Chapter 20
Improving Social and Environmental Performance in Global Supply Chains

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20.1 Introduction: Social and Environmental Problems in Global Supply Chains

In his best seller, *The World Is Flat: a brief history of the twenty-first century,* T.L. Friedman (2005) described how emerging economies like China and India have risen as major manufacturing and service centers for the global economy. Over the last few decades, as production shifted from the West to emerging economies, global enterprises were able to leverage cost and other advantages which outweighed factors such as loss of control, increases in lead time, inventory, and other risks. This globalization of production has delivered benefits to corporations and to consumers in the form of more affordable products and services.

However, with these benefits have come significant costs. O'Rourke (2014) highlights the fact that current levels of global production and consumption are using 50 % more natural resources and services than ecosystems generate. Weaker law enforcement, corruption, cultural, and other factors in developing countries have led to myriad social, environmental, and ethical problems at factories which directly or indirectly supply goods and services (called suppliers in this chapter) to global corporations (called buyers in this chapter). When factory workers exceed working hour limits and incur excessive overtime, their health can be impacted along with product quality. Excessive factory carbon emissions have climate impacts, and ethical breakdowns such as intellectual property theft can affect company sales. In addition to the obvious human and environmental costs associated with these problems, such issues can impact both the reputation and profits of global brands.

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Y. Bouchery et al. (eds.), *Sustainable Supply Chains*, Springer Series in Supply Chain Management 4, DOI 10.1007/978-3-319-29791-0_20

To combat the social, environmental, and ethical problems in global supply chains, governments have increased the level of regulation placed on buyers and suppliers (Westervelt 2012). Consumers, activists, and investors are also increasingly vocal about improving supplier responsibility. This has caused global firms to pay closer attention to the issue, and, in many cases, use self-regulation such as supplier codes of conduct to compensate for weak law enforcement.

Despite the push for multinational corporations to develop and enforce supplier codes of conduct to address employee safety, labor, and environmental issues at their suppliers, violations of these codes of conduct remain problematic in many industries, and vary in nature. The tragic collapse of the apparel factory building, Rana Plaza in Bangladesh in April 2013, killing over 1000 people, is an example of a major lapse in building safety codes. The building housed suppliers for apparel brands including Benetton, Walmart, Matalan, and Primark. The problem of excessive overtime in factories is widespread with 90 % of factories audited by the Fair Labor Association in 2011 committing overtime violations (2011 FLA Annual Report). It is estimated that 21 million workers are trapped in modern slavery, many of whom are part of global supply chains (Economist 2015). On the environmental side, the Institute of Public and Environmental Affairs, a prominent NGO which maintains an air and water pollution database of factory environmental violations in China, recorded over 100,000 violations between 2006 and 2012. It made public evidence that suppliers of world-renowned brands such as Apple (Mozur and Dou 2013) and Marks & Spencer (IPE 2012) polluted rivers and air in China.

Buyers have many motivations for improving supply chain responsibility, including adherence to regulations, avoidance of supply side disruptions (e.g., a factory closure resulting from a health and safety violation), negative media coverage, and pressure from external stakeholders (Cousins et al. 2004; Newman and Breeden 1992). Additionally, consumers are becoming increasingly aware of and concerned about responsible supply chain practices, thus influencing demand for responsibly made products. Cotte and Trudel (2009) reviewed 13 studies with consumer willingness-to-pay data, and found an average premium paid for a product manufactured with sustainable practices is 10 %, and consumers demand a discount for "unsustainability." They found consumers willing to pay a premium are more willing when the premium is small relative to product cost, and that willingness to pay a premium drops off sharply at higher premium levels.

Lee et al. (2012) found that, among 1281 supply chain executives surveyed, 49 % were somewhat or very concerned about unsatisfactory social and environmental standards at suppliers, and the corresponding percentage on breach of intellectual property rights was at 53 %. An even higher percentage, 58 %, worried about counterfeit products from the supply network. As discussed in Chap. 1, improving supply chain responsibility is not only seen as a way to mitigate a variety of risks and meet regulations, but also as a means to increase profits, either by saving costs, growing revenues via brand image, or doing both.

Corporations, governmental, and nongovernmental organizations, consumers and other groups have made progress in recent years to understand the activities in

global supply chains and implement strategies aimed at making an impact. Still, O'Rourke (2014) calls for better data, decision-support tools, and ultimately incentives to move from policing supply chains to predicting and preventing unsustainable practices.

Research suggests that various supplier management strategies aimed at improving social and environmental performance can also improve economic performance (Rao and Holt 2005; Vachon and Klassen 2006; Lewis et al. 2012; Gimenez and Tachizawa 2012). This complements evidence that socially responsible firms yield higher returns (Derwall et al. 2005) and that social and environmental incidents and noncompliances can lead to subsequent financial losses (Klassen and McLaughlin 1996; PwC 2010). Rao and Holt (2005) empirically find significant positive relationships between "green" supply chain management across the entire supply chain and economic performance measures. Wu and Pagell (2011) find their sample of firms maintains business viability while pushing for improved environmental performance. Cousins et al. (2004) look at actions that can be taken by a buying firm to manage the environmental performance of its suppliers, comparing the resources available and perceived losses from environmental noncompliances. They suggest that incentives and supplier-monitoring schemes typically require more resources but are adopted by proactive companies who wish to gain competitive advantage through improved environmental supply chain performance.

Still, debate exists on the link between responsible supplier management practices and the resulting economic benefits (Corbett and Klassen 2006). We will examine the relationship between responsible supplier management practices and social, environmental, and when possible, economic performance using a "sense" and "response" framework. To do this, we will examine research as well as case studies.

20.2 A Framework for Continuous Improvement: Sense and Response

Seuring and Müller (2008) define sustainability in supply chain management 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 management, i.e., economic, environmental, and social into account which are derived from customer and stakeholder requirements." Similarly, in operations management literature, Bowen et al. (2001) and Handfield et al. (1997) discuss "green supply" and "green value chain practices" respectively, "which are used to characterize environmental aspects of supplier arrangements; all of these implicitly or explicitly focus on improved environmental performance through better supplier management" (Corbett and Klassen 2006).

