A Study on Socially Responsible Supply Chains for Protection of Human Rights

Report

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Executive Summary

The supply chains have been competing along various dimensions to attract customers and strive to increase supply chain surplus as well as consumer surplus. In the run to increase overall supply chain profitability, almost all the companies have adopted a triple bottom line approach where social, economic, and environmental dimensions are considered to generate more value for the stakeholders. However, economic dimensions followed by environmental dimensions have received relatively more attention than social dimensions. Recently, researchers and practitioners have realized the need for explicit focus on social dimensions to create sustainable competitive advantages. Moreover, as the companies are becoming increasingly less vertically integrated and with increasing stakeholders' awareness, the buyer-supplier relations too are being governed by the conduct of the companies along social dimensions. On the other hand, in developed economies, companies are made accountable and held responsible for any lapse in adopting socially responsible practices as it would violate basic human rights. Hence, for international business and to strategically become part of the global supply chains, companies cannot afford to ignore their social performance. In general, this lack of diligence is often due to no proper strategy in developing and sustaining the socially responsible practices thereby compromising the protection of human rights along the supply chains. But studies focused on developing socially responsible supply chains for improving compliance to human rights are scant specifically in the Indian manufacturing environment. In cognizance to this, the proposed study has attempted to explore the ways and means that would enable supply chains to implement socially responsible practices for

improving protection of human rights. The study also focused on examining the challenges that hinder the implementation of socially responsible supply chain practices. The obtained results would be of assistance for policy makers, practitioners, and researchers to better understand the approach for building stronger socially responsible supply chains.

Background of the Research

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1. Introduction

The supply chains are often considered as complex web of networks (see Figure 1.1) where companies come together in agreement to collectively add value in making the products or offering services to the customers. These collective value additions have become essential as the individual companies are no more considered as competent enough to match the supply chains' capabilities. In a typical supply chain, the best of the companies specialized in certain specific value addition processes partner to competitively produce products and offer services. Thus, it is considered that competition is no longer among the individual companies rather it has been among the supply chains. There are several benefits for companies to work along supply chains rather than to own all the value addition processes. Companies simply may not have the expertise to carry out all the value-added activities and simultaneously perform well in at least few of the basic dimensions such as cost, lead time, quality and reliability, variety, and so on and so forth to differentiate as their competitive advantages. While some of the value-added activities are often better fulfilled by the suppliers, companies are forced to outweigh the option of in-house production and prefer partnering with the best of suppliers. At times companies are required to depend on the suppliers as they may not have enough volumes required to produce the quantities that can justify the costs incurred. Further, as the product life cycles are being greatly compressed, pressure is on companies to develop newer, better, and competitive products and offer services which are very difficult for any individual company to achieve all by itself. Also, the rates at which newer technologies are evolving, companies are forced to lookout to procure/ outsource/ acquire/

develop or any combination of these strategies to keep up with the competition. Inevitably being in the current volatile, uncertain, complex and ambiguous (VUCA) world individual companies cannot afford to face all the uncertainties and prepare to respond better. But, by being part of supply chains, the companies can have the effects of risks better absorbed, aggregated, and minimized. Companies working along the supply chains can efficaciously work on cost savings (efficient) as well as on promptly meeting (responsiveness) the customers' changing preferences. Indeed, through supply chains companies are required to strategically fit their competitive strategies with overall supply chain strategies in order better match the aforementioned efficiency and responsiveness requirements. But it is easier said than done as the decisions made under various supply chain supply chain functions will have to respond as per the demand and implied demand uncertainties.
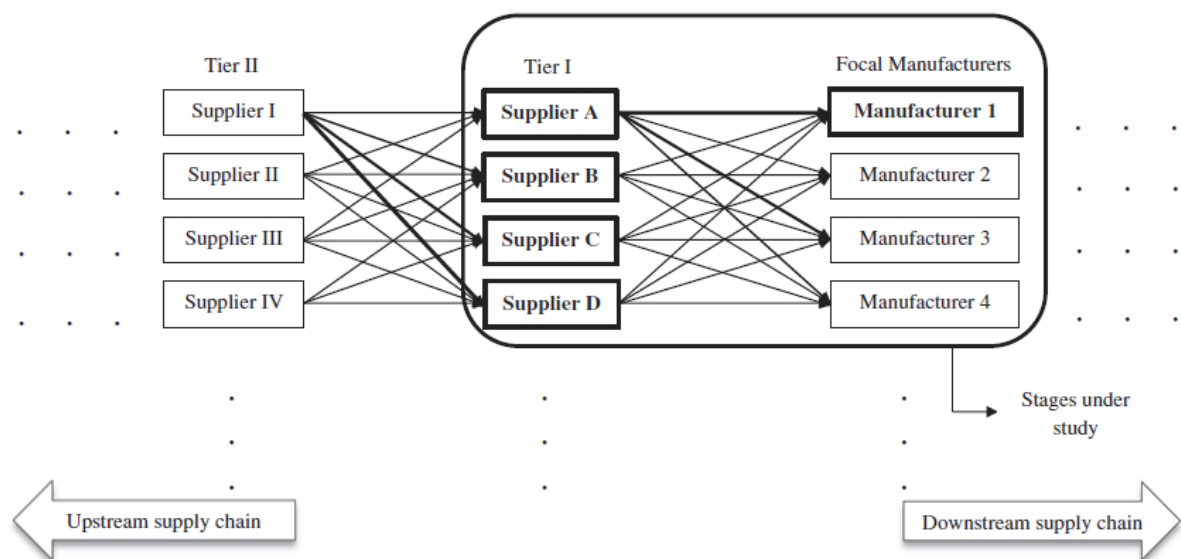
Figure 1.1: Supply chain network (Source: (Sunil Kumar & Routroy, 2016))

Ideally the companies working along the supply chains have to have a common goal of competitively meeting the end customers' requirements. But supply chains have numerous stakeholders, often with conflicting interests to competitively meet the end customers'

requirements. Due to the increased competition and increasingly demanding customers, the stakeholders along the supply chains are succumbing to severe pressures with profit margins being greatly squeezed. Moreover, pressure is also on the stakeholders to be responsive as well as efficient in offering differentiation in their products and services. In the attempts to achieve the said differentiation the supply chains are aggressively competing to attract and satisfy the customers. However, there has to be due diligence considered in the transformation processes along the value chains to ensure that human rights are consciously protected. The value-added activities have to be socially conscious boiling down from the overall supply chain perspective to all the stakeholders and down to every individual. The value-added activity at every stage has to essentially incorporate a socially conscious approach ensuring the protection of human rights. In the state of nature, every human being is born equal with dignity and equality. These moral claims are reinforced and streamed into the legalities by human rights approaches. Every social individual, by virtue of being a human irrespective of one's caste, creed, class, or race or gender is entitled to certain basic rights, which are recognized by the state and society. They serve as a pre-requisite to enjoy civilized life in the best possible ways. The United Nations has described human rights as inherent and indispensable in the state of nature and without which one cannot live as human beings. India is a signatory and party to the Universal Declaration of Human Rights, there are various acts enlisted in the constitution of India to ensure the protection of the human rights of the workers. The protection of the Human Rights Act in 1993 defines human rights as the rights to life, liberty, equality, and dignity to every citizen of the country. The Fundamental Rights, the Directive Principle of State Policy, the Fundamental duties, and the Independent Judicial mechanism are meant for the protection and promotion of human rights. Thus, the thread of human rights runs through the entire constitution of India and embodied by the enforceable courts of India. Human rights are listed in national and international covenants to ensure the

worker's dignified wellbeing and to provide welfare, protection, dignity, non-discrimination, and equality at the workplace. They reflect a social sense of justice, transparency, and democracy for the deprived sections of society. Human rights establish a relation between the employer and employee under the laws to ensure and negotiate workers' social security and economic measures such as proper wages, safe working conditions, clean environment, health insurance, and among others. In cognizance of the necessity for protecting human rights, the supply chains have to have a responsible approach to look out for their social supply chain performance and practice it to an extent that it becomes a sustainable competitive advantage. On the other hand, the supply chains (end – end along all the value addition stages) cannot afford to overlook their social responsibility and end up exposed critically, lose brand value, lose market share, penalized, punished, recalling the products, and even having the businesses shut down. Thus, the socially responsible supply chains not only benefit the companies (if practiced) but also can question the very sustenance of the companies (if ignored). Many researchers and agencies have defined the socially responsible supply chain (SRSC), in nutshell it can be understood as a supply chain wherein all the partners understand, commit, and take responsibility in offering competitive products and services without compromising the interests of various stakeholders. Often the social sustainability along the supply chains has been focusing on economic, environmental, and social dimensions. However, the social dimensions have not been given the deserving importance when compared to economic and environmental dimensions. As mentioned before, the performance of SRSCs can positively and negatively influence the companies. Thus, in this regard the current study is proposed to analyze how the social responsibility along the supply chains can developed.

Milestones

Phase	Work Plan	Timeline
Phase I	Literature Review to explore the constructs that explain what it means to have social responsibility among the supply chain partners.	Eight months
Phase II	Data collection	Six months
Phase III	Data analysis	Six months
Phase IV	Documentation and report submission	Four months

Phase 1: Exploring what it means to have social responsibility among the supply chain partners.

A comprehensive literature review was carried out to investigate the previous research works with regards to the protection of human rights along the supply chains. In this regard, all the possible management frameworks, strategies, decision making methods and allied research issues that various researchers reported in the literature were excerpted. In concrete during the process of literature review, various thoughts for protecting the human rights for the supply chain partners to emulate were explored.

Phase 2: Data collection

Having collected various ideas in phase 1, requisite survey questionnaires and questionnaires to collect input data for certain suitable analytical methods were constructed. While collecting the data, efforts were put to see through to understand how the socially responsible supply chains can be developed. In this phase investigators extensively reached out to the various places of Telangana, Andhra Pradesh, and Karnataka to capture the voice of various stakeholders.

Phase 3: Data analysis to explore the supply side management constructs

After having conducted thorough research both theoretically and practically, the data collected in the above two phases were analyzed in this phase to lay out the systems of practice for considering the due diligence among the supply chain partners. The prominence of various issues considered were analyzed by using well known analytical methods such as Fuzzy Analytic Hierarchy Process (AHP), and Fuzzy TOPSIS. Further, structural relationships among various facets were established using Fuzzy DEMATEL to formulate appropriate strategies. For all aforementioned quantitative analysis MATLAB and R programming software packages were used. Further to obtain the generic inferences a comparative analysis was also conducted using SPSS.

Phase 4: Documentation and report submission

All the details starting from Phase 1 to Phase 3 will be documented to produce an appropriate report on "A Study on Socially Responsible Supply Chains for Protection of Human Rights". Finally, the report will be submitted to NHRC.

Enablers and barriers to socially responsible supply chains for protecting human rights

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2.1 Literature support to enablers and barriers to socially responsible supply chains

An exhaustive literature review was conducted to explore previous literature on socially responsible supply chains specifically in the light of protection of human rights. The investigators have tried out to explore the commonly used keywords in the published literature to get started with the literature review. A sample of keyword mapping is shown below.
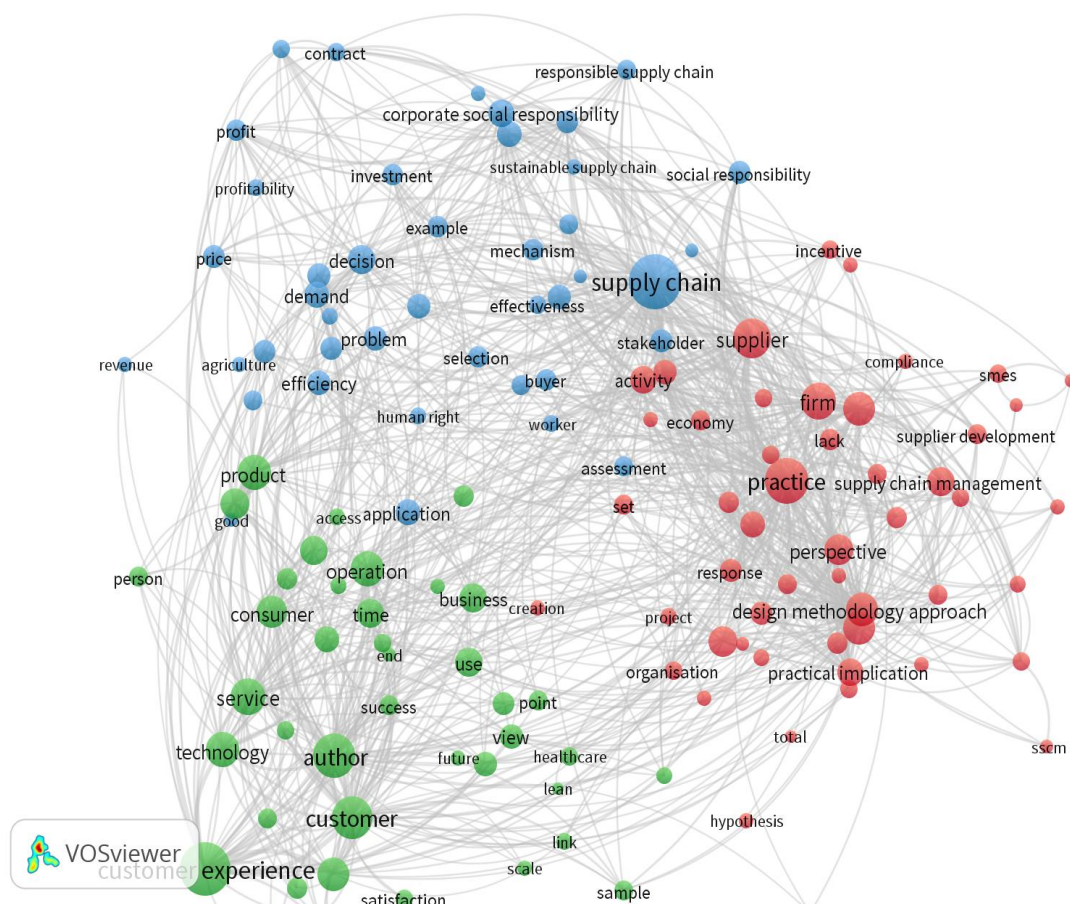
Figure 2.1 Naïve graph showing the keywords to consider for literature review

Reviewing the most significant studies published in the recent ten years, specifically from 2010 onward, snippets are taken for future investigation. The naive graph provides connections between the articles and the most frequently used keywords in the articles. Based on how frequently they appear in previous literary works, these keywords are selected, correlated, and shown. Additionally, the authors used these terms as a guide for creating the questionnaire and gathering data.

The following tables summarize the enablers and barriers for developing socially responsible supply chains excerpted from past studies.

Table 2.1: Enablers for developing socially responsible supply chains along with references

Enabler	Reference
A sustainable approach by the supply chain players towards moral, political, and legal dimensions improve the protection of human rights.	(Park-Poaps & Rees, 2010a); (Arnold, 2010)
Placing emphasis on selecting, evaluating, and rewarding for the best ethical practices of other companies along the supply chain will enable your partners to become more socially responsible.	(Mena et al., 2010)[1]; (Weissbrodt & Kruger, 2017)
Emphasis on offering safe, clean, and nutritional food supplies for the workers along your supply chain will benchmark you as a socially responsible supply chain.	(Isaksson, Johansson, & Fischer, 2010); (Das, 2017)[2]
Practices of sustainability standards, evaluating the	(Kudla & Stölzle, 2011)[3]

sustainability performance, and accordingly making the policies help the companies to protect human rights.	
Accountability mechanisms practiced along the supply chain can help the companies to follow the due diligence in the processes to protect human rights.	(Altschuller, 2011)[4]
Practice of exercising and leveraging allocation of resources that enable protection of human rights.	(Wood, 2012)
Sharing of information and a process of integration among your supply chain partners has a strengthening effect on interdependence and mutual trust, which in turn will favor protection of human rights along the supply chain.	(Westbrook & Frohlich, 2001); (Schloetzer, 2012a)
Exemplified practices of proper wages, working hours and safe environment will ensure the protection of human rights of the workers.	(Barrientos & Smith, 2007); (Preuss & Brown, 2012)
Strategically fitting the supply chain practices in line with that of the governments' regulations help in protection of the human rights.	(Lewis, Schmidt, & Duvall, 2012a); (Bijlmakers & Bijlmakers, 2018)
The purchasing power of a corporation can drive positive change among partners, and society towards achieving inclusive growth of the company.	(Taylor & Taylor, 2004); (Szegedi & Kerekes, 2012)
The government's practice of consultation with all	(Pogge & Sengupta, 2016); (United

the stakeholders is helping your company to close the implementation gaps in the deteriorating human rights situation. If so, it can play a constructive role in this regard.	States Department of State Bureau of Democracy Human Rights and Labor, 2019)
Exclusive training programs on ethical practices to be followed along the supply chains will help your supply chain become socially responsible.	(Altschuller, 2011)
Measuring upstream supply chain partners performance on sustainability initiatives through interconnected nature of the economic, environmental, and social dimensions has enabled you to protect human rights.	(Azevedo, Carvalho, Duarte, & Cruz-Machado, 2012); (Morali & Searcy, 2013)
Companies that are striving to protect human rights can aspire for better brand value and competitive advantage from the stakeholders.	(Loureiro, Ruediger, & Demetris, 2012); (Y. K. Kim & Sullivan, 2019)[5]
By reviewing the work of your partners and formulating initiatives to support and develop the stakeholders can improve social accountability of supply chains.	(Marucheck, Greis, Mena, & Cai, 2011); (Klassen & Vereecke, 2012a)
By offering long term business continuity there can be better chance for the companies along the supply chains to have better socially responsible supply chain performance.	(Wagner & Bode, 2006); (Stecke & Kumar, 2009)
Corporate Social Responsibility (CSR) standards	(Puncheva-Michelotti, Michelotti, &

followed at your company have made your supply chain partners to align with human rights requirements.	Gahan, 2010); (Camilleri, 2017b)
Incentive mechanisms followed to acknowledge the practices along the supply chain have motivated the players to comply with human rights.	(Park-Poaps & Rees, 2010b);(O'Rourke, 2014)
Mutual visits to sites and audits of suppliers' practices can improve the chances for protecting human rights.	(Zhang, Pawar, & Bhardwaj, 2017)
By developing competition among the supply chain partners in offering working conditions that meet the global standards can make you strong in complying with human rights.	(Gunasekaran, Lai, & Edwin Cheng, 2008); (Annavajhula & Pratap, 2012); and (Diabat, Kannan, & Mathiyazhagan, 2014)
Digitizing the supply chains has helped you in compliance, risk reduction towards predicting and preventing unsustainable practices, this in a way ensures protection of human rights.	(Bhandari, 2013); (Haddud & Khare, 2020); (Zangiacomi, Pessot, Fornasiero, Bertetti, & Sacco, 2020)
Social auditing in the industries can provide a platform for empowering the rights of the workers.	(Batra, 1996); (Idowu, 2015)
Policy guidelines about health insurance, provident fund and housing facilities ensure social security and strengthen the human rights of the workers.	(Krieger & Higgins, 2002); (Asher, 2009); (Ersoy, 2013);

Timely promotions to workers and recruiting the required staff at all levels can provide a sustainable atmosphere in the company and increase the quality of the work.	(Smales, 2010)
Recruiting the locals and developing the local community can increase the social inclusivity of the organization.	(Puncheva-Michelotti et al., 2010)[6]
As a supply chain leader, disallowing specifically labor trafficking and child labor at the upstream supply chain partners can improve compliance with the human rights and can also influence entire supply chain network towards the practices of human rights.	(BASU, 1999); (Zutshi, Creed, & Sohal, 2009); (Seidenberg, 2014); (Christopher Johnson Jr., 2015)
Increasing the number of female workers can enhance equity along the supply chains and thus can make the overall supply chain more socially responsible and gender inclusive.	(Baruah, 2010); (Esha, Sonalde, & Vanneman, 2018)
Tracking the male and female salary gaps along the supply chains has brought transparency in the salary bands through collating and passing the required information.	(Baruah, 2010); (Esha et al., 2018)
Establishing a gender sensitive HR unit that can create a space for dialogue for employees to speak freely about sexual and any kinds of discrimination will enhance gender equity along the supply chains.	(Baruah, 2010); (Esha et al., 2018)[7]

Value of diversity as an underlying culture of the organization and impart knowledge on how to manage a more diverse workforce and how to attract, retain and promote female talent has enhanced human rights compliance.	(Baruah, 2010); (Esha et al., 2018)
Practices about maternity leave, health care support during pregnancy, and assistance for sustained career progression will help protection of human rights.	(Baruah, 2010); (Esha et al., 2018)
Visible leadership by the chief executive and top management on supporting women in management has proven to be one of the most important levers for progress in achieving gender diversity in a corporate context.	(Lahiri-Dutt, 2007); (Chheda & Patnaik, 2016); (Bernstein & Volpe, 2016)
Equity, equality, and non-discrimination – provisions for workers to ensure outreach and inclusion to the most marginalized groups in the organization including persons with physical disabilities.	(Mitra & Sambamoorthi, 2006); (Sophie & Usha, 2008); (Mandal, 2010); (Oonk, Overeem, Peepercamp, & Theuws, 2012); (Carswell, 2016)[8]

Table 2.2: Barriers to socially sustainable supply chains along with references

Barrier	References
Deforestation and consequent environmental degradation leading to impaired sustainable manufacturing systems will deter the protection of	(Ermgassen et al., 2020)[9]

human rights along the supply chain.	
Most significant challenge identified by automotive Players in India is how to integrate the entire supply chain system and managing it as a single integrated entity in making supply chain more sociable.	(Lambert & Cooper, 2000); (S. W. Kim, 2006)
Improper capacity planning leading to underpayment of wages results in violation of human rights.	(Srija, 2014); (Vaughan-Whitehead, 2014); (Thornthwaite, 2018)
Sometimes the aspirations of the company lead to noncompliance with regulatory framework and this incongruity leads to loss of human rights.	(Hessels, Gelderen, & Thurik, 2008); (Lajqi, 2017)
Lack of coordination between you and the government puts you in a tight spot in terms of policing and law enforcing towards protecting human rights of the workers.	(Lewis, Schmidt, & Duvall, 2012b); (Pogge & Sengupta, 2016)
Lack of healthy competition among the supply chains leads to compromising the human rights.	(Gunasekaran et al., 2008)[10]
Over emphasis on optimizing the cost structures across the supply chains without compromising on human rights remains a challenge.	(Pfohl & Gomm., 2017)[11]
Political interference in Corporate Social Responsibility (CSR) practices will affect the human rights of the workers and society at large.	(Li & Zhang, 2010); (Nakamba, Chan, & Sharmina, 2017); (Camilleri, 2017a)[12]

Lack of Accountability among the partners in supply chains with regards to the resources engaged in fulfilling mutual requirements.	(Kolk, 2008); (Marucheck et al., 2011); (Klassen & Vereecke, 2012b)
Lack of supply chain visibility, including information sharing, leads to non-transparent transactions across the network which in turn will affect human rights.	(Shore, 2014); (Zeki & Keskin, 2011); (Schloetzer, 2012b)
Lack of strategic relationships with critical suppliers will affect sustenance of the network leading to violation of human rights.	(Shore, 2014); (Zeki & Keskin, 2011); (Schloetzer, 2012b)
Insecurity due to absence of appropriate machine health monitoring systems and safety environment leading to failures, accidents, and disasters which in turn lead to failure in protecting human rights.	(Shekhar & Das, 2000); (Lee, Kwon, Cho, Kim, & Moon, 2015); (Sud, 2018)
Absence of platforms to voice the opinions of workers leads to poor industrial relations between management, workers, and the community in general resulting in formation of unhealthy trade unions.	(Christine, 1997); (Shekhar & Das, 2000)
Failure to perceive labor abuse problem as part of the overall supply chain.	(Christine, 1997); (Shekhar & Das, 2000)
Failure to adopt newer technologies to reduce risks in terms of workers' health and personnel accidents leads to affecting human rights.	(Shekhar & Das, 2000); (Lee et al., 2015); (Sud, 2018)
Non availability of information regarding safe	(Shekhar & Das, 2000); (Zeki &

practices and mistake proof systems in all aspects of production and operations leads to accidents and thus compromising human rights.	Keskin, 2011); (Schloetzer, 2012b); (Shore, 2014); (Lee et al., 2015); (Sud, 2018)[13]
Greater the length of the supply chain higher will be the unwanted and redundant tasks which will lead to loss of human rights.	(Flynn, Huo, & Zhao, 2010); (Melnyk, Narasimhan, & Decampos, 2014)[14]
Not making and disseminating public commitments to human rights is an impediment.	(Hafner-Burton, 2005)[15]

2.2 Enablers that facilitate the practice of socially sustainable supply chains

Discussions made in the previous sections highlighted the significance and need for developing socially sustainable supply chains. In the current section, relevant discussion against each enabler considered for the study has been elaborated.

1. A sustainable approach by the supply chain players towards moral, political and legal dimensions improve the protection of human rights.

(In a series of reports the United Nations has emphasized the need to adopt and implement the tripartite framework dimensions such as moral, political, and legal to protect and respect the human rights of the workers in the organizations. These dimensions are intertwined and mutually exclusive in maintaining appropriate remedies for human rights violations. They support the human rights of the workers by providing jobs with a decent standard of living, a safe and healthy working environment. They also envision on the part of the management in delivering effective goods that are beneficial to humanity while demonstrating respect for the rule of law. This promotes self-regulation for a company to promulgate and adhere to the codes of ethical behavior).[16]

2.   Placing emphasis on selecting, evaluating, and rewarding for the best ethical practices of other companies along the supply chain will enable your partners to become more socially sustainable.

(As corporations are becoming transnational, they are increasingly confronted with human rights challenges of the workers. It is quite often noted that the construction of the human rights of the workers is guided by local factors or social contexts. One of the best ways to enable companies to become more socially sustainable is to study those local factors for better protection of human rights. Companies must study the best ethical practices of different organizations of various levels – local, national, and global, to ensure the protection of the human rights of the workers. These practices enhance dialogue between corporations and their stakeholders and become a watchdog for each other's social supply chain partners in the entire supply chain system).

3.   Emphasis on offering safe, clean, and nutritional food supplies for the workers along your supply chain will benchmark you as a socially sustainable supply chain.

(The United Nations declaration of fundamental human rights has demonstrated the need to adopt sustainable measures for workers in the industries. It could be argued that companies that aspire to be socially sustainable need to focus on providing safe, clean, and nutritional food supplies for the workers along the supply chain. Company business ethics should be extended and implemented from the organization to the entire value chain i.e., from the supplier to the last customer. These kinds of supply chains generally have a great innovation potential to become a socially sustainable organization).

4.   Practices of sustainability standards, evaluating the sustainability performance, and accordingly making the policies help the companies to protect human rights.

(Here the sustainability concept may be implied the balance of economic, ecologic and social objectives of the organization. Till recently companies have traditionally focused on economic dimensions and maximizing profits of the company. Those practices have acted as resistant towards environmental and social regulations. Nowadays, multinational enterprises have proactively established sustainability and CSR initiatives along the entire supply chain. This development undermines the blurred vision between the concepts of sustainability and supply chain management for enhancing the financial performance and operationalization of sustainable policies and standards. These measures serve as drivers for the protection of the rights of the workers).

5. Accountability mechanisms practiced along the supply chain can help the companies to follow due diligence in the processes to protect human rights.

(Some companies present themselves as socially and environmentally responsible players by developing self-reporting accountability mechanisms. Companies are conducting human rights due diligence to evaluate existing potential impacts of their operations. A critical accountability mechanism can evaluate gross human rights violations in an organization. A well-designed policy making with due diligence efforts can reduce legal, reputational and operational risks and hazards).

6. Practice of exercising and leveraging allocation of resources that enable protection of human rights.

(Companies have a social responsibility to enable the practice of exercising and leveraging to address the human rights violations. In the field of business and human rights, there is a vast literature that presents a broad spectrum of arguments that a company should 'leverage' over other actors with whom they have a business relationship. If a business partner along

the supply chain network is blatantly and systematically exploiting workers, polluting the environment and becoming a barrier for protection of human rights then the company has a moral obligation to exercise their leverage towards protecting the rights of the workers and also the reputation of the company. In other words, a company's ability and leveraged based moral responsibility can influence the decisions and activities of their business partners along the supply chain to protect human rights).

7.   Sharing of information and a process of integration among your supply chain partners has a strengthening effect on interdependence and mutual trust, which in turn will favor protection of human rights along the supply chain.

(There is a growing recognition among academic and research circles about the need to create strategic advantage and achieve mutually performance outcomes through information sharing and integration along the supply chain partners as they bring positive outcomes. Various research studies have highlighted that a more integration and information sharing between supply chain partners not only strengthens mutual trust but also enhances financial benefits. This may also help in maintaining sustainable relations between partners. Some major industrial companies encourage their distributors to exhibit cost effective of the products, adopt unique sales processes, and purchase specialized implement and proprietary information systems to facilitate inventory movement chain through the supply chain. It can provide a favorable climate for financial performance implications for partnership sales growth, sales productivity, and profitability. If there is a lack of information sharing among partners, it can lead to a termination of the partnership and can cause a hold-up problem in the supply chain. Thus, there is a need for companies to have a potential for hold-up in supply chain that can influence the process of integration and information sharing).

