LAPPEENRANTA UNIVERSITY OF TECHNOLOGY

School of Business

Master's Degree Programme in Supply Management

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Sustainable sourcing in global supply network: assessment of geographic challenges and management methods

Case: Stora Enso

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ABSTRACT

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The purpose of this work was to describe and compare sourcing practices and challenges in different geographies, to discuss possible options to advance sustainability of global sourcing, and to provide examples to answer why sourcing driven by sustainability principles is so challenging to implement. The focus was on comparison between Europe & Asia & South-America from the perspective of sustainability adoption. By analyzing sourcing practices of the case company it was possible to describe main differences and challenges of each continent, available sourcing options, supplier relationships and ways to foster positive chance.

In this qualitative case study gathered theoretical material was compared to extensive sourcing practices of case company in a vast supplier network. Sourcing specialist were interviewed and information provided by them analyzed in order to see how different research results and theories are reflecting reality and to find answers to proposed research questions.

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Ivan Sorokin

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1. INTRODUCTION

Over the two or three recent centuries and more recent decades humanity has achieved remarkable results in making life more safe, healthy, satisfied, convenient, entertaining and luxurious. Economic growth might be stumbling here and there but production capacities and transportation volumes has been growing more or less steadily while the efficiency potential is not maxed out. And even if some companies manage to achieve good results in own operations it does not mean that their suppliers are working on the same level.

Development has been good but at the same time people are facing a number of serious environmental challenges that are contributing to one major problem - degradation of Earth. Exponential growth of population leads to increasing amount of consumption which in turn requires more resources to be extracted and processed. Energy demand has been growing hand in hand with the population and it seems that there is no stop to it. The more there is material extraction and processing the more there is need for material storage, movement and transportation. It is also not the same from where and from whom companies are buying needed resources and materials.

Modern life is seen as a huge improvement or a significant step towards the better that is driven by revolutionizing modern technology and science. But is it always positive? Judging by the state of the environment and numerous studies, the answer is not always. Developing processes, achieved efficiencies and technologies enable even better and long-lasting lives and promising future but there are also some unfortunate but self-evident economic, environmental and social problems. The biggest one of them is that people are currently striving for golden life at the expense of one and a half planet while having only one beneath its feet. The planet that has its limitations, boundaries and vulnerable life supporting systems that have been degrading exceedingly since industrial revolution.

Consistently, growing pollution, resource depletion and other environmental problems have been gaining more and more attention in recent years. Sustainability is now

regarded as important attribute in business world because nowadays there are concerned stakeholders that care not only about economic development but also about environmental and social performance of business sector. (Jabbour et al., 2015). Stakeholders are acknowledging the severity of global problems and are pressuring companies to implement sustainability principles into their business functions and supply chains (Gualandris et al. 2014).

Many companies have recognized a potential opportunity for cost saving or improved profitability in resolutions of sustainability issues while the others have taken sustainable development as one of their primary missions. Sustainability has become one of the central pillars of business models that accelerates innovation to decrease energy consumption and environmental impacts while offering more value to the customers. In this sense sustainability is also seen as the key driver for global network design and supply management. (Liotta et al. 2014) A study done by Schneider and Wallenburg (2012) states that implementation of corporate sustainability relies strongly on purchasing and sourcing while Green Supply Chain Management and sustainability became one of the essential agendas in supply networks (Akman et al., 2013). There are many ways to improve the condition of earth and application of sustainability principles into sourcing decisions is one of them.

1.1. Thesis purpose

The objective of this Master's thesis is to describe main challenges in global sourcing related to sustainability and to discuss practices that can make supply chains more sustainable through sourcing decisions. This was done with the help of case company Stora Enso that was willing to share some of its expertise and experience in global supply networks.

Global sourcing is a complex process that plays a major role in performance of any company that conducts it. Well placed sourcing decision can bring great value to the company or cause problems afterwards. And for companies, that have placed

sustainability principles as their main guideline for business, sourcing is even more important as well as challenging.

Even if the company holds sustainability as one of its main priorities, it is not always, if ever, easy to become sustainable. In fact, many examples show that transition requires years of hard work, persistence, patience and perhaps some sacrifices. For a company transition means organizational changes, restructuring, development, new partnerships and investments. But regardless of measures that can be taken independently the results will never reach its potential without others because business is never done alone. Companies have clients, partners and stakeholders that they rely and depend on which means that achieving some goals may not be possible without them. Some objectives require similar vison, shared values, common approach to business and integration of processes. Because of this connectivity company cannot achieve desired goals nor be regarded as sustainable if the partners that it works with and resources that it uses do not fit the overall cause. In this sense another aim of this study is to assess buyer-supplier relations in the context of sustainable global sourcing.

Global sourcing presents a variety of problems that any globalized company has to deal with. Every continent has its own cultural, social, economic, political, legal, technological and ecological establishment with location specific benefits and challenges. Same approach may not be used or practices applied everywhere and thus companies are forced to design different methods that will make things work in a desired way. Sourcing can be one of the challenging business aspects especially for sustainability oriented companies. Well-developed continents like Europe are not problem-free business areas but in some sustainability and responsibility related matters are well ahead of others. For example, environmental regulation or working condition standards are completely on a different level. Therefore, the aim of this work is to describe and compare sourcing practices and challenges in different geographies.

1.2. Theoretical framework and research gap

Sustainable sourcing is approached through the perspective of sustainable supply chain management (SSCM) which is closely related to company relations with suppliers and their power positions. Companies are interested in sustainability adoption to their supply chains in order to enhance their operational performance, improve public image and to reduce their ecological footprint. Sourcing might also be one of the last measures that could give companies the edge they need to maintain success in a highly competitive business environments and markets (Trent et al., 2003).

Regardless of reasons behind sustainability initiatives companies may face some problems because suppliers might be unwilling or unable to respond to sustainability criteria set by buyer. When defining criteria for suppliers companies are thinking about potential for long term business relation, technical abilities of partner and most importantly the lowest possible costs. Cost reduction and savings are regarded as the key criteria for supplier selection in developing countries. (Oke et al., 2009) This can be confirmed by Shahadat (2003) who found that the most important attribute in supplier selection is the price that suppliers are setting for their offering. However, buying companies should also consider possible human right issues, fluency of business operations, suppliers' capabilities and other factors when selecting sourcing locations. (Oke et al., 2009) It is very important to source from the right suppliers in the right regions in order to obtain a stable and cost effective supply chains. Fredriksson et al. (2009) state that buying companies must be aware of supply network structure, relationships, and the characteristics of low-cost countries. Therefore, evaluation of current sourcing options, supplier relationship assessment and ways to influence them in global supply chain are matters that will be covered in this work.

Another priority is description of geographical areas, Europe & Asia & South-America, from the perspective of sustainable sourcing implementation. Mainly due to the fact that there is not much studies that provide examples of challenges that companies can encounter after introducing newly created sustainability policy and proposing business that is driven by highs ethics and principles. Companies have been reducing

manufacturing and labour costs through global sourcing for a long time but now that stakeholders are valuing sustainability the initial setting is different. And so, this work will describe emerging problems related to transition from global sourcing to sustainable global sourcing.

Sustainability encompass environmental, social and economic dimensions that are varying in dominance. This means that it is not always possible to achieve good results in all dimensions due to the complexity of supply networks, limited control over supply chains, long distances and conflicting interests among stakeholders. Assessment of factors that either contribute to success or drive towards failure are also challenging in complex environments. Same trade-off problems also apply to sourcing where companies may be forced to make choices that compromise one of the sustainability spheres.

Sourcing is about making connections, building relations and buying needed material from suitable providers that are able to fulfill a set of needs. Sustainability can be incorporated in these needs which in turn means setting a predefined criteria for suppliers. Introduction of strict criteria is canceling out some of the available options and may cause some problems if only limited amount of supplier can respond to it. At the same time sustainability is not only about placing limitations and forbidding questionable practices. It is supposed to represent improvement of overall performance of the company through organizational changes, transition towards resource efficient practices, stable long-term growth and greater value for the company.

Stable long-term growth and profit are representing economical and commonly dominant dimension of sustainability which is heavily emphasized. From environmental perspective, sustainability means resolution or improvement of global problems like climate change, resource depletion and pollution. Social sustainability is concerned about various social issues related to human rights, health, safety, inequity etc. And like any other business function, sourcing can address and impact all three dimensions of sustainability through policies and decisions. There might be some problems though, since not all supplying partners may welcome sustainability policies right away. This

thesis will provide examples to answer why sourcing driven by sustainability principles is challenging to implement and may lead to compromises.

1.3. Research questions

Global sourcing is a standard function or practice for big companies but not without its problems. It is a complex process as it is but making it sustainable is even more demanding and time consuming task. Researchers warn of difficulties and risks related to global sourcing but none many of them provide direct recipes that will guarantee safe and profitable business success. Sustainability as well as global sourcing are a quite well-researched topics but theoretical material do not always provide practical examples or details that reflect reality which is usually more harsh and contradictive. Possible risks are discussed and some risk management tools are introduced but there is still room for analysis, questions to be answered and comparison to make.

Today sustainability and corporate responsibility is something that most, if not all, major companies are adopting to their business and promote in communication. Sustainable ways are highlighted and reported to public but actual conditions under which results are achieved may not be clear. For some companies global sourcing is a strategically important function and alongside internal operations one of the biggest parts of company's overall sustainability performance. Due to the increasing problems related to degrading environmental conditions, exceeding resource depletion and social issues companies are adopting sustainability principles into their business by own initiative or forcefully through stakeholder pressure. Based on the previous discussion following research questions were formulated:

- *What are the main challenges in global sourcing from the perspective of sustainability?*
- *What region specific (Europe & Asia & Latin America) characteristics exist from the perspective of sustainability?*

- *What are the main challenges and benefits of each regions in terms of sustainable sourcing?*
- *How supplier relations differ in Europe & Asia & Latin America?*
- *What region specific measures can be applied in order to improve sustainability of sourcing in each region?*

The focus is on challenge depiction in sustainable global sourcing, evaluation of managerial problems, identification of potential leveraging possibilities in company networks and assessment of final outcome or value of sustainable sourcing. One of the most interesting and central aspects of this work is geographical comparison. World is a diverse and complicated place with own location specific characteristics and business establishments that affects sourcing operations. And so, additional task was to compare sourcing challenges and differences in Europe, Asia and Latin America.