A useful guide to address responsible supply chain management is the sense and response framework. Haeckel (1992) described the sense and response framework

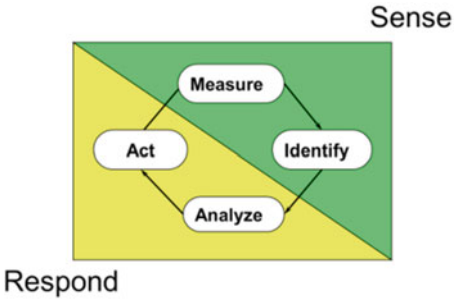

Fig. 20.1 Sense and respond framework

as a system for companies to respond to rapidly changing customer needs. In larger firms, this can mean that networks of skills, assets, cross-functional processes, information, and knowledge are linked into capabilities, which are in turn linked into processes for creating product and service responses to customer needs. The framework can be applied to continually evolving social, environmental, and ethical issues in global supply chains, such as human trafficking, pollution, and intellectual property protection, as argued by Gillai et al. (2015). Kapoor et al. (2005) discuss the sense and response model as a management tool for managing risk and unpredictability in operations. These dimensions mirror the structure adopted by Gimenez and Tachizawa (2012), who define assessment and collaboration as the two governance structures for management of supplier responsibility, and include a further dimension of managerial and external "enablers" that influence the implementation and success of responsible supply chain practices. A buyer must first gain visibility, or "sense," into issues in the supply chain. After understanding the present state by measuring and identifying problems, a buyer can then "respond" by analyzing the problem and taking action. This process can be repeated for continuous improvement. The framework mimics [the familiar] Six Sigma management cycle for eliminating defects and minimizing variability in manufacturing and business processes (Fig. 20.1).[1]

Buyers can gain a "sense" of activities and impacts on the supply chain through practices including:

- Traceability: the ability to trace the points of origin of materials used in a product
- Visibility: knowledge of social, environmental, and ethical performance of suppliers
- Monitoring: the action of examining supplier performance

Once buyers have a "sense" of the supplier's behavior, there are various ways to "respond." The following are typical practices commonly used in industry:

[1] Originally based on Motorola's work to eliminate quality defects, the Six Sigma process is a management process used by many companies such as Motorola, GE, and others. For an introduction to Six Sigma, see Harry and Schroeder 2000.

- Reactions to violations once they have occurred (e.g., root cause analysis, and penalties such as fines, supplier warning, reduced business, contract termination)
- Incentives (e.g., preferred supplier status, increased business, price premium)
- Supplier capacity building (e.g., productivity improvement and capability expansion)
- Proactive product and/or process design (e.g., design for the environment)
- Shared value chain strategies (e.g., extended value creation through community development)
- Cascading responsible practices to the supplier network (e.g., training and motivating the suppliers to adopt incentives, capacity building, and design principles to improve the sustainability of their own supply network)

20.3 Sense and Respond Practices

How can companies improve the sustainability of their supply chain through initiatives in "sense" and "respond"? In this section, we describe some such examples.

20.3.1 Sense

20.3.1.1 Traceability

Buyers cannot effectively control the sustainability of the supply network if they do not even know exactly where the materials in products come from. Being able to trace the points of origin of materials used in the product is a crucial step in being able to "sense" the sustainability status of a supply chain.

Early in 2008, Levi Strauss & Co. (2014) faced pressure from external stakeholders—media, worker-rights, and environmental nongovernmental organizations, socially responsible investment firms and retailers—about the cotton used in their products, as there were reports that forced child labor had been used to harvest cotton in Uzbekistan. This prompted the company into action. Tracing the exact origin of a commodity like cotton is difficult; the company had to reach out to the textile mills that supply the cotton fabric. Textile suppliers and licensees were informed that, unless there was clear evidence that the use of forced child labor had been eliminated, Uzbek cotton would be forbidden in the production of branded products of Levi Strauss. But, as cotton went through the apparel supply chain, there was little transparency into its country's origins. In order to trace the country of origin of the cotton in their products, the company had to partner with external organizations with expertise in supply chain traceability to implement a tracking system from the level of the yarn spinner to the product manufacturer. This provided confidence that Uzbek cotton was not being used in the Levi Strauss supply chain. At the same time, the company joined NGOs, the socially responsible investment community, major US apparel and retail trade associations and the US Department of State in engaging the Uzbek government to address the problem.

A similar traceability challenge applies to "conflict minerals," such as cassiterite (for tin), wolframite (for tungsten), coltan (for tantalum), and gold ore. These minerals are mined in various regions of the world, and then passed through many intermediaries before they are used by electronic companies to produce consumer electronics such as mobile phones and laptop computers. Many of these minerals are mined in Eastern Congo, a region dominated by conflicts and human rights violations. Various international efforts have been made to reduce trading of conflict resources. A prominent effort is the 2010 Dodd–Frank Act that requires manufacturers to audit their supply chains and report conflict minerals usage (SEC 2012).

20.3.1.2 Visibility

As discussed above, traceability refers to knowing which suppliers are providing materials to a firm. While knowing a firm's supplier is important, it is also critical to understand what those suppliers are doing. Visibility refers to having knowledge of a supplier's sustainability performance. While efforts to gain visibility into the supply chain can be associated with improved social and environmental performances (Awaysheh and Klassen 2010); it can be a challenge for buyers to obtain this visibility. In a survey by Lee et al. (2012), supply chain executives reported having fairly limited visibility of environmental and social sustainability violations at various levels in the supply network. For example, 39 % of respondents reported having visibility of environmental violations only within internal operations. The percentage declined when considering operations outside of the firm, with 28 % of respondents reporting having visibility of immediate suppliers, and 25 % reporting having visibility of the extended supply network. Finally, 8 % reported having no visibility at all. The degree of visibility on social sustainability violations was similar, as seen in Fig. 20.2.

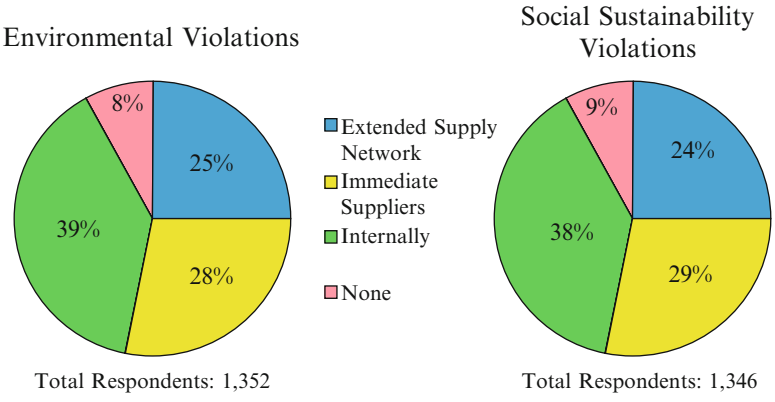

Fig. 20.2 Percentage of respondents reporting they have visibility of violations at various levels in the supply network. *Source*: The Chief Supply Chain Officer Report 2012, SCM World

Gaining visibility of violations or improved sustainability performance requires firms to carefully establish mechanisms to detect them. Such mechanisms can include (1) suppliers sharing data with the buyer, which requires a high degree of trust and a collaborative relationship; (2) direct monitoring by buyers, and (3) reporting from interested parties. One example of the latter is the nongovernmental group called the Institute of Public and Environmental Affairs, or IPE (Shao and Yatsko 2010), which uses a vast volunteer network to collect extensive data and report environmental violations throughout China on a public website. Another example of reporting from interested parties is the effort of groups such as Labor Link (Schwartz 2013) and Labor Voices (Lahiri 2012) which utilize information technologies such as mobile phones for workers to directly report to global brand violations and information about working conditions, well-being, job satisfaction, and more.

