard, green HRM and green supply chain management practices can help in reducing the cost of production and in resource-saving by fine-tuning the production process and improving logistics etc., through green process innovation (Huang and Li, 2017; De Marchi and Alford, 2022; Hu *et al.*, 2022). Hence, both product and process upgrading occur due to green innovation which is accompanied by technological innovation (Huang and Li, 2017; Hu *et al.*, 2022).

Developing green products and production technics is the strategic focus of green innovation. Dynamic capabilities are required to pursue such initiatives in the changing environment, apart from cooperation, coordination, and social networking among firms (Huang and Li, 2017; Awan, Sroufe and Kraslawski, 2019). Functional upgrading happens due to lowering costs and higher innovation subsequent to adopting sustainable and green practices. The level of upgrading depends on the relative embeddedness of local firms in the GVC network, which provides opportunities for improving product performance and innovation through R&D,

technology exchange, and observation intended to absorb foreign technology and knowledge (Hu *et al.*, 2022). Functional upgrading due to green innovation results in a firm's penetration among higher-tier suppliers and lead firms, abandoning lower value-added activities and gaining higher-level functions by performing activities that require more skills and knowledge (Blažek, 2016). This is because increased efficiency due to innovations in technology will lead to lower demand for jobs pertaining to particular activities which are lower value-added and higher demand for high value-added activities (de Vries *et al.*, 2019). New markets are likely to be developed due to innovations in products and processes as a result of the sustainability focus. The focus on sustainability and green innovation by firms can also lead firms to invest in technology and renewable energy etc. and consider mergers and acquisitions to enhance technological capabilities (Hansen, Fold and Hansen, 2016). Next, as the firms move toward higher sustainability in their products and processes through implementing green practices, chain upgrading occurs due to a shift to a more technologically advanced production chain and since the new products may now cater to a higher market segment (Oliveira, Fleury and Fleury, 2021). One of the reasons is that the increase in digitalization, given the focus on green practices, provides the flexibility for firms to invest in innovations to develop new products that can cater to novel niche markets (Johns and Jennifer Johns, 2022). It has been evidenced that with an increase in the economic upgrading of firms, the impact of energy conservation and emission reduction initiatives is more prominent (Hu *et al.*, 2021). Nonetheless, all types of economic upgrading require improvement in the skillset of workers (BARRIENTOS, GEREFFI and ROSSI, 2011). Hence both capital and labour dimensions are involved in the economic upgrading of GVC firms pursuant to the implementation of sustainable and green practices.

In the past decade, the notion of upgrading has been extended to include social and environmental aspects, as well (De Marchi *et al.*, 2020). In environmental upgrading, the value chain actors design or modify the practices and production systems to make a better impact on the environment (Krishnan, De Marchi and Ponte, 2022). The implementation of green practices in GVCs may also affect the social upgrading of workers, which involves improving and protecting workers' rights and entitlements and enhancing their quality of employment and working conditions (BARRIENTOS, GEREFFI and ROSSI, 2011). On the one hand, using green practices such as green technology helps reduce the emission of pollution and waste which is beneficial for the health of employees and promotes the idea of decent work (Barrientos *et al.*, 2011). Further, implementing green practices in companies results in higher job satisfaction, commitment, involvement, and happiness among employees, positively impacting employee performance (Harvey, Williams and Probert, 2012; Tang *et al.*, 2018). Such practices may also improve the participation of women in labour and foster their social upgrading (Barrientos, 2014). On the other hand, the possibility of layoffs and insecure employment also rises with the adoption of newer technologies for sustainability and environmental reasons (Agarwal *et al.*, 2022). To address this issue, both the lead and the local firms must establish practices for continuous upskilling and reskilling of employees alongside technological improvements (Cooke, Dickmann and Parry, 2022). Next, suppliers may struggle to meet the demands of buyers pertaining to product quality and environmental standards, which may translate into poor-quality jobs (Lee and Gereffi, 2015). To address this issue, the lead firms and the buyers must jointly bear the burden of complying with environmental norms and standards, along with the suppliers, and set realistic goals for sustainability without putting undue pressure on the suppliers (Ponte, 2019). There is a need to meet the changing needs of the lead firm and buyers and protect workers' rights and interests. The impact of the implementation of sustainable and green practices on economic upgrading of firms and social upgrading of workers has been outlined in **Figure 1** below.