8. Exemplified practices of proper wages, working hours and a safe environment will ensure the protection of human rights of the workers.

(There are various studies highlight that low pay and wage inequality among workers remains a major obstacle to human rights and also to achieve decent working conditions and inclusive growth of the company, across the supply chain. The gender wage gap is another concern that calls for the protection of the human rights of the workers. Ensuring proper wages, working hours, and a safe environment through sustainable wage policies is a widely shared objective and recognized as a driver for protecting the human rights of the workers. Sustainable wage policies can actually ensure minimum wages and also can provide a platform for collective bargaining between the company's management and workers. This will ensure wages grow in tandem with labor productivity and contribute to reducing inequality and promoting inclusive growth. All these measures can contribute to more social cohesion across the supply chain and pave a way for social security and social mobility with a dignified living for the workers to meet their needs for nutritious food, education, housing, and health care. Thus, proper wages, working hours, a safe environment, and social security measures can serve as driving points towards the protection of the human rights of the workers).

9. Strategically fitting the supply chain practices in line with that of the governments' regulations helps in protection of human rights.

(The role of the state has become crucial in issuing the regulations to impact supply chain practices in public and private companies to protect the human rights of the workers. Those government regulations have set the criteria for social and ethical aspects to stress the importance of sustainability, social development, environmental safety, stakeholder's interests, consumer satisfaction, and service orientation. The government's code of ethics

strongly advocates for equal opportunities for the workers across the supply chain, regardless of their social and economic backgrounds, as these measures help for the inclusive growth and welfare of the company. The government rules and regulations often allow the platform to raise the workers' concern to the top management and protect the rights of the workers).

10. The purchasing power of a corporation can drive positive change among partners, and society towards achieving inclusive growth of the company.

(Many studies have argued that the purchasing power of a company can become a potential driver towards impacting the company and society in a positive manner. The purchasing power of a company can also influence the supply chain towards inclusive growth. Many companies are now increasing their focus to emphasize cost-reducing and risk-minimizing which helps them to increase their purchasing power in the upstream and downstream flow of products and services. These measures integrate the supply chain activities to achieve sustainable competitive advantages and they can extend their commitment to responsible business practices to their value supply chains. The social responsibility of the business ethics of a company encompasses the economic, legal, and ethical dimensions which benefit not only the company but also the society in general).

11. The government's practice of consultation with all the stakeholders is helping your company to close the implementation gaps in the deteriorating human rights situation. If so, it can play a constructive role in this regard.

(Since human rights are central to the achievement of the Million Development Goals, the Government's engagement with the stakeholders of the public and private companies is becoming relevant in recent times to protect and implement the human rights of the workers.

A company or organization cannot be serious about corporate social responsibility across the supply chain network unless it is serious about the government's practice of consultation with them, and vice versa. However, the government's engagement should not become total control over company management. The government needs to play a sustainable role in protecting not only the autonomy of the company but also the rights of stakeholders. Effective governance that protects and promotes good management, the rule of law, and the implementation of human rights are some of the significant aspects of sustainable human development).

12.   Exclusive training programs on ethical practices to be followed along the supply chains will help your supply chain become socially sustainable.

(Training programmes for employees on ethical behavior towards more socially sustainable in the workplace becomes significant in the contemporary era. Ethical practices along the supply chain network constitute well-established codes of professional and personal conduct that compliance with rules and regulations of the company. This sort of training programmes on cultivating ethics among employees also constitutes moral codes of conduct such as honesty, compassion, and to become more socially responsible citizens. These training programmes are meant to create awareness about unethical behavior among the staff of the company that can improve the financial performance along the supply chain and establishes mutual trust and transparency among stakeholders. It can avoid the reputational damage of the company and strive to become socially responsible towards human trafficking, child labor, gender sensitivity, exploitation of the workers, etc.).

13.   Measuring upstream supply chain partners' performance on sustainability initiatives through interconnected nature of the economic, environmental, and social dimensions has enabled you to protect human rights.

(One of the ways to practice sustainable initiatives that can ensure the protection of human rights is to critically measure the upstream supply chain partners' performance on a variety of interconnected issues such as economic, environmental, and social dimensions. This allows opening a set of practices for the management to infiltrate business functions in the supply chain network. However, practicing sustainability along the supply chain is also far from being easy. It requires sustained dedication and willpower to protect human rights in the organization. In fact, these practices involve high costs, coordination, communication, and competition among upstream and downstream partners can be a complex exercise. All these goals are derived from customer and stakeholder requirements since they act as the driving points for implementing sustainability in the supply chain. Once the commitment and concern are established from management, the supply chain mechanism can be made a sustainable platform through constant monitoring, evaluation, and reporting, that improves the long-term economic performance of the company and ensures the protection of human rights).

14.   Companies that are striving to protect human rights can aspire for better brand value and competitive advantage from the stakeholders.

(Companies that aspire to a strong brand value of their products invariably aspire to protect and implement human rights in the organization. The strong brand value of the products minimizes the risk of commoditization, and it generates a feeling of emotional aroma and attachment around a product and service with the customers. It also improves pricing as well as purchasing power. The strong brand value of the products creates emotional connections with the consumers and leads to increased loyalty. Companies with strong brand values can leverage equity to sustain production and distribution along supply chain streams. Once customers have emotional and user value bondage with the products, they can also demand

new products from the company. Along with this, employees would be increasingly wanted to work and associate for a company that is associated with a strong brand value in a popular sense. And these measures can also increase retention and advocacy. It can also establish a foundation for operations and decision making which can yield a positive financial performance. In the age of the globalized world, the usage of social media has both positive as well as negative implications. There are some hackers on social media who attack reputed companies and spread negative messaging on the brand quality of the products. However, consumers who have a strong connection and trust over the brand value of the products are more likely to withstand such disruptive viral messages. Trust over the brand is possible when companies aspire to protect and implement human rights. In other words, the brand value of the product can become a potential driver for the practice of the human rights of the workers).

15.   By reviewing the work of your partners and formulating initiatives to support and develop the stakeholders can improve social accountability of supply chains.

(The challenge to integrate social and safety issues into the management decision making on the supply chains has received serious attention over the recent decades. This is due to the cumulative result of diverse demands coming from multiple stakeholder groups such as investors, customers, and supply chain partners. In many ways, company management is being challenged by diverse stakeholders who have multiple needs and information accessibility about the company's supply chain. As a result, many companies are now attempting to strategize their operations upstream and downstream in the supply chain to make them more socially sustainable. To improve the social accountability of supply chains, management has to monitor as a self-managed defined evaluative activity of the partners to leverage and provide stakeholder accountability. Thus, by reviewing the work of

stakeholders, the monitoring system of the company takes deep initiatives on the supply chain that can offer insights into potential risks and inefficiencies in the overall system performance).

16. By offering long term business continuity there can be better chance for the companies along the supply chains to have better socially sustainable supply chain performance.

(One of the ways to keep the organization strong is to maintain long term continuity in business operation in the supply chain and it can provide measures for socially sustainable supply chain performance. Business interruptions due to any reason can impact organizations of any size and expose vulnerabilities and gaps in the supply chain. It is due to supply-side risk; most of the business organizations experience degrees of failures, disruptions, or even shut down the overall business operations. The recent literature shows that those companies who have shown keen interest to protect the supply chain performance by taking proactive measures such as natural disasters, environmental safety, etc. have produced desired positive outcomes for keeping the company uninterrupted flow of business production and transactions, can serve as driving measures for socially sustainable supply chain).

17. Corporate Social Responsibility (CSR) standards followed at your company have made your supply chain partners align with human rights requirements.

(An emerging body of literature has highlighted the need to practice CSR standards along the supply chain for ensuring the protection of human rights in the organization. Business organizations are expected to incorporate CSR in their policies and practices. It is often used as a synonym for business ethics and moral codes of conduct to indicate corporate

philanthropy, strictly related to protecting the environment, and also to develop the local communities. It is now a growing recognition in the academic literature to attribute critical and crucial importance to CSR framework for both companies and local communities in implementing ethical codes of conducts and other initiatives to be socially sustainable, and this tendency is largely supported and encouraged by major constituencies in civil society including citizens, consumers, investors, and workers. From a consumer perspective, sustainable and safety practices of products and business involvement of the local community and others have all been found to be a relevant dimension of CSR. Thus, the CSR practices along the supply chain can platform for not only demonstration but also towards the protection of the human rights of the workers and the community).

18.   Incentive mechanisms followed to acknowledge the practices along the supply chain have motivated the players to comply with human rights.

(Human resources are the most crucial foundation for any development and success of the organization. The emergence and sustenance of any industry require three crucial factors include labor, machinery, and capital. Among these factors, labor is the most important and effective instrument for making use of machinery and capital in a sustainable manner. These are the competitive assets of the company. Motivation is one of the significant instruments that can induce employees to produce effective and efficient results. A constant motivation by the management team can cultivate business ethics among workers that may increase the overall efficiency of the company. Along with motivation, job performance also depends on individual capability and the social environment of the organization. When these social contexts remain absent in the organization, they will be more ineffective and can harm the overall performance and productivity of the organization. There are various ways that a company can train and motivate its employees. For instance, communication about the

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transparent rewarding process should be maintained between management and employees and delineate how employees can earn rewards. It is true that when employees have a comprehensive understanding of what is expected of them, they will be willing to work and achieve desired performance standards. Reward systems can be both cash and non-monetary such as recognition and praise have a strong impact on employee performance. The company must ensure that reward systems are in line with company standards, objectives, and strategies that meet the requirements of human rights. Motivation and intact commitment in people allow them to adhere to their duties with seriousness and joyfully. High motivation among employees also helps them to get rewards and promotions. Along with this, a proper assurance about wages, job security, safe working conditions, health insurance, and other related issues to human rights will add another fuel towards yield positive results along the supply chain).

19.   Mutual visits to sites and audits of suppliers' practices can improve the chances for protecting human rights.

(Frequent visits to the sites and audits of the supplier's performance should be considered as an essential ingredient for the protection of human rights. Supervision is a crucial element for strengthening quality assurance and performance at the site level. It can alert the supply chain players about the gaps and potential problems in the production and delivery system. Supervision provides a unique opportunity for the supervisors and managers to learn about human rights violations at the grassroots levels along the supply chain. It also helps to enhance multiple lines of communication. Visits and regular check-ups can be able to find out about the inefficiencies among the staff and help them to improve their performance levels to meet the company's requirements).

20.   Developing competition among the supply chain partners in offering working conditions that meet global standards can make you strong in complying with human rights.

(Competition is one form of motivational factors which can create a healthy ambiance among the supply chain through offering safe working conditions in the company for the protection of the human rights of the workers. Implementing safe and healthy working conditions are now considered legitimate in every human enterprise. Various studies have demonstrated that working for long hours in an unsafe environment will lead to serious complications for the health of the workers. This is a clear indication of violating the rights of the workers. There are also instances of exploiting workers by paying low wages and subjecting them to violating global norms and human rights. Thus, by developing healthy competition among supply chain partners to make them mutually accountable towards creating a safe environment for working conditions and protecting the rights of the workers).

21.   Digitizing the supply chains has helped you in compliance, risk reduction towards predicting and preventing unsustainable practices, this in a way ensures protection of human rights.

(In the age of globalization, digitalizing the supply chain network can enable to reduce risk in terms of predicting and preventing accidents, hazards, and unsustainable practices. To compete with the modern economy and have a global standing, most of the companies are now digitalizing their economy and investing in digital applications and IT infrastructure for integrating the supply chain mechanism and maintaining transparency in information sharing. There are various giant organizations across the globe cutting their inventory holdings down by substituting information for inventory. With digitalization, organizations can be able to leverage the supply chain partners to coordinate physical and financial

inflows across the supply chain to procure, manufacture, and sell the products. Online transactions can also be likely to reap the benefits of rapid response and maintaining a detailed database about the suppliers, customers, and distributors. In a way, the digitalization of supply chain channels can reduce processing costs and remove delays across the supply chain through proper coordination and collaboration across time and space. It leads to the development of competencies of the organization. These digital measures along the supply chain will be able to predict the risks and to detect the human rights violations of the workers in the organization to the customers at the receiving end).

22.   Social auditing in industries can provide a platform for empowering the rights of the workers.

(Social auditing process is described as an act preferably performed by an independent nonprofit organization with concern at improving whether public or private company's performance. One of the main targets of social auditing or social accounting is to assess the impact of a company on both the internal and external social environments. Effective, efficient, and reputable companies have a clear perspective of where their company is going towards meeting the targets and requirements. The social auditing process aids them to achieve clarity and removes mazes across the supply chain towards protecting the interests of the workers and the company. Social auditing enables an organization to build on existing documentation and to develop a process that improves social performance and makes to understand the impact of companies on the communities and also to know the perception of community towards the company. It also helps the management to be accountable to its key stakeholders and workers. Social auditing also produces a social balance sheet of an organization that helps the stakeholders to support or invest in the organization. However, the company management has to perceive the social auditor as a critical friend who

periodically checks the inadequacies and inefficiencies in implementing the rights of the workers to help the organization perform well. Usually, independent social audit panels have more credibility in assessing the performance of the company. Periodic social auditing can help the organization to become more socially and environmentally responsible players).

23.   Policy guidelines about health insurance, provident fund and housing facilities ensure social security and strengthen the human rights of the workers.

(Social security at the workplace is a basic right of every worker that includes access to health insurance, provident fund, proper wages, housing, and safe working conditions. However, when one looks at the global trend, the issues related to social security fall far from this human right. It is estimated that there are millions of workers across the globe who are becoming victims of occupational diseases and accidents every year. Many of those cases are under-reported in India. Social security measures for the workers cannot be isolated from other issues like job security as they are intertwined with each other. There is now a growing concern among intellectual circles that social protection initiatives can reduce poverty and vulnerability levels more particularly among marginalized workers of the company. The company should ensure and monitor the periodic checks along the supply chains about the quality of the premises, cleanliness, disposal of wastes and effluents, ventilation and temperature, dust and fume, lighting, clean drinking water, separate latrines and urinals for both male and female workforce. Safety measures for the workers must be ensured and guaranteed by updating the machinery in the best possible safety conditions and meeting the requirements of international standards. Thus, the employer or occupier is obliged and should ensure the health insurance, occupational safety, working conditions, and welfare of all the workers in the company including skilled, semi-skilled, and unskilled to protect and implement the rights of the workers).

24.   Regular promotions of workers and recruiting the required staff at all levels can provide a sustainable atmosphere in the company and increase the quality of the work.

(One of the motivational factors in any organization is the regular promotions to the qualified workers to increase the performance levels of the company. The gradual advancement of an employee through promotions generally has higher salaries, higher job title, and increase the responsibilities in the organization. Timely promotions to the employees can yield an effective performance in the organization. Along with promotions, the company should focus on filling up of vacant positions. Finding the right candidate for the advertised post can be the success strategies of the recruitment. It is one of the significant activities of the organization to attract a qualified candidate to the organization to facilitate the effective selection of the recruitment process. Thus, the presence of a sufficient number of employees in the organization can provide a positive and sustainable environment towards the protection of the human rights of the workers).

25.   Recruiting the locals and developing the local community can increase the social inclusivity of the organization.

(Social inclusivity of the organization emphasizes the need to provide a space for the development of local communities through not only aiding them in terms of education, health, and infrastructure but also providing locals some employment relief in the organization. A triple bottom line approach is needed for the social inclusivity of the organization by linking the dimensions of economic, environmental, and social imperatives. This calls for a balanced social development of the organization, while at the same time addressing the interests of shareholders and stakeholders. In other words, socially sustainable companies do not limit themselves to maximize their profits alone, but they use CSR as a platform to integrate economic, environmental, and social dimensions towards the company's growth. CSR of the

organization is not merely a matter of compliance but a commitment to improving the lives of the underprivileged and socially excluded communities by eradicating hunger, poverty, and malnutrition. Social inclusivity also ensures environmental sustainability, ecological balance, and conservation of natural resources. Thus, companies can increase their social inclusivity base by recruiting the manpower from local communities by giving them proper training and enhance their employability skills that suit the requirements of the company).

26.   As a supply chain leader, disallowing specifically labor trafficking and child labor at the upstream supply chain partners can improve compliance with the human rights and can also influence entire supply chain network towards the practices of human rights.

(Labor trafficking is a serious crime and a violation of human rights. The exploitation of victims lasts on physical, psychological, emotional, and financial aspects. More particularly youth are at higher forms of vulnerability, and they deserve special protections from state and society towards protecting their legitimate human rights. Labor trafficking usually occurs when an employer manipulates the worker into involuntary labor. Trafficking cases indicate that involuntary labor typically takes place in abusive and most undignified conditions, such as long working hours in unsafe environments, and they are exploited with unfair wages. They are tortured, threatened, and denied access to basic food, housing, and income opportunities.

Along with labor trafficking among youth, trafficking among children has been one of the serious concerns on the international agenda in combating child labor in industries and factories. It is now the international community has viewed child labor as a serious criminal offence and violation of children's rights, and the trafficking of children is undeniably a human rights issue. While the trafficking of adults is understood by coercion and abuse of

power, child trafficking is defined by the exploitation itself. Children are frequently trafficked into various industries such as agriculture, manufacturing industries, mining, and fisheries. Girls on the other hand are trafficked into domestic labor. These children have moved away from their homes, and they are exploited by high-risk forms of violence. It is true that poverty and other social determinants play a crucial role in explaining why children are trafficked. There are criminal networks and gangs who exploit children in begging, street hawking, drug carriers, pick pocketing, and other crime-based activities. These activities are associated with commercial motives and children are exploited from trafficking and make them vulnerable to severe physical and psychological abuse by the employers. Children always end up working in dangerous and unsafe conditions. They are exposed to long working hours and carry heavy loads of toxic substances. They work in fear, intimidation, violent punishment, and sexual abuse. Thus, children are reduced to victims of commodities who are to be bought, sold, transported, and resold for sexual and labor exploitation. Therefore, supply chain leaders in the company should act as watchdogs and disallow such inhuman activities of trafficking among youth and children in the company and they should strive towards protecting the rights of youth and children. Supply chain leaders along the steam of the supply chain must make sure these illegal activities should not take place within the company and also, they should train the supply chain partners not to indulge in such serious crimes).

27.   Increasing the number of female workers can enhance equity along the supply chains and thus can make the overall supply chain more socially sustainable and gender inclusive.

(Conventional wisdom suggests that increasing the number of women in the workforce can provide significant social and economic benefits to them but cultural and social norms

prevent women from realizing their potentialities and dreams and restrict them from physical and economic mobility. Along with structural inequalities and social attitudes, it is due to a lack of enabling conditions in the workplace, most of the working women finding it more difficult to actively participate in the labor market than men. Lack of specific vocational skills or sufficient digital literacy is further making women handicapped to actively participate in the labor force. The compounded problems are due to lack of female-friendly toilet facilities, access to safe transport, fears of violence and harassment, poor enforcement of sexual harassment laws, childcare, and social restrictions form families and society are causing women deprived and suppressed. Therefore, one of the ways to improve and strengthen the wings of social inclusivity along the supply chain, companies must have to design policies that allow active participation of women in the workforce. Companies have a larger opportunity to use their collective influence and wisdom to empower the women and increase their abilities in the socially inclusive supply chain. The company's reputation among supply chain players and society, in general, can be raised to great heights by implementing such gender-sensitive measures).

28.   Tracking the male and female salary gaps along the supply chains has brought transparency in the salary bands through collating and passing the required information.

(One of the ways to address gender disparities at the workplace is to ensure equal wages for both males and females. Education is one of the principal social agents that influences and helps to raise social and economic mobility among women. Even though women's percentage of active participation at the workplace in the public domain is small compared to men but there is a steady rise in the last two decades. However, research studies suggest that women continued to be employed mostly in low paying and low-value jobs, compared to men. It is

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also due to the ineffective implementation of policies and measures with deep-rooted stereotyped social norms, women have constrained to bargain freely for equal wages at the workplace, and their participation rate in the workplace continued to be dwindling. While both men and women suffer from low pay wages, but women workers tend to be more exploited and vulnerable than men. It is also due to unsupportive social norms, prejudices, and power dynamics; women are placed at disadvantaged positions at the workplace. They lack access to benefits such as health insurance, maternity leave, and exposure to unsafe environments.

Companies must address all these challenges and reduce widening wage gaps between males and females. Companies should encourage women to actively participate in the workplace and they need to enable and influence women empowerment through improving working conditions, building skills, and promote wellbeing among women workers. Thus, companies can make supply chain mechanism a socially responsible towards women and they can be able to bring a positive change among them).

29. Establishing a gender sensitive HR unit that can create a space for dialogue for employees to speak freely about sexual and any kind of discrimination will enhance gender equity along the supply chains.

30. Value of diversity as an underlying culture of the organization and impart knowledge on how to manage a more diverse workforce and how to attract, retain and promote female talent has enhanced human rights compliance.

31. Practices about maternity leave, health care support during pregnancy, and assistance for sustained career progression will help protection of human right.

32. Visible leadership by the chief executive and top management on supporting women in management has proven to be one of the most important levers for progress in achieving gender diversity in a corporate context.

33. Equity, equality, and non-discrimination – provisions for workers to ensure outreach and inclusion to the most marginalized groups in the organization including persons with physical disabilities.

Description for the enablers 29 – 33 is clubbed and presented below.

(In India, marginalized groups include children, women, scheduled castes, scheduled tribes, minority sections, and persons with physical disabilities. They are regarded as vulnerable groups. In other words, social groups who are not able to participate in the mainstream of society can be termed as marginalized. Deprivation of rights is both a cause and an effect of such marginalization. They are socially, economically, and politically excluded. They live in a vicious circle whereby they lack access to basic healthcare, education, and employment, and they have prevented them from actively participating in public life, which is leading them to further social isolation. On the other hand, people with physical disabilities are battling against age-old biased assumptions, harmful stereotypes, and irrational fears. The stigmatization of disability has made them inaccessible to employment opportunities and they are further marginalized in social and economic spheres. These social groups have left with disabilities in a severe state of impoverishment. This complex social problem needs to be addressed at the policy level. There are policies and legislative measures to promote equal rights for these disadvantaged groups, however, those measures have so far not effectively touched upon their lives. To bring equity, equality, and non-discrimination in the workplace, companies must have to understand and address the issues of marginalities and provide an environment for disadvantaged social groups to work and actively participate in the

production. These measures will enable the companies to protect and promote the human rights of workers belonging to these social groups and make the supply chains a socially inclusive organization.

2.3 Barriers that hinder the practice of socially sustainable supply chains

In this section the barriers which challenge the implementation of socially sustainable supply chain practices are described.

1.   Deforestation and consequent environmental degradation leading to impaired sustainable manufacturing systems will deter the protection of human rights along the supply chain.

As part of social responsibility, companies have a voluntary role in implementing zero-deforestation measures along the supply chains. Unsustainable practices along the supply chain will have a tremendous effect on business production and distribution of the company. It also severely affects the transparency and information sharing between stakeholders. The opaqueness along the information sharing system arises mainly because of the lack of traceability in commodity supply chains. They lack a clear blueprint towards implementation, constant monitoring, and unbreakable progress reporting. Social commitment and environmental concern are necessary for companies to implement measures that address deforestation and greenhouse emissions. These issues have a tremendous effect on not only hampering the sustainable environment but also become a barrier in protecting the rights of the workers along the supply chain.

Even though governments have issued orders to protect the environment and rights of the workers along the supply chain, however, it is argued that unless companies take effective measures to address the broken system of the socially supply chain there is no assurance

coming from the company's management to address the violations of human rights of the workers. Companies need to revise and devise to commit themselves to achieve compliance throughout the supply chain mechanism and also to achieve zero deforestation, environmental integrity, and social sustainability along the supply chain.

2.   Most significant challenge identified by automotive Players in India is how to integrate the entire supply chain system and managing it as a single integrated entity in making supply chain more sociable.

In business today, one of the most alarming issues that concern industries is how to integrate the entire supply chain mechanism to not only maintain environmental accountability but also to assure an effective working culture across the supply chain. One of the ways of supply chain management is to enhance and strengthen the competitive performance through integrating the production and distribution mechanism within the company and to effectively integrate them with external operations of suppliers and customers. A challenge before successful supply chain management is how to determine and accomplish the integration along the streams of cross-functional supply chain systems. There has been a crucial paradigm shift in modern business management, and it views individual business entities no longer solely competitive autonomous categories, but rather as supply chains.

In fact, the supply chain mechanism is not just a chain of business operations with one-to-one entities, but a network of multiple relationships with business stakeholders and partners along the supply chain. Supply chain management can provide companies with an opportunity to synergize and integrate intra and inter-company business operations. It presents and represents a novel way of managing the business relationships between members of the supply chain. Logistics forms an essential component in supply chain

management that involves the planning and implementation of the business operations and also maintains the effective and efficient flow of goods and services along the supply chain.

However, company management must have a closer look at choosing the appropriate levels of partners for a particular supply chain linkage. In other words, to remove the barriers along the supply chain, companies need to study these challenges of integration as not all connections throughout the supply chain are important. They need to be closely coordinated and integrated. These social measures can only be achieved when companies determine which components of the supply chain network deserve more management attention. Those issues must be weighed against the firm's strengths and capabilities, and the companies must have explicit knowledge and understanding of how to configure the supply chain network. In other words, companies need to identify the appropriate supply chain members as including all members may create a hassle in business operations and it may explode in the numbers of members from one tier to another, and in most cases, they can be counterproductive, and become a barrier in protecting the rights of the workers.

3.   Improper capacity planning leading to underpayment of wages results in violation of human rights.

In fact, the underpayment of wages is not, in itself, a new phenomenon. It now appears to be spreading and violating the human rights of the workers. In a country like India, the economy is a dualistic in character due to the existence of a well-organized sector and also the predominant presence of an unorganized sector. Assuring minimum wages to the workers can make a major contribution to social justice by improving the lives of the marginalized and deprived workers in the company. In most of the informal sectors, there is no assurance of wage protection, social security, employment stability, and underpayment of wages. These lead to gross violations of the human rights of the workers, and they are further deteriorating

industrial relations. Proper planning with a social concern can help the companies to address the issues related to fair wages and social security, and it can help the workers to earn a minimum wage to lead a decent life. These regulatory reform measures can reduce employer non-compliance with proper wage standards.

4.   Sometimes the aspirations of the company lead to noncompliance with regulatory framework and this incongruity leads to loss of human rights.

There are several policy measures that aim to stimulate and promote innovation and growth of the company. The aspirations of the company management can serve as a strong predictor of outcomes and these aspirations and motivations have a prominent agenda of policymakers to increase wealth and job growth of the company. In this context, it is a challenge for policymakers and management of the company to make sure and design social security systems to protect the interests of supply chain players. A positive aspiration can be a good driver for protecting the rights of the workers. However, the aspirations of the company can also lead to non-compliance with the regulatory framework, and this leads to barriers in protecting the rights of the workers. High aspirations can create over-optimism and incompetence among the management, and also the workers. These high aspirations will negatively affect the company's innovation, employment creation, and economic growth.

5.   Lack of coordination between you and the government puts you in a tight spot in terms of policing and law enforcing towards protecting human rights of the workers.

The government rules and regulations have set the framework to maintain and implement social and ethical measures to protect the rights of the workers in the industries. However, in reality, there is a lack of coordination and mutual consultation between the state and the company management in addressing the issues of sustainability, social development,

environmental safety, stakeholder's interests, consumer satisfaction, service orientation, and protection of human rights of the workers. A company or organization cannot be serious about corporate social responsibility across the supply chain network unless it is serious about the government's practice of consultation with them, and vice versa. The government needs to play a sustainable role in protecting not only the autonomy of the company but also the rights of stakeholders. Effective governance that protects and promotes good management, the rule of law, and the implementation of human rights are some of the significant aspects of sustainable human development. The government needs to mediate and advocate the code of ethics that strongly addresses equal opportunities for the workers along the supply chain irrespective of their social and economic backgrounds. Lack of these measures can hamper the inclusive growth and welfare of the company.

6.   Lack of healthy competition among the supply chains leads to compromising human rights.

Designing and implementing safe and healthy competition between supply chain players may be now considered a legitimate action plan in most industries. Competition is one of the motivational factors along the supply chain that can yield a healthy ambiance to offer safe working conditions for the protection of human rights. The lack of such healthy competition will deteriorate the rights of the workers, and they demonstrate working for long hours in an unsafe environment. It also leads to a lack of accountability, transparency, and mutual trust between players along the supply chain. This unsustainable atmosphere in the companies can provide a platform to exploit workers by paying low wages or no wages at all and subject them to violating global norms and human rights.

7.   Over emphasis on optimizing the cost structures across the supply chains without compromising on human rights remains a challenge.