20.3.1.3 Monitoring

While there are myriad regulations in developing countries addressing labor rights, employee health and safety, environmental standards and other issues, there also exists many private sector supply chain interventions which can act as complements or substitutes, depending on the context and factors such as regional governance (Locke et al. 2013). Before a buyer enters into a contract with a supplier, there is typically a supplier certification process which involves examining the supplier's product quality, ability to deliver the product, pricing, financial status, communication capabilities, and other factors. Increasingly, companies are also assessing supplier social and environmental practices as part of this certification process. Once a contract is established, the supplier may be asked to provide self-assessments of its social and environmental practices. The buyer may also choose to conduct internal audits to verify that the supplier is conforming to the buyer's code of conduct and/or contract with a third-party to obtain this assurance.

While it is common industry practice to conduct audits to understand a supplier's conformance to a code of conduct, research suggests the effectiveness of using audits (a "sense" tool) alone is limited. In a study of 763 factories that served as suppliers to Nike, Locke et al. (2007) examined whether audits had affected compliance ratings of factories between 2001/2002 and 2004/2005. The observation was that about 42 % did not have any rating change despite audits, while more factories had their ratings downgraded. This resulted in the authors calling for more proactive actions to make an impact on sustainability.

20.3.2 Response

Given weak enforcement mechanisms in many developing countries and the fact that monitoring alone can have limited effectiveness, many buyers have adopted additional practices to motivate suppliers to improve social and environmental

practices. Some companies use penalties and/or incentives tied to social and environmental performance in supplier contracts (Porteous et al. 2015). Some collaborate with suppliers to increase their awareness of issues and provide them with tools needed to address social and environmental challenges. Another growing practice is to collaborate with various actors in the value chain to create shared value. We examine key response methods and the research regarding their effectiveness below.

20.3.2.1 Reactions to Violations

Once a violation has occurred, buyers can react with consequences such as root cause analysis, and penalties such as fines, supplier warning, reduced business, contract termination. Chen and Lee (2015) modeled supplier behavior under the premise that noncompliance is a result of unexpected and uncertain costs faced by a supplier. The uncertain costs can be due to fluctuating input material costs, unexpected external disruptions, or internal manufacturing operational problems that may result in more frequent breakdowns or lower yields. Hence, a supplier may engage in noncompliant activities to save money when faced with unexpected and uncertain cost increases that threaten profits. The propensity of a supplier to do so is a function of the ethical standard of the supplier, which may or may not act as a deterrent to his/her urge to violate. Accordingly, penalties could discourage violations by "increasing the stakes" to suppliers. One form of monetary penalty is the use of contingencies. A buyer can withhold a portion of payment, which is subject to forfeiture if a supplier violation is found through an audit (the base payment can be paid to the supplier either upfront or at the end of the contract). Alternatively, the withheld payment can also be construed as a bonus, i.e., the supplier would receive an additional payment if no violation is found through an audit. The authors reported that, according to a supplier manual, a major European retailer charged 10 % of order payment as a penalty for any social responsibility audit problems.

Lee et al. (2012) found that companies are becoming increasingly intolerant of sustainability violations. Examples of penalties enacted for violations include monetary fines, reduced business or termination of business relationships (with and without an initial warning). Those surveyed reported that monetary fines were not as common as reducing or terminating business relationships. Many companies have a "zero tolerance" policy for serious issues such as child labor, and will terminate business relationships if such issues are detected (Fig. 20.3).

20.3.2.2 Incentives

In contrast to penalties, incentives are increasingly being used to motivate suppliers to invest in social and environmental improvements. As we shall see in the case study of Starbucks' "C.A.F.E. Practices" scheme (Lee 2008), Starbucks has used positive incentives like preferred supplier status as well as price premiums to reward coffee farmers that achieve high sustainability standards. Motivated by Starbuck's

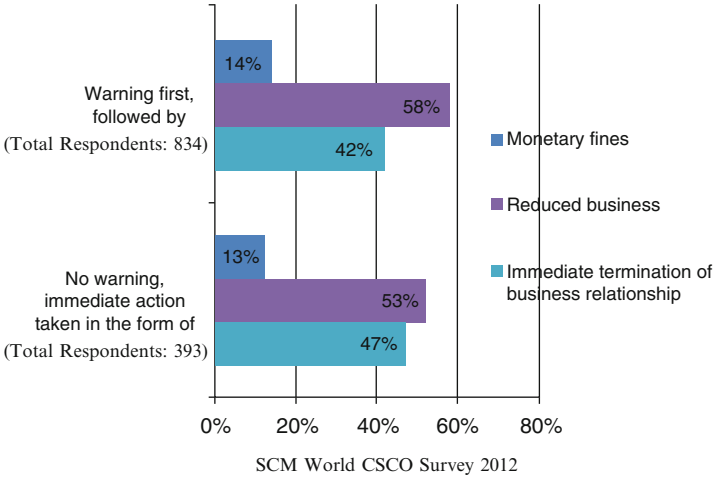

Fig. 20.3 Reactions to violations

"C.A.F.E. Practices" scheme, Lewis et al. (2012) show that supply contracts can facilitate the long-term commitment of supply chain partners to collaborate with a firm to achieve social and environmental performance. Klassen and McLaughlin (1996) find that public recognition environmental awards and environmental crises for a firm can signal good and poor financial performance respectively.

Lee et al. (2012) find that companies have used various incentive schemes to induce suppliers to be sustainable. Very few companies used price premiums as a reward. Instead, giving suppliers special status, increased businesses, recognition and better terms and conditions are more commonly used. Of these companies, 42 % also invested in training and education of suppliers (Fig. 20.4).