1.4. Definitions and key concepts

I. **Sourcing**: strategic business function and a process for insuring availability of required materials and services that are delivered at the right time, with the right quality and lowest possible costs. Global sourcing is about integration and coordination of items, materials, processes, technologies, designs and suppliers in a worldwide scale. (Trent & Monckzka, 2005)

II. **Purchasing:** procurement strategy in where a company is looking for the most cost efficient location for production or place for obtaining goods and services. Global purchasing is the activity of searching and acquiring needed resources to fulfill company's needs and with intention to improve current competitive position. (Quintens, Pauwels & Matthyssens, 2006)

III. **Sustainability & sustainable development:** development that satisfies the needs of the present without compromising the ability of future generations to meet their own needs. Ability of an enterprise to maintain

itself while avoiding long-term depletion of natural resources. (Katrharine & Legre, 2015) Sustainability has three dimensions that address different issues related to economic performance, environmental management and social welfare.

IV. **Green Supply Chain Management (GSCM):** management of material, information and capital flows as well as cooperation among companies in the supply chain while taking into account environmental, social and economic dimensions of sustainable development (Mahdiloo et al. 2015). A process of selecting and monitoring right suppliers that fulfill environmental standards of sustainability (Akman, 2014)

V. **Strategic sourcing:** a broader and more transformational process than procurement that is performed at higher organizational level. Includes examination of the whole supply network, its linkages and impact on procurement and purchasing decisions. Focuses on tier 1 suppliers, value creation, risks, uncertainties and responsiveness of the supply chain. (Wallace & Xia, 2014)

1.5. Methodology and structure

This work is a qualitative case study that was done with the help of one of the leading providers of renewable solutions in packaging, biomaterials, wood and paper on global market - Stora Enso Oyj. Stora Enso (SE) is global operator in forest industry that has strong positions in Europe, Asia and Latin America. It is also a company of high ethics and dedicated practitioner as well as promoter of sustainable business which is why it was selected for this work. Participation of company with extensive supplier networks and solid presence in Europe, Asia and Latin America was the central element of this study. Alongside wide supply base second important criteria was sustainability driven strategy that would be applied across all business functions. Company’s willingness to participate and to act as primary information source was the final and enabling condition for this research.

In this qualitative case study gathered theoretical material was compared to extensive sourcing practices of SE in a vast supplier network. SE sourcing specialist were interviewed and information provided by them analyzed in order to see how different research results and theories are reflecting reality and to find answers to proposed research questions. Following figure illustrates four stages of this study.

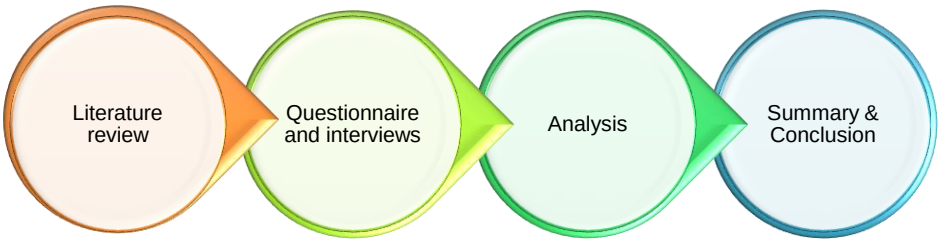

Figure 1. Research design

The purpose of the first stage was to get acquainted with available literature regarding sustainable sourcing and sustainable supply chain management and to collect research material that would highlight important aspects that have impact on sustainability of sourcing and a company as a whole. Information was gathered mainly from scientific data bases where recent scholarly releases can be found. Relevance to this work, release date and usefulness of material were used as criteria for article selection. Gathered literature discusses challenges and benefits of global sourcing and presents a variety of models that can be applied in order to minimize risks. Based on the conducted search in academic databases there is not much studies done that would compare continents from the perspective of sustainable sourcing and discuss regional challenges which make it difficult to implement.

The qualitative part was carried out in a form of interviews and a questionnaire that was sent to Stora Enso sourcing specialists located in Europe, China and Brazil. Provided information depicted current directions and state of Stora Enso's sourcing as well as

applied practices in different continents. A variety of questions were made for the interview based on the theoretical part of this work with the purpose to gather information about Stora Enso's current sourcing policies, processes, sourcing strategy, supplier selection criteria and sourcing challenges. Questionnaire was filled by those specialists who were not available for the interviews. Assessment of Stora Enso's sourcing and its sustainability approach is based on the information gotten from the interviews, Stora Enso Progress Book, Financial Report and Global Responsibility Performance report of 2014. Publicly available reports provided general information regarding sustainability, sourcing policy and methods that are used at SE. However, comments of sourcing specialists of each region were needed in order to be able to answered proposed research questions. Open discussion about challenges and conditions of each geographical area with practical examples provided a clear picture on why exactly sustainable sourcing is difficult to implement in each region. The final part of this work summarizes and discusses studied material, answers research questions and presents recommendations for Stora Enso regarding future directions.

Qualitative case study was selected as research method for the empirical part of this work primarily because in-depth interviews can provide deeper understanding of the subject and more precise knowledge of real business conditions. It may not provide quantitative data that can be statistically analyzed but on the other hand it is simpler and less time consuming than multiple-case study or quantitative study. (Yin, 2009) More importantly, open discussion provides more detailed explanation of problems as well as reasons behind them. It was possible to conduct three interviews for the analysis. Two of them were face-to-face interviews and one was done online due to the physical distance. All these sessions were successful and served the purpose in terms of quality and quantity of provided information. Unstructured questionnaire was filled by those specialist who could not attend interviews. Unstructured questionnaire was also a deliberate choice because on the contrary to structured it can provide richer insights and allows more freedom and choice for expression (Inquisium, 2011).

1.6. Limitations

There is plenty of literature related to sustainable supply management with a variety interesting topics that could be studied but this work covers only one aspect of supply chain – global sourcing. Many studies discuss benefits, risks and challenges of sourcing in developing countries on a general level but continental differences are rarely studied as if same risks and other considerations apply to all places equally. This is why the focus of this study is placed on description of differences between continents from the perspective of sustainable sourcing.

The acknowledgement of continent specific challenges (Europe, Asia, and South-America) is important in order to be able to respond to them in an adequate way. Problems arise when legitimacy and sustainable practices of suppliers cannot be guaranteed which might result in damaged reputation of buyer who positions sustainability values high. The overall sustainability of a company is also affected by poor supplier performance which means that sourcing has to be done or goods has to be procured from partners who share same approach to environmental management and work on the same level.

Sustainability includes three dimensions that business has to consider – environmental, social and economic. This work is not limited to any particular dimensions but will consider all because sourcing can address and each one of them. Environmental sustainability encompasses environmental concerns like pollution, natural resource depletion and global warming. Social sustainability deals with problems related to human rights, working conditions and social welfare. Economical sustainability is about maintenance of stable long-term growth and profitability.

2. SUSTAINABLE GLOBAL SOURCING

2.1. Integrated and global supply chain

In today's digitalizing world and economy, companies are required to integrate and manage people, technologies and process within the firm and also across extended networks. Alongside required robust supply chain management systems companies also rely on inter-organizational cooperation and coordination with suppliers, customers and other partners in order to stay competitive and successful in the market. Integration of processes in supply chains involves numerous elements such as enterprise resource planning (ERP) system, tools to manage customer relationships, e-marketplace, product lifecycle management, e-procurement and others. Because of the dynamically developing business environments many organizations are forced to develop and improve their supply chain design. Continuous and quick technology updates and developing internet networks have fostered transition from traditional supply chains into global supply chain networks in which all involved companies and their functions are integrated to enhance value creation. The main objective of supply chain integration is to improve, optimize and standardize value and profit generation. This process involves collaborative work with partners, various suppliers, third party providers, intermediaries and customers. Moreover, management and coordination of internal and external functions and processes should be effective enough to provide high value products and services that satisfy customers' needs and fulfill their expectation. (Awad and Nassar, 2010)

Application and integration of global supply chains into corporate business strategy might be quite challenging. Awad et al. (2010) have collected and summarized challenges and obstacles that organizations might face when adopting principles of supply chain integration. According to this study some of the issues that companies may face are: increasing transaction costs, lacking operational flexibility and strategic planning, poor logistics and customers order management, difficulties to assess suppliers' competences as well as problems in data and information management. In

order to avoid or counter some of these obstacles it is essential to understand what kind of things contribute to the success or failure of supply chain integration. Monczka (2003) had determined some success factors in global supply chain implementation which are described in figure 2.

Figure 2. Critical success factors in global sourcing (Monczka, 2003)

One of the fundamental building blocks in realization of successful global sourcing is availability of need information and qualified personnel. People that are responsible for implementation must be skilled and capable enough in order to make right decisions and to apply knowledge in the practical situations. Good communication and presentation skills, comprehension of complex strategies and development projects, ability to see the big picture instead of focusing on minor details, and finally productive

and effective work are important characteristics of needed personnel. Building a team of qualified professionals from potential candidates for global operations might require substantial effort and time. The formation process should be followed by training that corresponds to the needs of organization and educated personnel. Another important factor for cross-functional sourcing team is time that is given to develop their global strategies. Assigned tasks will be done more efficiently and better if there is enough time to think and analyze before choosing. On the contrary lack of time might result in hasty and wrong decisions. The importance of time cannot be undermined by organizations that want to pursue global sourcing opportunities successfully. (Trent et al., 2003)

It is highly unlikely for any company to achieve success in global sourcing without decent access to accurate, reliable and up to date information. Such information includes for example list of current suppliers and contracts, list of potential new suppliers with global performance capabilities, forecast of worldwide demands in product categories, assessment of suppliers' performance and credibility, customers' expectations and general needs within buying units. Identification of potential global suppliers with global capabilities can be a challenge itself as there are many organizations that are familiar with global or local sources while not having enough awareness about worldwide suppliers. In fact, most organizations tend to have comfortable relationships with their existing supplier base which may not encourage them to search for better options. (Trent et al., 2003) Meanwhile, information related to global sourcing possibilities can also be accessed with the help of existing suppliers (Hultman, Hertz, Johnsen and Johnsen, 2009).

