

A Study on Barriers and Practices of Supply Chain Social Sustainability in Indian and North American Energy and Manufacturing Sectors

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ABSTRACT

The paper paves a way to understand supply chain social sustainability practices and their associated barriers to implementation in the Indian and North American energy and manufacturing sectors. A systematic literature review and 4-point Likert scale survey provide clarity on the barriers and their perception from an industrial perspective. Findings from this study highlight that while the criticality of barriers differs with industry and geographies, some barriers are common to all. The study also highlights an approach needed for these sectors by identifying the most common barriers by providing a clear path on what practices can bring about the most impact in resolution.

20 barriers are identified, of which 3 show a stark difference in perception on its criticality against current published research work. The paper also identifies the top barriers along with the practices that make it most easy to implement. 11 common barriers that exist in the target industries of the two countries are identified and 6 easiest-to-resolve barriers are revealed, analyzing the maximum number of mitigation practices available. The paper concludes by identifying eight most impactful social sustainability practices that can help resolve the maximum number of implementation barriers and highlights avenues for further research in the field.

Keywords— Social Sustainability, Supply Chain, Strategy, Practice, Barrier, Supply Chain Social Sustainability (SSCM)

new definitions. Carter & Rogers, (2008) defined “Sustainability” as the strategic, consistent alignment and accomplishment of the social, environmental and economic priorities of an organization, through the systematic coordination of key inter-organizational business processes, in order to enhance the long-term economic efficiency of the individual firm and its supply chain.

Seuring & Muller (2008) defined sustainable supply chain management (SSCM) as the “management of material, information and capital flows as well as cooperation among companies along the supply chain while taking goals from all three dimensions of sustainable development, i.e., economic, environmental and social, into account which are derived from customer and stakeholder requirements”. In 1997, Elkington named these 3 dimensions of sustainability collectively as the “triple bottom line”. Though research and practice of the economic and environmental dimensions have grown exponentially, the social dimension has always trailed. This is largely because of tradeoffs where businesses seek profitable margins within acceptable impacts. This paper focuses on the social aspects of sustainability.

Social Sustainability (SS) in Supply Chain Management

There are various definitions of social sustainability. Sharma and Ruud (2003) define social sustainability as the ethical code of conduct for human life and progress, with focus on prudence. Carter and Rogers (2008) definition focuses on how social issues should be handled to improve long-term survival of a corporation. Mani et al. (2016) provided a clear and detailed definition by incorporating a list of social problems and defining social SSCM as “the management of social issues like equity, safety and health, product responsibility, human rights, and philanthropy throughout the supply chain”.

As social sustainability focuses on the human factor of sustainable supply chain management, it should be of high importance as explained by Huq et al. (2014). Panda (2014) clearly demonstrates that efforts to improve the human aspect of social sustainability have been limited even though workforce/human capital are of obvious importance to any organization. The number of research papers that focus on social aspects of sustainability is also

I. INTRODUCTION

Supply chains are complex systems that comprise of various stages to get the products and services to customers. From the procurement of raw materials to delivering finished goods to end consumers, the vast scope has demanded rapid changes in modeling over the years. As a critical function, its longevity – widely known as “sustainability” – is crucial for business continuity. The term “Sustainability” was coined in 1987 and defined as the “development that meets the needs of the present without compromising the ability of future generations” (Brundtland, 1987). The concept of sustainability has since been researched, practiced, and has evolved with numerous

comparatively fewer in the larger sustainability umbrella. Further, research on social sustainability of SCM in developing /emerging economies, where systemic social issues are predominantly higher when compared to developed countries, is even more limited. According to the study conducted by Pimenta and Ball (2014), out of the papers written on SSCM only 17% of the papers are relevant to social sustainability.

II. METHODOLOGY

Two methods of data collection were used in this study:

1. Systematic Literature Review
2. Questionnaire Survey

Systematic Literature Review (SLR):

A Systematic Literature Review (SLR) was used to identify social sustainability practices and associated barriers to its implementation. In the initial search, keywords such as “social*”, “sustainab*”, “supply chain”, “issues”, “practices”, and “strategy” were used in combinations in search engines such as Google Scholar, Web of Science and SCOPUS. This served as the basic research article collection platform. A list of actual search strings used is provided in Table 1. This yielded a total of 1320 papers that comprised of social, economic, and environmental sustainability aspects covering some aspects of social sustainability.