20.3.2.3 Supplier Collaboration and Capacity Building

Since suppliers may not have the means and know-how to improve sustainability on their own, buyers often find they must implement collaborations with their suppliers. Such collaboration often takes the form of education and training, capability enhancement, and the introduction of better production methods for productivity improvement. Research has shown the effectiveness of certain collaborative mechanisms to encourage improved supplier performance (Distelhorst, Hainmueller et al. 2015; Vachon and Klassen 2006; Locke and Romis 2006; Bowen et al. 2001). Gimenez and Tachizawa (2012) find the implementation of both supplier assessment and collaboration with suppliers improves environmental and social performance. Furthermore, Krause et al. (1998) investigate firms' supplier development processes (not specific to SER) comparing reactive approaches to strategic efforts to increase supplier capabilities, and thus a firm's competitive advantage. The development

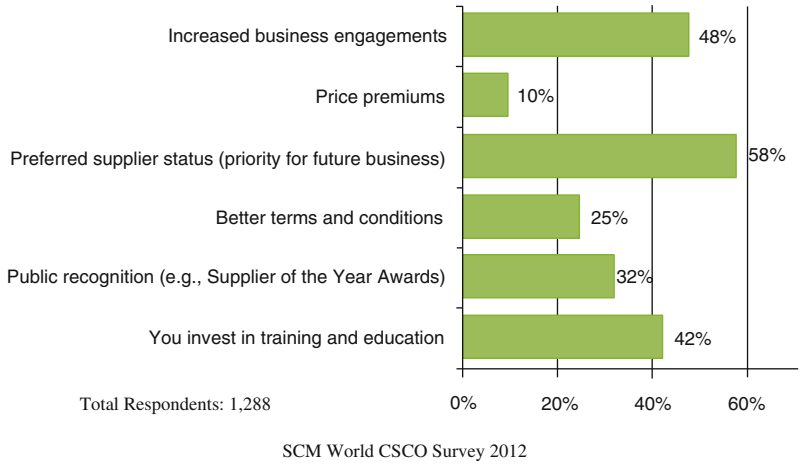

Fig. 20.4 Incentives used

process includes identifying suppliers, issues and opportunities, and also collaborative efforts to increase capabilities, training, rewards and recognition, and continuous improvement programs. Krause et al. (2000) find direct involvement of a firm, including providing supplier incentives, is a key enabler of supplier development.

Chen and Lee (2015) find that a supplier can be vulnerable to noncompliant activities when faced with unexpectedly high costs that threaten its profit margins. One strategy is to invest in improving the productivity of suppliers, so that it can "weather the storm" and maintain margins despite cost hikes. Based on a study of 25 Indian textile plants from 2009 to 2011, Bloom et al. (2013) examined the effect of training and support of suppliers. The plants were separated into experimental and control groups, with experimental groups receiving diagnosis, training and consultation on factory operations, quality control, inventory, human resource, and sales, and order management. The experimental groups were found to have significant improvements in quality, inventory performance, and finally productivity. This study suggests that collaborating with and training factory management can influence a factory's performance. Related to this, Distelhorst, Hainmueller et al. (2015) found that, by introducing Lean[2] production practices to factories supplying to Nike, labor compliance significantly improved. The study, based on labor compliance data from 2009 to 2013 at 300 factories 2 years prior and 2 years after the introduction of Lean practices, suggests that stronger performance can enable a factory to be more compliant. Chapter 11, by van Weele and van Tubergen (2017), discusses the phases that supplier relationships often go through in making this transition.

[2]The Lean production process was championed by Toyota, and has been widely adopted by companies as a way to eliminate waste, improve productivity, and increase the efficiency of production systems.

20.3.2.4 Proactive Product and Process Design

In quality management, it is well-known that product and process design, in addition to product inspection and testing, can be an effective way to assure quality. Motorola's Six Sigma process (Pande et al. 2000) was based on the premise that, by improving product or process design and management approaches, the variability of processes could be reduced and quality control assured, thereby reducing the reliance on inspection. Similarly, by improving the design of products or processes, a supplier's manufacturing, farming or other processes can be made less vulnerable to cost shocks and other external disturbances, resulting in a lower risk of sustainability breaches. In Chap. 19, Scholten and Fynes (2017) provide a framework for identifying and managing risks in supply chains.

In the textile industry, Esquel (Pelleg and Lee 2013) invested in R&D on the scientific development of cotton seeds that are more pest-resistant, so that cotton farmers could use fewer pesticides and insecticides. The company also conducted research on ways in which fabrics could be dyed with less chemicals and water, so that the fabric mills could reduce pollution. Similar "design for the environment" techniques are now being used by firms to reduce the use of water, waste, and energy at various parts of a product's lifecycle. In the agriculture sector, McDonald's (Rammohan 2013) worked with its major supplier in India to experiment with the right types of potato seeds and growing methods that would achieve an optimal quality and texture, and increase productivity of potato farmers.

20.3.2.5 Shared Value: Extended Value Creation and Community Development

The previous sections described how buyer "response" strategies such as positive incentives and investments in suppliers could improve productivity, reduce noncompliances, improve sustainability performance, and in some cases, increase the incomes of suppliers. Increasingly, firms such as Johnson & Johnson, Walmart, Coca-Cola, Unilever, and others are also using shared value strategies to address issues in the supply chain. Shared value is a management strategy focused on companies creating measurable business value by identifying and addressing social problems that intersect with their business (Porter and Kramer 2011). One aspect of this concept involves increasing productivity of the company or its suppliers by addressing the social and environmental constraints in its value chain. Li & Fung (Melvin 2015) is a consumer goods management firm using a shared value approach with the goal of increasing the long-term income of factory workers in addition to factory owners, which in turn, is intended to lead to economic development in regions where suppliers are based. Sometimes, its buyers have also invested in community development such as building infrastructure, engaging in education activities, and creating other income-generating activities in supplier communities. Such shared value creation—delivering value to buyers, to suppliers, to workers, and ultimately, to communities—can be considered the highest level of sustainability, and a growing goal

of leading firms. Sodhi and Tang (2017), in Chap. 21, go deeper into how the stakeholder resource-based view can make concepts such as shared value more tangible.

20.3.2.6 Cascading Responsible Practices to the Extended Supply Network

In 2007, Mattel had a massive recall of its toys due to the tainting of toys by lead paint (Hoyt et al. 2008). The root of the problem turned out to be a pigment supplier using pigment-containing lead. The tainted pigments were provided to a paint supplier, whose paint was then supplied to a contract manufacturer who manufactured the toys for Mattel. The violation occurred at the third tier of Mattel's supplier network. As seen by this example, it is often a daunting job for a buyer to effectively check so many layers of a supply chain. This problem points to the need to cascade responsible practices to each supplier tier.