Achieving success in global sourcing is pretty unlikely when company knows only few suppliers with global capabilities that are able to competitively meet buyers' worldwide expectations at all sites in terms of design, quality, cost, lead time and delivery. In addition, those suppliers with global capabilities that the company is aware off might not even have interest in participating in global contracts. There are is a considerable demand for suppliers that would be interested in global agreements but limited amount that can actually fulfill them properly. This is due to the fact that not many suppliers are

capable to fulfill extreme demands of buyers and are refusing to try. As an example Trent et al., 2003 brings chemical producer that runs six worldwide facilities and produces the same type of product. The major aim for this company during realization of global sourcing is to recognize suppliers with ability to fulfill the material requirements in each facility regardless of location. By getting into sourcing market as a single customer, this company expected suppliers to provide identical standards, consistent logistics service, stable quality and even equal pricing in each region. Buyers also expect new suppliers to keep worldwide electronic linkages with every single buyer's location and significant cost reduction compared to the previous contracts. Hence, high demands that must be fulfilled to become global suppliers can prevent those local or regional suppliers from trying to become one. (Trent et al., 2003) In other words buyers can set demands too high and end up with only a handful of suppliers that could get close in attempt to fulfill buyers' requirements. According to Taylor et al. (2009), global sourcing options can be greatly improved through enhancement of important competencies like collaboration, global trade management expertise, compliance, information sourcing, technological development and improvement of sourcing process.

Another important key success factor in global sourcing is company's ability to identify common requirements across buying units. This may seem obvious but in reality many organizations still have to struggle with this. For example, one company in petroleum industry had several IT and coding systems across its worldwide operating locations and had spent six months to figure out what had been purchased and when by each purchasing unit in commodity grouping. After several attempts to sort out own purchasing, the company had to ask its' suppliers to assist in verifying purchased volumes and products. Many large corporations have evolved from mergers or acquisition and experienced similar problems because newly joint units have a common purchasing criteria yet they seldom have compatible agreements, systems or material coding programs. Although it is not so critical to have the common coding schemes across operating places, it is still important to have the ability to identify common material groupings or requirements across buying units. (Trent et al., 2003)

One of the major concerns when firms are leveraging their buying volumes across multiple sites, especially when it is performed centrally, is getting buy-in with new agreements or suppliers. Some production sites are forced to use new suppliers because global sourcing agreement requires to do so. There are two ways where operating personnel can be involved during establishment of new supplier: one is when purchasing department is fully responsible for sourcing decisions and second in which non-purchasing personnel of local site is responsible for main sourcing decisions. Users or other interested parties should be able to get involved into development of global sourcing contracts. Besides, site personnel is actually the real customer of the suppliers and thus it is important to represent their expectations and include their opinion throughout the contract. It also might be beneficial to make global project teams which fully consist of site personnel instead of dedicated purchasing department. One variation of this model contains a single member from corporate level which often acts as the project leader or coordinator and works with members from purchasing sites. Regardless of the used model, it is important to get buy-in to worldwide contracts in order to justify the time and effort that has been spent for developing those contracts and ensuring that new suppliers are accepted by operating sites. (Trent et al., 2003)

In the global sourcing practice, the process of selecting and evaluating suppliers' performance are considered to be more complex and important because changing suppliers and established processes can be costly and difficult. It is much better to evaluate their performance thoroughly before engaging into business instead of being disappointed afterwards. In turn, evaluation needs commitment, time and extra expense for travelling to suppliers sites. Moreover, most of global suppliers provide material from several production sites and shipping points which makes assessment process more complicated and lengthy. Visiting teams should assess suppliers' global capacity, financial condition, process capability, supply chain management practices, logistical networks, willingness to cooperate and technological competences. In other words, buyers should be really critical as if they were about to buy the whole supplier instead of just suppliers' capabilities. (Trent et al., 2003) In search of suitable supply options companies can favor those suppliers that have good technological capabilities

and systems. This makes sense but technology does not necessarily guarantee better performance or better competitive position. In fact, better capabilities can be developed through process standardizing and management. (Taylor et al., 2009)

Integrated global sourcing should not be seen as one of the emerging strategies anymore by companies that produce and sell worldwide. Competitive advantage requires global strategies and developed processes that are integrated into companies' supply chain efforts. In many cases implementing global sourcing strategies requires integration of multiple functions such as purchasing, logistics, supply chain operations, engineering and even marketing. (Trent et al., 2003) In practice, global sourcing is also about establishment of tactical and strategic relations with partners that are monitored near site, on-site and offshore. Global sourcing partnerships are driven by the necessity to maintain and improve various operational tasks, to deliver more value to the end users and to improve internal cost effectiveness as well as operational efficiency. (Lionbridge, 2006)

2.2. Criteria for sourcing from developing countries

In 2003 Trent et al. released an article where they state that global sourcing might be one of the last untapped measures that could provide companies the kind of performance breakthroughs that are needed to maintain success in a highly competitive environments. (Trent et al., 2003) At that time globalization seemed to be the key to gaining competitive advantage in the market and it was more spoken topic than sustainability and environmental protection. As the time went the world became even more interconnected, interdependent, interrelated and globalized and it seemed that globalization might not provide the same competitive advantage as it did before. There must be other measures and trends that already globalized companies must follow. A model for supplier selection in developing countries that have been developed by Motwani, Youssef, Kathwala & Futch (1999) provides basic steps for international purchasing in international while reducing the risk to get poor quality within the purchase.

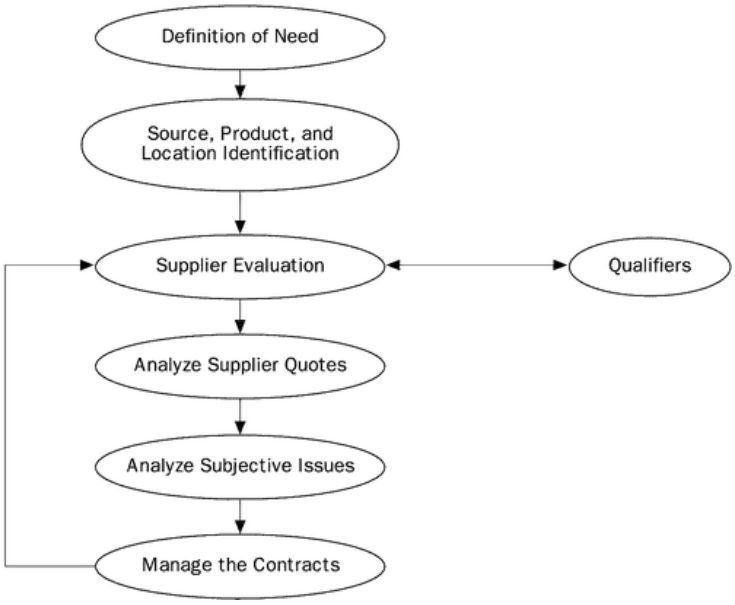

Figure 3. Sourcing model (Motwani et al., 1999)

Definition of need encompass detailed description of required materials and services that is communicated to suppliers. This description includes technical specification of the products, service description and important criteria that supplier must follow. For example, along technical description buyer could forbid some processes that are applied in manufacturing or using subcontractors that lack some certificates. Suppliers or service providers should also be evaluated based on specific criteria such as experience, financial condition, market position, worker competency, capacity of inventories and potential for long term partnership. Supplier's development and growth is also important aspect that communicates to buyer that suppliers business is in good condition. Besides those outlined attributes, there are some other foreign policies that should be taken into consideration when good are shipped from a country. Following legislation and acquiring licenses from government are particularly important. The last step of the model is contract management which includes quality checking and examinations based on which relation will be developed. (Motwani et al., 1999)

Oke, Maltz and Christiansen (2009) have identified costs, physical and cultural proximity, political factors and reliability to be criteria for sourcing from Eastern Europe,

Asia and Africa as illustrated in figure 4. This study has been done only few years ago but it suggest that at that time sustainability trend was present not as strongly as it is today. Only in recent years governments and business sector began to give more attention to sustainability and make some considerable adjustments to legislation. A more recent study of Gualandris et al. (2014), state that stakeholders has been demanding companies to adopt sustainable supply chain management (SSCM) and to improve their environmental and social performance. In attempt to answer some questions related to supply management Gualandris et al. suggests that adoption of SSCM to business is essential for company's sustainability performance.

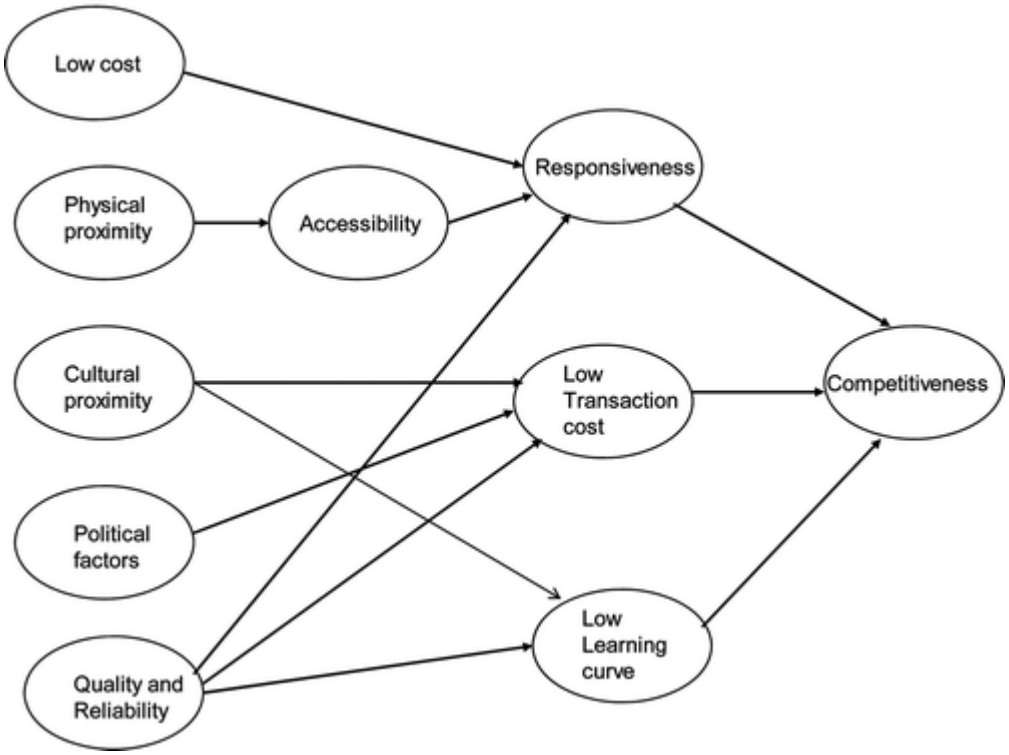

Figure 4. Criteria of sourcing (Oke et al., 2009)