Table 1: Search words for paper gathering

“sustainable supply chain”
“sustainability in supply chain”
“social sustainability in supply chain”
“sustainable supply chain management”
“supply chain” AND “social issues”
“supply chain” AND “sustainability”
“supply chain” AND “social sustainability”
“social” AND “sustainable supply chain management”
“supply chain” AND “social sustainability” AND “practice”
“supply chain” AND “social sustainability” AND “strategy”

The second step for filtering and refinement focused on social sustainability, and enabled authors to pick papers of relevancy to social issues. A final count of 82 papers e pertinent to relevant supply chain social sustainability practices and barriers were selected for this study. 64 of these articles are used as references and the rest were discarded to prevent repetition of ideas. The publication year distribution of the selected papers is shown in Figure 1. Most of the papers were published in

the 12 years between 2007 and 2019, with no papers/articles published in 2013.

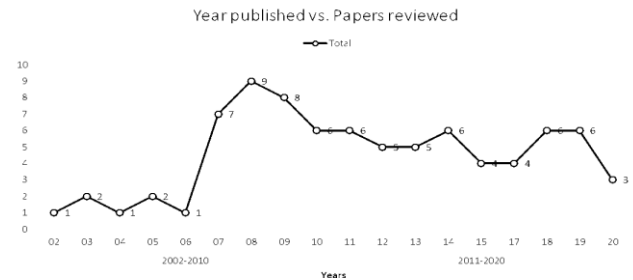


Figure 1: Existing Mechanisms for your paper

Questionnaire Survey:

The social sustainability barrier data obtained through the systematic literature review was used to frame a questionnaire in order to conduct surveys. Additionally, 4 supply chain professionals with expertise of more than 5 years in energy and manufacturing sectors were consulted to ensure the relevancy of questions. Based on the consultation, the initial questionnaire was further modified and made ready for distribution. The sample size chosen for the survey was 650 supply chain professionals from the two targeted sectors across both countries.

As part of the survey response, participants were required to rank the 20 barriers of supply chain social sustainability using a 4-point Likert scale with four different selections of “Critical”, “Important”, “Possible” and “Not a barrier”. The questionnaire was distributed through web and social media platforms. Over a period of 6 months, 372 responses were obtained, from 109 Indian-energy, 165 Indian-manufacturing, 48 US-energy and 50 US-manufacturing participants.

III. SOCIAL SUSTAINABILITY PRACTICES AND STRATEGIES

Social practices range from Auditing and CSR initiatives to monitoring and collaboration. Table 2 identifies 35 social sustainability practices/ strategies that are used to mitigate social issues.

Table 2: List of SCSS strategies and practices

Index	Practice	Reference
P-1	Auditing	Yawar and Seuring, 2017; Kumar and Rahman, 2015
P-2	Third party Certifications	Curkovic & Sroufe, 2011; Wu & Pagell, 2011; Yawar and Seuring, 2017
P-3	Code of conduct	Preuss, 2009; Goebel et al., 2012; Klassen and Vereecke,