Cascading practices to the extended supply network refers to transforming suppliers to be as vigilant as the buying firm in managing and assuring sustainability. If suppliers recognize the value and importance of maintaining the sustainability of its own supply network, and are motivated to engage in similar types of "respond" strategies as the buyer, then it will increase the chances of the whole supply network being able to effectively address sustainability problems. In other words, the accountability of sustainability must be cascaded to the next level, which in turn should cascade to another level, and so on. As illustrated in the Hewlett-Packard example later in this chapter (Rammohan 2008), the company engaged intensively with its key suppliers, with the intent of guiding them in being equally focused on sustainability improvements with their own supply networks.

By using a cascading approach, Intel has worked to permeate socially and environmentally responsible practices throughout its supply network (Intel and BSR 2013). The company advocates the concept of supplier ownership of issues, so that suppliers will take a proactive approach in determining their own sustainability strategies and objectives. The company has experienced positive results when key suppliers such as Murata and Schneider Electric were able to take on the role of sustainability advocates in managing their own supply network.

20.4 Research Highlight on "Response": Carrots or Sticks—Improving Supplier Social and Environmental Compliance[3]

As described earlier, a growing number of companies are responding to social and environmental risks by implementing supplier incentive schemes for good performance in addition to having strict penalties in place for noncompliance. Starbucks,

[3] Materials for this section based on research by Porteous et al. 2015.

Nike, and HP, for example, incorporate both penalties and incentives into supplier evaluations (Lewis et al. 2012; Porteous and Rammohan 2013; Rammohan 2008). What is the impact of these practices on social, environmental, and economic performance? Porteous et al. (2015) developed a model of the relationship between the incentives and penalties buyers issue to suppliers for social and environmental performance and two outcomes—improved supplier compliance (measured by a reduction in violations of laws or corporate codes of conduct) and buyer-operating costs (used as a measure of a firm's economic performance). This model was empirically tested by analyzing opinion-based survey responses from supply chain executives at 334 companies across 17 industries.

The study did not find a significant relationship between visibility and monitoring efforts (sensing) and reduced violations or reduced operating costs. This aligns with research that finds traditional monitoring for violations through supplier audits, when not complemented with supplier collaboration, can be ineffective in addressing persistent supplier violations (Locke et al. 2007). Instead, the study suggests that incentives and penalties have a stronger influence. The strongest predictors of reduced violations were found to be the penalty of contract termination after a warning, and the incentives of supplier training, increased business and public recognition. This suggests that firms can improve supply chain social and environmental performance by ceasing business with continually violating suppliers, while using specific incentives to motivate and further build capabilities of higher-performing suppliers.

Some incentives, such as offering suppliers training and increased business for strong SER performance, were associated both with reduction in SER violations and reduced buyer operating costs. These incentives may motivate suppliers to take more ownership of SER in order to benefit from the rewards on offer. For example, environmental compliance can reduce costs if fewer resources are wasted in the production process, and higher productivity may be realized from efforts to improve worker skills and empowerment (Bloom et al. 2013). This research supports evidence that select supplier incentives can improve social, environmental, and economic performance.

20.5 Case Examples

Many companies employ the sense strategies of traceability, visibility, and monitoring discussed above. While corporate innovators are using novel means to get a "sense" of social and environmental performance, there is less variation in these practices when compared to "response" practices. For example, most companies employ some means of auditing to monitor their suppliers, and conduct traceability to detect hazardous or outlawed materials. Given the many "response" strategies available to a firm, we have chosen to highlight a few case examples of global companies using innovative "response" practices with positive results. These cases have been selected to demonstrate that responsible supply chain issues and practices have commonalities across geographies and industries. The cases illustrate that a combination of "response" practices is often required to effect change.

20.5.1 Starbucks C.A.F.E. Practices[4]

Starbucks is the world's largest coffee retailer, and sources from all over the world, including developing regions such as East Africa, Central America, and Indonesia. Coffee farmers in these regions, many of whom live in poverty, are vulnerable to the highly fluctuating prices on the world coffee market. While Starbucks seeks a stable supply of high-quality coffee, the company has always been focused on ensuring that coffee farmers avoid bankruptcy when coffee prices are low, grow coffee in environmentally sound ways, and that farm owners avoid unsafe or exploitative labor practices. In the early 2000s, Starbucks initiated a program called C.A.F.E. (Coffee and Farmer Equity) Practices to develop a sustainable coffee supply chain.

The C.A.F.E. Practices initiative (C.A.F.E) was developed to build mutually beneficial relationships with coffee farmers and their communities. C.A.F.E. aimed to (1) increase the economic, social, and environmental sustainability in the specialty coffee industry, including conservation of biodiversity; (2) encourage suppliers to implement C.A.F.E. Practices through economic incentives and preferential buying status; (3) ultimately purchase coffee under C.A.F.E. guidelines; (4) build mutually beneficial and increasingly direct relationships with suppliers, with long-term contracts to support Starbucks' growth; and (5) promote transparency and economic fairness within the coffee supply chain.

C.A.F.E. included a set of guidelines designed to support coffee buyers and farmers, ensure high-quality coffee, promote equitable relationships with farmers, workers, and communities and protect the environment. It was not a code of conduct or compliance program. The guidelines consisted of a set of supplier prerequisites that had to be met to be considered for C.A.F.E. These standards included coffee quality and economic transparency (suppliers were expected to disclose the amount of money that was ultimately paid to farmers).

After the prerequisites were met, suppliers were graded based on a set of environmental and social criteria. They were evaluated not just on performance, but also on their farm supply networks. Farmers were rewarded for coffee growing and processing practices that contributed positively to the conservation of soil, water, energy, and biological diversity, and had minimal impact on the environment. Workers' wages needed to meet or exceed the minimum requirements under local and national laws. Effective measures needed to be taken to ensure workers' health and safety and to provide them with adequate living conditions. Farms, mills, and suppliers also needed to illustrate equitable payments to those who worked for them or sold to them. They had to demonstrate economic accountability and document their hiring and employment practices. Based on their performance on these criteria, suppliers could earn up to 100 percentage points in C.A.F.E. Practices. Scores were audited by an independent verifier, and licensed by Scientific Certification Systems. Since the verifier was independent of Starbucks, the cost of the verification had to

[4] The materials in the case were drawn from Lee (2008).

be negotiated between the supplier and the verifier. However, there was no cost to the supplier to submit a C.A.F.E. application to Starbucks.