In developing countries, the sourcing criteria in supplier selection process generally focus on the opportunity of long term business, technical level of suppliers and most importantly the lowest possible cost. Cost reduction was cited as the major factor of global sourcing and therefore was emphasized in supplier selection in developing countries. Potential for low costs seems to be the first thing to be measured and placed before quality and other factors such as manufacturing process, service level, components and so on. (Oke et al., 2009) Shahadat (2003) also found that the most important attribute in supplier selection, particularly in product purchasing in foreign markets, is the price. The other component of cost structure that is considered as important is logistics cost. For example, some European companies tend to purchase from Eastern Europe because logistics costs associated with buying from the Far East were relatively higher. However, focusing on low cost as the main sourcing criteria is sometimes not a good solution. Company could get some problems by selecting suppliers only based on low cost factor. For example the supplier might have lack of sourcing experience, poor work ethic of the workers and poor quality. Therefore, pursuing cost advantage should be balanced with other criteria in order obtain more sustainable competitive position. (Oke et al., 2009) Moreover, a recent survey indicates that low costs are considered as the most important strategic objective in global sourcing. Cost reduction was found as the most common objective of global sourcing in comparison to another goals. (Miemczyk, Johnsen, Karjalainen, Salmi, and Caniato, 2011)

Cultural and physical proximity are also important factors in sourcing decisions. Time-to-market and suppliers accessibility are crucial form the perspective of supply responsiveness and understanding cultural characteristics of region is a must in negotiation process and relationship development. (Oke et al., 2009) It is important to assess political situation that is currently present in the country before making sourcing decisions. Unstable political situation can cause a variety of problems that can increase transaction costs and alter intended delivery times. Another set of factors that should be considered by buying companies when selecting sourcing location are the human right violations, flexibility in processes, social conditions and characteristics of local

culture. For example, one country in North Africa has a ritual prayers every Friday that stops every single operation and other work. Therefore, buying firms should be aware of such customs when considering sourcing from exotic locations. (Oke et al., 2009) Adoption to political environment is considered as one of the most challenging tasks in global sourcing especially in unstable regions. The integration of business into environment might be affected severely because of inconsistent government performance and suddenly changing regulation. Because of this buying company must be ready to manage uncertainties of the sourcing environment and also political instability. (Awad et al., 2010)

Survey conducted by Myemczyk et al. (2011) indicates that quality and suppliers' ability to deliver on time are factors that most companies are concerned about. On the other hand many of the leading companies hold reliability and quality as secondary criteria when choosing sourcing partners in developing countries. Instead, they evaluate potential suppliers based on their cost competitiveness and customer's references from other companies. For example, suppliers that have been doing business with large companies are valued more highly by the buying firms. Therefore, they tend to override actual performance quality and reliability of the suppliers. (Oke et al., 2009) However, buying firms should choose suppliers based on their reliability, attitude, delivery performance and other attributes instead of low cost only (Shahadat, 2003)

2.3. Cost saving opportunities in global sourcing

Cost savings has been cited as the main driver of global sourcing realization particularly from low cost countries or developing countries (Platts and Song, 2010). Generally the driving factors for companies to conduct global sourcing are divided into three main categories: cost saving due to lower production and labor cost and exchange rate influences, acquisition of sophisticated innovative technology or exclusive products, and market opportunities in the sourcing area. Among those motivators cost saving potential is the most important (Schiele, Horn and Vos, 2011).

Global sourcing is also about balancing between lower local transaction and lower production cost in the sourcing region (Platts et al., 2010). However, companies should not presume that cheap labour in some country will provide savings if they do not consider other possible costs. (Fredriksson et al., 2009) Schiele et al. (2009) discussed that global sourcing has been considered as the most effective way to achieve cost reduction particularly when buying firms manage to develop and improve products with the suppliers in a collaborative manner. According to one survey conducted in 388 organizations cost benefits is major advantage of global sourcing. (Lionbridge, 2006). Below figure 5 shows the results of this survey.

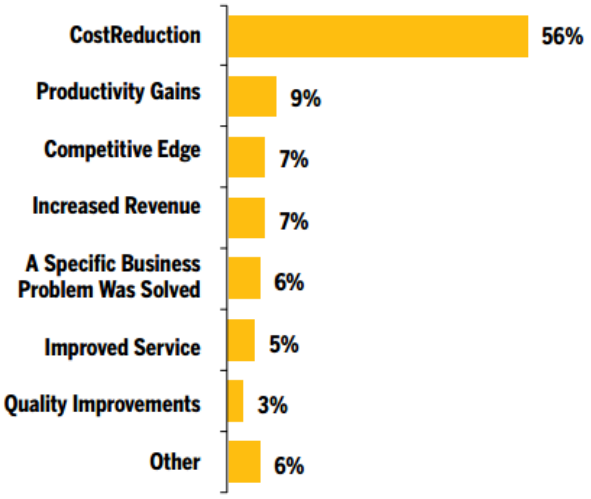

Figure 5. Primary benefit of global sourcing (Lionbridge, 2006)

In addition, 59 % of the total correspondents held cost reduction or cost arbitrage as their primary goal. The survey results indicate that there are many cases where organizations focus too much on cost savings while failing to recognize other benefits of global relationships. (Lionbridge, 2006)

Logistics is another opportunity to save money alongside decreased labour costs. The effectiveness of logistics and cost saving potential in global sourcing has attracted much attention in today's industry as logistics cost has been cited as one the most

crucial indicators in supply chain efficiency. It often covers a huge part of the total supply chain expenses particularly in extended supply chains in global market. (Zeng and Rossetti, 2003)

2.4. Potential risks in global sourcing

Gilley and Rasheed (2000) stated that global sourcing requires additional expenses while the cost saving might not be as huge as expected. All of the costs involved in global sourcing application should be considered and calculated in order to figure out the actual impact of costs in global sourcing. Platts et al. (2010) conducted a research about observing firm' perspectives over the total costs in their projects of China sourcing. They pursued a multiple case study in which most companies' assumed that the price accounts for about four-fifth of the total ongoing cost. While in fact, according to the study result, the price accounted for around two-third of total ongoing cost. In this sense, companies have to be more careful with their cost calculations in international sourcing and also not to underestimate those associated expenses if they want pursue cost reduction (Platts et al., 2010)

Cost issues in global sourcing were also discussed by Fredriksson et al. (2009). Since sourcing in low cost countries might involve long geographic distances, there are number of negative effects that should be taken into account. For example, delivery times might be increased while delivery precision is decreased. This could lead to additional expenses that are needed to accelerate delayed freight. Flexibility could be reduced which means that firms need to have extra inventories or at least possibility to buy locally. Different language, culture, time zones and characteristics could also decrease the efficiency of supply chain process. Thus, the disadvantages of sourcing in low cost countries might negatively affect the overall supply chain performance if mentioned attributes are not taken into account. (Fredriksson et al., 2009)

Quality concerns is another risks of sourcing from lower cost countries. For example the most significant issues about sourcing from China are unstable level of quality, lack

of technical expertise and weak delivery performance of local vendors. (Platts et al., 2010) In many cases, bad quality is presented as the major issues in global supply chains particularly when it comes to sourcing form low cost or developing countries. Reports of products with bad quality are submitted far more often in comparison to sourcing form developed countries. (Ruamsook, Russell & Thomchick, 2009) Song, Platts and Clemens (2007) had reviewed the total acquisition cost (TAC) that needs to be taken into account before organizations decide to implement global sourcing from low cost countries. The major points in total cost acquisition of global sourcing are represented in figure 6.

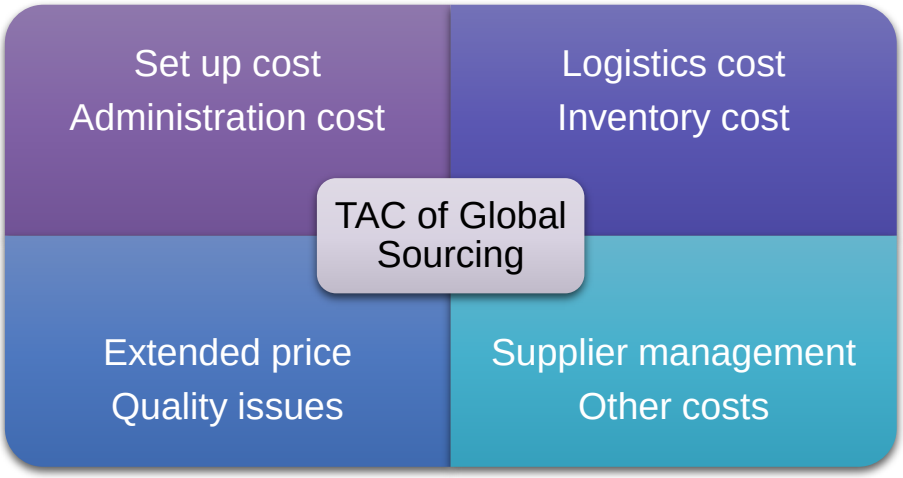

Figure 6. Total acquisition cost of global sourcing (Song et al., 2007)

Set up cost covers expenses related to information collection, supplier selection and negotiation. Additional attributes related to set up costs are suppliers search and visits, tooling and quality audits, integration of new suppliers to internal IT system and investing in their IT system. Administration cost refers to ordering, billing and payment process. Logistics cost involves transportation (products shipment including cost for agents transportation), expediting, lost of sales due to long lead time or late delivery, holding and administrative cost when delivery arrives too early, inspections and insurance. Inventory cost includes obsolescence, capital charge of increasing inventory, inventory holding with warehouse maintenance, rent, heating, etc. Extended

price occurs by acknowledging suppliers' cost structure, discount terms, tax and import duty, loss due to changes of payment terms and currency exchange rate fluctuation. Quality issues encompass losses due to defective materials, products rejection, return, rework, repackaging, retesting, warranties and customers' complaint handling, production line downtime, scrap disposal and loss of sales due to quality problems. Suppliers management consist of suppliers training and technical support, cooperation development, forecast updates and convey to suppliers, performance reviews and meetings, renegotiation and litigation. Other costs include e.g. personnel recruiting and training, sending employees abroad, eliminating redundant capacity and labor, coping with counterfeit products, dealing with corruption of local governments including satisfying their special regulations, facing inferior infrastructure, culture and language issues, damage from IPR infringing, etc. (Song et al., 2007)

There are number of attributes that have to be managed well in a successful sourcing partnerships. Both buying firm and supplier have to cope with concerns related to different internal operations, coordination of business activities, forecasting, uncertainty in material sourcing, transportation problems and maintenance of customers satisfaction. (Zeng et al., 2003) Therefore, it is very important to source the right products from the right suppliers in the right regions in order to obtain stable and cost effective supply chain. According to Fredriksson et al. (2009) supply structure, supply network relationships and the characteristics of low-cost countries are the most significant aspects that companies must consider be aware of when making sourcing decisions. Following figure 7 contains additional factors of each aspect.