		2012; Yawar and Seuring, 2017; Andersen & Skjoett-Larsen, 2009	P-21	Philanthropic activities	Sudusinghe and Seuring, 2020; Mani et al., 2015; Mani et al., 2020
P-4	Contracts	Mani et al., 2015; Andersen & Skjoett-Larsen, 2009; Morais, 2017	P-22	Product certification and self-declaration	Tecco et al., 2016
P-5	Labor Agreements	Verbrugge and Huyse, 2019			
P-6	CSR initiatives	Mani et al., 2015; Mani et al., 2020; Sudusinghe and Seuring, 2020; Vidal and Croom, 2018; Walker et al., 2008	P-23	Product responsibility	Morais, 2017
P-7	Equity practices	Mani et al., 2014; Mani et al., 2020; Sudusinghe and Seuring, 2020	P-24	Reporting	Yawar and Seuring, 2017
P-8	Health and safety (HS) practices	Mani et al., 2015; Farhad, 2019; Croom et al., 2018	P-25	Revenue sharing (RS)	Panda, 2014
P-9	Human rights practices	Mani et al., 2015	P-26	Stakeholder relationship management	Hussain et al., 2018; Kumar and Rahman, 2015; Zutshi et al., 2009; Rocha et al., 2007; Zhu & Sarkis, 2004; Pullman et al., 2009
P-10	Incentive programs	Simpson & Power, 2005; Kumar and Rahman, 2015; Seuring & Muller, 2008; Lin, 2007; Morais, 2017	P-27	Strategic partnerships with external third parties	Bitzer et al., 2008; Farhad, 2019
P-11	Information Technology adaption	Thöni and Tjoa, 2015; Ali and Kumar, 2011	P-28	Collaboration initiatives	Luthra and Mangla, 2018; Sarkis et al., 2011; Simpson & Power, 2005; Olorunniwo & Li, 2010; Verbrugge and Huyse, 2019
P-12	Awareness & education initiatives	Sudusinghe and Seuring, 2020			
P-13	Information and technology sharing	Kumar and Rahman, 2015	P-29	Supplier development programs	Bai & Sarkis, 2010; Zutshi et al., 2009; Kumar and Rahman, 2015
P-14	Innovation strategies	Arthur, 2017	P-30	Supplier screening and selection	Morais, 2017; Mani et al., 2014
P-15	Integration of core SCM activities	Pimenta and Ball, 2014	P-31	Supplier training	Kumar and Rahman, 2015; Zutshi et al., 2009; Farhad, 2019; Ohene et al., 2019
P-16	Joint industry partnerships	Luthra and Mangla, 2018; Ageron et al., 2012; Reefke and Sundaram, 2016	P-32	Supply chain integration	Rashid et al., 2018; Ahmad et al., 2016; Routroy, 2009
P-17	Labelling	Hartleib and Jones, 2009; Andersen & Skjoett-Larsen, 2009; Munny et al., 2019; Yawar and Seuring, 2017	P-33	Sustainable procurement	Vidal and Croom, 2018; Andersen & Skjoett-Larsen, 2009; Bitzer et al., 2008
P-18	Life cycle thinking approaches	Morais, 2017; Mani et al., 2015	P-34	Transparency mechanisms	Thöni and Tjoa, 2015; Wu & Pagell, 2011; Mani et al., 2020; Hartleib and Jones, 2009; Morais, 2017; Yawar and Seuring, 2017; Olorunniwo & Li, 2010
P-19	Monitoring	Yawar and Seuring, 2017; Pimenta and Ball, 2014; Morais, 2017; Sancha et al., 2015			
P-20	Operational performance-oriented SS practices	Kotabe et al., 2003; Croom et al., 2018; Flint and Larsson, 2007	P-35	Vendor Assessment	Farhad, 2019; Morais, 2017; Keatinga et al., 2008; Kumar and Rahman, 2015; Carter & Rogers, 2008; Farhad, 2019; Sancha et al., 2015

IV. BARRIERS OF SUPPLY CHAIN SOCIAL SUSTAINABILITY

Barrier often stem from constraints that real world scenarios present. Practices such as auditing look easy to implement, however the associated cost and/or corporate commitment are often barriers. To derive the full picture, barriers need to be studied closely. From the papers researched, 20 social sustainability barriers are identified in Table 3.

Table 3: List of SCSS barriers

Index	Barriers	Reference
B-1	Organizational culture	Hussain et al., 2018; Kumar and Rahman, 2015
B-2	High competition	Hussain et al., 2018
B-3	High Implementation cost	Tay et al., 2015; Ohene et al.,2019
B-4	Improper auditing	Kumar and Rahman, 2015; Mani et al., 2015; Morais, 2017
B-5	Lack of education and training	Ohene et al.,2019; Kumar and Rahman, 2015; Zutshi et al., 2009
B-6	Lack of innovation and technology	Praharsi et al., 2020; Hussain et al., 2018
B-7	Lack of management commitment and support	Praharsi et al., 2020; Tay et al., 2015; Kausar et al., 2017; Kumar and Rahman, 2015
B-8	Limited resources	Kumar and Rahman, 2015; Hussain et al., 2018; Markley & Davis, 2007
B-9	No government support	Kumar and Rahman, 2015; Ohene et al.,2019; Praharsi et al., 2020
B-10	No supply chain partner trust	Simpson & Power, 2005; Kumar and Rahman, 2015; Rocha et al., 2007; Zhu & Sarkis, 2004
B-11	Poor corporate structure and processes	Hussain et al., 2018
B-12	Priority given to other SCM functions	Tay et al., 2015
B-13	Resistance to change & low demand for	Ohene et al.,2019; Orji, 2019; Praharsi et al., 2020

	sustainability	
B-14	Short term profitability priority	Kumar and Rahman, 2015; Wu & Pagell, 2011
B-15	Size of firm	Tay et al., 2015; Lee, 2008
B-16	Vendor resistance	Kumar and Rahman, 2015
B-17	Weak vendor commitment	Kumar and Rahman, 2015; Simpson & Power, 2005
B-18	Wrong perception of sustainability	Ohene et al.,2019; Hussain et al., 2018
B-19	Organizational conflict	Bocken and Geradts, 2019
B-20	No tools to measure sustainability	Ohene et al.,2019; Alfsen and Greaker, 2007; Strezov and Evans, 2015