Starbucks invested in capacity building of coffee farmers by setting up farmer support centers in coffee growing regions. These gave technical support and training to improve the farmers' cultivation and production methods, and provided microfinancing loans to help farmers in making the necessary investments in tools. Moreover, the company used a set of positive incentives. For example, when a supplier was found to score at least 60 % of the available points in the certification process, the supplier would qualify as a preferred supplier and gain preferential treatment in future purchases (i.e., Starbucks would buy from the supplier first and offer preferential contract terms). Additionally, suppliers who earned scores above 80 % would qualify as strategic suppliers and would earn a sustainability conversion premium of $0.05 per pound of coffee for 1 year.[5] To encourage continuous improvement, the company also offered an additional sustainability performance premium of $0.05 per pound of coffee to suppliers who were able to achieve a 10-point increase above 80 % over the course of a year.

C.A.F.E. delivered benefits to both Starbucks and suppliers. The company enjoyed a more stable supply base, and gained more direct access to farmers. The farmers benefited in several ways. Based on a study in Costa Rica by Earthwatch (2007), C.A.F.E. implementation resulted in annual cost savings of $243 per hectare, which translated to an increase of $1200 in the annual income of a small farmer; there was a 25 % increase in yield, which is equivalent to an average annual revenue increase of $2875 per farmer; and coffee quality improved as a result of stronger plant health and increased farm productivity.

20.5.2 Case Example: Supplier Collaboration by McDonald's India[6]

By the time McDonald's opened its first store in India in 1996, its efforts to source locally had mostly been successful. However, MacFries, as McDonald's French fries were known, were particularly tough to source locally—and importing fries was undesirable for both cost and availability reasons. While India was the third largest producer of potatoes in the world, less than 1 % were of processed grade, with the necessary high solids, low sugars, large, oblong shape, disease resistance, and long dormancy needed for McDonald's fries. Ideal potato growing season was 120–150 days, compared to the typical 90–100 days in India. Outdated farming and irrigation practices limited yields as well.

[5] On average, Starbucks pays about $1.20 per pound of coffee (FY04 CSR Report).

[6] The materials for this case were drawn from Rammohan (2013).

McDonald's faced many challenges in finding cold storage, growing the right type of potatoes locally, and scaling up operations to meet fast-growing demand. Furthermore, the Indian government encouraged small-scale farming, which made it difficult to gain economies of scale. It was common to have 50–100 farms across a 100-acre region, compared to the United States, where the average farm size was 418 acres in 2007. Still, sourcing from within the country was particularly important in India, given steep import duties.

McDonald's approached one of its suppliers, Canada-based McCain, to import frozen fries. However, duties and lead time were high, making it clear that imports would not be a long-term solution. The company decided to try growing potatoes in India with McCain's help. McCain understood that growing the right potato was the key. In India, the import of raw potatoes was not allowed, so McCain had to bring in the potato germplasm (a collection of genetic resources that could be used to grow potatoes). McCain learned that cultivating potato seeds at high elevations was ideal because seeds grown at high altitude had high vigor, enabling a commercial crop planted with those seeds to have higher yield and larger-sized potatoes. So it instituted a Shepody potato seed multiplication program in the 13,000-ft high Lahaul Spiti Valley, part of the Himalayan mountain range in Northern India.

McDonald's helped McCain get access to excess capacity at Vista Foods, another supplier. McCain produced potato wedges to build up some business with local farmers and convince them to try growing potatoes. Knowing they would have McDonald's commitment to buy fries, McCain built a $25 million (Canadian) manufacturing facility dedicated to processing French fries, with capacity to process 40,000 potatoes. Seeds were planted in farms in the central state of Gujarat in September and October, and potatoes were harvested in February and March. Once processed, fries were frozen and sent to third-party logistics storage facilities or to McDonald's distribution centers. From here, they were shipped to restaurants.

McCain established a one-acre demonstration farm in Gujarat for farmers to learn how to grow this new crop. McCain showed farmers the best seeds to use, how to improve yields through more efficient sowing, drip irrigation, and harvesting techniques. The company transformed storage practices by applying a potato sprout suppressant in combination with using controlled temperature storage. The local Gujarat government had a scheme to subsidize farmers' drip/sprinkler irrigation system purchases. Key agricultural breakthroughs were demonstrated to farmers, such as converting from traditional row planting to mechanical field preparation, shifting from hand picking of potatoes to mechanical picking, and planting in double rows to utilize space better and reduce water consumption.

By 2008, 30 % of McDonald's India's supply was being manufactured locally. By 2010, that number grew to 75 %. The benefits to McDonald's from using local fries were a 30 % lower cost structure and no exposure to the fluctuating exchange rate. With local fries, inventory levels were reduced from an average holding of 15 days for imported fries to 6 days for local fries. The reduction in shipping time (60 days from the US to less than a day for getting local product) also had a significant

benefit for risk management and contingency planning. In addition, McCain's close relationships with farmers helped ensure a secure supply. There were benefits to farmers as well. Traditionally, farmers sold produce at the local "mandi," or village market, where sales and prices could fluctuate dramatically. With McCain, farmers were guaranteed sales of farm output, while seeing an increase in yields of 30–40 % compared with "regular" potatoes, reduced operating costs, increased and predictable farm income, and reduced consumption of natural resources like water. Another benefit was trust. By avoiding selling to a middle man at the mandi, many farmers reported making more money.

McDonald's India and McCain India had come a long way, not least because they had discovered that close collaboration with farmers was essential to their collective success and to achieving their goal of local sourcing.

20.5.3 Case Example: Supplier Collaboration at Hewlett-Packard in China[7]

With the fast-paced growth of the electronics industry in recent decades arose problems such as excessive overtime, child labor, environmental pollution, unsafe working conditions, and more disadvantages to workers. By 2008, the industry had made important improvements in social and environmental responsibility (SER) compliance among first-tier suppliers, due in part to the standardization of SER practices set forth in the Electronics Industry Code of Conduct (EICC). Hewlett-Packard (HP), the first company in the industry to implement a supplier code of conduct, had taken a comprehensive approach by educating suppliers on how to achieve compliance, conducting individual audits and third-party joint audits, and emphasizing continuous improvement. This approach was continually being cascaded to sub-tier suppliers, with the goal of improving standards throughout HP's supply chain. Distelhorst, Locke et al. (2015) described how results from one HP capability program were not strong. Still the practice of capability building is worth describing here given the growing use of such programs by buyers.

What motivated suppliers to strive for full SER compliance? Were there business benefits to meeting and exceeding standards? In 2009 we explored the business case for SER by examining three HP suppliers with significant operations in China—Flextronics, AU Optronics (AUO), and Delta Electronics.