Supply chain management is applied in business operations to understand the flows of goods, information, and optimize the cost structures across the supply chains. In the market-based economy, the process of capital building and emphasis on optimizing the cost structures are of utmost importance. A sufficient amount of capital can play a crucial role in strengthening the financial performance and economic stability of the company. However, over-emphasis on optimizing the cost structures can also become a big challenge for companies to protect the rights of the workers.

8.   Political interference in Corporate Social Responsibility (CSR) practices will affect the human rights of the workers and society at large.

In the age of globalization and market economy, business organizations are encouraged to incorporate CSR in their policies and practices. CSR is often used to designate for business ethics and moral codes of conduct to indicate corporate philanthropy, strictly to protect the environment, and to strengthen and promote the human rights of the workers in the organizations and it is also to develop the local communities. By implementing ethical codes of conduct, CSR initiatives can make the supply chain socially sustainable, and these measures are largely gained popularity and firm support from the workers and civil society at large. The social inclusivity of the organization can be strengthened through the expansion and implementation of CSR activities towards the development of local communities in providing education, health, employment, and infrastructure. These measures can bring social development to the organization by linking a balanced development between economic, environmental, and social imperatives. To put it theoretically, CSR does not limit the companies to maximize profits alone, but it widens the scope in integrating economic, environmental, and social dimensions. In recent decades, there has been a growing concern among research circles and business organizations about the political interference of

external parties in CSR activities of the company management. This active involvement of the political parties will not only hamper the CSR activities, but it severely affects the human rights of the workers.

9. Lack of Accountability among the partners in supply chains with regards to the resources engaged in fulfilling mutual requirements.

Self-reporting accountability practices of the company can develop socially and environmentally responsible supply chain players. They can conduct human rights due diligence practices and evaluate the existing business operations and human rights violations along the supply chain. On the other hand, there has been growing awareness among civil and political society to check the social and environmental accountability of the companies, and this has urged the companies to maintain accountability throughout their supply chains. A challenge before the companies is how to integrate social and safety issues into the management decision making and implement accountability measures along upstream and downstream in the supply chain to make them more socially sustainable. Thus, lack of accountability mechanism in the companies can affect due diligence efforts and violate the human rights of the workers. They can further accentuate legal, reputational risks and hazards.

10. Lack of supply chain visibility, including information sharing, leads to non-transparent transactions across the network which in turn will affect human rights. *(Description for this is similar to 11th)*

11. Lack of strategic relationships with critical suppliers will affect sustenance of the network leading to violation of human rights.

In many ways, company management is being challenged by diverse groups and stakeholders such as investors, customers, and supply chain partners about information accessibility and accountability along the supply chain. Owing to the demands from these diverse groups and the pressure from the government, most of the companies are now attempting to strategize their business operations to improve the social accountability of the supply chains. Mutual trust and transparency in information sharing among supply chain partners are a must to maintain goodwill and strategic long-term partnerships with the stakeholders. These measures can sustain the business growth of the company in the long run, and it can also protect the rights and interests of the workers, in terms of job security and ensure proper wages. Various research studies have highlighted that more integration and information sharing between supply chain partners not only strengthen mutual trust and long-term business partnerships but also enhances the financial benefits of the company. This may also help in maintaining and strengthening sustainable relations between partners. It can encourage companies and distributors to exhibit the cost structure of the products, distribution, and sales processes of the products, and to facilitate inventory movement along the supply chain. It can also provide a favorable climate and conditions for financial performance in the smooth functioning of sales growth, sales productivity, and profitability. If there is a lack of information sharing among partners, it can lead to a termination of the partnership and can lead to problems in the supply chain. It is due to the lack of these social measures, most of the companies are suffering to identify the insights about potential risks and inefficiencies in the overall system's performance along supply chain mechanism.

12. Insecurity due to absence of appropriate machine health monitoring systems and safety environment leading to failures, accidents, and disasters which in turn lead to failure in protecting human rights.

Business risks are like uninvited invitees as they arrive at the company's doorstep at any time, and in many forms with multiple features. It usually occurs when companies do not procure updated technologically appropriate machinery in combating emergencies and disasters. There are instances where alarming systems go offline, and key networking connections do not work when natural disasters strike and shake the foundations of the company. Security issues can threaten the integrity of the company and provide a way out of violating the rights of the workers. It can halt the whole operations of the company. Maintaining productive and updated machinery is absolutely necessary for the sustainable functioning of the business operations and to provide a safe environment for workers to work effectively and efficiently. However, there are incidents across the globe that show how companies failed to maintain appropriate and updated machinery to predict and avoid natural disasters, accidents, and risks. It resulted in not only heavy property loss for the company but also many workers have lost their lives. Along with this, these disasters can also occur when companies fail to recruit suitable manpower and also to train required personnel about how to manage and operate the servers, storage, software, and all of the networking links. Generally, the management of the company wakes up in post-disaster situations and pumps huge amounts of funds to repair and recover from the disasters. However, much of this could be saved if the right investment had been made in technology which is appropriately suited and trained personnel to handle and predict the disasters and accidents.

13. Absence of platforms to voice the opinions of workers leads to poor industrial relations between management, workers, and the community in general resulting in formation of unhealthy trade unions. *(Description for this is similar to 14th)*

14. Failure to perceive labor abuse problem as part of the overall supply chain.

With the impact of globalization and liberalization policies, many companies are investing a huge amount of money to modernize their machinery and digitalizing the business operations. Operations in the companies have undergone a metamorphosis with the advent of new science and technology manufacturing practices. These automated measures will normally require only about one-third or even less than the existing force. The globalization of the economy has brought a tremendous change all over the world from being labor-intensive to capital intensive. These changes will be of great concern to study industrial relations and the importance of trade unions in industries. In a country like India, there is a huge percentage of the workforce is present in the informal and unorganized sectors and the violation of labor rights is becoming endemic in the country.

Economic growth is essential for any company to grow but it does not provide sufficient conditions to ensure equity and equality in society. Therefore, it is necessary to establish a connection between social progress and economic growth. These approaches can guarantee the workers' rights at the workplace and protect their human rights. The government of India has laid down a plethora of laws and rights to safeguard the interests of workers in the industries. These social measures ensure employees state insurance (ESI), proper wages, bonus, gratuity, and maternity benefits for the workers. Nevertheless, much of the Indian economy is integrated with the global economy, violations of the rights of the workers have been further aggravated and making the laws ineffective implementation.

New technologies have enabled the decentralization of business production and operations, and they can also bring problems concerning job growth. In the first place, the traditional skills of the workers become redundant. Employers, on the other hand, prefer to avoid retraining and redeployment of the old workforce, and in most of the cases, the old workforce with traditional skills have been phased out and recruited the new workforce. Many companies have a biased view against trade unions that treat trade unions as a threat to management and deter foreign investment. Companies have aligned these types of arguments in their decision-making to justify anti-union policies and blatantly suppress the democratic voices of the workers and deny the recognition of the unions. In these circumstances, companies create a fertile ground for labor rights violations. The very survival as a representative body of the workers is at stake and fundamental rights of the workers have taken a backseat.

However, the new workforce is mainly the managerial and supervisory categories, and the contracting and sub-contracting of the workforce is rapidly increasing. In effect, the proportion of unionization of workforce constituting the skilled, semi-skilled, and unskilled is shrinking considerably, and these new technological models have enabled the managerial force in the company to have greater control over the labor process and providing no space for trade unions to operate freely and voice their opinions in a democratic manner.

15. Failure to adopt newer technologies to reduce risks in terms of workers' health and personnel accidents leads to human rights. ***(Description for this is similar to 12th)***

16. Non availability of information regarding safe practices and mistake proof systems in all aspects of production and operations leads to accidents and thus compromising human rights. ***(Description for this is similar to 11th and 12th)***

17.   The greater the length of the supply chain, the higher will be the unwanted and redundant tasks which will lead to loss of human rights.

The sustainable supply chain is always planned and purposive to meet the requirements of the companies. The length of the supply chain is determined and guided by deliberate management actions. A value-driven supply chain directs the investment planning and business operations that define the company's supply chain network. The nature of the supply chain depends on the capabilities offered by the set of upstream and downstream supply chain entities. During the processes of business operations, it improves focus in terms of the design and execution of the company's vision.

However, one size does not fit all when it comes to designing and implementing the supply chain. The architecture of the supply chain depends on the company's mission, geography, culture, technology, organizational setup, and the availability of resources. These factors determine to maximize the profits of the company and influence the protection of the human rights of the workers. It is understood that a long supply chain will have a fair chance of producing unwanted risks and bring redundant production. For instance, a particular supply chain for the petroleum industry may not be suitable for the cement industry. Each of these industries requires particular types of supply chains to meet their requirements. In other words, the management of the company may not be effectively coordinate between supply chain partners and stakeholders if the supply chain is designed inefficiently. It affects the information sharing and accountability between partners. The mission and vision of the company may be drifted and disturbed. In the process, there will be a gross violation of the human rights of the workers and unsustainable practices along the supply chain mechanism.

18.   Not making and disseminating public commitments to human rights is an impediment.

Lack of commitment and not explicitly disseminating the intent has been creating gaps in the compliance of human rights.

Analysis of enablers for creating socially sustainable supply chains

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3.1 Creating socially responsible supply chains: Analysis of enablers that facilitate to achieve social sustainability

In this section the analysis of enablers that can significantly contribute towards achieving social sustainability along the supply chains is presented.

Enablers have a significant role in the practice of socially sustainable supply chains as they drive the companies along the supply chains to achieve social sustainability. The present study considers a set of important enablers that have a critical bearing about practicing socially sustainable supply chains. Among the network of supply chain partners, along the upstream of the supply chains specifically across the three tiers it is important to capture data pertaining to socially sustainable behavior in the structure and function of the companies and it is the analysis of data pertaining to this behavior that tells us whether companies are practicing socially sustainable supply chains. Many important parameters that constitute enablers and barriers are analyzed qualitatively. Conventional sociological qualitative instruments like FGDs (Focus Group Discussions), Open-ended Interviews, Observations (ethnographic) and Case Study methods (Sociological) are usually deployed to collect data from professionals, executives, blue collar workers, women workers and senior leadership and experts about their perceptions, attitudes, practices and regulatory compliance related issues with regard to enablers and barriers towards capturing data about socially sustainable supply chains. Company owners, partners / board directors and / or representatives are interviewed to capture their perspective in implementing socially sustainable supply chain frameworks. There are, apparently, several problems in founding and running companies in

the current era of unionism and it is important in this context to understand the perspective of owners and hence the study considers this aspect as integral to practicing socially sustainable supply chains. Structured quantitative questionnaires may have limitations in capturing data at a certain depth. Responses from different stakeholders about the set of enablers that are used for data collection apparently need tools that can capture data descriptively, hence open-ended interviews and FGDs are administered to collect data to complement the quantitative data collected.

Qualitative analysis stems from data about indicators that form a set of enablers and barriers (analysis of barriers is discussed in the next chapter). The qualitative data that is elicited through the qualitative instruments is then complemented and analyzed along with quantitative data through a mixed method. Placing emphasis on selecting, evaluating, and rewarding the best ethical practices of other companies along the supply chain will enable partners to become more socially responsible. A sustainable approach by the supply chain players towards moral, political and legal dimensions improve the protection of human rights as per a series of reports of the United Nations. Data pertaining to these dimensions need is collected through a qualitative method as these are experience driven factors and only a dialogic mode can unpack challenges and merits in implementation of these social parameters, in the industries. Supply Chains need to adopt a sustainable approach towards enabling moral, political and legal frameworks to improve the protection of human rights. Moral and political frameworks related data can best be obtained through administering qualitative instruments and this fact has adequate evidence in the literature surveyed for the purpose of the present study.

An indicative description of how a Qualitative analysis will be carried out:

Parameter: Emphasis is on ensuring that the supply chains' functions are conducted in such a way that the practices do not harm any stakeholders along your supply chain and stand as a benchmark of socially sustainable supply chains.

This parameter is an important benchmark for evaluating human rights in supply chains and offers challenges in terms of capturing data through a conventional quantitative instrument. Through interviews personal experience narrative data can be collected about social dimensions for example supply of basic provisions like water, rest rooms (separate for men and women), washing facilities, storage place, sitting, food, health aid, refreshments, and so and so forth. Along with these facilities, data about for instance quality of food is a perception of the consumer and can be collected through interviewing the workers and executives. In the same manner compliance to several social sustainability can be well captured through interviews as they constitute opinions of consumers / workers and their perspectives about social dimensions can well be captured through interviews and FGDs. The study has designed qualitative instruments and were administered to gather data. This model was applied while dealing with enablers and barriers as well (details related to the analysis of barriers are presented in the next chapter). This exercise was carried out and data analyzed in conjunction with the questionnaire and other empirical data wherever possible.

3.2 Analysis of enablers for developing socially sustainable supply chains

3.2.1   Purpose of analyzing socially sustainable supply chain enablers

Companies, especially industrial establishments, by and large, have been delinquent in fostering social sustainability in their work practices, except under regulatory pressure. This works as a dampener on nurturing progressive supply chains that would show greater fidelity to social goals. Arguably, the large focal firms driving the supply chains have a greater role to

play in furthering socially sustainable practices among their players. However, thus far, due diligence exercises have been focusing more on the economic and environmental related aspects at the expense of social aspects. This warrants that commensurate due diligence be imparted in a balanced fashion. It is important because supply chains cannot afford to contend with the best of the global supply chains while some of its players are not robust in protecting basic human rights. This is understood to be more serious along the upstream supply chain players since the focal firms have lesser control over the players operating farther along the upstream. In order to alleviate this laxity along the supply chain players, it is essential for the focal firms to lead by adopting socially responsive strategies. This section of the study aims to highlight the possible strategies the supply chains can focus on to systematically become more socially sustainable.

3.2.2   Establishing the need for study

The supply chains have numerous stakeholders often with conflicting interests to competitively meet the end customers' requirements. In typical supply chains several companies agree to work together to make the products and/or offer the services. In these agreements the companies take charge of making certain value addition against certain exchange of money flows along the supply chains. These money flows are typically had to be the percentage share of overall supply chain profits generated. But often the companies' focus is on maximizing their individual profits rather than maximizing overall supply chain profits. Consequently, the focus of the companies is limited to economic sustainability even at the expense of environmental and social sustainability. Thus, both in research and practice the aspect of social sustainability is less explored compared to environmental and social sustainability specifically along the supply chains. More so the studies related to social

sustainability along the supply chains in the Indian context are further scant. Why social sustainability specifically along the supply chains should be considered? Since the stakeholders are becoming more aware of and are concerned with the way the products are manufactured. Customers are better informed by the companies about the way the products and services are being offered and often consider that the stakeholders along the supply chains are not harmed. Even regulatory authorities specifically in the developed economies emphasize and ensure that the companies have to essentially declare that all the practices are socially sustainable. More so these days companies along the progressive supply chains are also using social sustainability performance as a competitive advantage and are very careful in choosing their partners. Especially, the brand giving companies along the supply chains are often held responsible and will have to essentially take the lead to ensure that the players along the supply chains comply with the social dimensions and do not violate human rights. So, in this section the factors/drivers/enablers which would make the supply chains socially sustainable for the protection of human rights are analyzed. The next section would detail the methodology adopted for analyzing the socially sustainable supply chains.

3.3 Methodology for analyzing the socially sustainable supply chains enablers

A manufacturer will have to assess the strategy it will have to pursue in order to become a socially sustainable supply chain. In this regard, a methodology is suggested by integrating the FAHP and Fuzzy DEMATEL. With the help of the proposed methodology, a manufacturer can at ease prioritize the Socially Sustainable Supply Chain Enablers (SSSCEs). The significance of SSSCEs can be determined by following steps of Fuzzy AHP.

3.3.1 Fuzzy analytic hierarchy process for screening the SSSCEs

The AHP method was developed by mainly to solve the multiple criteria problems which are complex in nature. But then in order to precisely capture the qualitative opinions the researchers have started using Fuzzy AHP (Chang, 1996). The procedural steps followed for determining the relative importance of SSSCEs in terms of weights.

Step 1: Form a Cross Functional Team (CFT)

A CFT must be formed by drawing the experts from various cross functional departments who are closely related to the bottom-line workers. It must be ensured that the selected CFT experts must have minimum average experience, skills, expertise, and knowledge about the processes outsourced to the suppliers.

Step 2: Construction of pair wise comparison matrices for SSSCEs

Construct the Pair Wise Comparison Matrices (PWCMs) of Socially sustainable Supply Chain Components (SSSCCs) as well as their corresponding SSSCEs. Then fill in the PWCMs by recording the relative importance among the elements of the aforesaid matrices. These pair wise comparisons are to be made on a 1-10 scale (Saaty, 1990) (See Table 4).

Table 3.1   **Scale for pair wise comparisons** (Source: Saaty (1990))

Importance measure	Definition
1	Equally important
2	Equally to moderately more important
3	Moderately more important
4	Moderate to strongly more important
5	Strongly more important
6	Strong to very strongly more important
7	Very strongly more important
8	Very to extremely strongly more important
9	Extremely more important

Step 3: Verification of consistency in the opinions recorded along the PWCMs

The relative importance recorded along the PWCMs are to be verified by conducting certain consistency checks. Though these checks, a manufacturer can ensure that there are no over-ridings made in the opinions recorded. In conducting the consistency checks, the Consistency Ratios (CRs) of the PWCMs are determined and are used as a basis for decision making. The CRs are calculated as follows; normalization of the values in each column of the PWCMs by dividing each entry with the column sum. Then, a Principal Vector (PV) is formed by taking the average of the entries along each row. If the PWCM is denoted as M_1, and the principal vector is denoted as M_2, then $M_3 = M_1*M_2$ and $M_4 = M_3/M_2$. If λ_{max} is the average of the outcomes of M_4, then the consistency index *(CI)* can be calculated by, $CI = \dfrac{\lambda_{max} - N}{N - 1}$, where *'N'* is the number of components or the SSSCEs considered under the respective component. The Consistency Ratio *(CR)* is calculated by, $CR = \dfrac{CI}{RI}$, where *RI* is the random index corresponding to *'N'* (See Table 5). If the *CR* value is less than or equal to 10% (allowed percentage of error in the consistency), then the judgments made are considered to be consistent. If it is not consistent, then the CFT can be requested to improve their judgments so that the CR≤ 10%.

Table 3.2 Random Index values (Source: Saaty (2000))

Number of outcomes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Random Index	0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49	1.51	1.48	1.56	1.57	1.59

Step 4: Fuzzification of PWCMs obtained from the CFT members (A. H. I. Lee, 2009)

The importance measures collected for the components and their corresponding SRSCEs are to be fuzzified by replacing them with the corresponding TFNs (as shown in the Table 6). The TFNs used for comparing a SSSCC / SSSCE *'i'* with other component/ SSSCE *'j'* for an expert *'k'* of CFT is denoted by $(P_{ijk}, Q_{ijk}, R_{ijk})$.

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Table 3.3   Membership functions of the fuzzy numbers (Source: (Lee (2009))

Crisp judgment of the pairwise matrix	Triangular Fuzzy Number
1	(1,1,2)
2	(x-1, x, x+1) for x = 2,3,…,8
9	(8,9,9)
1/1	$(2^{-1},1^{-1},1^{-1})$
1/x	$((x+1)^{-1},x^{-1},(x-1)^{-1})$ for x = 2,3,…,8
1/9	$(9^{-1},9^{-1},8^{-1})$

Step 5: Integration of fuzzified pair wise comparison matrices

The fuzzified PWCMs obtained in the previous step can be integrated by applying the geometric mean method. The equations used for the integration of fuzzified PWCMs along the spreads of TFNs denoted by (a_{ij}, b_{ij}, c_{ij}) are shown below (A. H. I. Lee, Kang, & Chang, 2009).

$$a_{ij} = \left\{ \prod_{t=1}^{S} P_{ijk} \right\}^{1/s} \quad \forall i,j = 1,2,…,N$$

$$b_{ij} = \left\{ \prod_{t=1}^{S} Q_{ijk} \right\}^{1/s} \quad \forall i,j = 1,2,…,N$$

$$c_{ij} = \left\{ \prod_{t=1}^{S} R_{ijk} \right\}^{1/s} \quad \forall i,j = 1,2,…,N$$

Where, '*s*' denotes the number of members in the CFT formed for the data collection.

Step 6: Determination of FSEs of components and SSSCEs

Determine the FSE for each component/ SRSCE '*i*' denoted by W_i according to the equations shown below ((A. H. I. Lee, 2009); (A. H. I. Lee, Kang, & Chang, 2009); (A. H. I. Lee, Kang, Hsu, & Hung, 2009) and (Chang, 1996)):

$$W_i = \left(m_i^-, m_i, m_i^+ \right)$$

$$= \left\{ \dfrac{\displaystyle\sum_{j=1}^{N} a_{ij}}{\displaystyle\sum_{i=1}^{N}\sum_{j=1}^{N} c_{ij}}, \dfrac{\displaystyle\sum_{j=1}^{N} b_{ij}}{\displaystyle\sum_{i=1}^{N}\sum_{j=1}^{N} b_{ij}}, \dfrac{\displaystyle\sum_{j=1}^{N} c_{ij}}{\displaystyle\sum_{i=1}^{N}\sum_{j=1}^{N} a_{ij}} \right\} \forall i = 1,2,\ldots,N$$

Step 7: Calculation of Degree of Possibilities

The FSE of each component/ SSSCE is compared with the FSEs of the rest of the components/ SSSCEs respectively and a value called Degree Of Possibilities (DOPs) $\mu(F_i)$ ((Chang, 1996) and (Zhu, Jing, & Chang, 1999)) are calculated as mentioned below.

$$\mu(F_2 \geq F_1) = \begin{cases} 1, & m_2 \geq m_1 \\ 0, & m_1^- \geq m_2^+ \\ \dfrac{[\, m_1^- - m_2^+\,]}{[(m_2 - m_2^+) - (m_1 - m_1^-)]} & otherwise \end{cases}$$

Step 8: Determination of weights

The minimum value among the DOPs ($\mu(F_i)$) of preferred supplier component/ SSSCE 'i' will be the weight ascribed for the respective component/ SSSCE. By following the above procedural steps, the weights attached to the components as well as their corresponding SSSCEs can be obtained. Further, the weights of SSSCEs should be normalized with the components' weights.

3.4 Application of Methodology in a Case situation

The proposed methodology is applied to the data collected from the practitioners of a textile company based in Hyderabad, Telangana, in the southern part of India. From here on in the discussion anything related to the company is referred as a case company.

3.5 Data Analysis for Prioritizing the SSSCEs

The following list of SSSCEs have been considered for prioritizing them by applying the methodology discussed in section 3.3. As per the procedural steps the relative importance of the SSSCEs have been captured from the CFTs. The hierarchical structure of SSSCEs which would enable a company to become socially sustainable player is shown in the Figure mentioned below.

Level 1 - GOAL

Socially Responsible Player

Level 2

SCL	CIC	DDO	SSA	ASR

Level 3

ESR	PPS	DSC	LBC	SFG
BRC	MVS	ISI	IAP	ARG
ESA	FSS	TAM	PRS	CSR
SPH	GSH	MPS	DCS	OGC
ENS	TSP	DRA	SSD	SIN
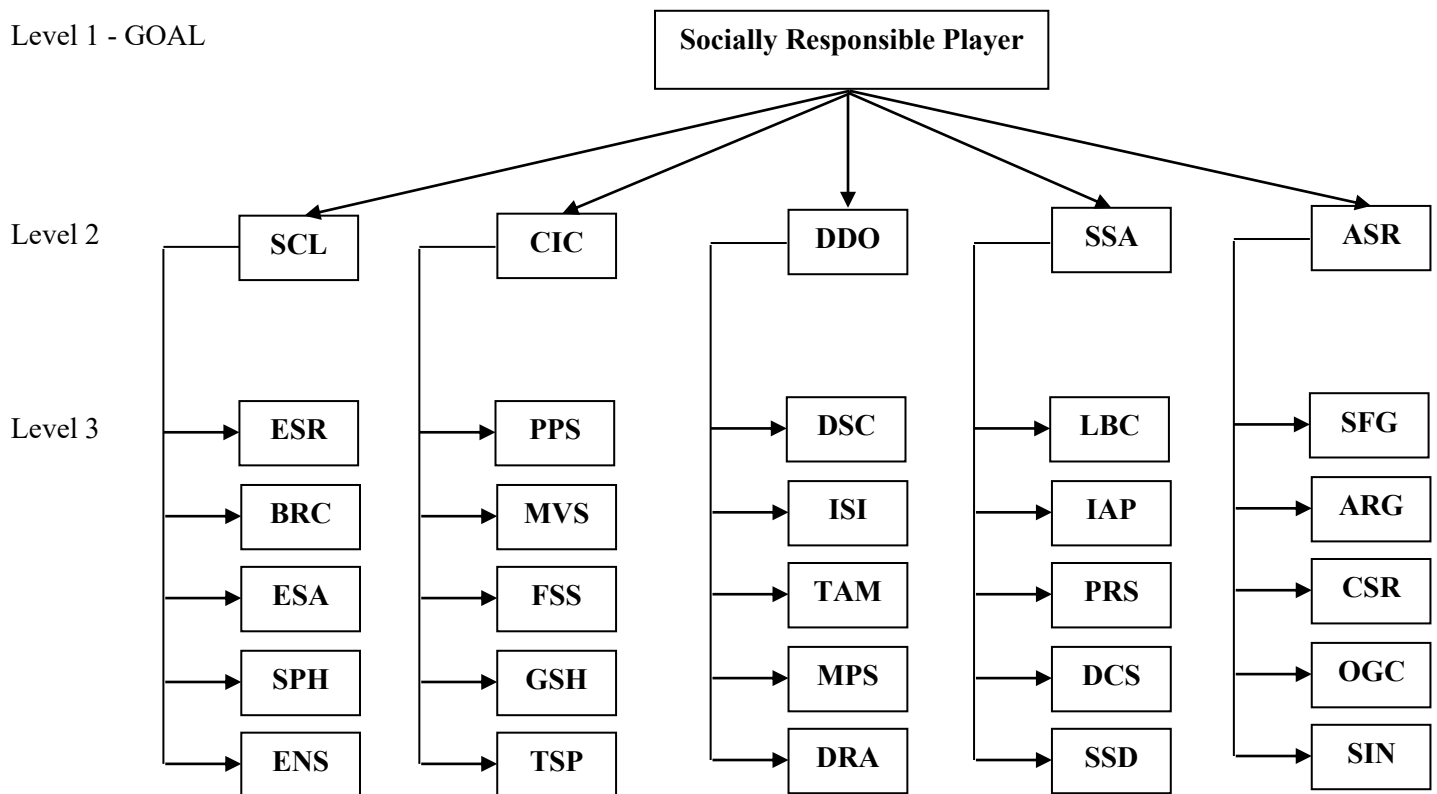
Supply Chain Leadership and Commitment (SCL): Practice of Exemplified Socially Responsible practices (ESR), Showcase better Brand value and Competitive advantage (BRC), Enhanced Social Auditing (ESA), Sustainable mfg. practices for Protection of Human rights (SPH), Emphasis on safe, clean, healthy, and Nourishing Supplies (ENS); **Common Interest Centric Practices (CIC):** The Purchasing Power of the Supply chain players (PPS), Facilities offered for Social Security (FSS), Mutual Visits to sites and evaluation of Supplies (MVS), Gender Sensitive HR unit (GSH), Training programs on Sustainable Practices (TSP); **Data Driven Operations (DDO):** Digitizing the Supply

Chain processes (DSC), Information Sharing and Integration (ISI), Technology enabled Accountability Mechanisms (TAM), Mechanisms to evaluate Performance of Social sustainability (MPS), Dynamic balance of Resource Allocations (DRA), **Supply chain player's Liaising Approach (SLA):** Long term Business Continuity (LBC), Incentive mechanisms followed to Acknowledge the Practices (IAP), Practice of preferential treatment for socially responsible practices (PRS), Developing Competition among the Supply chain partners (DCS), Socially responsible Supply chain Development (SSD); **Alignment to the Stakeholders' Requirements (ASR):** Strategic Fit between practices and Governments' regulations (SFG), Audits from Regulators help close the Gaps (ARG), Corporate Social Responsibility standards (CSR), Organizational culture (OGC), Social Inclusivity (SIN).

From the above hierarchical structure, it can be seen that 25 SSSCEs are considered for the analysis. The SSSCCs are firstly analyzed to check the relative importance of the components. From the discussion with CFT members of the case company it was found that all the SSSCCs can have a say in achieving social sustainability. So, all the SSSCCs have been ascribed with equal weight of 0.2. Thereafter the PWCMs of the SSSCEs under each SSSCC have been constructed. The net weights obtained for each SSSCE is mentioned in the table below in descending order. It can be seen that out of 25 SSSCEs considered for analysis 16 found to be relatively more important. Thereafter, the Pareto analysis is further applied to choose those SSSCEs which are more prominent as per 80-20 rule. After applying Pareto Analysis, it was found that 11 SSSCEs can further be considered as most prominent. The Pareto diagram demonstrating the same is mentioned below.