Figure 1. The Impact of Sustainable and Green Practices on Economic and Social Upgrading in the Global Value Chains



4. The Role of the Lead Firm and other Actors in the Implementation of Green HRM Practices in the Global Value Chains

The implementation of green and sustainable practices, such as green HRM in the global value chains (GVCs) of firms is a complex process which involves several actors participating in it. Each actor plays a unique role in impacting the implementation process. The role of each of the actors is described as follows.

4.1. Lead firm

The lead firms are responsible for establishing guidelines, norms, and standards pertaining to ethics, sustainability, environment, safety, health, etc., for the local firms in GVC to follow. These guidelines must clearly communicate the lead firm's values and goals, which are committed to achieving environmental sustainability and caring for the workers by implementing green practices such as green HRM. Lead firms play an integral role in supporting local firms to achieve cost reduction, production efficiency, and enhancement of product quality (Humphrey and Schmitz, 2001; De Marchi, Giuliani and Rabellotti, 2018). Depending on the governance structure of the GVC, the lead firms specify the requirements regarding the product and processes, the maximum involvement being in the case of a hierarchy (Gereffi, Humphrey and Sturgeon, 2006). In this case, since the lead firms have a direct influence in shaping the operations of the local company, has a greater control and hence greater responsibility for implementing green practices and fostering technological innovation in the GVC firms. The lead firms achieve this by specifying process parameters pertaining to environmental and labour standards or by setting the rules and conditions for participating in the GVC (Humphrey and Schmitz, 2001; Ponte and Gibbon, 2006). The lead firms also have the role of monitoring and enforcing compliance with these standards. The lead firms are also responsible for implementing green practices by encouraging innovation among the suppliers (De Marchi, Maria and Ponte, 2013). The lead firms may at times, leverage their position to decide what happens in the supplier firms in less developed countries (Humphrey and Schmitz, 2001). The leveraging may also boost government efforts toward creating a supportive ecosystem for sustainability initiatives and technological innovation. The lead firms can address several problems concerning sustainability, such as child labour, worker rights, health and safety, diversity, and environmental risks, by practicing socially responsible purchasing in the GVC (Cole and Aitken, 2020). The firms must support economic and social upgrading by implementing green practices and innovation (BARRIENTOS, GEREFFI and ROSSI, 2011; Hu *et al.*, 2022). The adoption of new and advanced technologies by the lead firms in pursuit of sustainability and environmental goals must be accompanied by adequate reskilling and upskilling opportunities for the employees throughout the value chain (Cooke, Dickmann and Parry, 2022).

4.2. Supplier firms and Intermediaries

The suppliers in the GVC must follow the guidelines and standards set by the lead firms while adhering to the local government's environmental and labour standards laws. Supplier strategies are increasingly oriented towards capturing value in the supply chain by upgrading themselves (Sako and Zylberberg, 2019). To achieve this, they must invest in technology upgrading and innovation and actively engage in upskilling and training employees in line with new technologies (Sako and Zylberberg, 2019). Given the changing needs of the lead firm, due to the focus on environmental goals, the local firms in GVC must be ready to adapt themselves to cater to these needs (Humphrey and Schmitz, 2001). The supplier firms may also contribute towards the achievement of the sustainability goals of the lead firm. Further, suppliers need to maintain a relationship of trust with the lead firm, which can facilitate interconnected

exchanges necessary for learning, upgrading, collaboration, and innovation (Murphree and Breznitz, 2020).