IV. RESULTS AND DISCUSSION

A qualitative study of the 4-point Likert scale survey used to identify relevancy of barriers in each industry reveals the perception of employees across India and the USA. The survey results thus analyzed are discussed further and then summarized.

Survey Results:

Results are represented in Figure 2 through Figure 21.

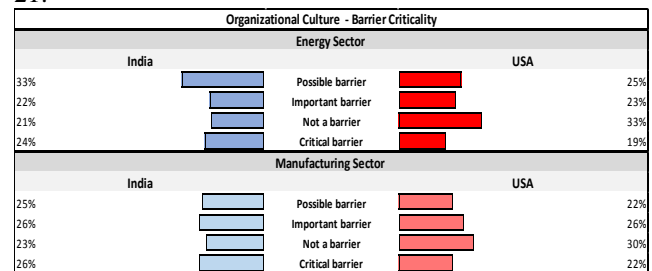


Figure 2: Analysis on organization culture clarifies how the barrier is perceived. About 55% of energy sector and 51% of manufacturing sector respondents from India considered this to be a critical or important barrier. 25% considered it a possible barrier with 22% bearing an opinion that the criterion was not a barrier. While the US energy and Manufacturing sectors showed similar results as those seen in India, the number of respondents that did not consider it a barrier at all is higher by about 10 percentage points. One reason for the higher score on “not a barrier” on the US side could relate to more corporate culture integration in the west in comparison to that in India and other Asian countries.

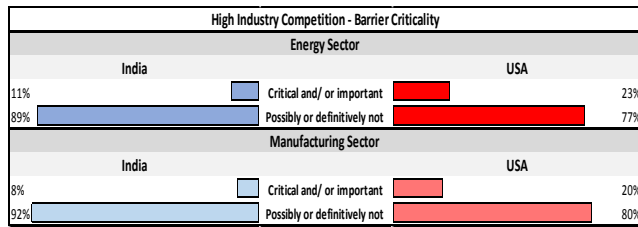


Figure 3: High Industry Competition results show that survey participant from both countries (77% and above) do not consider high industry completion as barrier to the adoption of social sustainability. This is in sharp contrast to what is perceived by authors and researcher work.

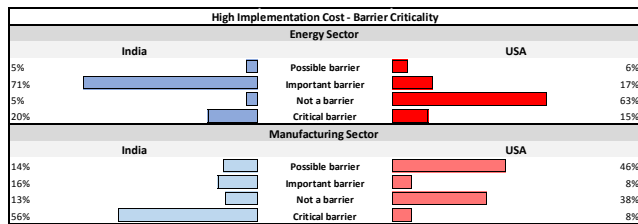


Figure 4: High Implementation Cost results show a clear difference in opinion among the participants of both countries. 91% and 72% of the participants from Indian energy and manufacturing sectors respectively consider implementation cost a critical/important barrier, while only 32% and 16% of their respective American counterparts felt so. This difference could be attributed to the exchange conversion rate as well as the purchase power of currencies. For countries with significant financial and infrastructural development, implementation costs pose a less critical issue than to lesser developed countries.

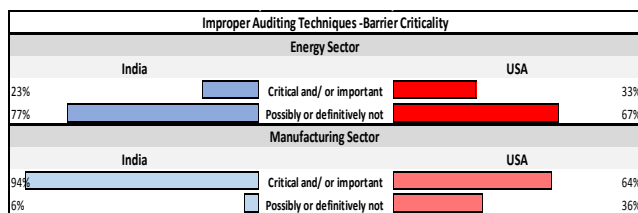


Figure 5: Improper Auditing Techniques highlights that manufacturing sectors in both India and USA opined that a lack of proper auditing techniques is a roadblock to social sustainability adaptation. From the energy sector, only 23% Indian and 33% Americans considered improper auditing methods as a social sustainability obstacle. The author is of the opinion that the difference between the manufacturing and the energy sectors largely stems from process controls implemented by the energy sector that is more closely scrutinized than the manufacturing sector. As such, the barrier impact could also be related to the maturity of the firm, coupled with external factors that force such practices.