SSSCE	Net Weight	Cum Weight	% Weight
ESA	0.1198	0.1198	11.98
LBC	0.1192	0.239	23.9
SIN	0.1012	0.3402	34.02
TSP	0.088	0.4282	42.82
FSS	0.0576	0.4858	48.58
TAM	0.0546	0.5404	54.04
ISI	0.0546	0.595	59.5
DRA	0.0546	0.6496	64.96
MVS	0.0544	0.704	70.4
CSR	0.0522	0.7562	75.62
OGC	0.0468	0.803	80.3
ESR	0.0442	0.8472	84.72
PRS	0.0442	0.8914	89.14
SSD	0.0366	0.928	92.8
BRC	0.036	0.964	96.4
DSC	0.036	1	100

Most Prominent SSSCEs
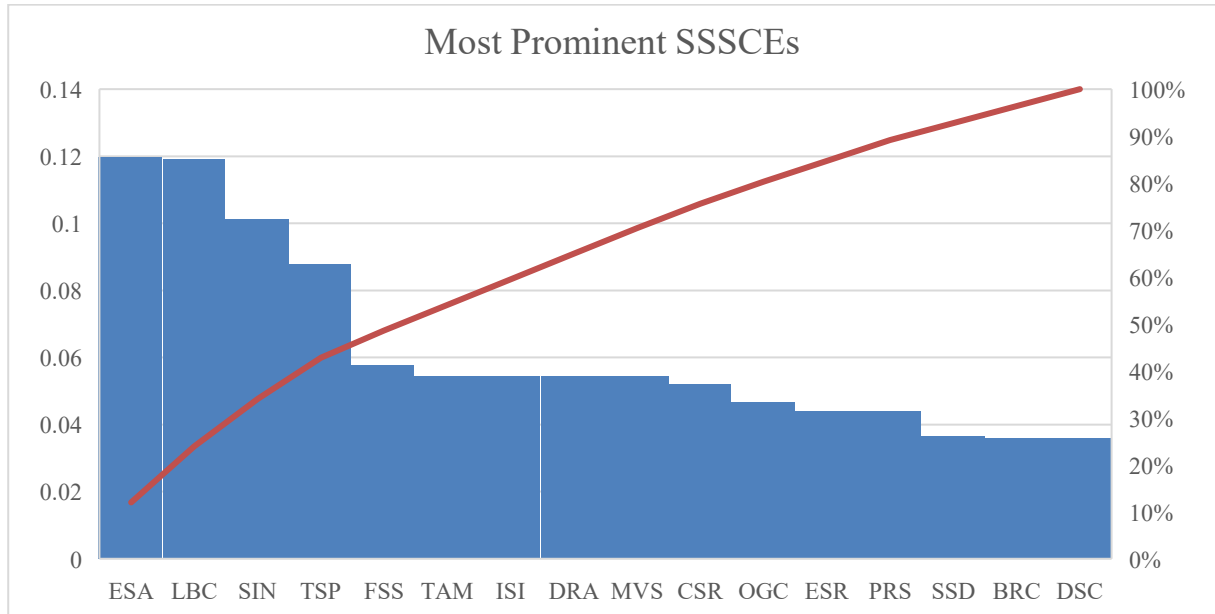
The abovementioned SSSCEs are further analyzed to explore the cause-and-effect relationship by the Fuzzy DEMATEL.

3.6 Analysis of Cause-and-Effect Relationship Between the SSSCEs

Having explored the prominent SSSCEs it is useful to also focus on the cause-and-effect relationships among the SSSCEs. By doing so the practitioners can exploit the cause-and-effect relationships and focus on those SSSCEs which can efficaciously enable them to become a socially sustainable players and also this analysis assists the policy makers in promoting the right SSSCEs. In this regard, the Fuzzy DEMATEL method has been chosen as it is widely used by many researchers for studying the cause-and-effect relationships among the factors under study. In applying this method, data was collected from the same CFT members who are consulted to explore the relative importance of the SSSCEs. The

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following section would detail the methodology of Fuzzy DEMATEL applied to explore the cause-and-effect relationships among the SSSCEs.

3.6.1 Methodology of Fuzzy DEMATEL to study Cause-and-Effect Relationships among the SSSCEs

There are many multi criteria decision making techniques used by the researchers and practitioners to address several complex scenarios with conflicting criteria for making best possible decisions. One of such complex scenarios is to study the cause-and-effect relationships among the criteria under study where DEMATEL (Decision Making Trial and valuation Laboratory) is widely used. So, since the objective here is to study the cause-and-effect relationships among the SSSCEs which are also largely conflicting in nature the DEMATEL has been used. The DEMATEL method was first developed by the Science and Human Affairs Program of the Battelle Memorial Institute of Geneva between 1972 and 1976. It has been used since then to research and solve complicated and intertwined problem groups (Fontela and Gabus, 1974). The DEMATEL method has been considered as an effective method in converting relationships among the criteria under consideration such as the SSSCEs into a visual structural model ((Hori and Shimizu, 1999); (Wu and Lee, 2007); and (Wu, 2008)). This method has been helping researchers to quantify the experts' qualitative opinions such as the data collected from the CFT members and thereby develop a structural model. Since the experts' opinions about the SSSCEs may not be crisp and can be variable DEMATEL integrated with fuzzy logic will help to overcome the uncertainty. The notations used in the fuzzy DEMATEL algorithm adopted from (Routroy and Sunil Kumar, 2014) are mentioned below:

F:	Fuzzified Direct Relationship Matrix (FDRM)
$F_{ij} = (l_{ij}, m_{ij}, r_{ij})$:	Elemental value of FDRM, where it indicates the degree that a criterion i influences criterion j
$(xl_{ij}, xm_{ij}, xr_{ij})$:	Normalized value of (l_{ij}, m_{ij}, r_{ij})
$min\ l_{ij}$:	Column wise minimum l_{ij}
$max\ r_{ij}$:	Column wise maximum r_{ij}
xls_{ij}:	Left spread measure of normalized fuzzy number.
xrs_{ij}:	Right spread measure of normalized fuzzy number
x_{ij}:	Total normalized crisp value calculated from left and right spread measures of normalized fuzzy numbers.
z_{ij} :	Crisp value defuzzified from triangular fuzzy number
z^k:	Defuzzified matrix obtained from the kth expert
h:	Number of experts
n:	Number of criteria
$T=t_{ij}$:	Total Relation Matrix (TRM)
$A=a_{ij}$:	Average Direct Relationship Matrix (ADRM)
$\max\limits_{1 \le i \le n} \sum\limits_{j=1}^{n} a_{ij}$:	Total direct influence of the criteria on other criteria
$\max\limits_{1 \le j \le n} \sum\limits_{i=1}^{n} a_{ij}$:	Total direct influence received from other criteria
R:	Vector of length n representing rows sum of the TRM.
C:	Vector of length n representing columns sum of the TRM.

The detailed step-by-step procedure of the fuzzy DEMATEL algorithm adopted in the current study for analyzing the SSSCEs is mentioned below:

Step 1   Quantify and fuzzify the linguistic measures.

The linguistic measures have been generally used in the DEMATEL method by the researchers to capture degree of influence among the criteria under study through pair wise comparisons. Thus, in this step the CFT members are to be consulted to construct the Pair Wise Comparison Matrices (PWCMs). These PWCMs are developed in terms of qualitative opinions collected from the CFT members in terms of linguistic responses (see Table 3.6.1.1). These responses which are qualitative in nature are further transformed into the response matrices on a scale 0-4 (according to the influence scores field mentioned in the Table 3.6.1.1) so as to get the quantified direct relationship matrices. Thereafter, to accommodate the uncertainties in the CFT members' opinions the direct relationship matrices are fuzzified. The quantified measures of degree of influence in the direct relationship matrices are assigned with triangular fuzzy numbers according to Table 3.6.1. 1..

Step 2   Develop defuzzified direct relationship matrix of each expert.

Having obtained the fuzzified direct relationship matrices in the previous step, the defuzzification of the triangular fuzzy numbers has to be carried out to get the crisp scores. The said defuzzification is carried out as per the CFCS (Converting the Fuzzy data into Crisp Scores) method as proposed by (Opricovic and Tzeng, 2003). The defuzzified matrices in this step are called as Defuzzified Direct Relationship Matrices (DDRMs). The procedural steps followed as per the CFCS method are mentioned below:

(i)   Normalization:

$$xr_{ij} = (r_{ij} - minl_{ij})/\Delta_{min}^{max}$$

$$xm_{ij} = (m_{ij} - minl_{ij})/\Delta_{min}^{max}$$

$$xl_{ij} = (l_{ij} - minl_{ij})/\Delta_{min}^{max}$$

$$(\text{where, } \Delta_{min}^{max} = max\, r_{ij} - min\, l_{ij})$$

(ii)   Left and right spread measures of normalized fuzzy numbers,

$$xrs_{ij} = xr_{ij}/(1 + xr_{ij} - xm_{ij})$$

$$xls_{ij} = xm_{ij}/(1 + xm_{ij} - xl_{ij})$$

(iii)   Compute total normalized crisp score.

$$x_{ij} = [xls_{ij}(1 - xls_{ij}) + xrs_{ij} \times xrs_{ij}] / (1 - xls_{ij} + xrs_{ij})$$

(iv)   Compute crisp value.

$$z_{ij} = \min l_{ij} + xr_{ij} \times \Delta_{min}^{max}$$

Step 3:   Develop the Average Direct Relationship Matrix (ADRM)

The DDRMs obtained from the previous step are averaged to determine the Average Direct Relationship Matrix (ADRM).

If $z^1, z^2, z^3, ..., z^h$ are the DDRMs obtained then ADRM (A) is obtained as shown below,

$$A = (\sum_{k=1}^{h} z^k)/h$$

The ADRM elemental values can be represented as $A = [a_{ij}]_{n \times n}$

Step 4: Normalize the Average Direct Relationship Matrix

The normalized ADRM is denoted as D. It is calculated as follows.

$$D = \frac{A}{S} \ where \ \ S = \max\left(\max_{1 \le i \le n} \sum_{j=1}^{n} a_{ij}, \max_{1 \le j \le n} \sum_{i=1}^{n} a_{ij} \right)$$

Step 5: Computation of total relation matrix

$T = D(I - D)^{-1}$ where, I is the identity matrix.

$$T = [t_{ij}]_{n \times n}$$

Step 6:   Prioritize (i.e., degree of importance) of SSSCEs

Based on the total relation matrix (T) obtained in the previous step, R and C vectors are formed. R represents the row sum of matrix T:

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$$R = \left[\sum_{i=1}^{n} t_{i1} \; \sum_{i=1}^{n} t_{i2} \; \cdots \; \sum_{i=1}^{n} t_{ij} \; \cdots \; \sum_{i=1}^{n} t_{in} \right]$$

(Where, j represents the row number, i represents column number and n represents number of rows or columns of matrix T, since T is a square matrix). Similarly, C represents column sum of matrix T:

$$C = \left[\sum_{j=1}^{n} t_{1j} \; \sum_{j=1}^{n} t_{2j} \; \cdots \; \sum_{j=1}^{n} t_{ij} \; \cdots \; \sum_{j=1}^{n} t_{in} \right]$$

From R and C vectors, determine the $R + C$ vector (where each element of the vector indicates the degree of influence of the corresponding criteria on other criteria) and prioritize the SSSCEs.

Step 7:   Segregate SSSCEs into cause-and-effect groups

Determine the $R - C$ vector from R and C vectors obtained in the previous step. The positive signed elements indicate that the corresponding enablers are causes and negative elements indicate effects.

Step 8:   Develop causal diagram.

Develop a causal diagram for the ASCMSs taking their $R + C$ and $R - C$ values along X-axis and Y-axis respectively.

Step 9:   Development of impact relationship map

On the basis of experts' opinions, the threshold value can be set for developing impact relationship map. This threshold value filters out insignificant interdependent relationships between SSSCEs. It is deducted from all the elements of TRM and then the relationships between SSSCEs having negative values are ignored to determine the reduced TRM. This reduced TRM forms the basis for developing the impact relationship map.

Table 3.6.1.1 Quantification and fuzzification scale for linguistic responses.

Linguistic terms	Influence score	Triangular fuzzy numbers
No influence (No)	0	(0,0,0.25)
Very low influence (VL)	1	(0,0.25,0.50)
Low influence (L)	2	(0.25,0.50,0.75)
High influence (H)	3	(0.50,0.75,1.00)
Very high influence (VH)	4	(0.75,1.00,1.00)

Source: (Routroy and Sunil Kumar, 2014)

3.7 Results and Discussion

The procedural steps detailed in the previous section were applied to study the cause-and-effect relationships among the ASCMSs. The sixteen ASCMSs strategies considered from the previous section were considered to obtain the linguistic response matrix. For instance, a linguistic response matrix constructed in consultation with an expert is shown in below. Similar matrices were constructed which are further processed to obtain the results.

Table 3.6.1.2 Linguistic Response Matrix of an Expert

	ESA	LBC	SIN	TSP	FSS	TAM	ISI	DRA	MVS	CSR	OGC
ESA	H	VL	VH	H	VH	VH	VH	VH	H	VH	H
LBC	L	H	VH	VH	H	VH	VH	L	VH	L	L
SIN	H	H	H	H	H	L	L	L	L	VH	L
TSP	H	VH	VH	H	VH	VH	VH	VH	VH	VH	VH
FSS	H	H	L	L	H	L	L	L	L	H	L
TAM	VH	VH	VH	VH	VH	H	VH	VH	VH	VH	VH
ISI	VH	VH	H	H	H	VH	H	VH	VH	H	H
DRA	VH	H	No	VL	VL	VL	H	H	H	H	VH
MVS	VH	VH	VH	VH	VH	VH	VH	VH	H	VH	VH
CSR	VH	H	VH	H	VH	VH	VH	H	VH	H	VH
OGC	VH	VH	H	VH	VH	VH	H	H	VH	VH	H

[Note: 1: Enhanced Social Auditing (ESA); 2: Long term Business Continuity (LBC); 3: Social Inclusivity (SIN); 4: Training programs on Sustainable Practices (TSP); 5: Facilities

offered for Social Security (FSS); 6: Technology enabled Accountability Mechanisms (TAM); 7: Information Sharing and Integration (ISI); 8: Dynamic balance of Resource Allocations (DRA); 9: Mutual Visits to sites and evaluation of Supplies (MVS); 10: Corporate Social Responsibility (CSR); 11: Organizational culture (OGC);]

As mentioned above, the several PWCMs are constructed along the SSSCEs in consultation with the CFT members. According to the procedural steps detailed in the previous section the following results were obtained.

Table 3.6.1.3 Prioritization of SSSCEs based on Degree of Influence Ratings

SSSCEs	1	2	3	4	5	6	7	8	9	10	11
R	5.62	5.34	4.63	6.36	4.27	6.49	5.71	4.25	6.19	5.93	5.78
C	5.90	5.34	5.39	5.08	5.59	5.82	5.62	5.33	5.56	5.78	5.18
R+C	11.53	10.69	10.02	11.44	9.86	12.31	11.33	9.58	11.75	11.71	10.95
R-C	-0.28	0.00	-0.75	1.28	-1.32	0.67	0.09	-1.08	0.64	0.16	0.60

The above table represents the importance of the SSSCEs to be assigned based on the measures obtained in row R+C. While the R-C row gives the classification of cause and effect among the SSCEs. The causal diagram (see Figure 3.6.1.1) has been plotted (as mentioned in step 8 of previous section) to know the distribution of SSSCEs with respect to degree of importance and degree of cause or effect.

The following table presents the degree of importance to be ascribed based on the influence ratings considered among the SSSCEs.

Table 3.6.1.4 Degree of Importance Assigned to SSSCEs based on Influence Ratings

S. No.	SSSCEs	R + C
6	Technology enabled Accountability Mechanisms (TAM)	12.31
9	Mutual Visits to sites and evaluation of Supplies (MVS)	11.75
10	Corporate Social Responsibility (CSR)	11.71
1	Enhanced Social Auditing (ESA)	11.53
4	Training programs on Sustainable Practices (TSP)	11.44
7	Information Sharing and Integration (ISI)	11.33
11	Organizational culture (OGC)	10.95
2	Long term Business Continuity (LBC)	10.69
3	Social Inclusivity (SIN)	10.02
5	Facilities offered for Social Security (FSS)	9.86
8	Dynamic balance of Resource Allocations (DRA)	9.58

Table 3.6.1.5 Segregation of SSSCEs into Causes and Effects

S. No.	SSSCEs	R - C
4	Training programs on Sustainable Practices (TSP)	1.28
6	Technology enabled Accountability Mechanisms (TAM)	0.67
9	Mutual Visits to sites and evaluation of Supplies (MVS)	0.64
11	Organizational culture (OGC)	0.60
10	Corporate Social Responsibility (CSR)	0.16
7	Information Sharing and Integration (ISI)	0.09
2	Long term Business Continuity (LBC)	0.00
1	Enhanced Social Auditing (ESA)	-0.28
3	Social Inclusivity (SIN)	-0.75
8	Dynamic balance of Resource Allocations (DRA)	-1.08
5	Facilities offered for Social Security (FSS)	-1.32
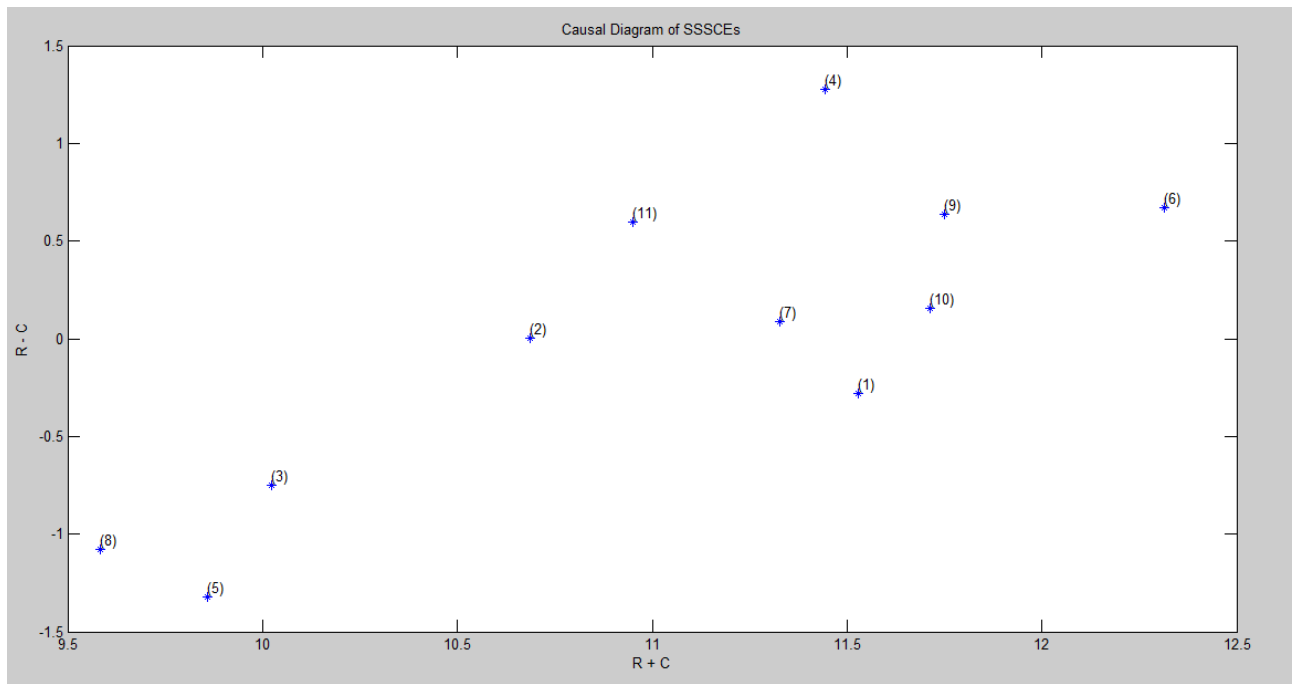
Figure 3.6.1.1 Causal Diagram of SSSCEs

3.8 Concluding remarks

The following recommendations are based on the preceding analysis of important enablers that make a supply chain player socially responsible and capable of protecting human rights.

Recommendation 1:

Enhanced Social Auditing (ESA)

Social auditing must incorporate the real opinions of the stakeholders, be reliable, and have an improvement-focused objective in order to achieve the purpose of protecting human rights. Instead of being ritualistic, it should be enthusiastically supported in order to realize the ambition.

Social auditing to drive due diligence calls for physical check of the facilities of the stakeholders, verifying documentation, conducting management and employee interviews, and checking for conformity with standards.

Where required, community participation backed by technology will make social auditing inclusive, credible and will contribute to environmental and human rights compliance.

Social auditors can use mobile devices to collect data in the field, allowing for real-time monitoring and reporting. Social auditors can use online platforms to report findings and communicate with stakeholders, thus increasing transparency and accountability.

Recommendation 2:

Long term Business Continuity (LBC)

Companies along supply chains are typically concerned with meeting their long-term needs and seek long-term relationships with other supply chain players. The supply chain members' commitment to long-term business continuity has enabled businesses to focus more on

sustainability-oriented transactions. In contrast, businesses that perform well in terms of social sustainability ought to be assured of long-term business continuity. The LBC can facilitate the companies' commitment of resources and development of collaborative relationships. Consequently, through the LBC, companies can also anticipate strategic alignment among themselves in order to achieve social sustainability and safeguard human rights. The buyer firms can also anticipate that the supplier firms anticipating the LBC will be less risk-averse and more adaptable in meeting the buyers' long-term needs. Thus, businesses will need to ensure that stakeholder engagement and relationships are conducted with an eye toward social sustainability. They can also ensure that social impact and responsibility are used as guiding factors to ensure the long-term viability of their businesses.

Recommendation 3:

Establish forums for empowering Social Inclusivity (SIN)

Awareness about Social Inclusivity as a function of Human rights at all levels of stakeholder hierarchy, especially for those at the governance level, is critical for propagating and sustaining the thrust for more humane supply-chains. Human rights advocacy should be heard as much at board level as at operational level.

For this purpose, *a Human Right officer* should be made mandatory. A committee for improving human rights (CIHR) must be constituted in each company on the lines of Prevention of Sexual Harassment (POSH) committees.

Recommendation 4:

Promote Training on Sustainable Practices (TSP)

By instituting training programmes on sustainable practises, organisations could ensure that supply chain participants are aware of both the benefits of compliance and the risks of ignoring social sustainability. *Since international supply chains need enterprises to have a strong social performance, Indian manufacturers must be made aware of these requirements.*

Such programs could typically embrace basic notions about human rights, diversity, gender sensitivity, workplace safety and disaster management. They could also incorporate mock drills, online tutoring, online courses on human rights etc.

On the management side, Human Resource units need to be sensitized from a gender perspective using cascaded training programs by gender specialists.

Recommendation 5:

Augment Facilities for Social Security (FSS)

Employee welfare initiatives should strive to provide proactive access to workers and staff regarding pay, PF and pension using self-service computer applications. *Establishing kiosks and help desks for this purpose is essential.*

Outreach programs could be aligned with Governments health and nutrition programs such as *Anganwadis*. Where possible, *schools and hospitals* should be established in close proximity to the companies to enrich children's talents and promote their growth into healthy and productive citizens. These are especially crucial in tribal areas.

Recommendation 6:

Establish large amounts of technology into inter-company transactions to better enforce Accountability Mechanisms (TAM):

It is widely acknowledged that the latest technologies can be very effective in making supply chains more socially responsible. Therefore, companies will have to ensure specific investments are made in establishing connected technologies for better visibility, transparency, and accountability along the supply chains.

Without adequate technology support, the focal firms have less control over the suppliers located at different locations and, therefore, have significantly diminished ability to monitor compliance of their suppliers with protection of human rights.

Blockchain technologies, data science tools etc are examples of how technology can make the stakeholders along the supply chains be more accountable.

Electronic devices and Internet of Things (IoT) can be very useful in measuring and monitoring regulatory compliance in workplaces, especially factories, for various parameters such as healthy working conditions.

Recommendation 7:

Information Sharing and Integration (ISI)

In conducting supply chain transactions, companies along supply chains have yearned for increased transparency, visibility, and traceability. In this regard, information sharing and integration among supply chain players are regarded as crucial means of determining the work status of stakeholders. Information sharing and integration have facilitated the free flow of exchanges, particularly in the current environment, with the advent of the most advanced connected technologies. Companies along supply chains must have access to the data of other stakeholders, especially from a sustainability standpoint. Important decisions involving supply chain players are made with consideration for their social impact.

By incorporating relevant stakeholders in the decision-making processes at the appropriate time and making the information transparent along the supply chains, it is possible to increase the responsiveness of the supply chains to customer needs without violating social sustainability criteria.

The stakeholders in the supply chains are often presented with unexpected challenges in the form of sudden surprises in order to fulfil excessive demand needs. As a direct consequence of this, the stakeholders all along the supply chains resort to breaking the social sustainability criteria as an easy way out. Companies would be less likely to resort to breaching human rights if they were given sufficient time to meet the demand requirements imposed by expanding their operations.

Recommendation 8:

Dynamic balance of Resource Allocations (DRA)

Companies heavily rely on resource allocations to dynamically match supply capacities with demand requirements. Workers' work-life balance should not be jeopardised in order to meet unreasonable demand requirements through unreasonable scheduling. In this regard, the value-added activities can be evaluated in accordance with lean management principles like Muda (waste), Mura (unevenness), and muri (hard to do jobs). The allocations should be made so that the human resources are not overworked and overstretched while performing the tasks. In allocating the works, there should be no discrimination based on caste, creed, race, gender, ethnicity, region, etc. Therefore, audits can be conducted to ensure that all transactions and decisions were made impartially. There may also be accountability for resources allocated to reduce the risk of human rights violations during the redress of complaints.

Recommendation 9:

Evaluate suppliers on a sustained basis through mutual visits to sites (MVS)

Mutual visits must be organized to impart first-hand oversight on the conditions (viz. how human resources are being engaged, safety measures taken, basic amenities provided, gender sensitive practices, employee well-being, wages paid and other such working conditions) of the suppliers.

There is a strong case for using technologies such as IoT to make accurate and reliable measurements of contract conditions that have a bearing on human rights.

The manufacturer must ensure these mutual visits are organized with its Tier-1 suppliers and ensure that in turn Tier-1 supplier does the same with its Tier-2 suppliers. The same practice can be extended further upstream. These mutual visits help the companies to monitor and enforce terms of socially sustainable practices. Any shortcomings detected can be used to establish improvement needs for socially responsible networks.

Technology applications must be encouraged to expose and exchange relevant data across the supply-chain. *These could include ERP, as well as industry-wide web portals* that use agreed formats and protocols.

Recommendation 10:

Pay special attention to Corporate Social Responsibility (CSR)

Engage workers and their families in the CSR initiatives as this will promote and foster social consciousness.

Human resources are the most valuable, and they play a critical part in a company's performance and in enhancing the company's brand image through socially sustainable initiatives under CSR. Many researchers have opined that including workers in practices such as environmental preservation, community development initiatives, conducting workshops, and welfare programmes has enabled the workplace to become more socially conscious.

Essentially, these will make a significant difference in the alleviation of problems such as child labour, poverty, gender inequality, slavery, and exploitation in emerging countries such as India.

Recommendation 11:

Emphasize on Organizational culture (OGC)

Without a shift in organisational culture toward conducting business in a socially responsible manner, the move toward compliance with the protection of human rights will not occur strategically.

Companies should be encouraged to institute rewards and recognitions for commitment to human rights in the operations.

The organizational culture of the companies should sustainably enable the protection of human rights. Companies must ensure that the organisational cultures of the businesses they are working with take social sustainability into account. Only by strategically choosing to work with the partners who consider their social performance as a priority, the entire supply chains can become socially sustainable.

Recommendation 12:

Show case better brand value and competitive advantage (BRC)

Stakeholders along supply chains are becoming more aware of the social performance of companies during the production of goods and services. On the other hand, businesses continue to enhance their industry reputation and positive standing in the eyes of various stakeholders. In this regard, the *best companies along the supply chain must be promoted based on their accountability for their societal impact*. The assessments conducted for the protection of human rights may also *test the manner in which companies along supply chains collaborate to communicate the significance of socially responsible production practices*. The companies should be able to better show case their brand and in turn have competitive advantages for their efforts in protecting the human rights and becoming a socially responsible player. Companies along supply chains may be *obliged to submit their action plan, progress, and achievements* on the path to becoming socially responsible global leaders.

Recommendation 13:

Safe, Clean, Healthy, and Nourishing Supplies (ENS)

The human resources in companies along supply chains play a crucial role in ensuring that business practices are socially responsible and that human rights are protected with due diligence. In this regard, ensuring safe, clean, nutritious, and healthy supplies distinguishes the companies as socially responsible supply chain players.

Companies are expected to demonstrate their commitment to achieving social sustainability standards in which workers are not exploited or forced to work in hazardous and unhealthy conditions. In the workplace, employee productivity and contentment are two critical indicators that employers must consider when assessing their employees' well-being. Companies can also examine their employee attrition rate and conduct stakeholder analysis to assess their standing and provide a better work environment.