The intermediaries play an important role in facilitating the suppliers' activities, providing them with the requisite support and guidance to implement practices along the lines of sustainability and taking corrective actions if required (Cole and Aitken, 2020; Lund-Thomsen *et al.*, 2021). They help increase buyer-supplier collaboration (Hingley, Lindgreen and Grant, 2015). The intermediaries not only facilitate information and knowledge transfer but also help in the reduction of risks to the reputation of the lead firm and the performance of the supplier etc. (Vedel and Ellegaard, 2013; Cole and Aitken, 2020). The intermediaries engage in green HRM practices such as facilitating inter-organizational learning and problem-solving, knowledge development, and improvement of capability to promote sustainability behaviour and achieve sustainability goals (Cole and Aitken, 2020).

4.3. Local government

The local government is responsible for framing rules, guidelines, and policies for protecting the environment and promoting environmentally friendly practices among the companies. It has the responsibility to regulate or facilitate the activities of the companies toward environmental sustainability through taxes, subsidies, tariffs, quotas, etc. (Bair, 2005). Apart from these, the state itself may be the producer or buyer in a GVC (Horner, 2017) and may be subject to following environmental guidelines. Further, the state influences the upgrading of local firms (Lee, Gereffi and Beauvais, 2012). The state may be motivated by welfare, national security, and geopolitical objectives in regulating the functioning of the GVC (Horner, 2017), which may also involve environmental protection. The local government may facilitate business and implement green initiatives by constructing regional innovation systems (Lee, Heo and Kim, 2014). Apart from these, the state has a distributive role in ensuring that the benefits of production efficiency and technological innovation in the global value chain are fairly distributed (Mayer and Phillips, 2017). This can be achieved through social policies and programs aimed at inclusive and sustainable development. Next, the government must effectively address the tensions between policies aimed at economic upgrading on one hand and social and environmental upgrading on the other (De Marchi and Alford, 2022). In this regard, the government may raise environmental awareness and consciousness among companies and individuals. Further, the government may create grievance redressal and social dialogue mechanisms for marginalized workers in the GVC, including those impacted by environmental issues (Ganseman, Louche and D'Haese, 2021).

4.4. International bodies

International bodies, policies, and framework agreements play an important role in establishing environmental and labour standards for firms across the globe (Riisgaard and Hammer, 2011). These serve as guiding principles for lead firms to frame internal policies and practices and set sustainability goals and targets. Examples of these include the ILO's core labour standards that have been a part of company-level regulations. ILO is the primary international body in promoting the ideas of decent work and fair globalization in the GVCs (Rossi, 2019). Further international framework agreements (IFAs), administered by the global union federations (GUFs), shape the regulatory framework of the company (Riisgaard and Hammer, 2011). The IFAs aim to secure labour rights and facilitate international social dialogue in the global supply chain (Hammer, 2005). Other international bodies such as the World Bank, UNCTAD, OECD, and the World Trade Organization also play an important role in regulating GVC and its activities. These international organizations are increasingly focusing on environmental sustainability in recent times and are encouraging firms in global supply chains to contribute

towards sustainable development (Supiot, 2020; UNCTAD, 2021; WTO, 2022). Hence, it is pertinent for GVC firms to emphasize meeting environmental standards to achieve sustainability goals through the practice of green HRM and green supply chain management, etc.

4.5. Non-Governmental Organizations (NGOs) and Civil Society Organizations (CSOs)

The firm must meet certain societal standards and expectations to ensure the smooth operations of its business. Such expectations include minimizing environmental damage (Dermawan and Hospes, 2018). In this regard, the NGOs and CSOs play an important role in raising awareness and taking direct action on firms to make them take responsibility for the environmental impact of their products (De Marchi, Maria and Ponte, 2013; Dermawan and Hospes, 2018). The national and international environmental-focused and labour-friendly NGOs and consumer campaigning organizations proactively push companies towards adopting environmentally friendly and sustainable practices and fair labour standards (Riisgaard and Hammer, 2011; Tran *et al.*, 2013; Binh and Moon, 2019). The idea of multipolar governance acknowledges that actors other than the firms, such as standard-setting bodies, NGOs, social movements, certification agencies, labour unions, etc., influence GVC governance (Ponte and Sturgeon, 2014). These external influences have the power to drive firms towards adherence to environmental standards and achieving sustainability goals. NGOs and CSOs use channels such as naming and shaming to achieve their objectives (Dermawan and Hospes, 2018). Since the firms are at reputational risk, they are inclined to acknowledge the demands of such organizations for environmental protection. In the digitalized era, it is easier for NGOs and civil society actors to call out the organizations to take accountability for the environmental damage caused by them (Gallemore *et al.*, 2022). This is yet another source of power for these organizations to execute their role successfully.