HP's SER program focused on integrating social and environmental requirements into sourcing operations. The company conducted audits on suppliers deemed to be "high risk" given their location, process, relationships, and/or company information. In 2008, over 400,000 people worked at manufacturing sites audited by HP for SER. In the information technology industry, since the number of suppliers for specific components could be limited, HP focused heavily on working with existing

[7] The materials on this case were drawn from Rammohan (2008).

suppliers to improve SER activities. Through self-assessments in 2008, HP identified around 200 "high-risk" suppliers around the world.

At HP suppliers Flextronics and AUO, executives reported that SER activities generated several business benefits. Both suppliers improved environmental, labor, and health and safety performance from 2005 to 2008. While formal supplier SER programs at both companies were only 2–3 years old at the time of the case, certain short-term business benefits had already been realized. Delta began SER work in 2002 at HP's request but did not report seeing concrete business benefits from 2002 to 2008. Later, HP began to increase the importance of SER ratings in its supplier evaluation process, providing suppliers with more of an incentive to perform well. Below are the key SER benefits suppliers reported in 2008:

- SER can help a company become a supplier of choice. Flextronics and AUO executives felt that SER could enhance their reputation with many stakeholders.
- Certain environmental investments can have short-term payoffs. In 2007, AUO implemented several environmental projects that delivered financial benefits. Investment costs related to water recycling and reduction projects, dormitory solar panels, and exhaust recycling were outweighed by savings from most of these projects in the first year alone. In the years preceding 2008, AUO's energy, water, and waste per substrate (a standard unit of glass used to manufacture computer panels) significantly decreased. Meanwhile, overall energy, water, and waste increased due to higher production output.
- Health and safety programs can reduce accident rates. Both AUO and Flextronics made improvements to their health and safety programs. They found that strengthening safety training, improving/installing machine guards, and improving/providing protective gear such as masks and gloves for workers resulted in lower accident rates. This saved costs by reducing the time a worker is unproductive, and was believed by some to reduce healthcare costs.
- There is potential for beneficial labor practices such as limiting overtime, paying fair wages, and providing employee welfare activities, good dormitories, canteens, and other amenities to reduce or limit attrition in the future.

This case highlights benefits suppliers achieved when collaborating closely with HP. In addition to the short-term gains realized, suppliers recognized the potential for longer term benefits from SER activities.

20.5.4 Case Example: Comprehensive Sustainability at Li and Fung[8]

Li & Fung Limited is a Hong Kong-based global leader in consumer goods design, development, sourcing, and distribution. It serves retailers and brands around the world by managing a network of over 15,000 supplier companies in more than

[8] The materials in this case were drawn from Melvin (2015).

40 countries in Asia, Europe, Africa, and the Americas. In 2013 this sourcing and trading activity accounted for more than $16 billion of revenue. Sustainability is of great importance to Li & Fung, since its brand owner customers expect the company to manage the sustainability of the supply network for them, and because former chairman Dr. Victor Fung held a personal passion for sustainability. The company recognized that factory audits were not sufficient to ensure a sustainable supply network, and that suppliers, many of them located in developing economies, might not have the capability and resources to develop sustainable practices. The company identified that one of the impediments to sustainability was supplier productivity.

In January 2014, Li & Fung announced the creation of a new business unit called Vendor Support Services (VSS). The new unit provided services to a vast supply network on safety and compliance training, audits, trade credit services, product development, and technical and operations support. VSS would build on the company's knowledge about the supply chain and access to best practices and emerging trends to create a stronger vendor ecosystem that was economically vibrant and socially and environmentally sustainable. Instead of just auditing, Li & Fung became a coach, providing capacity building, skills, knowledge support, training, technology, financial assistance, and connections. VSS manufacturers improve environmental performance by educating them on energy efficiency, carbon emissions management, waste and water management, and then helping suppliers implement improvements.

While production costs and compliance standards were rising, suppliers were also faced with shorter turnaround times, driven by trends such as fast fashion and advancements in retail technologies and e-commerce. Thus, VSS also offered supply chain productivity services like Lean training, industrial engineering, and productivity consulting.

Li & Fung's sustainability efforts were also intended to benefit the communities in which its many vendors were located by creating better economic, environmental, and social ecosystems. This concept is related to "shared value," described in the previous section. The company had long viewed itself as "an essential hub in the wheel of economic development that starts by enabling job creation in emerging markets and supporting employers (factories) to keep moving up the value chain." Improvements in factory productivity could directly benefit workers. At one factory in India, for example, a significant increase in productivity over a 6-month period in turn helped raise the monthly wage of workers paid by the piece from 1000 to 4000 rupees and led to a steep drop in absenteeism (Melvin 2015). Factories that produced sustainably and provided safe, steady employment were of critical importance in developing stronger communities and better-off families, and in enabling social mobility.

Just as improved productivity and standards can benefit workers through better conditions and higher salaries, investing in worker well-being can also create tangible benefits for factories. Since 2010 Li & Fung has supported certain customers in implementing the HER Project (Health Enables Returns), training largely female

workforces about personal and reproductive health and hygiene issues over 18 months as a way to reduce absenteeism, increase productivity, and build loyalty amongst factory employees.

20.5.5 Case Example: Investing in Cotton Suppliers at Esquel[9]

Esquel Corporation is the largest cotton-shirt manufacturer in the world. Its major cotton supply comes from Xinjiang, a developing province in northwestern China. Esquel has been focused on environmental protection and sustainable development in its supply bases. The company has hosted conferences to educate communities on the importance of protecting the environment and deployed an Eco Mobile Lab—a classroom on wheels—to bring the message of environmental protection to primary schoolchildren in hard-to-reach areas. The lab visited remote areas in Xinjiang, educating children on conservation through interactive and entertaining activities. During seven tours of the Xinjiang province, the Eco Mobile Lab reached 146 schools and over 138,000 students and teachers. As part of the activities, over 22,000 trees were planted.

Through the Esquel-Y.L. Yang Education Foundation, the company supported local education in Xinjiang, financing the rebuilding of decrepit schools and donating mini-libraries for rural communities. Over the years, Esquel had rebuilt 12 schools in various rural locations, and set up around 800 mini-libraries throughout Xinjiang. Esquel employees participated directly in projects in less fortunate communities. With employee and company contributions, Esquel provided thousands of needy children with financial support for basic education expenses such as tutorial and exercise books. Finally, Esquel sponsored college students to study science, and provided scholarships to outstanding high school graduates to attend university.