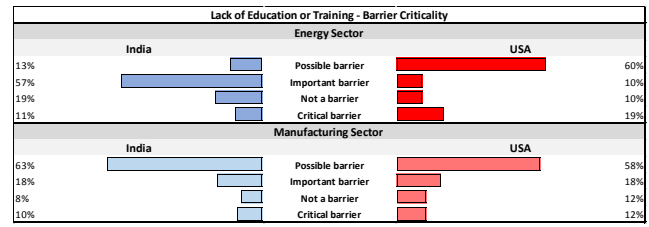


Figure 6: Results show that more than 70% from both sectors and countries consider the lack of education, training and awareness about social sustainability to be a critical/important barrier.

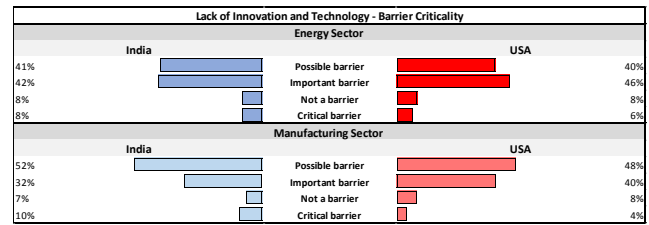


Figure 7: Lack of innovation and technology criterion is perceived as crucial elements of social sustainability with more than 80% of the participants from both the sectors considering it a major barrier as depicted in Figure 7. Majority of the respondents, irrespective of the geographic difference, equivocally agree that a lack of these would be roadblocks for a firm’s sustainability adaptation.

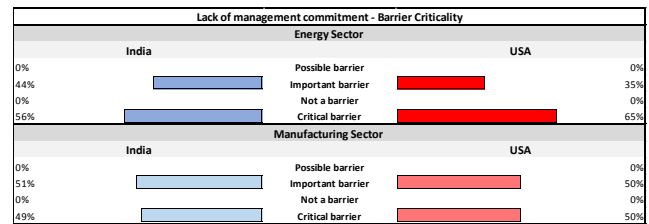


Figure 8: Lack of management commitment to implement changes on social sustainability, management commitment is required. While this may often be due to availability of resources, a progressive long-term approach is possible only through leadership commitment. Lack of top management commitment was considered as a critical/important barrier with Figure 8 confirming the results that agree with the general perception of researchers.

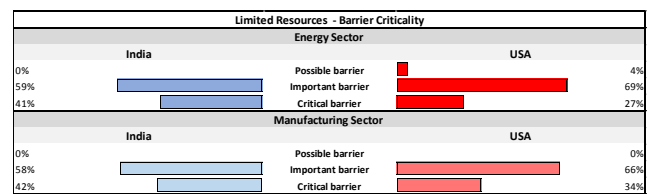


Figure 9: Limited resources include facilities, manpower, tools and other amenities that are necessary for the proper functioning of organizations. Results clearly demonstrates that all participants believed that the limited availability of

resources is an important/critical barrier to social sustainability.

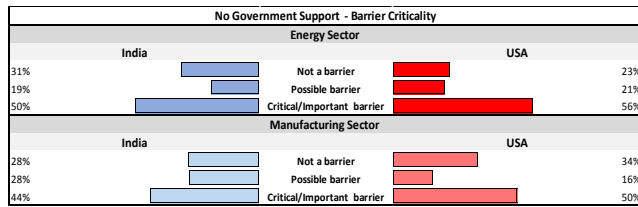


Figure 10: A clear difference in opinions exists between sectors and geographies for lack of government support. While 50% of the Indian-Energy sector participants considered the lack of government support to be an important/critical barrier, only 44% of the Indian-Manufacturing sector agreed. A similar response was observed in North America, with 56% and 50% US-Energy and US-Manufacturing sectors respectively. Figure 10 demonstrates the split results of opinions.

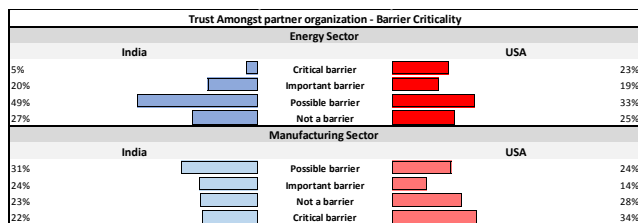


Figure 11: Results on trust amongst partner organizations demonstrates that most of the respondents do not consider partner organization trust as a critical barrier of social sustainability. 76% in Indian -Energy, 58% in US-Energy and 62% in US-Manufacturing sectors believe this is possibly a barrier or not a barrier in sharp contrast to the Indian manufacturing sector that heavily considers it as critical/important roadblock at 31%.