4.6. Trade Unions

Both local and international trade union cooperation is essential for implementing new initiatives, including green practices by the companies (Riisgaard and Hammer, 2011). In the globalized era, transnational trade unions have gained prominence that involves union networks across different geographic locations and scales (Riisgaard and Hammer, 2011). An example of such a network is the International Confederation of Free Trade Unions (ICFTU), which facilitates international social dialogue. In recent years, provisions for imposing social and environmental obligations on GVCs have been included in bilateral trade agreements (FTAs) (Harrison, 2023). Such sustainability provisions aim to directly address the social and environmental impact of companies in the value chains. Trade unions play an important role in protecting workers and the environment and bringing about change since they possess strategic power within the GVC (Maney and Selwyn, 2013; Las Heras and Heras, 2018). The trade unions in GVCs use methods such as collective bargaining, confrontation, dialogue, and negotiation to voice their grievances and fulfill their demands (Las Heras and Heras, 2018). By using their strategic power in the GVC network, the trade unions can play a key role in protecting the environment and health of workers through green initiatives such as green HRM. Trade unions must also ensure that workers are protected during the transition phase while adopting new technologies for innovation and sustainability (Cooke, Dickmann and Parry, 2022).

Table 1

Role of the lead firm and other actors in implementing green HRM in GVCs	
Lead firm	-Formulating strategies for upgrading both firm and workers while implementing green HRM practices in GVCs -Providing support to local firms for technology upgrading and implementing green innovation -Upskilling and reskilling of workers in line with digitalization and technological improvements -Monitoring and enforcing compliance with standards -Leverage with local government to provide an ecosystem for sustainability initiatives -Practice responsible purchasing
Local firms: Supplier firms and Intermediaries	-Invest in technology upgrading and innovation, e.g., digitalization of processes and practices -Follow sustainability and green HRM guidelines and standards of the lead firm and local government's laws -Maintain a trust-based relationship with the lead firm -Endeavour to achieve sustainability goals of lead firm -Skilling of labour in line with new needs -Intermediaries provide support and guidance and facilitate knowledge transfer
Local government	-Facilitate adoption of sustainability and green practices by local firms and regulate firms' activities in this regard -Set rules and guidelines for companies to adhere to environmental norms and standards -Promote environmental consciousness and commitment among firms -Address tensions between policies for business growth and those for environmental sustainability -Create a supportive ecosystem for innovation -Promote platforms for social dialogue
International bodies	-Setting up global targets and standards for firms to attain environmental sustainability -Encourage firms to contribute towards global sustainability goals
NGOs and CSOs	-Raise awareness of social and environmental issues -Take direct action, naming and shaming, and use of digital monitoring and platforms to make firms take responsibility for the environment
Trade unions (International and local)	- Use strategic power to foster the implementation of green practices -Push for the inclusion of sustainability provisions in trade agreements -Protect worker rights during the implementation of green practices and green innovation by companies