Supply network structures	Supply network relationships	Sourcing country characteristics
• Layering and tiering • Plant roles	• Business relationship • Operative dependencies and transaction costs	• Infrastructure • Culture • Human capital • Policies and regulations

Figure 7. Sourcing characteristics (Fredriksson et al., 2009)

The structure of supply networks which includes raw materials, suppliers, inventories, distribution centers is obviously affected by sourcing strategy. Layering and tiring is the basic method to improve information flow, coordination of the stock, process linkages and localization of nodes. The geographical distance between links, nodes and transportation units has a great impact on lead times, firm's ability to deliver on time and respond to demand fluctuation. Long distance and lead times might also increase the complexity of communication lines and operational management. Increased expenses can also arise in case of problems e.g. at customs. Plant placements is also demanding strategic choice that should be determined based on the purpose and scope of its operations. Therefore, plants should be managed according to their category, capabilities, aim and importance. (Fredriksson et al., 2009)

Sourcing decision should also be made carefully particularly when there is potential for operative dependencies between buyer and supplier and considerable transaction costs. Previous researches conclude that it might be difficult to develop strong business relationships and to integrate processes due to cultural differences. For example, Chinese culture is relationship orientated which means that business should be done in close proximity and be based on loyally. Similar approach might not work in European market. Building trust and personal relationship takes time and people need to have many social interactions before discussing business matters. In China this process will take longer time. Sourcing transition to external vendors might increase the complexity

of operations, material transactions and administrative processes. Dependencies on current suppliers could decrease but expenses coming from external suppliers might increase because relationship is only at starting point. In the supply organizations there are also operative dependencies between information and material flows. Global information and material flows with high operational complexity may increase the transaction costs in relationship. Higher transaction costs might also be a result of low quantity purchasing. To avoid these costs increments processes and relations must be well integrated and quality management must be working. In addition, information sharing and fixed schedules must be included in the relationship between suppliers and buyers. (Fredriksson et al., 2009)

Characteristics that are describing sourcing countries can be classified into categories like: infrastructure, cultural differences, human capital, policies and regulations. Infrastructure problems are more likely being experienced by companies with lack of working experience in developed countries. For example, the level of transportation infrastructure of China is still lower than in European countries as there are congestions and bottlenecks due to capacity issues, performance of equipment, politics and poor supply chain planning. As a result, unreliable communication and infrastructure can cause longer lead times and less reliable and timely deliveries. Cultural differences and language difficulties might increase problems in understanding and lead to less effective communication. For example, not like Western people, Asian people tend to say yes to show that they are paying attention even though they actually do not understand the discussion. They can also hesitate to address bad news which might lead to confusion and late countermeasures to mitigate problems. Hence, cultural differences can cause constraints, misunderstanding and slow down operations. Sourcing from low cost countries can also be negatively affected by lack of human capital and operators' skills in the sourcing area. For example, there are many people in China coming from poor and rural region to cities to seek works. Considering the fact that successful companies with high turnover depend on trained, skilled and experienced operators, the companies might face a problem of finding reliable workers with good skill while the process of training new people might be costly and also time

consuming. Therefore sourcing from low costs countries does not guarantee wanted cost savings if there is no reliable supplier with skilled labour and decent quality. All saved money from low price will be drained to problem solving. The final problems are related to governmental policies, regulations and poor legal systems that are supposed to protect company's intellectual property in low cost countries. Furthermore, there can be different interpretations of contract application in the society due to cultural differences. There is also risk of less trust and transparency. For example suppliers might use companies' drawings or concepts to serve other customers. Because of this buyers are not willing to share information to the suppliers. As a result, poor cooperation level, information sharing as well as mistrust are causing negative impact on products' quality and lead times in the supply chains. (Fredriksson et al., 2009)

2.5. Sustainability of supply networks

In recent years, sustainability has been considered as important attribute in business world as nowadays there are many stakeholders concerned not only about economic development but also about environmental performance (Jabbour et al., 2015). As there is much more awareness of environmental issues from both government and public, companies cannot ignore sustainability concerns and on the contrary they have to put more attention to this issue in order to maintain good positions in the global markets. Furthermore, there has been strong interest in green supply chain management which has become one of the most important aspects of supply network management. (Akman et al., 2013) In recent years, the focus of supply networks has been deflected towards environment issues and its effects on companies' performance because of pressure from society. Now companies must assess and provide information about products' life-cycle, impacts of their business, environmental management and sourcing policies. (Vijayuargy & Agarawal, 2013) Many companies are now fully aware about how important it is to include environmental, social and sustainability aspects in their supply networks such as waste reduction, working place condition improvement and more efficient resources consumption in order to improve overall performance. For example Anheuser-Busch cooperated with its suppliers to

develop aluminium cans design to reduce the thickness of the wall without decreasing the quality level. New design had successfully reduced the yearly aluminium consumption at around 12 million pound sterling in 2006 and also improved the company's bottom line. (Tate, Ellram and Kirchoff, 2010)

There are several different aspects that need to be included in the supply networks sourcing decision. Schneider et al. (2012) have summarized numerous researches that discussed about the criteria of sustainable sourcing decision in terms of both environmental and social aspects. They found that most researches on environmental aspects of supply networks are focused on responsibility of purchasing functions to consider reducing, recycling and reusing resources. Same researches also implicate the environmental sourcing into strategy development e.g. supply risks mitigation or new product designs. Meanwhile, researches on social aspects of sustainable supply networks are mostly related to codes of conduct establishment, child labors prevention, consideration of minority-owned suppliers, and ethics assurance in buyers and suppliers relationships. Thus, the principles of sustainability in global supply chain management needs to integrate both social and environmental aspects.

2.6. Green Supply Chain Management and Green Sourcing

Green supply chain management (GSCM) represents the relationship between supply processes and environmental issues which are often referred as lean supply chains with minimum or zero waste. GSCM principles involve reduction and recycling of waste that is released by own factory as well as factories of partners. Such actions are taken by companies in order to get cost benefits, improve corporate image, to make operations more sustainable and to improve environmental and social conditions. (Vijayuargy et al., 2013) According to Jabbour et al. (2015), the practices of GSCM are supposed to be directed towards improvement of environmental performance. It is important for companies to implement activities related to green sourcing by implementing GSCM and use opportunities to decrease emission of greenhouse gasses and solid waste. Figure 8 presents McDaniel's (2000) lists of activities that

companies can conduct to show their participation in enhancing environmental performance.

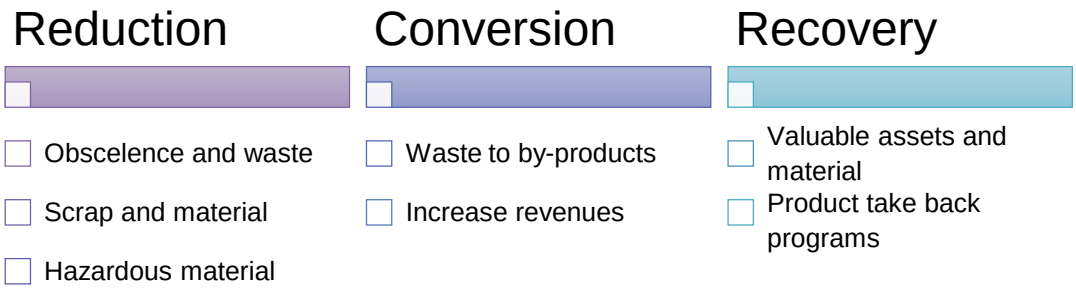

Figure 8. Environmental performance-enhancing activities (McDaniel, 2000)

Nowadays companies have been increasing their competitiveness level by considering environmental performance of their business and to enhance fundamental supply chain changes. Those actions can be classified generally into reduction, conversion and recovery. There are multiple kinds of waste that can be reduced through improved sourcing partnerships, services designed to treat chemical discharges, waste maintenance practices, repair and operating material, paints, solvents and other chemical substances. Cost effectiveness can be improved by decreasing discarded scrap and material, training in material handling, and investment into waste management technologies. Another measure is improving the process of material tracking and report systems. Besides waste reduction, companies can practice waste utilization by converting it into by-products which can also result in additional income. The other possible attempt for enhancing environmental performance is to recover valuable assets and materials. This action can be executed efficiently for example through product take back programs where components from the returned products can be recovered and disposed properly. (McDaniel, 2000)

Green sourcing aims to conduct eco-efficient purchasing that decreases waste sources and emphasizes reuse and recycling of material without decreasing the requirements of material performance or quality (Jabbour et al., 2015). The main focus of green

sourcing is on acquisition of needed materials form sustainable, reliable and less damaging sources. It is also about constant improvement of supply base through suppliers' performance assessment, leveraging and development. (Schneider et al., 2012).

2.6.1. Implementation of sustainable sourcing

The implementation of sustainable supply sourcing in companies is showed by the companies' strive to reduce materials consumption, water and energy. Companies can also attempt to upgrade their supply chain management to better and environmentally friendly ways. (Jabbour et al., 2015) However, the implementation of sustainable sourcing can be challenging for traditional supplier-focused purchasing people that lacks understanding in value adding process and only consider costs in their decisions. (Schneider et al., 2012)

First of all companies should consider how the principles of sustainable sourcing will be applied in their purchasing system. They should also be concerned about the stakeholders that participate as significant motivators in application of sustainable sourcing practices in the company. Traditional supplier-focused purchasing people should change their perception of sustainability and understand that this is something that is demanded by key stakeholders. This denotes the bottom for comprehension of stakeholders' multidimensional intricacy in effective and efficient sustainable sourcing application. Therefore, purchasing people who recently began to apply sustainable sourcing should consider stakeholders opinions alongside suppliers cost competiveness, while purchasing people who have implemented sustainable sourcing in their purchasing before can evaluate whether their sourcing decisions have satisfied all key stakeholders or disregarded some of them. (Schneider et al., 2012)

Meanwhile, this awareness of salient stakeholders needs working cooperation and interaction with purchasing function and other related departments in the organization. Successful application of sustainable sourcing requires good communication, interaction and coordination between purchasing, suppliers and third parties such as

transportation companies. Well-implemented sustainable sourcing can be obtained with excellent network of suppliers that supports and reinforces buyer's strategy with their collaborative work. Accordingly, companies should think of how purchasing people should collaborate with suppliers under the influence and pressure of stakeholders. For example, companies might provide training program for purchasing managers to develop their stakeholder perception. Purchasing members should also increase their interaction with people from other business functions to improve their own performance. It is important that managers of different departments have enough communication and cooperation to enhance collaborative work that aims at the same objectives. (Schneider et al., 2012)