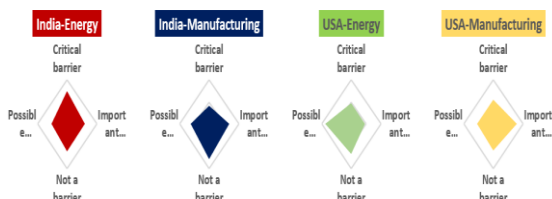


Figure 12: Responses show a clear indication that opinions on poor corporate culture is spread amongst being considered a critical barrier to not a barrier at all. In India, manufacturing predominantly does not consider it a barrier, while the energy sector does. America in sharp contrast shows that the manufacturing sector believes it to be an important barrier, while the energy sector does not. This interesting mix may be due to the governmental impacts and responsibilities that firm associate themselves to in social sustainability. For example, in India the manufacturing sector and many small businesses are probably unable to promote social sustainability

financially by themselves, while the financially sound energy sector can contribute with more ease.

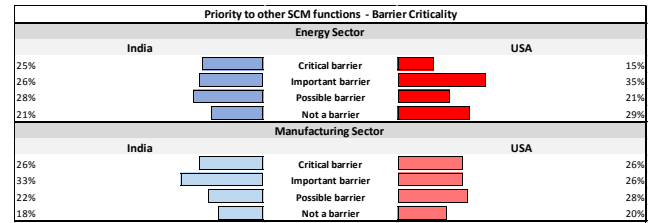


Figure 13: Results demonstrates that only slightly more than 50% consider Priority on other SCM functions to be a barrier which is critical or important to social sustainability implementation in supply chain.

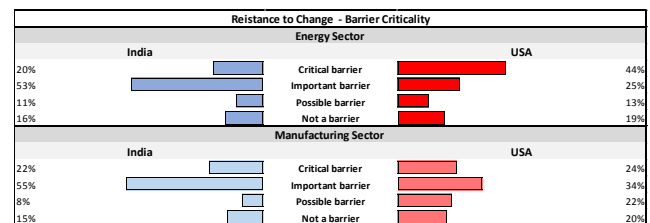


Figure 14: Less than 20% of participants from each sector and geography have dismissed Resistance to Change as “not a barrier”. Indian and US sectors largely considered it to be critical and/ or important.

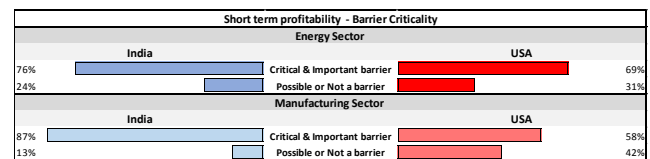


Figure 15: More than 50% of the respondents across sectors and geographies believe that short term profitability objective is a roadblock to social sustainability. The authors note that this barrier is highly linked to the firm’s culture and commitment in figure 2 and figure 8.

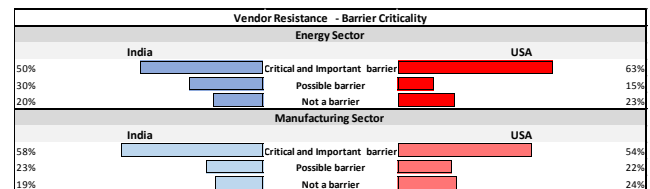


Figure 16: Suppliers can refrain from adapting social sustainability, due to lack of awareness of the value it brings. This can stem from ignorance and misconception that hinders other members/partners in the supply chain from the implementation of practices. Vendor resistance is believed to be a barrier in some form or the other across all sectors and geographies with only about 25% of the respondents of an otherwise opinion.

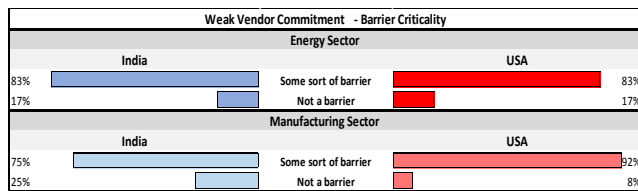


Figure 17: Weak Vendor Commitment is believed to be a very strong barrier. Like vendor resistance in Figure 16, only 25% of the sample population does not consider it a barrier.