5. Some challenges in implementing green HRM practices in the Global Value Chains

The way lead firms address the sustainability problems is in itself a process of value creation-known as “green capital accumulation” (Ponte, 2019). The idea of green capital accumulation in GVCs explains how lead firms tend to extract value from suppliers through sustainability demands and by enacting strategic management of sustainability to orchestrate sustainability (Ponte, 2019). In this regard (Ponte, 2019) has explained that public authorities and social movements can create better sustainability outcomes by using facilitative and directive tools, enhancing the visibility of the issue, and leveraging specific pressure points. Next, given the high R & D cost and other market factors, there are high risks involved in bringing about innovations and technological improvements in products and processes by the local firms (Hu *et al.*, 2022). These may dissuade these firms from implementing green practices such as green HRM in their processes. With higher embeddedness in GVC, the firms may be motivated towards production in a high carbon development mode and not in using green technology that involves high investment costs (Hu *et al.*, 2022). Hence, there is a need to promote environmental regulations through innovation subsidies and environmental taxes to push firms to embrace green practices and technologies (Liu, Zhao and Wang, 2020). Technological advancements that have helped the lead firms achieve cost optimization result from heavy R&D focus and investment (Zachariadis, 2003). Since the lead firms are unwilling to give up their position of high competitiveness and premium position (Salancik and Pfeffer, 1977), they refrain from facilitating technological investments in and knowledge transfer to the GVC firms. The existence of a high-power asymmetry between the lead firm and supplier firm and the transactional dependence of the supplier firm on the lead firm may cause suppliers to reduce investment in technological upgrading in fear of retaliation (Deng, Ma and Zhu, 2022). This hampers the implementation of green practices, making the supplier firms remain trapped in low value-added activities. Higher possibilities for layoffs due to technological advancements, further complicates the process of implementation of innovative and green practices, including green HRM, that are backed by new technologies (Agarwal *et al.*, 2022). To address this, both the lead firm and the local GVC firms must collaborate for ensuring reskilling and upskilling of employees in line with the new green and clean technologies (Agarwal *et al.*, 2022; Cooke, Dickmann and Parry, 2022).

6. Methodology

This paper discusses the cases of three US-based companies (Company A, Company B, and Company C) in different industries with operations in various countries, including India. Company A is a financial services company, company B is a technology and e-commerce company, and company C is a manufacturing company. The actual names of the companies have not been disclosed in the paper to maintain confidentiality.

The data has been drawn from both primary and secondary sources. Semi-structured interviews were conducted with managers at the India-based operations of companies A, B, and C to obtain detailed insights on implementing sustainability and green practices, such as green HRM, in the firm. The interviewees of the study were finalized based on purposive sampling, and the duration of each interview was over one hour. Secondary data has been drawn from annual reports and other publicly available documents such as reports and other details provided on the company's official websites, etc. Further, secondary data has been obtained from newspaper articles, magazine article and publicly available interviews of key executives of the company. Triangulation of data from multiple sources was ensured.

The details of data collection sources have been provided at **Annexure-I**.

7. Cases

7.1. *The Case of a Financial Services Company*

Company A is a financial services firm based in the US whose primary business operation includes providing financial information, analytics, market intelligence, etc. Responsible production and climate action are among its primary goals. The company has set ambitious targets to reduce greenhouse gas emissions and counter climate change's adverse impact using low-carbon alternatives. It has a scientifically validated target to achieve net zero by 2040. It is among the first companies to report carbon-adjusted earnings per share metric. Also, climate change considerations are included in the company's decision-making process. Its other sustainability initiatives include closing skill gaps per the economy's demands by providing training on digital skills etc. and creating an inclusive support system for the advancement of women. In terms of green HRM, the company has incorporated Key Performance Indicators (KPIs) linked to environmental sustainability in the performance scorecard of its employees. Further, incentive pay is linked to the achievement of strategic climate goals. The company is a member of various international groups and committees on sustainability. In the pursuit of reducing emissions, the company has been working towards reducing business travel by the employee by encouraging work over virtual and hybrid modes.

As discussed with consultants working in the company's offices in India, the company has been proactively acting towards achieving its environmental and sustainability goals at all its offices, including in India. Further, necessary support and knowledge transfer is being provided to the suppliers and vendors of the company to encourage the adoption of green and sustainable practices among supplier as well. The procurement guidelines of the company include provisions for promoting sustainability through lower carbon impact and respecting human rights. The company practices responsible sourcing, which means that it emphasizes suppliers' compliance with the standards and guidelines of the company. It also aims at fostering supplier diversity, ethical business conduct, and environmental sustainability. The vendor code of conduct includes compliance with environmental laws and standards. Thus, the company aims to percolate its values regarding environmental sustainability and green practices across its value chain.