Recommendation 14:

Gender sensitive HR unit (GSH)

Companies must provide a safe and supportive environment for employees to express their concerns about gender equity. There must be policies and mechanisms in place to protect employees' gender equity rights.

Globally, progressive businesses pledge to provide equal opportunities for their employees at all levels. Companies along the supply chain will be required to highlight and report on gender representation at all levels, including top management. They will essentially be required to report the initiatives taken, the employee feedback collected at regular intervals of time, and the cases of discrimination resolved. Companies along supply chains must be asked to prove how sensitive and flexible they were to the needs of their employees.

Recommendation 15:

Incentive mechanisms followed to Acknowledge the Practices (IAP)

It is believed that if companies along supply chains are incentivized for their efforts to comply with human rights protection, supply chain coordination will improve.

Supply chain integration in following socially sustainable practises can also be improved if mechanisms are in place to recognise and reward supply chain players' efforts in protecting human rights. The rewards can be in the form of preferential treatment, continued business, transaction flexibility, increased collaboration, increased reputation, and so on, all of which can persuade supply chain players to become socially sustainable.

Recommendation 16:

Develop mechanisms to evaluate performance of Social Sustainability (MPS)

It is crucial that businesses along supply chains are aware of their relative compliance with social sustainability standards and the protection of human rights. Companies will be required to account for the preventative and corrective actions they have taken to improve their social sustainability performance. In addition, companies along supply chains can be evaluated to determine what strategies for continuous improvement have been pursued in order to consistently become socially responsible players. In order to ensure the protection of human rights, the upstream suppliers of supply chains must be made more transparent and accountable during the value addition process. In addition, buyers can be held accountable for mechanisms in place to promote socially responsible manufacturing practices with their suppliers.

Recommendation 17:

Practice of Preferential Treatment for Socially Responsible Practices (PRS)

Companies along supply chains quite often have conflicting objectives, and it is not natural for the players to be equally sensitive to the needs of all stakeholders, particularly in terms of social sustainability. Only a select few players have the privilege of receiving preferential treatment and can anticipate improved supply chain collaboration for social sustainability. However, it is essential that companies also consider socially responsible practises as a basis for giving players preferential treatment. It becomes more sustainable when supply chain participants receive preferential treatment for their efforts to become socially responsible. Therefore, the preferential treatment extended to supply chain participants can be a potential catalyst for businesses to become more socially responsible.

Recommendation 18:

Developing Competition among the Supply Chain Partners (DCS)

The companies always seek competitive advantage over their competitors and strive to outperform their competitors and increase their share of the supply chain surplus. It is believed that companies competing to become supply chain partners do so primarily for economic reasons. However, companies are now evaluated, selected, and developed in accordance with the triple bottom line, i.e., not only from an economic perspective but also from an environmental and social perspective. This emphasis must be disseminated along supply chains, and it must be ensured that the supply chain transactions of all companies are governed by the triple bottom line approach, particularly from the perspective of social sustainability, which is frequently disregarded in comparison with the other two perspectives. The supply chain participants should also be made to compete in terms of implementing socially responsible manufacturing practices, and the success of the best participants from a social sustainability standpoint must be recognised. There must be avenues for businesses to demonstrate their efforts to become socially responsible players. Also, companies must be encouraged to participate in these opportunities for comparing their efforts to those of successful businesses.

Recommendation 19:

Strategic fit between practices and governments' regulations (SFG)

The governments in general attempt to create a level playing field for all the companies to abide by the regulations and comply with the minimum standards so that they ethically contend in the transformation processes. Those companies which strategically fit with the governments' regulations will have less or no legal trails to face and gain better reputation among the stakeholders. In achieving this the companies are required to conduct the gap

analysis with regards to the expected standards from regulators' point of view and their actual performance levels. They can also demonstrate with an action plan about how they can improve in better meeting the regulatory requirements and how the same is shared with the other players along the supply chains. Companies can also be evaluated based on their consultations with and involvement of other stakeholders in meeting their social sustainability standards, particularly from the perspective of regulators.

Recommendation 20:

Sustainable manufacturing practices for Protection of Human rights (SPH)

The focus of sustainable manufacturing practices along supply chains is on their effects on people, planet, and profits. The sustainable manufacturing practises of companies along supply chains aim to produce and provide goods and services without jeopardising the societal well-being in the long run. As they ensure a safe and healthy workplace for employees, sustainable manufacturing practises along supply chains are regarded as crucial. As dependence on the upstream members of supply chains has increased, it is imperative that their operations are socially responsible and respect human rights. In essence, corporations should be held accountable for the carbon footprints they leave on the planet and the social impact they have.

Analysis of barriers to socially sustainable supply chains

4.1 Creating socially responsible supply chains: Analysis of barriers to address for achieving social sustainability

The supply chains as discussed earlier are expected to objectively achieve sustainability along economic, environmental, and social dimensions often called as triple bottom line approach. The same is emphasized as 3P's (Profit, Planet, and People) and 3E's (Economy, Environment, and Equity). However, the social dimensions and social sustainability relatively received less attention specifically along the supply chains. Thus, in this section the analysis of barriers that can significantly hinder the practice of socially sustainable supply chains are analyzed. Barriers have a significant negative role in the practice of socially sustainable supply chains. The present study considers a set of important barriers that have a critical bearing about challenging the practice of socially sustainable supply chains.

4.2 Need for a study on analysis of barriers to socially sustainable supply chains

The supply chains are considered as strategically important as they enable the focal firms to choose the best of the supply chain partners. Although, for meeting the strategic requirements the best companies are selected to partner with, the focal firms yet have weak links posing serious setbacks. These weak links are because of various reasons which are often reported but are rarely scientifically analyzed. At times, the supply chain partners are forced to offer the products and services at unreasonably low cost, high quality, less response time, better product variety and competitively meet other customers' requirements. As a result, the supply chain partners are pressurized to fulfill the customers' requirements and simultaneously make

profit which is very difficult and rarely achieved. It was found that many at times the supply chain partners tend to compromise on the standards and resort to adopt unethical practices with a focus on achieving cost savings. This due diligence in the supply chain practices has greatly risked the wellness of human resources and their rights. Especially the conventional manufacturing systems have greatly ignored the welfare, respect, and career prospect offered to the human resources. Though the supply chain partners can focus on the social dimensions it is given a back seat because of the excessive pressure for cost savings and responsively compete in the market. Since often the social dimensions are compromised, the question is how to make the various supply chain partners own the social responsibility. Thus, the current study is focused on how the supply chains can be more socially sustainable, specifically protecting human rights without compromising on the supply efficiency and responsiveness.

A supply chain is often perceived as a complex network of companies working together to competitively offer products and services to the costumers (Chopra & Meindl, 2007).[17] Since the supply chain partners are the individual organizations, they often have conflicting interests against each other as well as the focal firm's interests. They tend to maximize their profits (resort to cost savings) without considering the impact on each other (supply chain partners) and in turn on the focal firm and the end customers (Routroy & Kumar, 2015). Companies often have very harsh working conditions, unhygienic, unsafe, unhealthy, rarely ergonomic, tiresome, stressful, unevenness and imbalance in the workloads. While women are relatively given more priority nowadays still, they are experiences of gender bias. Often if not at the focal firms, the supply chain partners are found to have child or forced labor greatly affecting the business. Besides these, the unreasonable demands posed on the supply chain partners are also driving them to adopt unethical supply chain practices. In these ways (limited but may not be exhaustive) there is serious slackness in the supply chain practices

questioning the companies' responsibilities in protecting human rights and for society at large. Often the supply chains are lengthier, and the focal firms have less said on what happens along the upstream and downstream linkages. At times the various supply chain functions performed either in house or contracted to third parties have implications on the brand image of the focal firm. Unless the supply chain partners take responsibility without any reluctance there may be unwanted and unforeseen events tarnishing the brand image of the companies.

4.3 Methodology to assess the barriers to SSSCs.

A manufacturer will have to assess the barriers to overcome on priority to make their supply chains more socially sustainable. In this regard, the possible impediments or barriers to socially sustainable supply chains have been identified and the literature support for the same has been presented in the chapter 2. Since the list of barriers can be exhaustive, it is important to explore the most prominent ones and have those addressed on priority. The hierarchical structure of barriers in this regard that can hinder the social sustainability of supply chains are mentioned below. The FAHP method that was discussed earlier is used in this context to identify the prominent barriers that a manufacturer will have to focus. The list of barriers has been broadly classified into internal barriers, shared barriers, and external barriers. If these categories are believed to have equal chance to obstruct the socially sustainable supply practices, then the barriers under each category are analysed following the procedural steps of FAHP. After identifying the prominent barriers, the study is extended to explore the interdependencies among the barriers using Interpretive Structural Model (ISM) and Fuzzy MICMAC analysis. The said analysis would help the practitioners to efficaciously focus on addressing the barriers which would help to overcome other barriers.
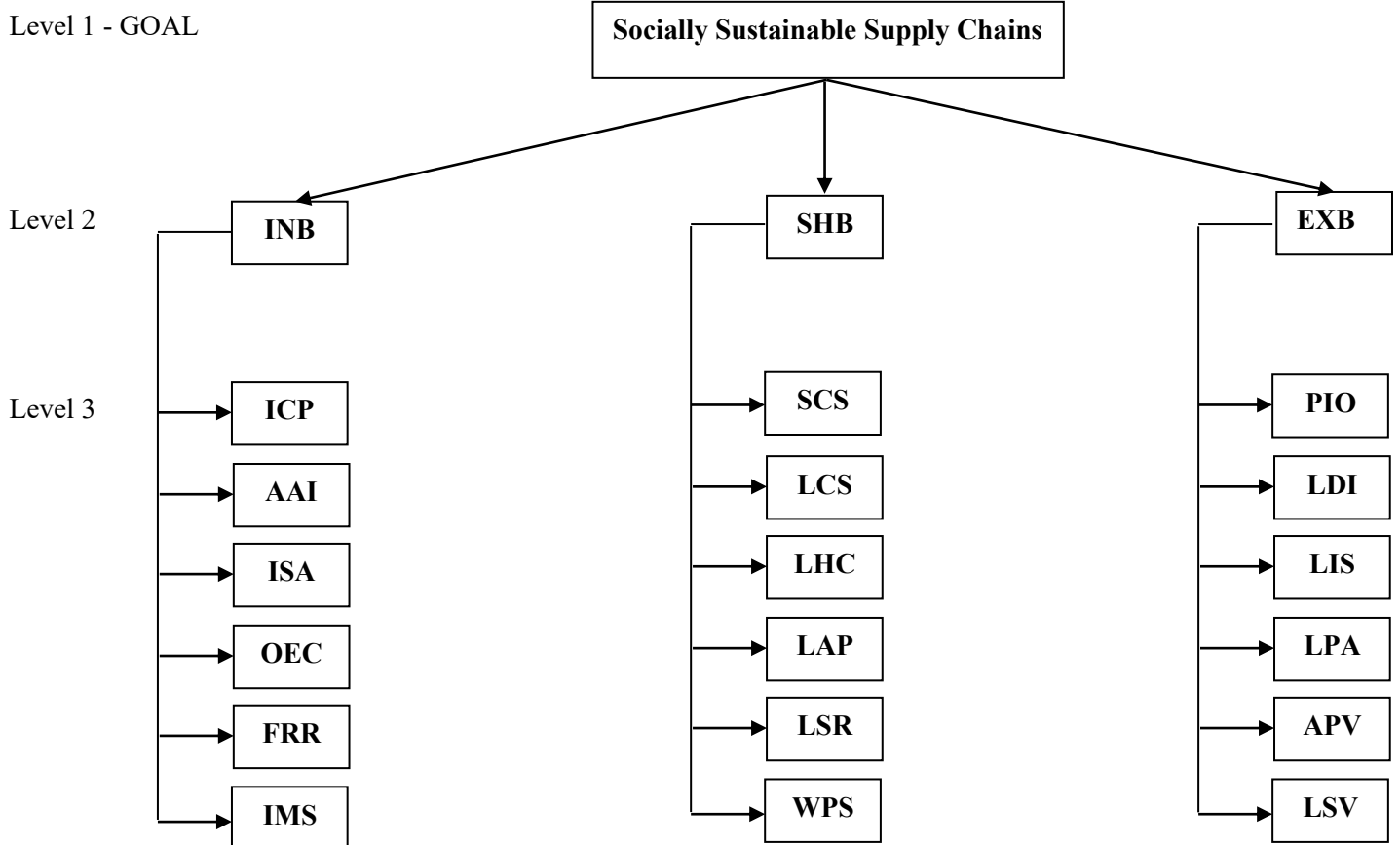
Figure 4.1   Hierarchical Structure of Barriers to SSSCs

Internal Barriers (INB): Improper Capacity Planning (ICP); Avaricious Aspirations leading to Incongruence (AAI); Impaired Sustainable Manufacturing (ISA); Over Emphasis on Cost structures (OEC); Failure to Reduce Risks (FRR); Insecure Manufacturing Systems (IMS); **Shared Barriers (SHB):** Supply Chain operations in Silos (SCS); Lack of Coordination with the Stakeholders (LCS); Lack of Healthy Competition (LHC); Lack of Accountability among the Partners (LAP); Lack of Strategic Relationships (LSR); Wastes accrued in the Processes across the Stakeholders (WPS); **External Barriers (EXB):** Political Interference in the Operations (PIO); Lack of Disseminating Intent and public commitments (LDI); Lack of Information and awareness about industry Safety standards (LIS); Lack of mechanisms to Perceive labor Abuse (LPA); Absence of Platforms to hear workers' Voice (APV); Lack of Supply chain Visibility (LSV)

4.4 Case situation

As discussed earlier the procedural steps of Fuzzy AHP method have been followed and the relative harshness of the barriers have been captured. The data was collected from the CFT members of a pharmaceutical company based in Hyderabad, Telangana in the southern part of India.

4.5 Results and discussions

Having considered the list of barriers the PWCMs of the barriers under each category namely internal, shared, and external are constructed. Thereafter, as per the procedural steps of FAHP detailed in the earlier sections the relative harshness of the barriers to SSSCs are determined. From the above hierarchical structure, it can be seen that 18 barriers to SSSCs are considered for the analysis. From the discussion with CFT members of the case company it was found that all the categories can have the same say in obstructing the practice of social sustainability along the supply chains. The net weights obtained for each barrier is mentioned in the table below in the descending order. It can be seen that out of 18 barriers to SSSCs considered for analysis and 10 found to be relatively more important.

Table 4.1   Prominent Barriers to SSSCs

Prominent Barriers to SSSCs	Acronym	Weight	Net Weight
Lack of Disseminating Intent and public commitments	LDI	0.68	0.22
Supply Chain operations in Silos	SCS	0.55	0.18
Improper Capacity Planning	ICP	0.44	0.15
Lack of Healthy Competition	LHC	0.32	0.11
Over Emphasis on Cost structures	OEC	0.25	0.08
Avaricious Aspirations leading to Incongruence	AAI	0.19	0.06
Lack of Supply chain Visibility	LSV	0.18	0.06
Absence of Platforms to hear workers' Voice	APV	0.14	0.05
Lack of Strategic Relationships	LSR	0.13	0.04
Impaired Sustainable Manufacturing	ISA	0.12	0.04

4.6 Concluding remarks

This recommendation focuses specifically on addressing the obstacles companies will have to overcome to become socially responsible.

a) The companies along supply chains often lack in disseminating the intent and public commitments. This inertia has to be overcome by the companies to showcase themselves as a socially responsible players, gain trust and support from the stakeholders. Essentially the top management of the companies will have to commit and take initiatives in developing and advertising their action plan taken to become a socially responsible player. Possibly the companies can demonstrate their commitment in terms of their values, mission, and vision statements. By properly engaging with their stakeholders and seeking their feedback can also help the companies to overcome this obstacle.

b) In order to become a socially sustainable supply chain player, businesses must also overcome the siloed nature of their supply chain operations. Frequently, the companies prioritise their own interests at the expense of those of their supply chain partners. Consequently, supply chain performance suffers. Companies can overcome this barrier by establishing robust supply chain connections and communication channels, increasing supply chain visibility, adopting collaborative partnerships, and utilising evidence-based decision-making techniques.

c) Supply chain planning has been one of the biggest challenges that companies along supply chains often face in becoming a socially sustainable player. The companies specifically along the upstream of supply chains struggles to match their supply capacities with demand requirements thereby end up violating the social sustainability standards and the human rights. Many a time companies end up overproducing or underproducing resulting in exploitation and mistreatment of employees. The companies can overcome this problem

by adopting lean management principles, carry out collaborative planning, forecast, and replenishment, and developing stronger relationships with the supply chain players.

d) Companies along supply chains are frequently unmotivated to contribute specifically to socially sustainable manufacturing. Companies can overcome this by scientifically evaluating the performance of supply chain players and rewarding them accordingly. It will be a formidable obstacle to overcome if businesses are not convinced that achieving social sustainability will result in positive returns.

e) Companies along supply chains also lay over emphasis on cost structures which often push them to compromise environmental and social aspects. When companies along supply chains become only cost focused then their main objectives and relationships become more transactional in nature. The companies will have to sensitized about total cost of ownership to overcome this barrier. Specifically, the companies along upstream of supply chains will have to be coordinated to invest in achieving social sustainability.

f) The companies along supply chain are often obsessed with their own profits and as a result planet, and people are ignored. Unreasonable demands that supply chains attempt to fulfil often create this situation of ignoring the environmental and social impact. This barrier is also often due to misalignment in the strategies pursued by companies along supply chains. This can be overcome by the companies if the overall supply chain interests are considered.

g) Another serious barrier faced by the companies is due to lack of supply chain visibility. Manufacturing supply chains are often lengthier, and it is very difficult for all the companies to learn the quality of value addition processes. Due to lack of transparency the companies along supply chains do not get to know the compliance or violation of human rights posing serious risks for the entire supply chains. The companies can overcome this

problem through connected technologies, establishing channels for proper communication, and value stream mapping.

h) Companies' employees along supply chains are the best source of ideas for continuous improvement and innovation. When there are no channels for employees to provide feedback, companies frequently experience a disconnect in knowledge. Companies can overcome this issue by adhering to lean management principles. When rewarded for their contributions, employees will be motivated to share their understanding and expertise.

i) Companies, particularly those located along upstream supply chains, frequently do not view the relationships as having a strategic nature. Due to a lack of trust among the businesses as a result, they become disconnected from one another and view their relationships with other businesses as merely transactional. Companies can get past this barrier by setting up training programmes and building relationships with the goal of serving their long-term interests.

j) Due to the lack of direct financial benefits, social and environmental sustainability are often given the least weight by businesses. The businesses' manufacturing procedures don't take sustainability into account as a result. When businesses take a more responsible and accountable approach to their manufacturing activities, they can get past this barrier. Companies can adopt sustainable manufacturing techniques without endangering people or the environment by embracing life cycle analysis and the ideas of the circular economy.

Analysis of supply chain players through enablers and barriers

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5.1 Need for the analysis of supply chain players

Many researchers have said that the SSSCs are essential and social sustainability has been greatly ignored. However, practically there has not been much progress made in developing social sustainability more so along the supply chains. It has been strongly advocated that companies cannot afford to focus on individual performance rather it has to be overall supply chain performance. Specifically, the practice of social sustainability along the supply chain players has to be furthered. Hence in the current study, the focus is laid on exploring the relative standing of the suppliers while focusing both on the enablers and barriers. It is essential that the efforts in developing the SSSCs cannot be static, rather it has to be dynamic. Thus, in the current section specifically attempted to explore how well the suppliers along the supply chains are effective in implementing the enablers of SSSCs. Also, the suppliers are assessed to determine which suppliers can be less challenging in developing SSSCs. The methodology in this regard is presented in the next section.

5.2 Methodology to assess supply chain players through enablers and barriers

As discussed in the earlier sections, the FAHP method is applied to get the relative importance of enablers to positively develop the SSSCs as well as to address the prominent barriers to SSSCs. Based on the priorities to be considered along the enablers as well as

barriers, the fuzzy TOPSIS method is integrated as it better assists a manufacturer to choose the best suppliers in positively developing the social sustainability along the supply chains. Also, to identify the suppliers who are relatively easy to work with in achieving the social sustainability. The procedural steps for applying the fuzzy TOPSIS are detailed as shown below.

Step 1: Selection of enablers/ barriers

In this step, the weights obtained for the enablers and barriers are to be considered for assessing the suppliers for achieving social sustainability.

Step 2: Selection and rating

A manufacturer can consider the suppliers who are strategic and critical to them along either the SSSCEs or barriers to SSSCs in order to assess the suppliers. The suppliers can then be rated by seeking the opinions (expressed in terms of linguistic responses) of cross functional team of experts (say $E_1, E_2,...E_l$) along the criteria (C_1, C_2,...,C_n) (either SSSCEs or barriers to SSSCs) expressed in the form of Social Evaluation Matrices (SEMs) as shown below.

$$
SEM = \begin{array}{c} \\ S_1 \\ S_2 \\ S_3 \\ . \\ . \\ . \\ S_m \end{array}
\begin{array}{c} C_1 \quad C_2 \quad C_3 \quad . \quad . \quad . \quad C_n \\
\begin{bmatrix}
A_{11} & A_{12} & A_{13} & . & . & . & A_{1n} \\
A_{21} & A_{22} & A_{23} & . & . & . & A_{2n} \\
A_{31} & A_{32} & A_{33} & . & . & . & A_{3n} \\
. & & & & & & . \\
. & & & & & & . \\
. & & & & & & . \\
A_{m1} & A_{m2} & A_{m3} & . & . & . & A_{mn}
\end{bmatrix}
\end{array}
$$

Step 3: Fuzzify the elements of social evaluation matrices

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The linguistic responses obtained from the experts in terms of SEMs are quantified on a scale of 1-5 (where 1 refers to Excellent and 5 refer to Very Poor). Subsequently, the quantified values are fuzzified along the triangular fuzzy numbers to capture the uncertainties in the experts' opinions.

Step 4: Development of defuzzified social evaluation matrices

The fuzzified SEMs are then defuzzified using the CFCS (converting the fuzzy data into crisp scores) method (Opricovic, 2003). The steps adopted from the CFCS in defuzzifying the SEMs are mentioned below,

(v)   Normalization:

$$xr_{ij} = (r_{ij} - minl_{ij})/\Delta_{min}^{max}$$

$$xm_{ij} = (m_{ij} - minl_{ij})/\Delta_{min}^{max}$$

$$xl_{ij} = (l_{ij} - minl_{ij})/\Delta_{min}^{max}$$

$$(\text{where, } \Delta_{min}^{max} = max\, r_{ij} - min\, l_{ij})$$

(vi)   Left and right spread measures of normalized fuzzy numbers,

$$xrs_{ij} = xr_{ij}/(1 + xr_{ij} - xm_{ij})$$

$$xls_{ij} = xm_{ij}/(1 + xm_{ij} - xl_{ij})$$

(vii)   Compute total normalized crisp score

$$x_{ij} = \left[xls_{ij}(1 - xls_{ij}) + xrs_{ij} \times xrs_{ij}\right] / (1 - xls_{ij} + xrs_{ij})$$

(viii) Compute crisp value

$$z_{ij} = min\, l_{ij} + xr_{ij} \times \Delta_{min}^{max}$$

Step 5: Development of Average Social Evaluation Matrix (ASEM)

Having computed the crisp values for all the elements of fuzzified SEMs the corresponding Defuzzified SEMs (DSEMs) are constructed. Further these DSEMs from all the CFT experts are averaged to obtain the Average Social Evaluation Matrix (ASEM).

If $z^1, z^2, z^3, \ldots, z^l$ are the DSEMs obtained then the ASEM (A) is obtained as shown below,

$$A = \left(\sum_{k=1}^{l} z^k\right)/l$$

The elemental values of ASEM can be represented as $[a_{ij}]_{m \times n}$.

Step 6: Determining the Weighted Social Evaluation Matrix (WSEM)

The ASEM obtained in the previous step has to be normalized as per the following equation,

$$S = \frac{a_{ij}}{\sqrt{\sum_{i=1}^{m}(a_{ij})^2}}$$

The matrix S can be termed as a Normalized SEM (NSEM) and it has to be further multiplied by the weights obtained for the PSEs (taken as criteria C_1, C_2,...,C_n) to construct the WSEM. The following expression can be used for constructing WSEM denoted as V.

$$V = S_{ij} \times (W_j)$$

Step 7: Determining the ideal positive and negative solutions for the companies

The ideal positive (I^+) and ideal negative (I^-) solutions can be determined by extracting the best and worst situations among the alternatives along the chosen criteria. The following equations are to be used in deriving the ideal positive and negative solutions:

$$I^+ = \{\tilde{V}_1^+, \tilde{V}_2^+, \ldots, \tilde{V}_n^+\} \text{ where } \tilde{V}_j^+ = \max_i(V_{ij}) \text{ for } i = 1,2,3,\ldots,m \text{ and } j = 1,2,3,\ldots,n$$

$$I^- = \{\tilde{V}_1^-, \tilde{V}_2^-, \ldots, \tilde{V}_n^-\} \text{ where } \tilde{V}_j^- = \min_i(V_{ij}) \text{ for } i = 1,2,3,\ldots,m \text{ and } j = 1,2,3,\ldots,n$$

Step 8: Determining the distances of each company's alternative from the ideal solutions

The distance of each company $(i = 1,2,3,\ldots,m)$ from the ideal positive (I^+) and ideal negative (I^-) solutions are to be determined by using the following equations.

$$D^+ = \sqrt{\sum_{i=1}^{n}(\tilde{V}_{ij} - \tilde{V}_j^+)}$$

$$D^- = \sqrt{\sum_{i=1}^{n}(\tilde{V}_{ij} - \tilde{V}_j^-)}$$

Step 9: Determine the closeness coefficients for the supplier alternatives

The closeness coefficient (CC_i) can be used as a basis for ranking the alternatives and in turn the manufacturer can discern its choice to favourably associate with the best players. The said CC_i values for every alternative $i = 1,2,3,\ldots,m$ can be computed by the following equation. The supplier having CC_i value closer to 1 is considered to be the best choice.

$$CC_i = \frac{D^-}{D^+ + D^-}$$

By following the above procedural steps, a manufacturer can scientifically achieve social sustainability along the supply chains.

5.3 Case analyses for exploring the relative standing of the suppliers

The following two subsections will present the process of exploring the relative standing of the suppliers. The first subsection 5.3.1, demonstrates how a manufacturer can selectively pursue with the suppliers in better implementing the SSSC practices. The section subsection

5.3.2, demonstrates how a manufacturer can know the suppliers with whom it is very challenging to implement the SSSC practices.

5.3.1 Exploring the relative standing of the suppliers through SSSCEs

As discussed earlier in the section 3, the obtained weights along the prominent SSSCEs are used as input in this section to assess the upstream suppliers. This analysis provides the perspective of positively practicing the SSSCM practices. The same case company's supply chain linkages have been considered to explore the relative standing of the suppliers who are comparatively easy or facilitate better to develop socially sustainable supply chains. As discussed in the previous section, the CFTs were asked about their six key suppliers (say S_1, S_2, S_3, S_4, S_5, and S_6) in practicing the socially sustainable supply chains. They were asked to provide the performance rating of the suppliers along the SSSCEs in terms of linguistic responses. These linguistic responses are further quantified, fuzzified, aggregated across the suppliers rating received from the CFTs. Based on the inputs received, the suppliers are comparatively evaluated to extract best of the suppliers who can positively help the manufacturers to develop the SSSCs. The relative standing of the suppliers obtained after the conducting the case analysis is mentioned below in the figure.
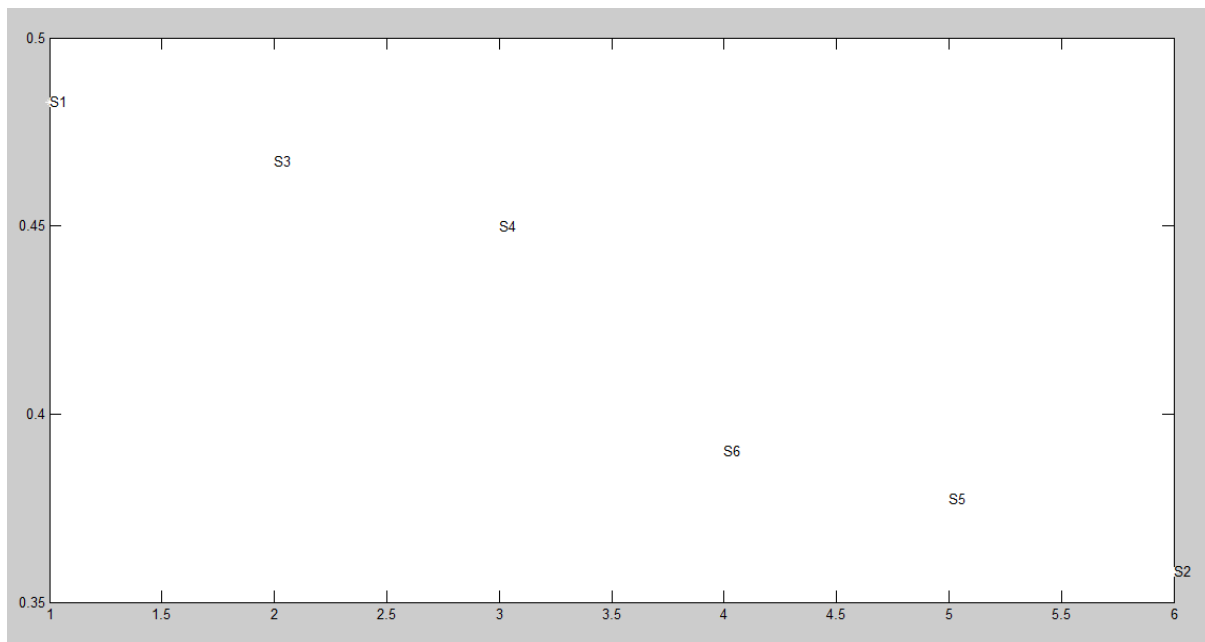
Figure 5.1 Relative standing of suppliers through SSSCEs

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It can be seen that the suppliers S_1, S_3, and S_4 relatively stand more promising in developing the SSSCs. Among all the suppliers the supplier S_2 stands low for positively enabling the implementation of SSSC practices. By this analysis the manufacturers can now prioritize in working with the suppliers for positively achieving the social sustainability. This information would greatly assist the manufacturers to whom to closely work with for enabling the implementation of SSSC practices. Moreover, manufacturers can provide the reference why and how few suppliers are doing well and carryout further in-depth analysis in understanding where do few suppliers they lack in better implementing the SSSC practices.