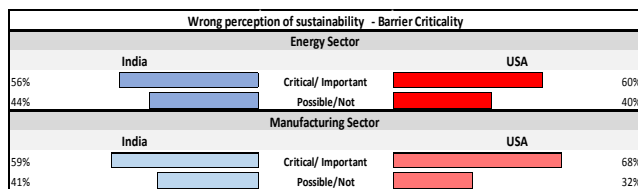


Figure 18: More than 60% and 55% of US and Indian participants respectively, believed Wrong Perception of Sustainability to be a critical/important barrier.

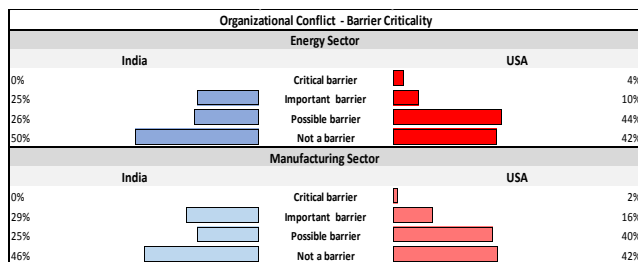


Figure 19: Organizational conflict is not believed to be a very critical or Important barrier. An interesting observation is that Indian energy and manufacturing sectors did not consider it a Critical barrier at all. This perception differs significantly from finding in several research papers and articles. The deviation is possibly since a firms' growth and development is impacted more by internal conflicts than by external social aspects.

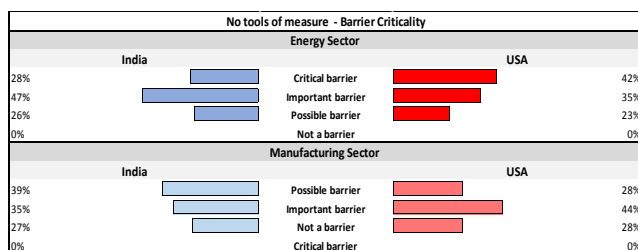


Figure 20: More than 60% of respondents from manufacturing and energy industries in both countries believed that a lack of tools to measure sustainability is an important/critical barrier to social sustainability implementation.

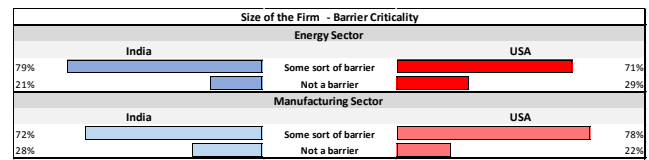


Figure 21: A varied mix of responses was obtained on Size of the firm with results spread almost evenly across critical, important, possible and not a barrier opinion. Considering that Critical, important and possible barriers indicate some sort of a barrier presence, it can be concluded that it should be considered a barrier.

Survey Summary:

From the analysis above, 11 barriers were found to be common to both sectors and geographies. These are listed in Table 4

Table 4: Barriers across sectors and geographies

Sr No	Type
1	Lack of education and training
2	Lack of innovation
3	Lack of management commitment
4	Limited resources
5	Resistance to change
6	Short term profitability priority
7	Vendor resistance
8	Weak vendor commitment
9	Wrong perception of sustainability
10	Lack of tools to measure sustainability
11	Size of the firm.

Several research papers have opined on a list of possible barriers, however the perspective of the corporate employees to each of these identified social barriers provides a realistic base to know which practices are important. This allows us to focus on those practices that are also considered barriers by the corporations themselves. Table 5 lists the various practices against the barriers to its implementation enabling us to further clarify why corporate sustainability implementation is affected.

Table 5: List of barriers and associated practices to resolve them

Barriers	Associated Practices and its Index
B-1	P-3, P-5, P-28
B-2	P-14, P-27
B-3	P-27, P-29, P-32
B-4	P-1, P-19
B-5	P-5, P-12, P-13, P-24, P-29, P-34
B-6	P-11, P-14, P-16, P-20
B-7	P-10, P-12, P-24, P-25
B-8	P-11, P-29, P-32, P-34
B-9	P-17, P-21, P-28
B-10	P-2, P-3, P-5, P-10, P-12, P-13, P-16, P-17, P-19, P-20, P-24, P-25, P-26, P-27, P-