Sessions and workshops are conducted to raise awareness of employees and various stakeholders on environmental issues and challenges. Further, employees are provided necessary training, upskilling, and certifications to cope with technological changes, the economy, etc. The company fosters a high innovation culture in all its offices. Active socialization among employees situated at all locations helps transfer learning and institutionalize green behaviours and initiatives. The company emphasizes employees' health, safety, and well-being. All practices and processes in the India-based offices are aligned with the global market practices and regulatory frameworks. The company has established relationships with several civil society actors and organizations to implement its green initiatives and achieve its sustainability goals. It follows one of the best disclosure practices in sustainability and implements practices for the engagement of the entire value chain in sustainability and green initiatives. By following green HRM practices such as green training, green rewards and incentives, and green performance management, the company has been successful in changing the employees' behaviours, who are now inclined towards exhibiting green behaviours and implementing green initiatives on their own accord. Further adequate opportunities for expressing their voice are provided to the employees. These practices and initiatives also improve engagement levels of the employees who feel good about working for the organization. This has improved their commitment levels and performance.

Despite proactive efforts by the company to maintain standardization of processes, practices, and initiatives in terms of sustainability, it is observed that certain differences exist in the implementation of green practices at the India-based operations of the company as compared to its headquarters and other key locations. For example, since the offices in India operate in rented spaces, the company has little say in implementing sustainable infrastructure and improving greenery around its offices in India. Also, given the local context, the suppliers are governed mainly by the local laws in environment and labour. The relationship with suppliers being market-based, the company has less power in imposing green practices on vendors and suppliers in India. Thus, the success of green initiatives implementation in local offices and among local suppliers depends on several factors, which must be managed.

7.2.The Case of a Technology and E-commerce Company

Company B is an American e-commerce and technology company that has a wide presence in locations across the globe, including in India. It is the world's largest corporate purchaser of renewable energy. It aims to switch to renewable energy by the year 2025 completely. The company has partnered with over 300 businesses to achieve its net-zero goals. It operates in a highly innovative environment and work culture and uses state-of-the-art advanced technologies in its logistics and delivery network. The suppliers are mandated to follow the environment and labour standards stipulated by the company at all global locations. This fosters the implementation of green practices across its entire supply chain. More than half of its shipments are net-zero, and the company is working towards switching to zero-emission vehicles for transportation and delivery. To achieve this goal in its India-based operation, the company has tied up with a leading Indian company in the automotive sector.

Further, the company aims towards achieving net zero in terms of packaging. However, it is noticed that the company's goals for sustainability in operations through these initiatives are not yet successful in India. The main concerns are driver safety, the unavailability of adequate infrastructure for electric vehicles, and high customer complaint rates due to damages arising from the lesser use of packaging material. For such reasons, many of the sustainability initiatives of the company have not yet been implemented in India. More such initiatives include drone-based deliveries, vehicle safety technology, and machine learning and artificial intelligence use in its processes and practices. One of the key reasons for the lead firm's reluctance to bring innovation in its India-based operation is that the labour cost in India is low. Hence, the company is refraining from actively investing in technological upgrading of its operation in India. However, the company is progressively working towards bringing operational innovation in India through a special team created for this purpose.

All administrative processes of the company are digitalized, and all documentation is maintained online. The offices are paperless to a great extent. Further, initiatives like rainwater harvesting and using renewable energy for lighting are in place. Green behaviours and initiatives are fostered through communication and socialization events, such as signing a climate pledge and incentivizing employees for innovative and green initiatives. The employees in local offices and warehouses and the suppliers are encouraged to follow practices related to environmental sustainability in its US-based operations. One of the ways the company encourages this is through an annual shareholder's letter that contains details of expectations from all stakeholders, including those pertaining to the environment and sustainability.