2.6.2. Green Supplier Selection and Evaluation

Nowadays purchasing has gained more important role and status in business and is regarded as one of the main contributors to sustainability. Furthermore, application of corporate sustainability has been incorporated in all business functions. (Schneider et al., 2012) The purpose of green sourcing is to conduct purchasing activities that are more eco-efficient in terms of both process efficiency and material use without decreasing the quality of acquisition itself. It is important to consider criteria for purchased material, services, suppliers, and to assess potential for relationship development. (Jabbour et al., 2015) The selection process of green suppliers is one of the most crucial and critical concerns in supply chain management because they have a great impact on strategy and competitiveness of a company (Akman & Piskin, 2013). Supplier selection plays also an important role for sustainability improvement in supply chains networks. Part of supplier selection would also include evaluation of the suppliers which are critical in terms of enhancement of supply chains performance. (Govindan, Rajendran, Sarkis and Murugesan, 2015)

According to Vijayuargy et al. (2013), selected green suppliers must at least include following characteristics of green supply chains practices. Suppliers must cooperate with buyers in obtaining sustainable and environmental improvements at both buyers

and suppliers' plants, suppliers must agree to share processes and information and also must give permission conduct evaluations of their environmental performance. Meanwhile, Govindan et al. (2015) states that selecting sustainable suppliers must involve environmental, economic and social dimensions. Their study indicates that the most common method used for selecting supplier is Analytical Hierarchy Process (AHP). After it follows Analytical Network Process (ANP), Data Envelopment Analysis (DEA), and other multi criteria decision tools. While the most widely used criteria for selecting and evaluating green suppliers is Environmental Management System (EMS). Environmental Management System is mostly cited as the main criteria followed by corporate and social responsibility (CSR), green image, environmental performance and competences, green competences, design development for environment, environmental authentication and improvement cost, green logistics dimension, environmental certification, green organization activities, the utilization of environmentally friendly material and technology, green image of suppliers, green products and process innovation, waste management, reuse and recycle programs, green purchasing and project partnership, and green design. Some sub criteria of Environmental Management System are environmental policies, environmental planning and ISO14001 certification. All of these criteria are considered as qualitative environmental criteria and somehow contains subjective view in the decision of supplier selection and evaluation.

The evaluation process of supplier performance in contribution to sustainable development is very important because it helps to determine which suppliers are the most capable in terms of sustainability and which one of them need improvement. Supplier evaluation also aims to evolve and promote the performance of key suppliers. Measuring suppliers' performance is a critical element to achieve a well maintained supply chain process and to acquire a good position for the company in the market competition. (Akman et al., 2013) There are five main criteria according to Akman et al. (2013) that can be used to evaluate suppliers in terms of environmental performance and other supply chains issues: environmental collaboration, environmental

competency, environmental management system, pollution control and green products. The relationship between each factor is illustrated in figure 9 below.

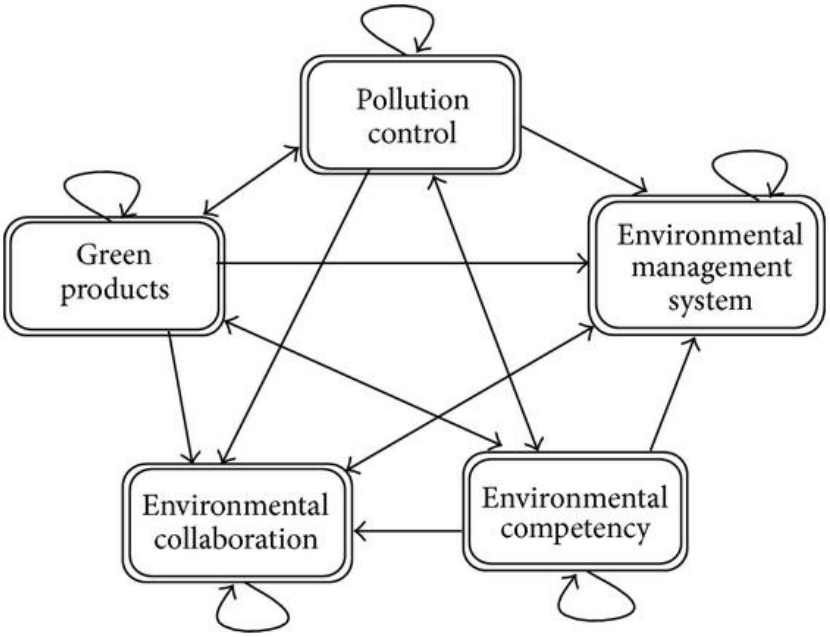

Figure 9. Hierarchy of green supplier evaluation (Akman et al., 2013)

Environmental collaboration includes suppliers' capability to respond to any modification related to processes or products in order to decrease environmental impacts. Suppliers should also be able to operate complex technological applications related to clean production. In the process of component manufacturing, suppliers must do their best to use materials that are less polluting and processes that conserve natural resources. Suppliers should be capable to change products and processes to reduce the negative impacts on natural resources. The evaluation of suppliers' environmental competency encompass: cooperation with companies in environmental management system and technologies, sustainable supply chains and transportation, development of green products, application eco-design into products, clean production that reduces energy use and sustainable supplying processes. Environmental management system requires suppliers to have certificates that indicate their good performance in some

aspect of business such as ISO 14000. Suppliers should be regularly controlled and monitored in terms of legislation obedience and policies that are designed to improve environmental issues. Pollution control is about improvements that have to be made in order to reduce current air, water and soil pollution. Suppliers have to reduce water usage and have adequate waste water treatment plants. They should also pay attention to their disposal system that should fulfill all required regulation and be capable enough to manage all sorts of hazardous discharges in their industry. Green products represents the development of product designs that have smaller ecological footprint, smaller resources density and longer life-cycle. Suppliers also have to support and participate in development of products with better reusing, recycling and recovering possibilities as well as less hazardous materials or component. In other words they must produce more with less. (Akman et al., 2013)

According to Tate et al. (2010), the measurement of green suppliers can have three main criteria. First of all, suppliers need to maintain good economic performance, value generation and competitive costs. Secondly, they also need to fulfill required standards of environmental performance. And thirdly, suppliers should also promote and enforce social standards and values locally. For instance, companies can cause positive change and advance sustainability by assessing suppliers' performance and pushing them to improve different aspects of their business. (Vijayuargy et al., 2013).

3. SOURCING AT STORA ENSO

Store Enso (SE) began its operations in1998 after Finnish company Enso Oyj and Swedish company Stora Kopparbergs Bergslags Aktiebolag merged together. Today Store Enso is one of the market leaders in provision of renewable solutions in packaging, biomaterials, wood and paper on global markets that aims to replace non-renewable materials by developing innovative products from wood and other renewable resources. SE's yearly production capacity consists of 5.4 million tons of board and paper. 1.3 billion meters square of corrugated packaging and 5.6 million cubic meters of sawn wood products. There are around 27 thousands people employed by SE in more than 35 countries. Annual sales of the company in three consecutive years were more than 10 billion. (Stora Enso, Key facts 2016)

Stora Enso is undergoing a transformation which is a part of its strategy and strive to become more sustainable forestry company. This transformation encompass change from a traditional paper and broad producer to renewable materials focused company that build its success with sustainability approach. Fiber-based packaging, plantation based pulp, innovative biomaterials and sustainable construction materials are the building blocks in Stora Enso's strategy. All these areas have a great deal of innovation potential and opportunities to produce high quality and environmentally friendly fiber-based products that can replace non-renewable materials. One of the goals of SE is to meet growing population and urbanization trends while bringing environmental benefits. (Stora Enso, Transforming our Business)

The declared purpose of the company is to 'Do Good for the People and the Planet'. Whether it is production and selling, wood sourcing and purchasing, global scale logistics or just daily mill operations, the company is dedicated to systematic improvement that is driven by constant assessment of actions and impact on surroundings. Corporate values of Stora Enso are 'Lead' and 'Do What's Right' which function as main guidelines people that are working there. In other words SE is trying to set an example and to lead in every aspect of its business in a responsible way.

Stora Enso business is divided into five divisions that respond to demand of customers in different industries. Below figure 10 depicts each division that has its own organizational structure with customer focused targets.

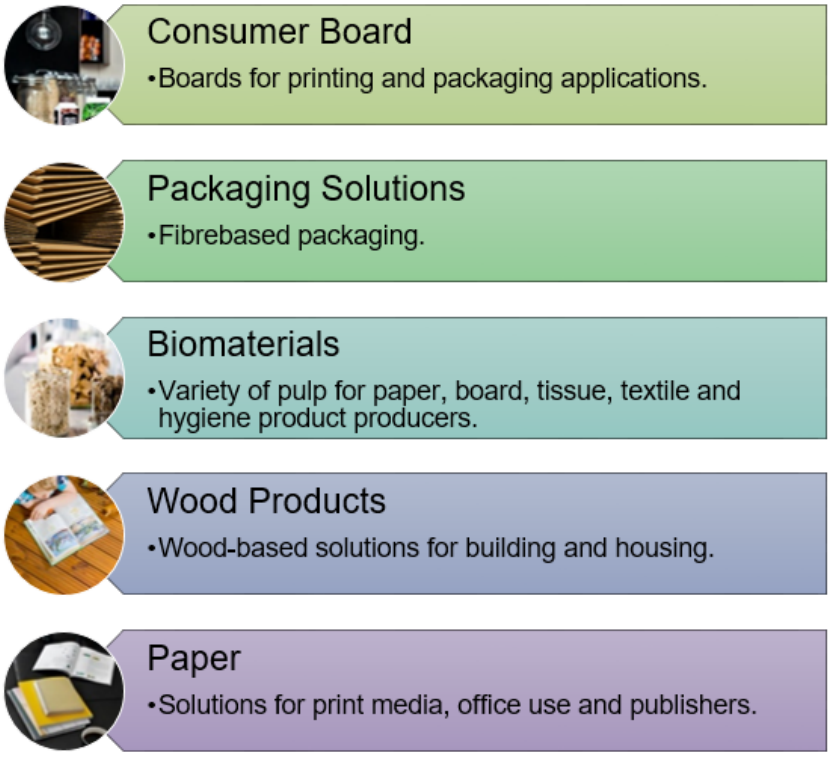

Figure 10. Stora Enso business divisions (Stora Enso Key facts, 2016)

Each division develops and provides fiber based products for various purposes. SE is also focused on expanding its business into areas with growing demand like Asia and Latin America.