5.3.2 Exploring the relative standing of the suppliers through barriers to SSSCs

Several challenges have been obstructing the companies striving to become more socially sustainable supply chain partners. But there is no pragmatic approach for companies to strategically address the right barriers along which the partners are not doing well. In this regard, the current study is aimed to use the barriers to derive a strategy to work with the right suppliers. Similar to the analysis conducted in the previous subsection 5.3.1, the barriers to SSSCs are chosen (as considered in the section 3) to explore the relative standing of the suppliers. Specifically, the relative severity of the barriers in achieving social sustainability along the supply chains are considered for evaluating the suppliers. Even for this case analysis, the same case company in which the severity of barriers was obtained had been considered. The weights of the barriers to SSSCs are used as input in this section to assess the upstream suppliers. This analysis uses the lens to assess the suppliers along the criteria which negatively affects the practicing of the SSSCM practices. The same case company's supply chain linkages have been considered to explore the relative standing of the suppliers who are comparatively challenging in developing the socially sustainable supply chains. As discussed in the previous section, the CFTs were asked about their six key suppliers (say S_1, S_2, S_3, S_4,

S_5, and S_6) even in this case company to ensure the practice of socially sustainable supply chains. They were asked to provide the performance rating of the suppliers along the barriers to SSSCs in terms of linguistic responses. These linguistic responses are further quantified, fuzzified, aggregated across the suppliers rating received from the CFTs. Based on the inputs received, the suppliers are comparatively evaluated to extract the relative standing of the suppliers who can negatively affect the manufacturers in developing the SSSCs. The relative standing of the suppliers obtained after the conducting the case analysis is mentioned below in the figure.
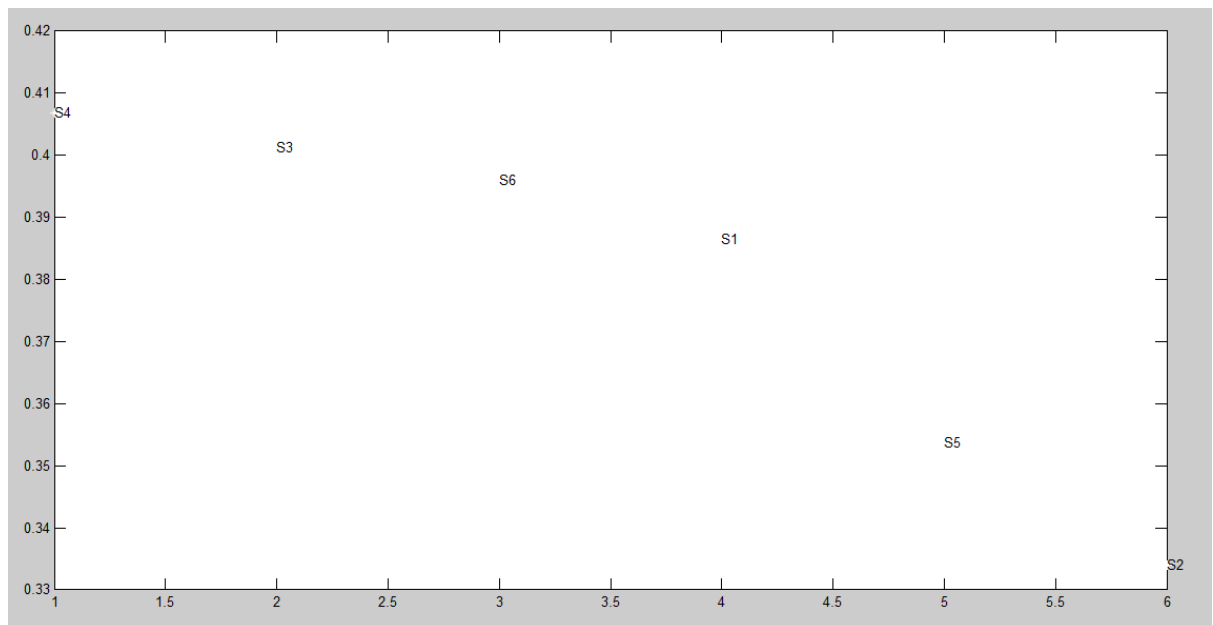
Figure 5.2 Relative standing of supplier in positively developing SSSCs

It can be seen that the suppliers S_5, and S_2 among the six suppliers relatively stand less challenging in developing the SSSCs. Among all the suppliers the supplier S_4 stands very challenging in the implementation of SSSC practices. By this analysis the manufacturers can now take necessary actions in working with the suppliers for reducing the overall negative effect in achieving the social sustainability. This information would greatly assist the manufacturers to properly allocate the resources and accordingly choose to closely work with

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the suppliers who are less difficult to deal with in the implementation of SSSC practices. Moreover, manufacturers can provide the reference why and how few suppliers are doing well and carryout further in-depth analysis in understanding where do few suppliers are less challenging in implementing the SSSC practices.

5.4 Research Implications

The above-mentioned piece of research can be a matter of importance for the supply chain practitioners to identify the due diligence in adopting social sustainability for protecting human rights. This is important because the supplier dependency is continuously increasing along the supply chains. Since suppliers are often considered as the weakest links along the supply chains, a specific focus on selectively working with the suppliers from a social sustainability perspective is essential. On the other hand, eventually the customers who are going to be the source of revenue for the supply chains are also more informed about the ways and the conditions in which the products are manufactured, and services being offered. The socially conscious supply chain practices can be used as competitive advantage by the companies to attract the customers as well as the best supply chain partners. It is inevitable for the supply chain partners to ensure that all the practices are in line with the wellness of the human resources or else the companies will have to learn the same in the hard way. This current piece of research is an attempt to also assist the practitioners and policy makers to ensure that supply chains are managed from a social sustainability perspective.

Empirical analysis of improving suppliers' social performance

6.1 Improving suppliers' social performance

Social sustainability along the supply chains is considered more important rather than merely limiting it to the individual firms. Even in economic terms, the supply chains are necessarily expected to maximize the overall supply chain profit rather than the individual companies' profits. Similarly, the same is applicable from the social sustainability perspective where the focal firms will have to ensure that the overall social wellbeing is focused rather than on individual firms' social performance by operating in silos. This is because any laxity along the supply chains can greatly impact all the stakeholders, more prominently the focal firms which usually own the brand. Even though the smaller firms along the supply chains fail to be diligent in complying to socially sustainable supply chain practices the larger firms like focal firms are expected to own the responsibility and usually held responsible for any violations along the supply chains. Moreover, often it is believed that suppliers along the upstream of the supply chains are considered to be the weakest links posing serious threats to overall supply chains sustenance and success. As many manufacturers are increasing their dependency on their suppliers to focus on their core competencies, evaluating and improving the suppliers' social performance also become inevitable. Thus, the current piece of research is an attempt to empirically validate the pathways to improve suppliers' social performance.

6.2 Methodology for comparative analysis of suppliers' efficacy in developing SSSCs

As discussed in the earlier sections, the suppliers' role plays major role in achieving social sustainability along the supply chains. In this regard, the role of supplier position along the upstream of the supply chains such as (Tier 1, Tier 2, and Tier 3) in achieving social

sustainability has been considered to explore in this current piece of research. The effect of supplier position in practicing the SSSC practices has not been explored in past research and is an important research gap the current study attempts to address. The same is studied using the multivariate Analysis of Variance (ANOVA) with supplier position for conducting the multigroup analysis. The IBM SPSS software has been used for conducting the aforesaid multivariate ANOVA. The next section would detail the sampling design followed for collecting the data.

6.2.1 Sampling design for conducting the empirical study

	Telangana			Karnataka		
	T_1	T_2	T_3	T_1	T_2	T_3
*Pharma	10 (1 Co)	20 (2 Co)	30 (3 Co)	10 (1 Co)	20 (2 Co)	30 (3 Co)
Automobile	10 (1 Co)	20 (2 Co)	30 (3 Co)	10 (1 Co)	20 (2 Co)	30 (3 Co)
Textile	10 (1 Co)	20 (2 Co)	30 (3 Co)	10 (1 Co)	20 (2 Co)	30 (3 Co)
Food Processing	10 (1 Co)	20 (2 Co)	30 (3 Co)	10 (1 Co)	20 (2 Co)	30 (3 Co)

*For instance, in the pharma industry data has been collected from a total of six companies (1 Co – under Tier 1), (2 Cos – under Tier 2), and (3 Cos – under Tier 3). The number of respondents is 10 – under Tier 1, 20 – under Tier 2, and 30 – under Tier 3. From each state 60 respondents spread across three tiers. The total number of respondents contacted from the three states is 120. Along with all industries a total of 480 respondents' data has been

collected. The sample design has been made in such a way that 80 respondents were contacted under Tier 1, 160 respondents were contacted under Tier 2, and 240 were contacted under Tier 3.

The questionnaire that is used for carrying out the empirical studies and thereafter conduct comparative analysis is mentioned in Appendix I.

6.2.2 Results and discussion

The data collected using the questionnaire is analyzed using the IBM SPSS software. The results obtained after conducting the said presents to analysis are summarized below. The table mentioned below highlights the descriptive statistics obtained for all the questions formulated in the questionnaire.

Descriptive Statistics

	Supplier Position	Mean	Std. Deviation	N
PPS1	Tier1	2.91	.903	80
	Tier2	2.78	1.038	160
	Tier3	2.96	1.048	240
	Total	2.89	1.023	480
SPS1	Tier1	3.50	.811	80
	Tier2	2.56	1.068	160
	Tier3	2.97	1.215	240
	Total	2.92	1.151	480
PPS2	Tier1	3.28	.856	80
	Tier2	2.74	1.251	160
	Tier3	2.74	1.168	240
	Total	2.83	1.167	480
ASS1	Tier1	2.95	1.054	80
	Tier2	2.39	1.122	160
	Tier3	2.83	1.152	240
	Total	2.71	1.146	480
ASS2	Tier1	2.39	.961	80
	Tier2	2.27	1.044	160
	Tier3	3.05	1.147	240

	Total	2.68	1.144	480
SPS2	Tier1	3.45	.794	80
	Tier2	2.41	1.225	160
	Tier3	2.62	1.118	240
	Total	2.69	1.162	480
ASS3	Tier1	3.20	.863	80
	Tier2	3.43	1.091	160
	Tier3	2.27	.987	240
	Total	2.81	1.142	480
ASS4	Tier1	3.01	1.025	80
	Tier2	2.69	1.145	160
	Tier3	2.41	.910	240
	Total	2.60	1.035	480
PPS3	Tier1	3.10	1.228	80
	Tier2	2.73	1.132	160
	Tier3	2.88	1.198	240
	Total	2.87	1.186	480
SPS3	Tier1	2.65	1.126	80
	Tier2	2.76	1.307	160
	Tier3	2.72	1.071	240
	Total	2.72	1.162	480
PPS4	Tier1	3.79	.544	80
	Tier2	3.04	1.036	160
	Tier3	2.83	1.233	240
	Total	3.06	1.130	480
ASS5	Tier1	1.89	.842	80
	Tier2	2.89	1.022	160
	Tier3	2.80	1.140	240
	Total	2.68	1.113	480
ASS6	Tier1	3.28	1.180	80
	Tier2	2.98	1.049	160
	Tier3	3.02	1.175	240
	Total	3.05	1.138	480
COL1	Tier1	3.10	.880	80
	Tier2	2.26	1.117	160
	Tier3	2.17	1.067	240
	Total	2.35	1.106	480
COL2	Tier1	2.59	1.177	80
	Tier2	2.29	.942	160
	Tier3	2.62	1.060	240
	Total	2.51	1.052	480

	Tier1	3.31	.894	80
SPS4	Tier2	3.37	.975	160
	Tier3	2.49	1.082	240
	Total	2.92	1.103	480
	Tier1	2.09	.750	80
PPS5	Tier2	2.39	1.303	160
	Tier3	2.81	1.166	240
	Total	2.55	1.189	480
	Tier1	3.34	.795	80
COL3	Tier2	2.89	1.147	160
	Tier3	2.58	1.036	240
	Total	2.81	1.074	480
	Tier1	3.36	.971	80
COL4	Tier2	2.94	1.120	160
	Tier3	2.89	1.212	240
	Total	2.99	1.155	480
	Tier1	2.18	1.028	80
ASS7	Tier2	3.22	1.097	160
	Tier3	2.43	1.096	240
	Total	2.65	1.159	480
	Tier1	3.68	.632	80
ASS8	Tier2	2.66	1.197	160
	Tier3	2.58	1.118	240
	Total	2.79	1.151	480
	Tier1	3.44	.824	80
COL5	Tier2	2.61	1.035	160
	Tier3	3.04	1.052	240
	Total	2.96	1.050	480
	Tier1	3.79	.867	80
PPS6	Tier2	2.48	1.132	160
	Tier3	2.93	1.103	240
	Total	2.92	1.161	480
	Tier1	2.41	.951	80
COL6	Tier2	2.54	1.149	160
	Tier3	2.70	1.241	240
	Total	2.60	1.170	480
	Tier1	3.14	.882	80
COL7	Tier2	2.78	1.154	160
	Tier3	2.77	1.036	240
	Total	2.83	1.060	480
COL8	Tier1	1.96	.892	80

	Tier2	2.59	1.225	160
	Tier3	3.06	1.134	240
	Total	2.72	1.195	480
COL9	Tier1	2.95	1.386	80
	Tier2	3.06	1.020	160
	Tier3	2.73	1.251	240
	Total	2.88	1.211	480
SPS5	Tier1	3.41	.520	80
	Tier2	2.66	1.223	160
	Tier3	2.60	1.077	240
	Total	2.76	1.098	480
PPS7	Tier1	2.93	1.394	80
	Tier2	2.36	1.090	160
	Tier3	2.70	1.151	240
	Total	2.63	1.190	480
SPS6	Tier1	2.71	1.285	80
	Tier2	2.07	1.029	160
	Tier3	2.68	1.176	240
	Total	2.48	1.183	480
SPS7	Tier1	2.79	1.187	80
	Tier2	2.58	1.157	160
	Tier3	2.92	1.207	240
	Total	2.78	1.195	480
PPS8	Tier1	3.64	.661	80
	Tier2	2.61	1.111	160
	Tier3	2.93	1.125	240
	Total	2.94	1.110	480
SPS8	Tier1	2.80	1.036	80
	Tier2	3.36	1.251	160
	Tier3	2.79	1.189	240
	Total	2.98	1.215	480
SPS9	Tier1	2.99	.771	80
	Tier2	2.61	1.374	160
	Tier3	2.59	1.132	240
	Total	2.66	1.177	480
SPS10	Tier1	2.06	1.151	80
	Tier2	2.48	1.317	160
	Tier3	2.91	1.307	240
	Total	2.62	1.322	480
PPS9	Tier1	3.36	.931	80
	Tier2	3.03	1.070	160

	Tier3	2.80	1.111	240
	Total	2.97	1.087	480
ASS9	Tier1	3.69	.628	80
	Tier2	2.71	1.251	160
	Tier3	2.74	1.113	240
	Total	2.89	1.153	480
SPS11	Tier1	2.08	1.088	80
	Tier2	2.80	1.143	160
	Tier3	2.60	1.055	240
	Total	2.58	1.115	480

The following table presents the critical value and the p-value obtained after conducting the multivariate data analysis. The table clearly shows that the null hypothesis of all the groups is equally good has been rejected as the p-value is less than 0.05.

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.994	1950.834[b]	38.000	440.000	.000
	Wilks' Lambda	.006	1950.834[b]	38.000	440.000	.000
	Hotelling's Trace	168.481	1950.834[b]	38.000	440.000	.000
	Roy's Largest Root	168.481	1950.834[b]	38.000	440.000	.000
SupplierPosition	Pillai's Trace	1.279	20.571	76.000	882.000	.000
	Wilks' Lambda	.130	20.536[b]	76.000	880.000	.000
	Hotelling's Trace	3.549	20.501	76.000	878.000	.000
	Roy's Largest Root	1.849	21.460[c]	38.000	441.000	.000

a. Design: Intercept + SupplierPosition

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Another important table which can be used to see along which surveyed question the supplier position can significantly affect the social sustainability among the SSSCs. It can be seen that PPS1 (How the working capital and investments needed is being organized – overdraft, short term loans?), SPS3 (Do you account who is responsible for what? Do you have designated people taking responsibility?), ASS6 (Do you have material handling equipment to ease the employees' tasks?), and COL6 (Do you take up any social welfare and community

development activities?) alone are those which are seen where the efforts are not seen significantly differently regardless of the supplier position.

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	PPS1	3.187[a]	2	1.594	1.525	.219
	SPS1	47.977[b]	2	23.989	19.521	.000
	PPS2	19.083[c]	2	9.542	7.191	.001
	ASS1	24.254[d]	2	12.127	9.556	.000
	ASS2	66.021[e]	2	33.010	28.071	.000
	SPS2	60.235[f]	2	30.118	24.478	.000
	ASS3	143.533[g]	2	71.767	71.195	.000
	ASS4	23.652[h]	2	11.826	11.528	.000
	PPS3	7.633[i]	2	3.817	2.734	.066
	SPS3	.602[j]	2	.301	.222	.801
	PPS4	54.710[k]	2	27.355	23.409	.000
	ASS5	60.585[l]	2	30.293	27.142	.000
	ASS6	5.071[m]	2	2.535	1.967	.141
	COL1	54.102[n]	2	27.051	24.269	.000
	COL2	10.904[o]	2	5.452	5.010	.007
	SPS4	88.577[p]	2	44.289	42.729	.000
	PPS5	37.352[q]	2	18.676	13.929	.000
	COL3	36.635[r]	2	18.318	16.942	.000
	COL4	13.852[s]	2	6.926	5.286	.005
	ASS7	81.071[t]	2	40.535	34.415	.000
	ASS8	76.350[u]	2	38.175	32.635	.000
	COL5	39.704[v]	2	19.852	19.383	.000
	PPS6	91.927[w]	2	45.964	39.559	.000
	COL6	6.042[x]	2	3.021	2.220	.110
	COL7	8.883[y]	2	4.442	3.999	.019
	COL8	75.927[z]	2	37.964	29.751	.000
	COL9	11.475[aa]	2	5.738	3.960	.020
	SPS5	41.408[ab]	2	20.704	18.406	.000
	PPS7	19.575[ac]	2	9.787	7.085	.001
	SPS6	40.904[ad]	2	20.452	15.512	.000
	SPS7	10.802[ae]	2	5.401	3.830	.022
	PPS8	56.794[af]	2	28.397	25.398	.000

	SPS8	34.894[ag]	2	17.447	12.385	.000
	SPS9	10.200[ah]	2	5.100	3.725	.025
	SPS10	48.177[ai]	2	24.089	14.571	.000
	PPS9	20.083[aj]	2	10.042	8.783	.000
	ASS9	61.202[ak]	2	30.601	25.344	.000
	SPS11	28.202[al]	2	14.101	11.864	.000
Intercept	PPS1	3269.702	1	3269.702	3129.348	.000
	SPS1	3560.776	1	3560.776	2897.602	.000
	PPS2	3344.092	1	3344.092	2520.320	.000
	ASS1	2917.732	1	2917.732	2299.184	.000
	ASS2	2588.600	1	2588.600	2201.288	.000
	SPS2	3135.750	1	3135.750	2548.610	.000
	ASS3	3449.967	1	3449.967	3422.463	.000
	ASS4	2868.876	1	2868.876	2796.496	.000
	PPS3	3309.167	1	3309.167	2370.672	.000
	SPS3	2882.159	1	2882.159	2128.192	.000
	PPS4	4075.818	1	4075.818	3487.827	.000
	ASS5	2503.882	1	2503.882	2243.493	.000
	ASS6	3752.159	1	3752.159	2911.030	.000
	COL1	2472.305	1	2472.305	2218.004	.000
	COL2	2455.909	1	2455.909	2256.830	.000
	SPS4	3671.668	1	3671.668	3542.343	.000
	PPS5	2314.776	1	2314.776	1726.456	.000
	COL3	3384.002	1	3384.002	3129.864	.000
	COL4	3686.694	1	3686.694	2813.478	.000
	ASS7	2673.305	1	2673.305	2269.678	.000
	ASS8	3466.152	1	3466.152	2963.134	.000
	COL5	3598.652	1	3598.652	3513.620	.000
	PPS6	3690.037	1	3690.037	3175.896	.000
	COL6	2556.492	1	2556.492	1878.504	.000
	COL7	3290.194	1	3290.194	2962.386	.000
	COL8	2530.118	1	2530.118	1982.810	.000
	COL9	3331.370	1	3331.370	2299.575	.000
	SPS5	3287.037	1	3287.037	2922.174	.000
	PPS7	2784.007	1	2784.007	2015.360	.000
	SPS6	2428.705	1	2428.705	1842.013	.000
	SPS7	2995.555	1	2995.555	2124.208	.000
	PPS8	3668.334	1	3668.334	3280.879	.000
	SPS8	3495.382	1	3495.382	2481.328	.000
	SPS9	2925.170	1	2925.170	2136.354	.000
	SPS10	2419.219	1	2419.219	1463.366	.000

	PPS9	3680.012	1	3680.012	3218.591	.000
	ASS9	3646.694	1	3646.694	3020.202	.000
	SPS11	2435.492	1	2435.492	2049.101	.000
SupplierPosition	PPS1	3.188	2	1.594	1.525	.219
	SPS1	47.977	2	23.989	19.521	.000
	PPS2	19.083	2	9.542	7.191	.001
	ASS1	24.254	2	12.127	9.556	.000
	ASS2	66.021	2	33.010	28.071	.000
	SPS2	60.235	2	30.118	24.478	.000
	ASS3	143.533	2	71.767	71.195	.000
	ASS4	23.652	2	11.826	11.528	.000
	PPS3	7.633	2	3.817	2.734	.066
	SPS3	.602	2	.301	.222	.801
	PPS4	54.710	2	27.355	23.409	.000
	ASS5	60.585	2	30.293	27.142	.000
	ASS6	5.071	2	2.535	1.967	.141
	COL1	54.102	2	27.051	24.269	.000
	COL2	10.904	2	5.452	5.010	.007
	SPS4	88.577	2	44.289	42.729	.000
	PPS5	37.352	2	18.676	13.929	.000
	COL3	36.635	2	18.318	16.942	.000
	COL4	13.852	2	6.926	5.286	.005
	ASS7	81.071	2	40.535	34.415	.000
	ASS8	76.350	2	38.175	32.635	.000
	COL5	39.704	2	19.852	19.383	.000
	PPS6	91.927	2	45.964	39.559	.000
	COL6	6.042	2	3.021	2.220	.110
	COL7	8.883	2	4.442	3.999	.019
	COL8	75.927	2	37.964	29.751	.000
	COL9	11.475	2	5.738	3.960	.020
	SPS5	41.408	2	20.704	18.406	.000
	PPS7	19.575	2	9.788	7.085	.001
	SPS6	40.904	2	20.452	15.512	.000
	SPS7	10.802	2	5.401	3.830	.022
	PPS8	56.794	2	28.397	25.398	.000
	SPS8	34.894	2	17.447	12.385	.000
	SPS9	10.200	2	5.100	3.725	.025
	SPS10	48.177	2	24.089	14.571	.000
	PPS9	20.083	2	10.042	8.783	.000
	ASS9	61.202	2	30.601	25.344	.000
	SPS11	28.202	2	14.101	11.864	.000

	PPS1	498.394	477	1.045		
	SPS1	586.171	477	1.229		
	PPS2	632.908	477	1.327		
	ASS1	605.327	477	1.269		
	ASS2	560.927	477	1.176		
	SPS2	586.890	477	1.230		
	ASS3	480.833	477	1.008		
	ASS4	489.346	477	1.026		
	PPS3	665.833	477	1.396		
	SPS3	645.990	477	1.354		
	PPS4	557.415	477	1.169		
	ASS5	532.362	477	1.116		
	ASS6	614.827	477	1.289		
	COL1	531.690	477	1.115		
	COL2	519.077	477	1.088		
	SPS4	494.415	477	1.037		
	PPS5	639.546	477	1.341		
	COL3	515.731	477	1.081		
Error	COL4	625.046	477	1.310		
	ASS7	561.827	477	1.178		
	ASS8	557.975	477	1.170		
	COL5	488.544	477	1.024		
	PPS6	554.221	477	1.162		
	COL6	649.158	477	1.361		
	COL7	529.783	477	1.111		
	COL8	608.665	477	1.276		
	COL9	691.025	477	1.449		
	SPS5	536.558	477	1.125		
	PPS7	658.925	477	1.381		
	SPS6	628.927	477	1.319		
	SPS7	672.665	477	1.410		
	PPS8	533.331	477	1.118		
	SPS8	671.937	477	1.409		
	SPS9	653.125	477	1.369		
	SPS10	788.571	477	1.653		
	PPS9	545.383	477	1.143		
	ASS9	575.946	477	1.207		
	SPS11	566.946	477	1.189		
	PPS1	4521.000	480			
Total	SPS1	4735.000	480			
	PPS2	4494.000	480			

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	ASS1	4145.000	480			
	ASS2	4067.000	480			
	SPS2	4114.000	480			
	ASS3	4410.000	480			
	ASS4	3763.000	480			
	PPS3	4618.000	480			
	SPS3	4200.000	480			
	PPS4	5114.000	480			
	ASS5	4033.000	480			
	ASS6	5079.000	480			
	COL1	3246.000	480			
	COL2	3545.000	480			
	SPS4	4678.000	480			
	PPS5	3793.000	480			
	COL3	4338.000	480			
	COL4	4917.000	480			
	ASS7	4019.000	480			
	ASS8	4364.000	480			
	COL5	4735.000	480			
	PPS6	4747.000	480			
	COL6	3900.000	480			
	COL7	4392.000	480			
	COL8	4238.000	480			
	COL9	4670.000	480			
	SPS5	4230.000	480			
	PPS7	3986.000	480			
	SPS6	3625.000	480			
	SPS7	4402.000	480			
	PPS8	4732.000	480			
	SPS8	4973.000	480			
	SPS9	4066.000	480			
	SPS10	4139.000	480			
	PPS9	4790.000	480			
	ASS9	4645.000	480			
	SPS11	3783.000	480			
Corrected Total	PPS1	501.581	479			
	SPS1	634.148	479			
	PPS2	651.992	479			
	ASS1	629.581	479			
	ASS2	626.948	479			
	SPS2	647.125	479			

	ASS3	624.367	479		
	ASS4	512.998	479		
	PPS3	673.467	479		
	SPS3	646.592	479		
	PPS4	612.125	479		
	ASS5	592.948	479		
	ASS6	619.898	479		
	COL1	585.792	479		
	COL2	529.981	479		
	SPS4	582.992	479		
	PPS5	676.898	479		
	COL3	552.367	479		
	COL4	638.898	479		
	ASS7	642.898	479		
	ASS8	634.325	479		
	COL5	528.248	479		
	PPS6	646.148	479		
	COL6	655.200	479		
	COL7	538.667	479		
	COL8	684.592	479		
	COL9	702.500	479		
	SPS5	577.967	479		
	PPS7	678.500	479		
	SPS6	669.831	479		
	SPS7	683.467	479		
	PPS8	590.125	479		
	SPS8	706.831	479		
	SPS9	663.325	479		
	SPS10	836.748	479		
	PPS9	565.467	479		
	ASS9	637.148	479		
	SPS11	595.148	479		

6.2.3 Conclusions specific to suppliers' social performance

The competitive advantage factor among Supply Chains has taken a paradigm shift over a period and manifested in its social dimension. The advent of liberalization and market economy helped these networks move into the social space within and outside their precincts of the industry. Manufacturing space has started acquiring social value in the production,

operation and marketing processes at least among the major players and at a time when the trickledown effect must have seen light a new set of challenges in terms of capacities to comply with regulatory frameworks and to implement the various human rights frameworks started emerging and impacting performance outcomes. This is the context in which the present study is deployed and the challenges that it needs to address. The different industry sectors that the study is concerned with pose multifarious complexities in terms of the structure and function of the organization of the industry, which the investigation needs to unravel and capture the empirical data. Hence, in view, the study uses mixed methods towards realizing and accomplishing its objectives.