7.3. The Case of a Manufacturing Company

Company C is an aircraft manufacturing company based in the US. The company's goal is sustainable aerospace by increasing the societal benefits of aerospace while having zero impact on the planet. It has invested substantially in innovation and technologies in the past ten years and greatly reduced emissions in its airplanes. The airplanes produced by the company are recyclable to a large extent. The company continuously tests environmentally smarter technologies through its research and development organization to solve problems and challenges posed to the airlines and the environment. The organization also researches futuristic and clean technologies to make its products more environmentally efficient. The company follows a proactive decarbonization strategy by using advanced technology and renewable energy and ensuring operational efficiency. The US-based factories of the company are entirely run on renewable energy. Safety and quality are the primary focus areas for the company, both in production and in aircraft. The employees sign a code of conduct to participate in the company's ethics commitment. The company engages in responsible sourcing by collaborating with its global supply chain. Supplier relationships are based on integrity and transparent communication. The company emphasizes continuous and sustainable value creation in its global supply chain. Its operations comply with environmental laws, and conscious attempts are made to prevent pollution.

The company also engages in innovative efforts to clean up remediation sites to protect human health and the environment. The employees are encouraged to take up voluntary roles in contributing towards environmental sustainability. Environmental consciousness is encouraged in the company and fostered through training, upskilling, socialization, etc. Environmentally conscious behaviours are rewarded and appreciated. The company emphasizes employee wellbeing, safety, diversity, and inclusion and provides professional development, education, and learning to support sustainable growth. All these comprise various aspects of green HRM that the company uses to achieve its environmental targets and sustainability goals.

The company has entered a joint venture (JV) with an Indian company through foreign direct investment (FDI) to produce some of its aircraft models and aerostructures and components. The JV company in India has over 700 employees working at the full production rate, and 90 % of the parts are sourced from Indian suppliers. The JV company has set up an Environment, Health, and Safety committee that submits a quarterly report to the company's Board of Directors. Any lapses in following standards are taken seriously. All metallic waste and scraps resulting from the production are recycled. Efforts are made to maintain adequate greenery in the factory. Also, the manufacturing plant has established innovative structures for environmental sustainability, such as wastewater disposal systems, rainwater harvesting, and sensor-based lighting and water outlets to save electricity and water.

Awareness drives on waste segregation are conducted for employees. Carbon emissions are monitored with the help of technology. The factory is Environmental and Social Standards (ESS) compliant. Prominent occasions such as world environment are celebrated, and efforts are made to generate awareness of environmental issues. Also, occasional tree-planting ceremonies are conducted to raise environmental consciousness. The employees are inducted and trained on the environment, health, and safety norms to be followed within the plant. There are plant-based performance rewards that are tied up to the achievement of environmental and sustainability goals. Innovative behaviours and creativity, in the areas of environment, health, and safety, are rewarded and encouraged. In the post-covid times, the company has digitalized most of its administrative processes with less requirement for paper in documentation, etc. A high level of digitalization in administration has helped the company reduce pollution and

waste generated. Further, internal online portals are in place for employee and supplier management. Green HRM practices of the company in induction, training, performance management, and rewards help orient employees' behaviours towards environmental sustainability. Such practices also enhance the well-being of the employees.

Regarding adherence to guidelines, the manufacturing plant in India, follows the rules and guidelines on environment and labour as stipulated by the Indian government. Nonetheless, the lead firm, i.e., Company C, influences processes and practices in the India-based plant. An emphasis is on following environmentally sustainable practices to help achieve the company's sustainability goals. Regarding sourcing materials from suppliers, the standards set by the lead firm must necessarily be followed. Such standards also include clauses pertaining to environmental safety, worker rights, and dignity, etc. Multiple layers of approvals are taken from the management of both companies regarding the procedures and practices and for the selection of suppliers and vendors. Ethical guidelines stipulated in the code of conduct set by both companies are followed. However, implementing environmentally sustainable and green practices, such as green HRM and supply chains, is limited by the country's boundary and the local context. Many of the environment-friendly initiatives of Company C are yet to be implemented in the India-based JV plant. Further, given that the governance structure, in this case, is not hierarchical but rather relational, the lead firm has limited control over the operations and implementation of initiatives in the manufacturing plant in India. Nonetheless, the implementation process toward achieving sustainability goals of the company is a work in progress, and green HRM plays an integral role.