3.1. Global presence of Stora Enso

Stora Enso is a global operator with production, R&D and sales units in a variety of places. Main production capacities are located in Europe which is the biggest source of revenues and sales transactions at the moment. However, considerable growth

potential in Asia and steadily developing business in Latin America are defining future directions of SE. Figure 11 shows locations of Stora Enso's production sites and administrative offices.

Figure 11. Stora Enso's operating locations

In total, there are around 70 production units in more than 20 countries which are supported by strong supplier network. Each one of these continents and locations have their own business focus and environmental establishment but close collaboration with suppliers, contractors and other stakeholders is emphasized everywhere. (Stora Enso Progress Book 2014, p. 4.)

SE is trying to cause positive impact in all environments that it operates in. Below figure 12 illustrates SE's business model that is designed to respond to market changes and growing demand for sustainable products.

Figure 12. Sustainable processes operational excellence (Stora Enso Progress Book 2014, p. 7)

Like previously said and as above figure repeats SE in undergoing an important transformation that will allow the company to respond to market changes and to have a considerable share in growing segments. Currently changing markets and completely new ones represent increasing demand of sustainable products, new technologies and sustainable business practices. Communities, stakeholders and people in general are aware of environmental and social problems and are pressuring companies to do something about it. Sustainability and responsibility is sort of “trend” to which every major corporation has to respond if it wants to remain competitive and to improve positions in new markets. SE’s situation is not different as it has to compete its transformation in order to secure stable and prosperous future. By addressing environmental and social dimensions of sustainability the company is also improving economical one.

3.1.1. Europe

Europe is the central area for Stora Enso's business where it is a leading producer of board, pulp and paper (Stora Enso Progress Book 2014, p. 3). Major share of the company's revenues are generated here with operations from all five divisions. The most important manufacturing areas of corrugated packaging and wood products are located in Central and Eastern Europe while most of the main raw material, wood, is sourced from Northern part of Europe. Bergvik Skog and Tornator are two biggest private forest owners and partners in wood provision. Stora Enso is active promoter of forest certification, sustainable forestry and forest management. Considerable amount of attention is given to recycling schemes, especially in tightly populated areas of Europe. SE has around 19 thousands employees in Europe from which 6300 are in Finland. Operations in Russian Federation consist of wood sourcing, packaging mills and sawmills which are run by a total of 1100 employees. (Stora Enso, Facts and Figures)

3.1.2. Asia

The company has recognized fast growth of product demand, especially consumer board, in China which resulted in one of the biggest investments projects in recent years. Stora Enso is currently constructing a new consumer board mill in Guangxi that will include nearby eucalyptus plantations. Alongside paper and board mills, the company has acquired production and distribution units through the Inpac International which is a packaging company that operates in China and India. In 2010 51 % of Inpac International's shareholding was purchased by Stora Enso. Around 5,500 employees are currently working in production sites of Stora Enso in China. (Print Week, 2010)

Bulleh Shah Packaging is another company in which SE holds 35 % of share base. It produces corrugated packaging, consumer board, containerboard and paper for the textile, dairy, snack foods and electronics industries in Pakistan. SE also has a trial plantation in Laos that combines three-growing with food production. (EUWID Pulp and Paper, 2013)

3.1.3. South & North America

Alongside China, Latin America has also evolved into one of the key business areas for Stora Enso's. Most of the potential is seen in low-cost pulp from three plantations. SE owns a pulp mill that is a part of joint business with a partner and another mill that is dedicated to magazine production. In June of 2014 SE began joint operation with Arauco in Uruguay - The Montes del Plata pulp mill is one of the biggest investment projects in country's history. In addition, there are large land areas in in Brazil and Uruguay half of which are used for growing eucalyptus and other trees. Around 1000 people are working for SE in Latin America.

Another strategic move was made in 2014 but in North America when SE decided to build demonstration and market development plant in Raceland, Louisiana. This decision was made right after acquisition of US-based biotechnology company Virdia which has developed a technology that allows conversion of cellulosic biomass to high quality fermentable sugars and linguine. Virdia's CASE process has the potential to produce a variety renewable fuels, chemicals and materials including jet and diesel fuel, lubricants, synthetic rubber and nutritional additives. Acquisition of Virdia is part of SE's strategy to grow in bio-based product categories that will contribute to more sustainable future. The purpose is also to reach new industries and value chains that will enable sustainable profit generation in the company. (Biofuels Digest, 2014)

3.2. Primary goals and functions of sourcing

Stora Enso has developed Global Responsibility Strategy (GRS) as a guideline for systematic improvement of sustainability in operations. The purpose of it is not only to conserve nature and resources, improve energy efficiency and to produce less waste but to create shared value and mutual benefits with stakeholders across SE"s networks. Global Responsibility Strategy is implemented in all five divisions and over the years has reshaped organizational structures of SE and contributed greatly to the overall success of the company. Many customers and partners has acknowledged the effort

and dedication to global responsibility approach of SE and improved their own operations with the help of SE.

There are three lead areas that GRS is defining and on which SE is particularly focused on in order to improve operational sustainability and to gain leadership. These lead areas are: People & Ethics, Forest & Land Use and Environment & Efficiency. Each of these areas has its specific key performance indicators (KPI) and scheduled targets that are illustrated in blow table. (Global Responsibility Report 2014, p. 5)

		Key Performance Indicator (KPI)	2014	2013	Target	Progress
PEOPLE AND ETHNICS	Health and safety	Total recordable incident rate	12.5	14.0	<5 by the end of 2015	Behind target
		Lost-time accident rate	5.2	5.0	<1 by the end of 2015	Behind target
	Human rights	Extent of implementation of the group's approach to human rights issues	100%	n/a	Human rights assessment to be conducted by the end of 2014	Achieved
	Ethnics and compliance	Employees perception of the group's adherence to our Code of Conduct	69%	64%	Positive trend	In progress
	Sustainable leadership	Leadership index	76	75	80 by the end of 2018	In progress
	Responsible sourcing	Percentage of supplier spend covered by Supplier Code of Conduct (SCoC)	78%	n/a	To include unit-level contracts in supplier spend figures during 2014, 90% of total supplier spend covered by SCoC by the end of 2016	In progress
FOREST AND LAND USE	Efficiency of land use	Increase in the volumes of fiber produced per hectare in certified tree plantations owned and managed by the company	Baseline defined for future calculation	n/a	25% increase by the end of 2020	In progress
	Sustainable forestry	Percentage of the lands owned and managed by the company covered by forest certification schemes	93%	93%	95% by the end of 2017	In progress
ENVIRONMENT AND EFFICIENCY	Climate and energy	Reduction of CO_2 emissions per saleable ton of pulp, paper and board	-25%	-28%	-35% from 2005 benchmark level by the end of 2025	In progress
	Process water discharges	Reduction of process water discharges per saleable ton of pulp, paper and board	-4%	-7%	-10% from 2005 benchmark level by the end of 2015	In progress
		Reduction of chemical oxygen demand per saleable ton of pulp, paper and board	-5%	-11%	-10% from 2005 benchmark level by the end of 2015	Not achieved
	Material efficiency	Material efficiency index	n/a	n/a	To establish group-wide measurement process by the end of 2015	In progress

Table 1. Key performance indicators and targets (Global Responsibility Report 2014, p. 8)

During 2014 all five divisions concentrated on deployment and implementation of Global Responsibility Key performance Indicators on corporate level and division-focused areas. Emphasis was on business control and progress reporting. All divisions, key services and support functions underwent a thorough Global Responsibility Risk assessment in conjunction with annual Enterprise Risk Management (ERM). This assessment defined relevant risks based on SE Global Responsibility Model, pre-determined assessment criteria and identified critical risk mitigation procedures. (Global Responsibility Report 2014, p. 5) Progress of mitigation procedures was reviewed every quarter of the year with all divisions in order to ensure sufficient enforcement of mitigation actions.

3.3. Supplier related risks and risk management

Stora Enso sees risks as integral part of business and as an opportunity to develop despite threatening nature of risks. A great deal of committed work has been done to integrate risk management into all Group's functions. With the help of consistent risk analysis tools and dedicated managerial work the company is striving towards minimized threats and improved competitive capabilities.

SE defines risks as conditions under which achievement of company values, targets and intended results may be adversely affected. Board of Directors periodically approves company's Risk Policy that sets an overall guidelines and approach for risk management and mitigation. (Stora Enso Financial report 2014, p.17) Holistic baseline evaluation is conducted early in connection with annual strategy formulation process. This means that all business divisions and Group functions are connecting risk mitigation targets to their key objectives. In addition, a specific guidance for Risk Management Process is highlighted in Enterprise wide Risk Management instructions. In practice, this means that all business functions are obliged to seek out source if risks, identify changes in circumstances and forecast possible outcomes. The purpose of analysis is to develop a deep understanding of main drivers of the risks, to develop risk specific priorities and to identify which risks need immediate or delayed treatment. Risk

consideration also include likelihood of occurrence and scale of the impact. Following figure 13 illustrates a simplified risk management process of SE.

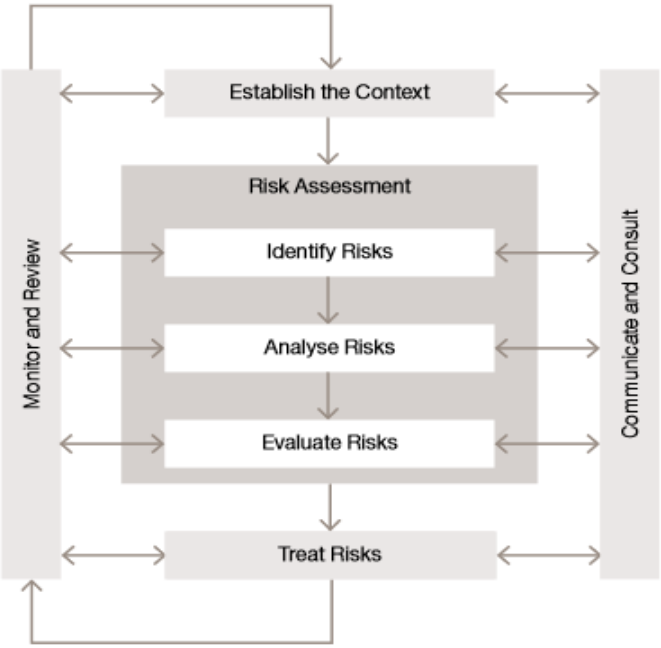

Figure 13. Risk Management Process of Stora Enso (Stora Enso Financial Report, 2014)

Divisional business review meetings are following annual baseline assessment and are conducted four times in a year. Avoidance, reduction, sharing and retention are disposable options that can be assigned for risk management and treatment. One or more can be selected and implemented with scheduled action plan but despite all effort and measures taken there is no absolute guarantee that there will not be any impacts of actualized risk. (Stora Enso Financial report 2014, p.17) The main risks identified by SE are listed in following table 2.