Esquel was focused on developing the local agricultural economy in Xinjiang, and on protecting farmers. To improve the quality of the cotton and minimize impurities, Esquel provided farmers free pure cotton garments as a benefit. It also offered farmers workshops on cotton farming, and invited them to visit its spinning mills to demonstrate the impact of cotton quality on the quality of the yarn, and eventually, the garments. A research team in Xinjiang looked for ways to modify the cottonseeds to achieve higher-quality cotton, with better strength and fiber length. The research team also studied irrigation methods in order to conserve water, a scarce resource in Xinjiang. A dedicated team worked with local farmers in Xinjiang on sustainable farming techniques, and advised them on ways to grow and collect the cotton so as to improve quality while at the same time increasing the farmers' income. These efforts also enabled farmers to grow organic

[9] The materials of this case were drawn from Pelleg and Lee (2013).

cotton with high productivity. In addition, Esquel placed orders with the farmers in advance, when the cotton was planted, and guaranteed them a minimum price, with the maximum set by the market. Both Esquel and the farmers benefited from this arrangement: farmers were not wiped out if prices went extremely low, and Esquel secured its cotton supply and also had better rapport with the farmers, who were wary of dealing with foreign capitalists after decades of selling only to the government.

20.5.6 Case Example: Creating Shared Value at Nestlé—Rural Development Initiatives[10]

Nestlé is the world's largest food and nutrition company, and procures agricultural commodities from many emerging economies (Africa, South America, and South East Asia). Creating Shared Value (CSV) has been the basic way Nestlé conducted its business to create long-term value for shareholders and for society. CSV involved compliance with laws, Nestlé business principles, and codes of conduct developed by Nestlé. CSV also ensured sustainable development that meets the needs of the present without compromising the ability of future generations to meet their own evolving needs.

Nestlé identified rural development as one of the areas that they would focus on for their CSV initiatives. To create value for its suppliers, Nestlé developed CSV initiatives intended to help the poor farmers to break the vicious circle of poverty:

In many developing countries, the farming business is fragmented and most farmers run their operations on small lots of farmland (average 1.5 ha). Scale is low and small farmers are spread over wide geographies, and thus often have to sell through layers of middlemen, who sell to wholesalers, who sell to brand owners. This long and inefficient supply chain creates a lose–lose situation: (a) farmers get a low selling price; and (b) the brand owner such as Nestlé pays a high purchasing price for crops that may not be fresh (due to delays in handling and transportation). In China, Nestlé worked with over 40,000 fresh milk suppliers (farmers) by adapting the "Swiss Milk District System" which involved: (1) disintermediation: cut the middlemen by developing transportation and infrastructure to collect milk directly from farmers; (2) aggregation: group famers into "districts" to reduce logistics costs for the farmers who deliver their milk to the milk collection centers; (3) quality: establish milk collection centers with quality controls and cooling tanks to reduce spoilage and improve quality; (4) productivity: provide free veterinary services and animal husbandry to improve the quality and productivity of milk production; and (5) financial assistance.

[10] The materials of this case were drawn from Lee et al. (2015).

There are two fundamental ways to help farmers reduce production costs: (a) improve yield and quality; and (b) increase productivity. Nestlé provides technical assistance to farmers so that they can produce milk and crops more effectively and efficiently.

Nestlé built its own "cold chain" due to lack of infrastructure in many low-income countries. This involved collecting milk directly from farmers using Nestlé containers, processing collected milk, storing pasteurized milk safely, and transporting finished products to markets. In many developing countries, Nestlé built food processing facilities (e.g., coffee roasting facilities, milk pasteurizing facilities) in rural areas of low-income countries. In 2010, 60 % of Nestlé's 422 factories were located in rural areas, thus creating new nonfarm employment opportunities. By expanding the local pool of skilled workers, Nestlé made the area more attractive to other potential employers, which is essential for rural development. Not only can these job opportunities generate higher income, but these facilities create an efficient supply chain (lower cost, higher quality, and higher volume) for Nestlé.

20.5.6.1 Summary of Case Examples

By understanding supplier management practices such as visibility and monitoring methods, incentives and penalties, supplier collaboration and other practices associated with improved compliance and improved business performance, firms can better target investments in responsible supplier management. In Table 20.1, we summarize the "response" strategies used by the firms highlighted in the cases above, along with the benefits achieved. As mentioned earlier, we focus on "response" strategies due to the greater variation in corporate practices compared to "sense" practices.

20.6 Summary

There is a need for more research on the impact of various sense and response sustainability strategies on social, environmental, and economic performance. As responsible supply chain management continues to evolve and incorporate practices that go beyond monitoring efforts, there is an opportunity to better integrate management into core supply chain operations in order to have a stronger impact on conditions in global supply chains. For firms which engage the entire supply chain in the search for breakthroughs and risk reduction, there are opportunities to gain competitive advantage (Lee 2010). Calls for increased collaboration with suppliers and stronger incentives (Plambeck et al. 2012) will likely continue to grow, as will the call to improve monitoring methods, seek opportunities to build shared value, and ultimately cascade these practices to suppliers throughout a firm's network in order to create lasting change.

Table 20.1 Response strategies and results: Summary of case examples

Company	"Response" strategies						Results
	1	2	3	4	5	6	
	Reactions (e.g., root cause analysis, penalties)	Incentives	Capacity building	Proactive product and process design	Shared value	Cascading practices to the supply network	
Starbucks	X	X	X		X		Starbucks gained secure, high-quality, added supply
							Farmer income increased
McDonald's	X		X	X		X	McDonald's obtained secure, high-quality, added supply for its growing demand
							Supplier McCain cascaded practices to farmers
							Farmer income increased
HP	X	X	X			X	Supplier reported water, energy waste cost reductions
							Supplier reported lower accident rates
							Supplier reputation was enhanced by becoming a "supplier of choice"
Li & Fung	X		X		X	X	Li & Fung gained from higher worker productivity
							Suppliers saw higher incomes through higher productivity, women obtained health services
Esquel	X		X	X	X		Esquel obtained high-quality supply
							Farmers received benefits and higher income
							Community members received education support and environmental awareness training
Nestlé	X		X		X		Disintermediation and other strategies improved yield, quality, and productivity
							Community saw growth of nonfarm jobs

The purpose of this table is to highlight key practices discussed in the case studies, rather than capture all practices employed by these companies. The one exception is column 1. Since all of these companies use certain reactive methods when violations are detected (e.g., penalties for using child labor), they have all been marked with an "X" even if those practices were not covered in the case

Acknowledgements We thank Angharad Porteous for her significant contribution to the paper cited in Sect. 20.4. Elements of the paper were used throughout this chapter.

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