8. Discussion and Conclusion

As seen from the above cases, differences exist in implementing sustainability-related and green practices, such as green HRM and green supply chain management in the local operations of companies in the global supply chain compared to the operations of the lead firm in the headquarters location. Thus, green practices and sustainability initiatives are not equally implemented across the GVCs of the companies in all three industries. Several internal and external factors are responsible for this. Internal factors include the governance structure of the firms. If the firms are vertically integrated, they have greater control over the implementation of green practices, such as green HRM, in firms across their value chain. Still, the same is not possible in the case of market-based operations. There exists limited control of the lead firm over the implementation of green initiatives in GVC firms in the case of a relational governance structure. Further, external factors such as the country's regulatory environment and market conditions influence the implementation of green practices by the lead firm in its local areas of operation in the global value chain.

In this regard, the lead firms must extend their environmental strategies to go beyond their boundaries to avoid reputational risks related to the poor environmental performance of suppliers firms (De Marchi, Maria and Ponte, 2013). Close interactions between the lead firm and supplier firms are likely to result in higher environmental proactiveness of the suppliers (De Marchi, Maria and Ponte, 2013). Further, direct cooperation of firms with supplier firms regarding innovation positively impacts the development of green products (De Marchi, 2012). A deep relationship with and support and mentorship from the lead firm are essential for the execution of environmental strategies by the supplier and for improving suppliers' environmental performance (De Marchi, Maria and Ponte, 2013). Such strategies are applicable for implementing green practices at the local operations of the lead firms and among all stakeholders in the global value chains. This is the key to percolating sustainability and green initiatives of a company in its entire value chain and not just selectively implementing such practices and initiatives at specific locations.

9. Practical Implications

The paper addresses the research gap that exists in understanding the implementation process of green HRM and other sustainability and green practices in the global value chains of companies. With many companies having their business operations in many locations across the globe, this study is pertinent for understanding crucial aspects of the functioning of GVCs. The paper highlights the role of various actors, the challenges associated with implementing green practices in the GVCs and understanding the linkages with the governance structure of firms, economic upgrading, and social upgrading. The paper also highlights the differences in implementing green practices in certain prime locations of the lead firm compared to other locations where its value chain is situated. Such an understanding is crucial for taking necessary steps to reduce the implementation process gaps, which involves bringing about changes in the implementation process, considering various factors, the challenges, and the actors involved in the process. The study has contributed to research in green HRM, the sustainability practices of companies, and the literature on global value chains (GVCs).

10. Limitations and Future Research

The study is based on a limited sample of managers at the India-based operations of the lead firms. It does not incorporate the perspectives of various other actors, such as NGO representatives, trade union representatives, and government officials, who also play a substantial role in influencing the implementation of green and sustainability practices. Further, the study focuses only on US-based lead firms and India as the local context. The observations and conclusions may vary in the case of other contexts and industries; hence, the study lacks generalizability.

Given the limitations of the study, it is recommended that future research and studies in this area may focus on understanding the contextual differences in the implementation of green practices in GVCs across the globe. Also, studies representing a broader sample comprising various actors, such as trade union representatives and representatives from international organizations, NGOs, civil society organizations, etc., may be carried out to give a more holistic perspective.

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ANNEXURE-I

(Details on Data Sources)

A. Primary Data (Semi-Structured Interviews)

Sl. No.	Company	Interviewee
1.	A	HR Manager
2.	A	ESG Consultant
3.	B	HR Manager
4.	B	Vendor Manager
5.	C	Deputy HR Manager
6.	C	Assistant HR Manager
7.	C	Supply Chain Manager

B. Secondary Data

Sl. No.	Secondary Data Source
1.	Company Website
2.	Company Annual Reports
3.	Interview transcripts of key executives of the company published in reputed magazines and newspapers
4.	Articles published in reputed newspapers, magazines, and websites