	32, P-34
B-11	P-1, P-14, P-32
B-12	P-24
B-13	P-3, P-10, P-12, P-14, P-26, P-27
B-14	P-12, P-18, P-20
B-15	P-32
B-16	P-3, P-5, P-10, P-12, P-26, P-27, P-29, P-30, P-31, P-33, P-35
B-17	P-2, P-5, P-10, P-12, P-13, P-19, P-24, P-26, P-27, P-29, P-30, P-31, P-33, P-35
B-18	P-12, P-13
B-19	P-25, P-27
B-20	P-1, P-14, P-16, P-18, P-19

By rearranging the results of Table 5, a listed number of Top easiest barriers to mitigate due to the vast number of practices is visible as below in Table 6. The barrier “lack of supply chain partner trust” is the easiest to resolve, as there are 16 practices that help in its resolution. Also, Table 7 provides a list of 8 practices that can help resolve the maximum barriers, with “awareness and education initiatives” being the topmost practice, that can help mitigate 8 roadblocks of social sustainability.

Table 6: Barriers with largest number of mitigation practices

	Associated Practices and its Index
No supply chain partner trust	P-2, P-3, P-5, P-10, P-12, P-13, P-16, P-17, P-19, P-20, P-24, P-25, P-26, P-27, P-32, P-34
No supply chain partner trust	P-2, P-3, P-5, P-10, P-12, P-13, P-16, P-17, P-19, P-20, P-24, P-25, P-26, P-27, P-32, P-34
Weak vendor commitment	P-2, P-5, P-10, P-12, P-13, P-19, P-24, P-26, P-27, P-29, P-30, P-31, P-33, P-35
Vendor resistance	P-3, P-5, P-10, P-12, P-26, P-27, P-29, P-30, P-31, P-33, P-35
Lack of education and training	P-5, P-12, P-13, P-24, P-29, P-34
Resistance to change	P-3, P-10, P-12, P-14, P-26, P-27
No tools to measure sustainability	P-1, P-14, P-16, P-18, P-19
Weak vendor commitment	P-2, P-5, P-10, P-12, P-13, P-19, P-24, P-26, P-27, P-29, P-30, P-31, P-33, P-35
Vendor resistance	P-3, P-5, P-10, P-12, P-26, P-27, P-29, P-30, P-31, P-33, P-35
Lack of education and training	P-5, P-12, P-13, P-24, P-29, P-34
Resistance to change	P-3, P-10, P-12, P-14, P-26, P-27
No tools to measure sustainability	P-1, P-14, P-16, P-18, P-19

Table 7: Practices that resolve maximum barriers

	No of barriers impacted
Awareness & education initiatives	8
Strategic partnerships	7
Labor Agreements	5
Incentive programs	5
Innovation strategies	5
Reporting	5
Supplier development programs	5
Supply chain integration	5

V. CONCLUSION

As a result of the study across the two geographies and sectors, 11 of the listed barriers were identified as critical and important. “Organizational Culture” and “Poor Corporate Structure” showed a variety of opinions as a barrier criterion. Three of the barriers, namely “High Industry Competition”, “Trust Amongst Partner Organizations” and “Organizational Conflict” were not considered a barrier in contrast to research papers. Furthermore, “High Implementation cost” & “Improper Auditing Techniques” were identified as barriers that showed a stark difference based on regions or sectors respectively. From the results and discussion, it can be concluded that of the 20 known barriers that were listed, all barriers do not need to be addressed with the same criticality, and do not need the same level of mitigation efforts. Practices and strategies to address these barriers must be geography and/or industry specific to be successful.

From Table 7, it can be concluded that addressing barriers such as “No Supply Chain Partner Trust”, “Weak Vendor Commitment” & “Vendor Resistance” would be the easiest barriers to mitigate given the vast number of associated practices that can help in resolving them. Furthermore, it is also concluded that the two most important practices that need to be implemented across these geographies and sectors are “Awareness & Education Initiatives” and “Strategic Partnerships”. Implementing these practices will immediately boost the mitigation of several barriers, thereby being key enablers in the energy and manufacturing sectors in India and the United States.

As a next step, studying the enablers and their impacts on firms will provide a great benefit in research to implementing a social sustainability across sectors and geographies. This will also provide an opportunity to formulate tools to measure social sustainability which has been addressed as a Critical and Important barrier to the cause. Furthermore, as the study was only restricted to the energy and manufacturing sectors in India and USA, study of other regions and their corresponding economic

correlations will pave ways to identify practices that can aid the development of desired practices and measures.

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