There is a huge responsibility of the corporate to protect human rights through regulatory compliance, which is achieved through due diligence of prescribed processes of mapping, identifying, addressing and mitigating human rights abuse in any form that may happen in the process of conduct of businesses. The present study will help agencies provide a status check and guide as a pointer in promoting human rights among the supply chain networks. The study further emphasizes a network wide ecosystem of human rights and as a competitive advantage factor to promote their respective businesses. Thus, the study endeavors to play a significant role in the supply chain space through supporting them in the organization of human rights across the value chains as declared in the UN Guiding Principles on Business and Human Rights (UNGPs).

Objectives of the study realized and concluding remarks

7.1 Summary of objectives attempted to attain in the study

The progressive companies striving for excellence increasingly regard their employees as one of the very important resources in the value addition processes. There have been even philosophies such as lean management which advises companies to have their employees treated as good as family members but not as lifeless assets. Companies which adopted this approach of lean management philosophy have been very successful in becoming more efficient, responsive, and competitive through the unconditional support of their human resources. Specifically, the companies have overcome the serious issues such as Muda (wastes), Mura (unevenness), and Muri (hard to do) in the processes; knowledge disconnect; insecurity; absenteeism; dissatisfaction and so and so forth. Thus, by consciously considering the wellbeing of their employees the companies can immensely benefit and any slackness in this regard can greatly affect the companies. In cognizance of this, the current study has focused on achieving the following objectives aimed at assisting the supply chain practitioners to streamline their processes. Specifically, to have socially conscious practices that not only ensure socially sustainable environment but also protection of human rights.

- Identify the prominent mechanisms that would enable the supply chain partners to adopt socially responsible supply chain practices with an emphasis to protect human rights.

- Address the root causes of the shortcomings that hinder the supply chain partners to protect human rights along the supply chain functions.

- The supply chain practitioners will be able to assess their standing with regards to protection of human rights and can continuously improve.

7.2 Prominent mechanisms to adopt socially responsible supply chain practices

Companies must implement appropriate mechanisms to ensure that their supply chain practices are socially responsible and sustainable, and that human rights are protected. Many previous research studies have emphasized the importance of social sustainability and human rights protection. Also, how doing so can benefit the companies and how failing to do so can harm the companies. However, studies that have focused on specifically emphasizing the prominent mechanisms that a company should prioritize in order to become socially sustainable are scarce. The literature review has revealed this essential research gap, which is addressed using a process created specifically to help supply chain practitioners. Further, in order to show how a business may guarantee that due care is taken to preserve human rights, the same has been put to the test in a case setting.

The study's findings show how supply chain professionals should seek prominent SSSCEs in order to help businesses provide their stakeholders with socially sustainable environments, particularly ones that better protect human rights throughout supply chains. The linkages between the SSSCEs' causes and effects will also help the companies understand the main causes among the SSSCEs. The study also presents how the degree of importance among the SSSCEs and the degree of influence and being influenced across the SSSCEs can be quantified. Through focusing on the SSSCEs that are significant, businesses will be able to practically advance social sustainability along supply chains. The SSSCEs' combined potential to drive and be driven can then assist practitioners in selecting appropriate causes

and effects. The study offers a framework for how a company might implement a continuous improvement plan to join a supply chain that is socially responsible.

7.3 Examining the barriers to SSSCs

The study took into account a list of obstacles that prevent supply chain partners from achieving social sustainability and safeguarding human rights throughout supply chain operations. The list of barriers mentioned above is divided into three categories: internal, shared, and external. Then, by examining their relative seriousness, the strict restrictions that significantly harm the SSSCs are identified. The study also suggested a method for identifying obstacles in any case scenario and evaluated it using a real-world scenario. The procedure aids supply chain professionals in determining the severity of the obstacles based on the measured net weights. The harder it is for a corporation to overcome a barrier, the higher the weight it receives.

7.4 Assessing the relative standing of companies along SSSCs

End-to-end supply chains must adhere to social sustainability standards, specifically ensuring the protection of human rights. So, essentially, companies are required to ensure that, as a supply chain network, they strive for overall social sustainability. In this regard, the upstream side of supply chains is typically regarded as a source of concern for the focal firms along the supply chains. Moreover, as supply chains are longer, it becomes increasingly difficult for focal forms to have better visibility to ensure their suppliers meet the required standards. This is significant because supplier dependence is increasing along supply chains. On the other hand, suppliers are frequently regarded as the weakest links in supply chains, hence it is crucial to focus specifically on choosing suppliers carefully from the perspective of social sustainability. Contrariwise, eventually, consumers who will be the supply chains' main

source of income will also be increasingly aware of the processes and working environments that go into making the goods and providing the services. Businesses can leverage socially responsible supply chain strategies as a competitive advantage to entice customers and the best supply chain partners. Supply chain partners must ensure that all practices are in line with the welfare of human resources in order to prevent having to learn the same lesson the hard way. This section of the study aims to assist practitioners and policymakers in managing supply chains from the standpoint of social sustainability. In this context, the study again suggests a procedure to assess the suppliers' relative performance in putting into practice socially sustainable supply chain processes. With this knowledge, supply chain professionals will be able to compare themselves internally to suppliers who provide a more socially sustainable environment. Additionally, the practitioners will be able to recognize and explicitly work with the suppliers who are not doing a good job of following socially responsible supply chain practices.

Summary Recommendations

The following recommendations are based on the preceding analysis of important enablers that make a supply chain player socially responsible and capable of protecting human rights.

Recommendation 1:

Enhanced Social Auditing (ESA)

Social auditing must incorporate the real opinions of the stakeholders, be reliable, and have an improvement-focused objective in order to achieve the purpose of protecting human rights. Instead of being ritualistic, it should be enthusiastically supported in order to realize the ambition.

Social auditing to drive due diligence calls for physical check of the facilities of the stakeholders, verifying documentation, conducting management and employee interviews, and checking for conformity with standards.

Where required, community participation backed by technology will make social auditing inclusive, credible and will contribute to environmental and human rights compliance.

Social auditors can use mobile devices to collect data in the field, allowing for real-time monitoring and reporting. Social auditors can use online platforms to report findings and communicate with stakeholders, thus increasing transparency and accountability.

Recommendation 2:

Long term Business Continuity (LBC)

Companies along supply chains are typically concerned with meeting their long-term needs and seek long-term relationships with other supply chain players. The supply chain members'

commitment to long-term business continuity has enabled businesses to focus more on sustainability-oriented transactions. In contrast, businesses that perform well in terms of social sustainability ought to be assured of long-term business continuity. The LBC can facilitate the companies' commitment of resources and development of collaborative relationships. Consequently, through the LBC, companies can also anticipate strategic alignment among themselves in order to achieve social sustainability and safeguard human rights. The buyer firms can also anticipate that the supplier firms anticipating the LBC will be less risk-averse and more adaptable in meeting the buyers' long-term needs. Thus, businesses will need to ensure that stakeholder engagement and relationships are conducted with an eye toward social sustainability. They can also ensure that social impact and responsibility are used as guiding factors to ensure the long-term viability of their businesses.

Recommendation 3:

Establish forums for empowering Social Inclusivity (SIN)

Awareness about Social Inclusivity as a function of Human rights at all levels of stakeholder hierarchy, especially for those at the governance level, is critical for propagating and sustaining the thrust for more humane supply-chains. Human rights advocacy should be heard as much at board level as at operational level.

For this purpose, *a Human Right officer* should be made mandatory. A committee for improving human rights (CIHR) must be constituted in each company on the lines of Prevention of Sexual Harassment (POSH) committees.

Recommendation 4:

Promote Training on Sustainable Practices (TSP)

By instituting training programmes on sustainable practises, organisations could ensure that supply chain participants are aware of both the benefits of compliance and the risks of ignoring social sustainability. *Since international supply chains need enterprises to have a strong social performance, Indian manufacturers must be made aware of these requirements*.

Such programs could typically embrace basic notions about human rights, diversity, gender sensitivity, workplace safety and disaster management. They could also incorporate mock drills, online tutoring, online courses on human rights etc.

On the management side, Human Resource units need to be sensitized from a gender perspective using cascaded training programs by gender specialists.

Recommendation 5:

Augment Facilities for Social Security (FSS)

Employee welfare initiatives should strive to provide proactive access to workers and staff regarding pay, PF and pension using self-service computer applications. *Establishing kiosks and help desks for this purpose is essential.*

Outreach programs could be aligned with Governments health and nutrition programs such as *Anganwadis*. Where possible, *schools and hospitals* should be established in close proximity to the companies to enrich children's talents and promote their growth into healthy and productive citizens. These are especially crucial in tribal areas.

Recommendation 6:

Establish large amounts of technology into inter-company transactions to better enforce Accountability Mechanisms (TAM):

It is widely acknowledged that the latest technologies can be very effective in making supply chains more socially responsible. Therefore, companies will have to ensure specific investments are made in establishing connected technologies for better visibility, transparency, and accountability along the supply chains.

Without adequate technology support, the focal firms have less control over the suppliers located at different locations and, therefore, have significantly diminished ability to monitor compliance of their suppliers with protection of human rights.

Blockchain technologies, data science tools etc are examples of how technology can make the stakeholders along the supply chains be more accountable.

Electronic devices and Internet of Things (IoT) can be very useful in measuring and monitoring regulatory compliance in workplaces, especially factories, for various parameters such as healthy working conditions.

Recommendation 7:

Information Sharing and Integration (ISI)

In conducting supply chain transactions, companies along supply chains have yearned for increased transparency, visibility, and traceability. In this regard, information sharing and integration among supply chain players are regarded as crucial means of determining the work status of stakeholders. Information sharing and integration have facilitated the free flow of exchanges, particularly in the current environment, with the advent of the most advanced connected technologies. Companies along supply chains must have access to the data of other stakeholders, especially from a sustainability standpoint. Important decisions involving supply chain players are made with consideration for their social impact.

By incorporating relevant stakeholders in the decision-making processes at the appropriate time and making the information transparent along the supply chains, it is possible to increase the responsiveness of the supply chains to customer needs without violating social sustainability criteria.

The stakeholders in the supply chains are often presented with unexpected challenges in the form of sudden surprises in order to fulfil excessive demand needs. As a direct consequence of this, the stakeholders all along the supply chains resort to breaking the social sustainability criteria as an easy way out. Companies would be less likely to resort to breaching human rights if they were given sufficient time to meet the demand requirements imposed by expanding their operations.

Recommendation 8:

Dynamic balance of Resource Allocations (DRA)

Companies heavily rely on resource allocations to dynamically match supply capacities with demand requirements. Workers' work-life balance should not be jeopardised in order to meet unreasonable demand requirements through unreasonable scheduling. In this regard, the value-added activities can be evaluated in accordance with lean management principles like Muda (waste), Mura (unevenness), and muri (hard to do jobs). The allocations should be made so that the human resources are not overworked and overstretched while performing the tasks. In allocating the works, there should be no discrimination based on caste, creed, race, gender, ethnicity, region, etc. Therefore, audits can be conducted to ensure that all transactions and decisions were made impartially. There may also be accountability for resources allocated to reduce the risk of human rights violations during the redress of complaints.

Recommendation 9:

Evaluate suppliers on a sustained basis through mutual visits to sites (MVS)

Mutual visits must be organized to impart first-hand oversight on the conditions (viz. how human resources are being engaged, safety measures taken, basic amenities provided, gender sensitive practices, employee well-being, wages paid and other such working conditions) of the suppliers.

There is a strong case for using technologies such as IoT to make accurate and reliable measurements of contract conditions that have a bearing on human rights.

The manufacturer must ensure these mutual visits are organized with its Tier-1 suppliers and ensure that in turn Tier-1 supplier does the same with its Tier-2 suppliers. The same practice can be extended further upstream. These mutual visits help the companies to monitor and enforce terms of socially sustainable practices. Any shortcomings detected can be used to establish improvement needs for socially responsible networks.

Technology applications must be encouraged to expose and exchange relevant data across the supply-chain. *These could include ERP, as well as industry-wide web portals* that use agreed formats and protocols.

Recommendation 10:

Pay special attention to Corporate Social Responsibility (CSR)

Engage workers and their families in the CSR initiatives as this will promote and foster social consciousness.

Human resources are the most valuable, and they play a critical part in a company's performance and in enhancing the company's brand image through socially sustainable initiatives under CSR. Many researchers have opined that including workers in practices such as environmental preservation, community development initiatives, conducting workshops, and welfare programmes has enabled the workplace to become more socially conscious.

Essentially, these will make a significant difference in the alleviation of problems such as child labour, poverty, gender inequality, slavery, and exploitation in emerging countries such as India.

Recommendation 11:

Emphasize on Organizational culture (OGC)

Without a shift in organisational culture toward conducting business in a socially responsible manner, the move toward compliance with the protection of human rights will not occur strategically.

Companies should be encouraged to institute rewards and recognitions for commitment to human rights in the operations.

The organizational culture of the companies should sustainably enable the protection of human rights. Companies must ensure that the organisational cultures of the businesses they are working with take social sustainability into account. Only by strategically choosing to work with the partners who consider their social performance as a priority, the entire supply chains can become socially sustainable.

Recommendation 12:

Show case better brand value and competitive advantage (BRC)

Stakeholders along supply chains are becoming more aware of the social performance of companies during the production of goods and services. On the other hand, businesses continue to enhance their industry reputation and positive standing in the eyes of various stakeholders. In this regard, the *best companies along the supply chain must be promoted based on their accountability for their societal impact*. The assessments conducted for the protection of human rights may also *test the manner in which companies along supply chains collaborate to communicate the significance of socially responsible production practices*. The companies should be able to better show case their brand and in turn have competitive advantages for their efforts in protecting the human rights and becoming a socially responsible player. Companies along supply chains may be *obliged to submit their action plan, progress, and achievements* on the path to becoming socially responsible global leaders.

Recommendation 13:

Safe, Clean, Healthy, and Nourishing Supplies (ENS)

The human resources in companies along supply chains play a crucial role in ensuring that business practices are socially responsible and that human rights are protected with due diligence. In this regard, ensuring safe, clean, nutritious, and healthy supplies distinguishes the companies as socially responsible supply chain players.

Companies are expected to demonstrate their commitment to achieving social sustainability standards in which workers are not exploited or forced to work in hazardous and unhealthy conditions. In the workplace, employee productivity and contentment are two critical indicators that employers must consider when assessing their employees' well-being. Companies can also examine their employee attrition rate and conduct stakeholder analysis to assess their standing and provide a better work environment.

Recommendation 14:

Gender sensitive HR unit (GSH)

Companies must provide a safe and supportive environment for employees to express their concerns about gender equity. There must be policies and mechanisms in place to protect employees' gender equity rights.

Globally, progressive businesses pledge to provide equal opportunities for their employees at all levels. Companies along the supply chain will be required to highlight and report on gender representation at all levels, including top management. They will essentially be required to report the initiatives taken, the employee feedback collected at regular intervals of time, and the cases of discrimination resolved. Companies along supply chains must be asked to prove how sensitive and flexible they were to the needs of their employees.

Recommendation 15:

Incentive mechanisms followed to Acknowledge the Practices (IAP)

It is believed that if companies along supply chains are incentivized for their efforts to comply with human rights protection, supply chain coordination will improve.

Supply chain integration in following socially sustainable practises can also be improved if mechanisms are in place to recognise and reward supply chain players' efforts in protecting human rights. The rewards can be in the form of preferential treatment, continued business, transaction flexibility, increased collaboration, increased reputation, and so on, all of which can persuade supply chain players to become socially sustainable.

Recommendation 16:

Develop mechanisms to evaluate performance of Social Sustainability (MPS)

It is crucial that businesses along supply chains are aware of their relative compliance with social sustainability standards and the protection of human rights. Companies will be required to account for the preventative and corrective actions they have taken to improve their social sustainability performance. In addition, companies along supply chains can be evaluated to determine what strategies for continuous improvement have been pursued in order to consistently become socially responsible players. In order to ensure the protection of human rights, the upstream suppliers of supply chains must be made more transparent and accountable during the value addition process. In addition, buyers can be held accountable for mechanisms in place to promote socially responsible manufacturing practices with their suppliers.

Recommendation 17:

Practice of Preferential Treatment for Socially Responsible Practices (PRS)

Companies along supply chains quite often have conflicting objectives, and it is not natural for the players to be equally sensitive to the needs of all stakeholders, particularly in terms of social sustainability. Only a select few players have the privilege of receiving preferential treatment and can anticipate improved supply chain collaboration for social sustainability. However, it is essential that companies also consider socially responsible practises as a basis for giving players preferential treatment. It becomes more sustainable when supply chain participants receive preferential treatment for their efforts to become socially responsible. Therefore, the preferential treatment extended to supply chain participants can be a potential catalyst for businesses to become more socially responsible.

Recommendation 18:

Developing Competition among the Supply Chain Partners (DCS)

The companies always seek competitive advantage over their competitors and strive to outperform their competitors and increase their share of the supply chain surplus. It is believed that companies competing to become supply chain partners do so primarily for economic reasons. However, companies are now evaluated, selected, and developed in accordance with the triple bottom line, i.e., not only from an economic perspective but also from an environmental and social perspective. This emphasis must be disseminated along supply chains, and it must be ensured that the supply chain transactions of all companies are governed by the triple bottom line approach, particularly from the perspective of social sustainability, which is frequently disregarded in comparison with the other two perspectives. The supply chain participants should also be made to compete in terms of implementing socially responsible manufacturing practices, and the success of the best participants from a social sustainability standpoint must be recognised. There must be avenues for businesses to demonstrate their efforts to become socially responsible players. Also, companies must be encouraged to participate in these opportunities for comparing their efforts to those of successful businesses.

Recommendation 19:

Strategic fit between practices and governments' regulations (SFG)

The governments in general attempt to create a level playing field for all the companies to abide by the regulations and comply with the minimum standards so that they ethically contend in the transformation processes. Those companies which strategically fit with the governments' regulations will have less or no legal trails to face and gain better reputation among the stakeholders. In achieving this the companies are required to conduct the gap

analysis with regards to the expected standards from regulators' point of view and their actual performance levels. They can also demonstrate with an action plan about how they can improve in better meeting the regulatory requirements and how the same is shared with the other players along the supply chains. Companies can also be evaluated based on their consultations with and involvement of other stakeholders in meeting their social sustainability standards, particularly from the perspective of regulators.

Recommendation 20:

Sustainable manufacturing practices for Protection of Human rights (SPH)

The focus of sustainable manufacturing practices along supply chains is on their effects on people, planet, and profits. The sustainable manufacturing practises of companies along supply chains aim to produce and provide goods and services without jeopardising the societal well-being in the long run. As they ensure a safe and healthy workplace for employees, sustainable manufacturing practises along supply chains are regarded as crucial. As dependence on the upstream members of supply chains has increased, it is imperative that their operations are socially responsible and respect human rights. In essence, corporations should be held accountable for the carbon footprints they leave on the planet and the social impact they have.

Recommendation 21:

This recommendation focuses specifically on addressing the obstacles companies will have to overcome to become socially responsible.

a) The companies along supply chains often lack in disseminating the intent and public commitments. This inertia has to be overcome by the companies to showcase themselves as a socially responsible players, gain trust and support from the stakeholders. Essentially

the top management of the companies will have to commit and take initiatives in developing and advertising their action plan taken to become a socially responsible player. Possibly the companies can demonstrate their commitment in terms of their values, mission, and vision statements. By properly engaging with their stakeholders and seeking their feedback can also help the companies to overcome this obstacle.

b) In order to become a socially sustainable supply chain player, businesses must also overcome the siloed nature of their supply chain operations. Frequently, the companies prioritise their own interests at the expense of those of their supply chain partners. Consequently, supply chain performance suffers. Companies can overcome this barrier by establishing robust supply chain connections and communication channels, increasing supply chain visibility, adopting collaborative partnerships, and utilising evidence-based decision-making techniques.

c) Supply chain planning has been one of the biggest challenges that companies along supply chains often face in becoming a socially sustainable player. The companies specifically along the upstream of supply chains struggles to match their supply capacities with demand requirements thereby end up violating the social sustainability standards and the human rights. Many a time companies end up overproducing or underproducing resulting in exploitation and mistreatment of employees. The companies can overcome this problem by adopting lean management principles, carry out collaborative planning, forecast, and replenishment, and developing stronger relationships with the supply chain players.

d) Companies along supply chains are frequently unmotivated to contribute specifically to socially sustainable manufacturing. Companies can overcome this by scientifically evaluating the performance of supply chain players and rewarding them accordingly. It will be a formidable obstacle to overcome if businesses are not convinced that achieving social sustainability will result in positive returns.

e) Companies along supply chains also lay over emphasis on cost structures which often push them to compromise environmental and social aspects. When companies along supply chains become only cost focused then their main objectives and relationships become more transactional in nature. The companies will have to sensitized about total cost of ownership to overcome this barrier. Specifically, the companies along upstream of supply chains will have to be coordinated to invest in achieving social sustainability.

f) The companies along supply chain are often obsessed with their own profits and as a result planet, and people are ignored. Unreasonable demands that supply chains attempt to fulfil often create this situation of ignoring the environmental and social impact. This barrier is also often due to misalignment in the strategies pursued by companies along supply chains. This can be overcome by the companies if the overall supply chain interests are considered.

g) Another serious barrier faced by the companies is due to lack of supply chain visibility. Manufacturing supply chains are often lengthier, and it is very difficult for all the companies to learn the quality of value addition processes. Due to lack of transparency the companies along supply chains do not get to know the compliance or violation of human rights posing serious risks for the entire supply chains. The companies can overcome this problem through connected technologies, establishing channels for proper communication, and value stream mapping.

h) Companies' employees along supply chains are the best source of ideas for continuous improvement and innovation. When there are no channels for employees to provide feedback, companies frequently experience a disconnect in knowledge. Companies can overcome this issue by adhering to lean management principles. When rewarded for their contributions, employees will be motivated to share their understanding and expertise.

i) Companies, particularly those located along upstream supply chains, frequently do not view the relationships as having a strategic nature. Due to a lack of trust among the businesses as a result, they become disconnected from one another and view their relationships with other businesses as merely transactional. Companies can get past this barrier by setting up training programmes and building relationships with the goal of serving their long-term interests.

j) Due to the lack of direct financial benefits, social and environmental sustainability are often given the least weight by businesses. The businesses' manufacturing procedures don't take sustainability into account as a result. When businesses take a more responsible and accountable approach to their manufacturing activities, they can get past this barrier. Companies can adopt sustainable manufacturing techniques without endangering people or the environment by embracing life cycle analysis and the ideas of the circular economy.

Bibliography

Altschuller, S. A. (2011). Advising Corporate Clients on Human Rights and the Challenges of Integrating Human Rights into Corporate Management Systems. *Proceedings of the Annual Meeting (American Society of International Law)*, *105*, 305–307.

Annavajhula, J. C. B., & Pratap, S. (2012). Worker voices in an auto production chain: Notes from the pits of a low road-II. *Economic and Political Weekly*, *47*(34), 49–56.

Arnold, D. G. (2010). Transnational Corporations and the Duty to Respect Basic Human Rights. *Business Ethics Quarterly*, *20*(3), 371–399. https://doi.org/10.5840/beq201020327

Asher, M. (2009). Pension plans, provident fund schemes and retirement policies: India's social security reform imperative. *ASCI Journal of Management*, *39*(1), 1–18.

Azevedo, S. G., Carvalho, H., Duarte, S., & Cruz-Machado, V. (2012). Influence of green and lean upstream supply chain management practices on business sustainability. *IEEE Transactions on Engineering Management*, *59*(4), 753–765. https://doi.org/10.1109/TEM.2012.2189108

Barrientos, S., & Smith, S. (2007). Do workers benefit from ethical trade? Assessing codes of labour practice in global production systems. *Third World Quarterly*, *28*(4), 713–729. https://doi.org/10.1080/01436590701336580

Baruah, B. (2010). Gender and globalization: Opportunities and constraints faced by women in the construction industry in India. *Labor Studies Journal*, *35*(2), 198–221. https://doi.org/10.1177/0160449X08326187

BASU, K. (1999). Child Labor : Cause , Consequence , and Cure , with Remarks on International Labor Standards. *Journal of Economic Literature*, *XXXVII*(September), 1083–1119.

Batra, G. S. (1996). Dynamics of social auditing in corporate enterprises: A study of the Indian corporate sector. *Managerial Auditing Journal*, *11*(2), 36–45. https://doi.org/10.1108/02686909610107960

Bernstein, C., & Volpe, S. (2016). The implications of sex role identity and psychological capital for organisations: A South African study. *SA Journal of Industrial Psychology*, *42*(1), 1–12. https://doi.org/10.4102/sajip.v42i1.1311

Bhandari, R. (2013). Impact of Technology on Logistics and Supply Chain Management. *IOSR Journal of Business and Management (IOSR-JBM) e-ISSN: 2278-487X, p-ISSN: 2319-7668 PP 19-24 Www.Iosrjournals.Org*, 19–24. Retrieved from www.iosrjournals.org

Bijlmakers, S., & Bijlmakers, S. (2018). The UN Guiding Principles on business and human rights. *Corporate Social Responsibility, Human Rights, and the Law*, *19*(4), 45–63. https://doi.org/10.4324/9781351171922-3

Camilleri, M. A. (2017a). Corporate sustainability and responsibility : creating value for business , society and the environment. *Asian Journal of Sustainability and Social Responsibility*, *2*(1), 59–74. https://doi.org/10.1186/s41180-017-0016-5

Camilleri, M. A. (2017b). Corporate sustainability and responsibility: creating value for business, society and the environment. *Asian Journal of Sustainability and Social Responsibility*, *2*(1), 59–74. https://doi.org/10.1186/s41180-017-0016-5

Carswell, G. (2016). Struggles over work take place at home: Women's decisions, choices and constraints in the Tiruppur textile industry, India. *Geoforum*, *77*, 134–145. https://doi.org/10.1016/j.geoforum.2016.10.009

Chheda, K., & Patnaik, A. (2016). *Wage-differentials in India ' s Construction Industry*. *52*(1), 1–17.

Christine, L. (1997). Annual survey of violations of trade union rights. *International Labour Review*, *136*(3), 428–430.

Christopher Johnson Jr., E. (2015). The Important Role for Socially Responsible Businesses in the Fight Against Human Trafficking and Child Labor in Supply Chains. *Business Law Today*, (January), 1–4.

Das, D. (2017). Development and validation of a scale for measuring Sustainable Supply Chain Management practices and performance. *Journal of Cleaner Production*, *164*(October), 1344–1362. https://doi.org/10.1016/j.jclepro.2017.07.006

Diabat, A., Kannan, D., & Mathiyazhagan, K. (2014). Analysis of enablers for implementation of sustainable supply chain management - A textile case. *Journal of*

Cleaner Production, *83*(November), 391–403. https://doi.org/10.1016/j.jclepro.2014.06.081

Ermgassen, E. K. H. J., Ayre, B., Godar, J., Lima, M. G. B., Bauch, S., Meyfroidt, P., … Gardner, T. (2020). Using supply chain data to monitor zero deforestation commitments : an assessment of progress in the Brazilian soy sector Using supply chain data to monitor zero deforestation commitments : an assessment of progress in the Brazilian soy sector. *Environmental Research Letters*, *15*(3), 1–13.

Ersoy, M. A. (2013). The Relationships among Working Conditions, Safety Climate, Safe Behaviors and Occupational Accidents: An Empirical Research on the Marble Workers. *The Macrotheme Review : A Multidisciplinary Journal of Global Macro Trends*, *2*(4), 173–182.

Esha, C., Sonalde, D., & Vanneman, R. (2018). Indian Paradox: Rising Education, Declining Womens' Employment. *Demogr Res*, *38*, 855–878. https://doi.org/10.4054/DemRes.2018.38.31.INDIAN

Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance : A contingency and configuration approach. *Journal of Operations Management*, *28*, 58–71. https://doi.org/10.1016/j.jom.2009.06.001

Gunasekaran, A., Lai, K. hung, & Edwin Cheng, T. C. (2008). Responsive supply chain: A competitive strategy in a networked economy. *Omega*, *36*(4), 549–564. https://doi.org/10.1016/j.omega.2006.12.002

Haddud, A., & Khare, A. (2020). Digitalizing supply chains potential benefits and impact on lean operations. *International Journal of Lean Six Sigma*, *11*(4), 731–765. https://doi.org/10.1108/IJLSS-03-2019-0026

Hafner-burton, E. M. (2005). Human Rights in a Globalizing World : The Paradox of Empty Promises. *American Journal of Sociology*, *110*(5), 1373–1411.

Hessels, J., Gelderen, M. Van, & Thurik, R. (2008). Drivers of entrepreneurial aspirations at the country level : the role of start-up motivations and social security. *International Entrepreneurship and Management Journal*, *4*(4), 401–417. https://doi.org/10.1007/s11365-008-0083-2

Idowu, S. O. (2015). Social Audit Regulation. In *Social Audit Regulation*. Retrieved from https://www.researchgate.net/publication/299808816%0Ahttp://link.springer.com/10.10 07/978-3-319-15838-9

Isaksson, R., Johansson, P., & Fischer, K. (2010). Detecting Supply Chain Innovation Potential for Sustainable Development. *Journal of Business Ethics*, *97*(3), 425–442. https://doi.org/10.1007/s10551-010-0516-z

Kim, S. W. (2006). Effects of supply chain management practices , integration and competition capability on performance. *Supply Chain Management: An International Journal*, *11*(3), 241–248. https://doi.org/10.1108/13598540610662149

Kim, Y. K., & Sullivan, P. (2019). Emotional branding speaks to consumers' heart: the case of fashion brands. *Fashion and Textiles*, *6*(1). https://doi.org/10.1186/s40691-018-0164-

y

Klassen, R. D., & Vereecke, A. (2012a). Social issues in supply chains: Capabilities link responsibility, risk (opportunity), and performance. *International Journal of Production Economics*, *140*(1), 103–115. https://doi.org/10.1016/j.ijpe.2012.01.021

Klassen, R. D., & Vereecke, A. (2012b). Social issues in supply chains: Capabilities link responsibility, risk (opportunity), and performance. *International Journal of Production Economics*, *140*(1), 103–115.

Kolk, A. (2008). Sustainability, accountability and corporate governance: Exploring multinationals' reporting practices. *Business Strategy and the Environment*, *17*(1), 1–15. https://doi.org/10.1002/bse.511

Krieger, J., & Higgins, D. L. (2002). Housing and health: Time again for public health action. *American Journal of Public Health*, *92*(5), 758–768. https://doi.org/10.2105/AJPH.92.5.758

Kudla, N., & Stölzle, W. (2011). Sustainability Supply Chain Management Research: A Structured Literature Review. *Die Unternehmung-Swiss Journal of Business Research and Practice*, *65*(3), 263–301.

Lahiri-Dutt, K. (2007). Roles and status of women in extractive industries in India: Making a place for a gender-sensitive mining development. *Social Change*, *37*(4), 37–64. https://doi.org/10.1177/004908570703700403

Lajqi, S. (2017). Entrepreneurial growth aspirations in challenging environment : The role of institutional quality , human and social capital *. *Strategic Change*, *26*(4), 385–401. https://doi.org/10.1002/jsc.2139

Lambert, D. M., & Cooper, M. C. (2000). Issues in Supply Chain Management. *Industrial Marketing Management*, *83*, 65–83.

Lee, K., Kwon, H., Cho, S., Kim, J., & Moon, I. (2015). Improvements of safety management system in Korean chemical industry after a large chemical accident. *Journal of Loss Prevention in the Process Industries*, *42*, 6–13. https://doi.org/10.1016/j.jlp.2015.08.006

Lewis, L. E., Schmidt, K., & Duvall, M. N. (2012a). Retailer Sustainability and the Supply Chain. *Natural Resources & Environment*, *26*(4), 18–22. Retrieved from http://ezproxy.auckland.ac.nz/login?url=http://search.proquest.com/docview/102663854 2?accountid=8424%5Cnhttp://openurl.auckland.ac.nz/resolve?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:journal&genre=article&sid=ProQ:ProQ:pqrl&a title=Retailer+Sus

Lewis, L. E., Schmidt, K., & Duvall, M. N. (2012b). Retailer Sustainability and the Supply Chain. *Nat. Resources & Env't*, *26*(4), 1–5.

Li, W., & Zhang, R. (2010). Corporate Social Responsibility , Ownership Structure , and Political Interference : Evidence from China. *Journal of Business Ethics*, *96*(4), 631–645. https://doi.org/10.1007/s10551-010-0488-z

Loureiro, S. M. C., Ruediger, K. H., & Demetris, V. (2012). Brand emotional connection and loyalty. *Journal of Brand Management*, *20*(1), 13–27. https://doi.org/10.1057/bm.2012.3

Mandal, B. C. (2010). Caste Discrimination, Deprivation and the Socio-Economic Development of Dalits. *Contemporary Voice of Dalit*, *3*(2), 149–166. https://doi.org/10.1177/0974354520100203

Marucheck, A., Greis, N., Mena, C., & Cai, L. (2011). Product safety and security in the global supply chain: Issues, challenges and research opportunities. *Journal of Operations Management*, *29*(7–8), 707–720.

Melnyk, S. A., Narasimhan, R., & Decampos, H. A. (2014). Supply chain design : issues , challenges , frameworks and solutions. *International Journal of Production Research ISSN:*, *52*(7), 1887–1896. https://doi.org/10.1080/00207543.2013.787175

Mena, S., de Leede, M., Baumann, D., Black, N., Lindeman, S., & McShane, L. (2010). Advancing the business and human rights agenda: Dialogue, empowerment, and constructive engagement. *Journal of Business Ethics*, *93*(1), 161–188. https://doi.org/10.1007/s10551-009-0188-8

Mitra, S., & Sambamoorthi, U. (2006). Employment of Persons with Disabilities: Evidence from the National Sample Survey. *Economic and Political Weekly*, *41*(3), 199–203. Retrieved from http://www.jstor.org/stable/4417696

Morali, O., & Searcy, C. (2013). A Review of Sustainable Supply Chain Management Practices in Canada. *Journal of Business Ethics*, *117*(3), 635–658. https://doi.org/10.1007/s10551-012-1539-4

Nakamba, C. C., Chan, P. W., & Sharmina, M. (2017). How does social sustainability feature in studies of supply chain management? A review and research agenda. *Supply Chain Management*, *22*(6), 522–541. https://doi.org/10.1108/SCM-12-2016-0436

O'Rourke, D. (2014). The science of sustainable supply chains. *Science*, *344*(6188), 1124–1127. https://doi.org/10.1126/science.1248526

Oonk, G., Overeem, P., Peepercamp, M., & Theuws, M. (2012). Maid in India: Young Dalit Women Continue to Suffer Exploitative Conditions in India's Garment Industry. In *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2119816

Park-Poaps, H., & Rees, K. (2010a). Stakeholder forces of socially responsible supply chain management orientation. *Journal of Business Ethics*, *92*(2), 305–322. https://doi.org/10.1007/s10551-009-0156-3

Park-Poaps, H., & Rees, K. (2010b). Stakeholder forces of socially responsible supply chain management orientation. *Journal of Business Ethics*, *92*(2), 305–322. https://doi.org/10.1007/s10551-009-0156-3

Pfohl, H.-C., & Gomm., M. (2017). Supply Chain Finance — Optimizing Financial Flows in Supply Chains Supply chain finance : optimizing financial flows in supply chains. *Logistics Research*, *1*(2–4), 149–161. https://doi.org/10.1007/s12159-009-0020-y

Pogge, T., & Sengupta, M. (2016). Assessing the sustainable development goals from a human rights perspective. *Journal of International and Comparative Social Policy*, *32*(2), 83–97. https://doi.org/10.1080/21699763.2016.1198268

Preuss, L., & Brown, D. (2012). Business Policies on Human Rights: An Analysis of Their

Content and Prevalence Among FTSE 100 Firms. *Journal of Business Ethics*, *109*(3), 289–299. https://doi.org/10.1007/s10551-011-1127-z

Puncheva-Michelotti, P., Michelotti, M., & Gahan, P. (2010). The relationship between individuals' recognition of human rights and responses to socially responsible companies: Evidence from Russia and Bulgaria. *Journal of Business Ethics*, *93*(4), 583–605. https://doi.org/10.1007/s10551-009-0242-6

Schloetzer, J. D. (2012a). Process integration and information sharing in supply chains. *Accounting Review*, *87*(3), 1005–1032. https://doi.org/10.2308/accr-10216

Schloetzer, J. D. (2012b). Process integration and information sharing in supply chains. *The Accounting Review*, *87*(3), 1005–1032.

Seidenberg, S. (2014). Work Toward Progress: New ABA principles provide starting point for businesses to eliminate forced and child labor in their production, supply chains. *ABA Journal*, *100*(7), 62–64.

Shekhar, K., & Das, L. (2000). *CEC Working Paper Documentation of Labour Rights Violations in India : A Case Study of Automobile Sector*.

Shore, B. (2014). Information Sharing in Global Supply Chain Systems. *Journal of Global Information Technology Management*, *4*(3), 37–41. https://doi.org/10.1080/1097198X.2001.10856306

Smales, P. (2010). Living Wages and Institutional Supply Chain Duties. *Business and Professional Ethics Journal*, *29*(1), 109–134. https://doi.org/10.5840/bpej2010291/47

Sophie, M., & Usha, S. (2008). Disability and the Rural Labor Market in India: Evidence for Males in Tamil Nadu. *World Development*, *36*(5), 934–952.

Srija, M. A. (2014). Implementation of the Minimum Wages Act, 1948 - Case Study of India. *Global Journal of Human-Social Science: Political Science*, *14*(7), 1–11.

Stecke, K. E., & Kumar, S. (2009). Sources of supply chain disruptions, factors that breed vulnerability, and mitigating strategies. *Journal of Marketing Channels*, *16*(3), 193–226. https://doi.org/10.1080/10466690902932551

Sud, K. (2018). Role of Heavy Machinery in Disaster Management. In *Development and Disaster Management* (pp. 135–145). Springer.

Sunil Kumar, C. V, & Routroy, S. (2016). Case Application of a Methodology for Determining a Manufacturer's Preferred Customer Status with Suppliers. *Engineering Management Journal*, *28*(1), 25–38. https://doi.org/10.1080/10429247.2016.1139911

Szegedi, K., & Kerekes, K. (2012). Challenges of Responsible Supply Chain Management. *Theory Methodology Practice (TMP)*, *8*(02), 68–75.

Taylor, A. M., & Taylor, M. P. (2004). The purchasing power parity debate. *Journal of Economic Perspectives*, *18*(4), 135–158. https://doi.org/10.1257/0895330042632744

Thornthwaite, L. (2018). The living wage crisis in Australian industrial relations. *Labour & Industry: A Journal of the Social and Economic Relations of Work*, *27*(4), 261–269.

https://doi.org/10.1080/10301763.2018.1442150

United States Department of State Bureau of Democracy Human Rights and Labor. (2019). *India 2019 Human Rights Report*. Retrieved from https://www.state.gov/wp-content/uploads/2020/03/INDIA-2019-HUMAN-RIGHTS-REPORT.pdf

Vaughan-Whitehead, D. (2014). How 'Fair'Are Wage Practices along the Supply Chain? A Global Assessment. In *Towards Better Work, Palgrave Macmillan, London.* (pp. 68–102).

Wagner, S. M., & Bode, C. (2006). An empirical investigation into supply chain vulnerability. *Journal of Purchasing and Supply Management*, *12*(6 SPEC. ISS.), 301–312. https://doi.org/10.1016/j.pursup.2007.01.004

Weissbrodt, D., & Kruger, M. (2017). Norms on the responsibilities of transnational corporations and other business enterprises with regard to human rights. *Globalization and International Investment*, *901*(4), 199–220. https://doi.org/10.4324/9781315254104-8

Westbrook, R., & Frohlich, M. (2001). Arcs of Integration: An International Study of Supply Chain Strategies. *Journal of Operations Management*, *19*(2), 185–200. Retrieved from http://eureka.bodleian.ox.ac.uk/1829/

Wood, S. (2012). The case for leverage-based corporate human rights responsibility. *Business and Human Rights*, *22*(1), 135–176. https://doi.org/10.4337/9781781005774.00011

Zangiacomi, A., Pessot, E., Fornasiero, R., Bertetti, M., & Sacco, M. (2020). Moving towards digitalization: a multiple case study in manufacturing. *Production Planning and Control*, *31*(2–3), 143–157. https://doi.org/10.1080/09537287.2019.1631468

Zeki, S., & Keskin, H. (2011). The effect of supply chain integration on information sharing : Enhancing the supply chain performance. *Procedia-Social and Behavioral Sciences*, *24*, 1630–1649. https://doi.org/10.1016/j.sbspro.2011.09.016

Zhang, M., Pawar, K. S., & Bhardwaj, S. (2017). Improving supply chain social responsibility through supplier development. *Production Planning and Control*, *28*(6–8), 500–511. https://doi.org/10.1080/09537287.2017.1309717

Zutshi, A., Creed, A., & Sohal, A. (2009). Child labour and supply chain: profitability or (mis)management. *European Business Review*, *21*(1), 42–63.

Appendix I

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Survey Questionnaire

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Dear Sir/Madam,

This is an academic research study conducted to explore and examine the aspects that can facilitate companies to practice and become more socially responsible supply chain stakeholders. In this regard, your opinions would be of great value for researchers to understand how companies can strategize to become a competitive socially responsible supply chain. Due to the increasing competition supply chains will have to strengthen their social performance and possibly achieve sustainable competitive advantages which are difficult for others to imitate. Eventually, the buyer-supplier relationships along the supply chains will also have to consider social performance for mutual benefit and minimized risks. Hence, the current research study has been considered as an important topic of research and supported by the Government of India (GOI). The GOI wants to strengthen the supply chains on par with the international standards viz. along a social dimension, match practices of Indian companies with the foreign players, and realize the vision of "Make in India" and "Self Sufficient India". The research observations from the study will be discussed with the representatives of GOI for supporting the companies to evolve as the best socially responsible supply chains.

The researchers would like to assure the respondents that the opinions shared would be kept highly confidential and neither the respondent nor the company details of the respondent will be traceable. Researchers would strictly abide by the protection of respondent's interests and would be happy to share the research observations if he/she so desires. The questions framed are solely based on the vast published literature on the subject matter and hence are not intended to assess anyone or any company's position. Having said about the significance of the study and promised confidentiality,

researchers would like to humbly appeal to the respondent to spare his/her valuable time for filling the questionnaire. We would like to thank you for your contribution and for any clarification you may kindly reach us at anand@ipeindia.org / cvsunil@ipeindia.org.

Name of the respondent (optional):

Company's name (optional):

Respondent's Designation:

Experience in the present company (in years):

Overall experience in the industry (in years):

Type of company working for:

   i.   OEM   ii. Tier 1 Supplier

  iii.   Tier 2 Supplier   iv. Tier 3 Supplier

   v.   Others _____

Type of Industry

   i.   Automotive   ii. Pharmaceutical

  iii.   Food processing   iv. Textile

   v.   Others _____

Turnover of the company (in Crores) _____

Year of establishment_____

Age of the respondent_____

Gender of the respondent_____

State in which your company is located_____

Please consider the following questions and provide your feedback on the significance of each in making the supply chains socially responsible for the protection of human rights.

The following guidelines can be considered in filling the questionnaire:

• Indicate/assign the actual level of importance of the construct as per your expertise.

• The level of importance expressed on a 1 to 5 Scale:

  1: Strongly disagree 2: Disagree   3: Neutral   4: Agree   5: Strongly Agree

These are the factors that may facilitate the practice of socially responsible supply chains. Please provide your opinion about the feasibility in the Indian environment.					
Question (1: Strongly disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly Agree)	1	2	3	4	5
Will risk management strategies followed by the supply chain players towards regulatory compliance improve the protection of human rights.					
By placing emphasis on selecting, evaluating, and rewarding for the best ethical practices of other players along the supply chain which will enable your partners to become more socially responsible.					
Emphasis on offering safe, clean, and nutritional food supplies for the workers along your supply chain will benchmark you as a socially responsible supply chain.					
Practices of sustainability standards, evaluating the sustainability performance, and accordingly making the policies help the companies to protect human rights.					
Accountability mechanisms practiced along the supply chain can help the companies to follow the due diligence in the processes to protect human rights.					
Practice of exercising and leveraging allocation of resources that enable protection of human rights.					
Sharing of information and a process of integration among your supply chain partners has a strengthening effect on interdependence and mutual trust, which in turn will favor protection of human rights along the supply chain.					
Exemplified practices of proper wages, working hours and safe environment will ensure the protection of human rights of the workers.					
Strategically fitting the supply chain practices in line with that of the governments' regulations help in protection of the human rights.					
Is the purchasing power (supplier &/or buyer) of your corporation is driving positive change among your partners, and society towards achieving inclusive growth of the company?					
Is Government intervening with all the stakeholders in helping to close the implementation gaps in deteriorating human rights situation.					
Exclusive training programs on ethical practices to be followed along the supply chains and among your employees will help your supply chain become socially responsible.					
Measuring suppliers' performance on sustainability initiatives by giving due importance to economic, environmental, and social dimensions has enabled you to protect human rights.					
Companies that are striving to protect human rights can aspire for better brand value and competitive advantage from the stakeholders.					
By reviewing the work of your partners and formulating initiatives to support and develop the stakeholders can improve social accountability of supply chains.					

By offering long term business continuity there can be better chance for the companies along the supply chains to have better socially responsible supply chain performance.				
Are CSR Provisions which require companies to align with human rights requirements being followed along the supply chain.				
Incentive mechanisms followed to acknowledge the practices along the supply chain have motivated the players to comply with human rights.				
Mutual visits to sites and audits of suppliers' practices can improve the chances for protecting human rights.				
By developing competition among the supply chain partners in offering working conditions that meet the global standards can make you strong in complying with human rights.				
Modern digital technology supply chain applications will it help you in compliance, risk reduction towards predicting and preventing unsustainable practices, this in a way ensures protection of human rights.				
Social auditing in the industries can provide a platform for empowering the rights of the workers.				
Policy guidelines with regard to health insurance, provident fund and housing facilities ensure the social security and strengthen the human rights of the workers.				
Professional performance management systems of workers and recruiting the required number of staff at all levels can provide a sustainable atmosphere in the company and increase the quality of the work.				
Recruiting the locals and developing the local community can increase the social inclusivity of the organization.				
As a supply chain leader, disallowing specifically labor trafficking and child labor at the upstream supply chain partners can improve compliance with the human rights and can also influence entire supply chain network towards the practices of human rights.				
Increasing the number of female workers can enhance equity along the supply chains and thus can make the overall supply chain more socially responsible and gender inclusive.				
Tracking the male and female salary gaps along the supply chains has brought transparency in the salary bands through collating and passing the required information.				
Establishing a gender sensitive HR unit that can create a space for dialogue for employees to speak freely about sexual and any kinds of discrimination will enhance gender equity along the supply chains.				

Value of diversity as an underlying culture of the organization and impart knowledge on how to manage a more diverse workforce and how to attract, retain and promote female talent has enhanced human rights compliance.				
Practices with regard to maternity leave, health care support during pregnancy, and assistance for sustained career progression will help protection of human rights.				
Visible leadership by the chief executive and top management on supporting women in management has proven to be one of the most important levers for progress in achieving gender diversity in a corporate context.				
Equity, equality and non-discrimination – provisions for workers to ensure outreach and inclusion to the most socially marginalized groups in the organization including persons with physical disabilities.				
Do social development organizations like NGOs, civil societies, and media influence your diversity initiatives in protecting human rights along the supply chains?				
If so, do you agree with the positive impact of their intervention.				

These are factors that may hinder the practice of socially responsible supply chains. Please provide your opinion about the relevance of these in the Indian environment.					
Question (1: Strongly disagree 2: Disagree 3: Neutral 4: Agree 5: Strongly Agree)	1	2	3	4	5
Deforestation and consequent environmental degradation leading to impaired sustainable manufacturing systems will deter the protection of human rights along the supply chain.					
Most significant challenge identified by the Supply Chain Players in India is how to integrate the entire supply chain system and managing it as a single integrated entity in making supply chain more sociable.					
Improper capacity planning leading to underpayment of wages results in violation of human rights.					
Sometimes aspirations without matching capital investments in the infrastructure of the company lead to non-compliance with regulatory framework and this incongruity leads to loss of human rights.					
Lack of coordination between you and the government puts you in a tight spot in terms of policing and law enforcing towards protecting human rights of the workers.					
Lack of healthy competition among the supply chains leads to compromising human rights.					
Over emphasis on optimizing the cost structures across the supply chains by compromising on human rights remains a challenge. Will you be willing to compromise on your costs and competitive position in order to maintain human rights record?					
Political interference in Corporate Social Responsibility (CSR) practices will affect the human rights of the workers and society at large.					
Lack of Accountability among the partners in supply chains with regards to the resources engaged in fulfilling mutual requirements.					
Lack of supply chain visibility, including information sharing, leads to non-transparent transactions across the network which in turn will affect human rights.					
Lack of strategic relationships with critical suppliers will affect sustenance of the network leading to violation of human rights.					
Insecurity due to absence of appropriate machine health monitoring systems and safety environment leading to failures, accidents, and disasters which in turn lead to failure in protecting human rights.					

Absence of platforms to voice the opinions of workers leads to poor industrial relations between management, workers, and the community in general resulting in formation of unhealthy trade unions.					
Failure to perceive labor abuse problem as part of the overall supply chain.					
Failure to adopt newer technologies to reduce risks in terms of workers' health and personnel accidents leads to human rights.					
Non availability of information regarding safe practices and mistake proof systems in all aspects of production and operations leads to accidents and thus compromising human rights.					
The greater the length of the supply chain, the higher will be the unwanted and redundant tasks which will lead to loss of human rights.					
Not making and disseminating public commitments to human rights is an impediment.					

Appendix II

The following are the major dimensions excerpted from the articles published in the journals of international repute. We request you to share your experience along the following dimensions as a panel member of focused group discussion.

Supply Chain Leadership and Commitment (SCL)

Practice of exemplifying the socially responsible practices (ESR)

Show case better brand value and competitive advantage (BRC)

Social auditing in the industries (SCI)

Sustainable practices for protection of human rights (SPH)

Emphasis on safe, clean, healthy, and nourishing supplies (ENS)

Relationship Centric Practices (RCP)

The purchasing power of the stakeholders (PPS)

Mutual visits to sites and audits of suppliers (MVS)

Facilities offered for social security (FSS)

Gender sensitive HR unit (GSH)

Training programs on sustainable practices (TSP)

Data Driven Operations (DDO)

Digitizing the supply chain processes (DSC)

Information sharing and integration (ISI)

Technology enabled accountability mechanisms (TAM)

Mechanisms to evaluate the performance of social sustainability (MPS)

Dynamic balance of resource allocations (DRA)

Stakeholders' supportive Approach (SSA)

Long term business continuity (LBC)

Incentive mechanisms followed to acknowledge the practices (IAP)

Practice of recognizing socially responsible practices (PRS)

Developing competition among the supply chain partners (DCS)

Socially responsible supply chain development (SSD)

Alignment to the Stakeholders' Requirements (ASR)

Strategic fit between practices and Governments' regulations (SFG)

Audits from regulators help closing the gaps (ARG)

Corporate Social Responsibility standards (CSR)

Organizational culture (OGC)

Social inclusivity (SIN)

Socially Responsible Supply Chain Enablers	1	3	5	7	9
Supply Chain Leadership and Commitment (SCL)					
Relationship Centric Practices (RCP)					
Data Driven Operations (DDO)					
Stakeholders' supportive Approach (SSA)					
Alignment to the Stakeholders' Requirements (ASR)					

Please enter the enabler as per their importance. For instance, if SCL is more important than all then you can just copy paste the tick mark (✓) under row SCL – column 9. Enablers can also have the same importance rating.

Socially Responsible Supply Chain Enablers	1	3	5	7	9
Supply Chain Leadership and Commitment (SCL)					
Practice of exemplifying the socially responsible practices (ESR)					
Show case better brand value and competitive advantage (BRC)					
Social auditing in the industries (SCI)					
Sustainable practices for protection of human rights (SPH)					
Emphasis on safe, clean, healthy, and nourishing supplies (ENS)					

Relationship Centric Practices (RCP)					
The purchasing power of the stakeholders (PPS)					
Mutual visits to sites and audits of suppliers (MVS)					
Facilities offered for social security (FSS)					
Gender sensitive HR unit (GSH)					
Training programs on sustainable practices (TSP)					
Data Driven Operations (DDO)					
Digitizing the supply chain processes (DSC)					
Information sharing and integration (ISI)					
Technology enabled accountability mechanisms (TAM)					
Mechanisms to evaluate the performance of social sustainability (MPS)					
Dynamic balance of resource allocations (DRA)					
Stakeholders' supportive Approach (SSA)					
Long term business continuity (LBC)					
Incentive mechanisms followed to acknowledge the practices (IAP)					
Practice of preferential treatment for socially responsible practices (PRS)					
Developing competition among the supply chain partners (DCS)					

Socially responsible supply chain development (SSD)					
Alignment to the Stakeholders' Requirements (ASR)					
Strategic fit between practices and Governments' regulations (SFG)					
Audits from regulators help closing the gaps (ARG)					
Corporate Social Responsibility standards (CSR)					
Organizational culture (OGC)					
Social inclusivity (SIN)					

Appendix III

Respondents are requested to provide their opinions in the table below.

No influence (No), Very low influence (VL), Low influence (L), High influence (H), Very high influence

	SCL	RCP	DDO	SSA	ASR
SCL					
RCP					
DDO					
SSA					
ASR					

Respondents are requested to provide their rating to signify the seriousness of barriers in the table below.

Socially Responsible Supply Chain Barriers	1	2	3	4	5
Impaired sustainable manufacturing systems (IMS)					
Lack of supply chain integration (LSI)					
Improper capacity planning (ICP)					
Companies' requirements against the regulatory framework (CAR)					
Lack of supply chain coordination (LSC)					
Lack of healthy competition (LHC)					
Over emphasis on optimizing the cost structures (OCS)					

Political interference (PIN)					
Lack of Accountability among the supply chain partners (LAS)					
Lack of supply chain visibility (LSV)					
Lack of strategic relationships with suppliers (LSR)					
Lack of safe and reliable work environment (LSE)					
Absence of platforms to voice the opinions of workers (APV)					
Failure to perceive labor abuse problem (FPL)					
Failure to adopt newer and safer technologies (FNT)					
Poor safety standards and mistake proof systems (PSS)					
Suboptimal internal and external supply chain processes (SIE)					
Not making and disseminating public commitments (NDP)					

End notes

[1] Selecting, evaluating, and rewarding the best ethical practices of other companies along the supply chain will enable your partners to become more socially responsible, see Mena et al., 2010 for a detailed discussion

[2] Safe, clean, and nutritional food supplies for the workers along your supply chain will benchmark you as a socially responsible supply chain, see Isaksson, Johansson, & Fischer, 2010 and Das, 2017, for more discussion

[3] Maintaining sustainability standards and evaluating sustainability performance are important benchmarks of human rights in supply chains, see Kudla & Stölzle, 2011, for more discussion

[4] See Altschuler, 2011, for more discussion on accountability mechanisms along supply chains to protect human rights

[5] See references for a detailed analysis on competitive advantage and human rights across supply chains

[6] Recruiting the locals and developing the local community can increase the social inclusivity of the organization, see Puncheva-Michelotti et al., 2010, for a detailed discussion

[7] Gender sensitive HR practices can create space for employees to speak freely about sexual and other kinds of discrimination, these practices will enhance gender equity along the supply chains, see for more discussion: Barua, 2010; Esha et al, 2018

[8] Discussion on Equity, equality, and non-discrimination – provisions for workers to ensure outreach and inclusion of the most marginalized groups in the organization including persons with physical disabilities, is central to establishing Socially Responsible Supply Chains, see these authors for a detailed discussion

[9] Environmental degradation consequent to deforestation leads to impaired sustainable manufacturing systems which will in turn deter the protection of human rights along the supply chain, this correlation is increasingly becoming important and unignorable, for a detailed account see Ermgassen et al., 2020

[10] Healthy competition is critical to protecting human rights across supply chains, it can play a significant role in promoting an uncompromising ecosystem to sustain human rights, see Gunasekaran et al, 2008, for a detailed discussion

[11] It is challenging for companies to maintain cost structures and human rights, for intriguing discussion see Pfohl & Gomm., 2017

[12] Political interference in Corporate Social Responsibility (CSR) practices will affect human rights of the workers, see these scholars for a productive discussion

[13] Safe practices and hazard free systems are an imperative given the increasing number of industrial accidents, hence discussion by these scholars assumes significance

[14] Greater the length of the supply chain higher will be the unwanted and redundant tasks which will eventually lead to loss of human rights, see Melnyk, Narasimhan, & Decampos, 2014, for more discussion

[15] See discussion on how not making and disseminating public commitments to human rights become an impediment,
 in Haffner – Burton, 2005

[16] For more discussion see - https://www.unglobalcompact.org/what-is-gc/our-work/supply-chain

[17] See Chopra & Meindl, 2007 for a detailed discussion