Business environment risks	Financial risks	Health and safety risks
Business development risks	Information technology risks	Governance risks
Supplier risks	Personnel security risks	Environmental risks
Market risks	Property/business disruption	Product safety risks
Human resources risks	Supply chain risks	Social risks
Climate change risks	Natura catastrophe risks	Commodity price risks
Labour market disruption	Business Practice Policy risk	Energy price risks

Table 2. Main risk factors listed by Stora Enso

As above figure shows, there is a wide list of potential risks that may have adverse effect on company's position but only supplier and supply chain risk will be described in greater detail later on.

3.4. Results and directions of Enterprise Risk Management

Risk management process is strictly aligned with SE business strategy because effective risk management is one of the essential parts of competitive position improvement and part of value creation process. SE is a committed and systematic practitioner of proactive risk management. Opportunity analysis and mitigation methods are seen as core capability of the company in gaining better market position and business performance management. (Progress Book p. 31 2014)

In 2014 sourcing risks were related to supplier compliance with international standards, Stora Enso's Suppliers Code of Conduct, political risks and regulatory changes in operating countries. Company's operations and supply chains are constantly exposed to violations of international standards of human rights which may lead to damaged reputation und ultimately to loss of business. Based on 2014 human right assessment that took place in all production units, wood supply operations and supply chain networks need to develop practical action plans that would mitigate risks related to human right violations. Since that time SE has focused on improvement of this problem.

Another compliance issue was related to suppliers and their subcontractors that failed to comply with Stora Enso Suppliers' Code of Conduct (SCoC) and thus to fulfill sustainability targets. Violations were mostly related to noncompliance with labour regulation as well as health and safety standards. These issues were mostly present in emerging markets or so called high-risk countries like China, Brazil, India and Pakistan. Suppliers are evaluated and ranked based on their exposure or involvement in forbidden practices related to environmental and social issues. (Progress Book p. 31 2014)

Political and regulatory risks include changing legislation regarding environment, energy and land use. Tightening regulation and control of emission output or changing fuel rates may also cause compliance problems with suppliers and their subcontractors. Additional challenges come from changes in political stability, especially in China, Russia, Brazil and Uruguay. For example developments regarding Russia and imposed sanctions has forced Wood Supply Finland to conduct a scenario analysis and to develop a contingency plan in case there would be problems with wood deliveries from Russia. (Progress Book p. 31 2014)

To summarize previously said, Stora Enso's risk management is based on thorough and careful assessment of occurrence likelihood and consequences of any potential risks. Special attention is given to sustainability related risks and maintenance if good finance-related reputation of SE.

4. STORA ENSO'S SOURCING ANALYSIS

4.1. Data gathering

All information for the analysis was obtained from interviews with sourcing specialists of Stora Enso, questionnaire as well as publicly available Global Responsibility Performance report (2014) and Progress Book (2014) of the company. Three interviews were conducted in and three questionnaire responses were received for the analysis. One interview was done online due to the physical distance and unstructured questionnaire was filled by those specialist who could not attend interview sessions. The questionnaire can be found in the Appendix 1.

Questionnaire consisted of small question sets that were presented with short introduction. This introduction included general statements and description from corporate reports of 2014 related to business policies and sourcing practices of SE. The purpose of introduction was to assist and direct respondents with their answers by providing the context. Corporate reports, from which prefaces for the questions were taken, were already quite informative and provided a lot of relevant material for the analysis but none of them gave exact examples of real business setting or answers to the proposed research questions. The purpose of questions was to get more details and information about real sourcing conditions of each region and to foster discussion with respondents. Some of the questions were also quite vague and required some interpretation. This was done in order to limit possibility to receive unequivocal answers, to encourage respondents to answer based on their interpretation and to provide enough space for free expression.

All three conducted interviews and received questionnaire responses were successful in terms of quality and quantity. Discussions were really open and the amount of provided examples surpassed all expectations. Interviewees were also willing to share information and illustrations that crossed the frame of questionnaire to provide greater understanding of the real life business conditions. One questionnaire response from

Brazil and two from China were received to support interview sessions. Following chapters will present collected content and analyze it through discussion. Final conclusions and answers to proposed research questions will be presented in the final chapter 5.

4.2. Supplier risks

Stora Enso is dependent on its suppliers and their ability to deliver their offer at the right time and with the right quality. Fibre, chemicals and energy are the most important products for SE alongside machinery and other production equipment. Transportation is one of the most important and outsourced business supporting services. Some of these outsourced services can be seen as risk because there is limited amount of service providers that can take care of certain needs. This is why SE is using a wide networks of suppliers and monitors them strictly in order to avoid possible production disruptions, problems in sales transactions and delays in established development projects.

The prime requirement of stakeholders is fulfillment of environmental and social responsibility in wood procurement and forest management. Failure to secure transparency of wood sourcing and proving acceptability of sourcing practices might lead to negative reaction from markets. This risk is managed with the set of sustainability policies for procurement that determine basic requirements for SE's procurement units responsible for wood and fibre sourcing as well as land management. Traceability systems are used for documentation and for ensuring that all wood and fibre is acquired from reliable, acceptable and legal sources. Wood sourcing of SE is divided into forestry operations and wood supply units that are regionally organized. SE is also an active promoter and practitioner of forest certification schemes mainly due to the fact that SE is not using non-certified wood. Same sustainable supply chain principles apply to other raw materials, resources and also logistics.

4.3. Supply chain risks

One of the most important aspect in sourcing for SE is management of supplier related risks. SE sourcing is concerned not only about performance of direct partners and suppliers but also about operations of suppliers' subcontractors. They must be capable enough to meet quality and lead time requirements set by SE as they are extremely important to production efficiency and maintenance of high quality standards. The main risk mitigation instruments for supplier performance evaluation are price volatility tracking of raw materials and financial risk monitoring.

Since suppliers' subcontractors are part of SE's value chain, they also must follow and fulfill sustainability requirements set by SE. This is due to the fact that weak sustainability performance of involved parties can be harmful to business and SE's reputation. All procured raw materials, goods and services are coming from suppliers that have fulfilled sustainability requirements set by the company. They also must undergo audits that evaluate them in terms of environmental, social and business related risks. Follow up procedures are decided after findings gotten from mentioned audits are analyzed. (Stora Enso Financial report 2014, p.19-20)

4.4. Stora Enso's methods to ensure sustainable sourcing

As a definition, Responsible Sourcing means a lot of things for SE. It is about demonstrating true commitment to ambitious Global Responsibility objectives, showing full compliance with national and international regulation and implementing best business practices. Addressing concerns of key stakeholders and proper supply risk management are also highly prioritized. For SE it is essentially important that mentioned principles are implemented in everyday work among all employees that are responsible for sourcing.

As previously mentioned several new sustainability and global responsibility related changes took place at SE in 2014. Same applies to sourcing as there is a new sourcing organization that is responsible for supplier relationship management. The biggest

changes were related to implementation of Supplier Code of Conduct and third party audits in China and India. (Global Responsibility Performance 2014, p. 30.)

SE is acquiring a wide variety of raw materials, products and services that are needed for business on a local, regional and global levels. Sourced materials and products mainly consist of wood and pulp but production sites are also in great need for chemicals, fillers, fuels, energy, filters, spare parts and other components. In addition, all mills require comprehensive and constant maintenance and logistics services as well as IT-support. Each mill complex needs a lot of resources for effective production which is why SE's supply networks include different types of suppliers ranging from small-scale local companies to large multinational corporations.

In 2014 SE continued systematic enchantment of sustainability performance in all business divisions with Global Responsibility Strategy which brought significant changes in organizational structures. Global Responsibility was no longer attached to Global Identity function but became an independent unit with expanded responsibilities. Now Global Responsibility is integrated more deeply into business functions and strategic planning. (Global Responsibility Performance 2014, p. 5-6)

Due to the rapid expansion of business across geographical areas SE has also been exposed to increased amount of responsibility related risks. Geographical areas that have been entered during last decade have revealed excellent business opportunities but not without supplier compliance problems. Some of the biggest challenges were present in 2014 and concerned human rights issues. For instance Bulleh Shah Packaging which is SE's joint venture in Pakistan presented a number of child labour concerns to SE's stakeholders. (Global Responsibility Performance 2014, p. 10) Cooperation with wood suppliers in Russia are also problematic as there were quite a bit of change resistance after SE has tightened its sustainability policies. Following subchapters will describe SE's methods that are used to advance sustainability related goals and to manage supplier relations across the globe.

4.4.1. Supplier Code of Conduct (SCoC)

In May 2014 Stora Enso was focused on implementation of new Supplier Code of Conduct (SCoC) that was developed and launched in the same year. It is a legally binding document that sets minimum requirements for supplier to be fulfilled now and in the future and fosters closer cooperation in sustainability related matters. SCoC is a natural continuum of sustainable sourcing initiative that began in 2011 and a big step forward in SE's work to make its supply base more sustainable. SCoC is thorough document that covers most of the problematic aspects related to human rights, working conditions, health, safety and environmental impacts. Full document is found in Appendix 2.

SCoC was developed not only as statement that would communicate SE's strict approach to sustainability and substantial effort to clean up supply base to stakeholders. It is an integral and compulsory part of contracts that are signed with suppliers and applied across all five divisions regardless of geographical location. It also functions as one of the key performance indicators in progress measurement of responsible sourcing.

In comparison to previous sustainability requirements new SCoC has a greater emphasis on safety and health of employees as well as on fulfillment of human and labour rights. It introduces requirement for management systems that are supposed to systematically improve arising issues in suppliers' operations. As an addition, requirements concerning environment and responsible business practices were reevaluated and tightened. (Global Responsibility Performance 2014, p. 30.) SCoC is handed out to suppliers with special guide that explains exactly what individual requirements of SCoC demand from them.

SCoC serves as main guide line for sourcing across all continents and SE is working hard in order to take 90 % of suppliers under SCoC coverage by the end of 2016. This is an active objective that is pursued but percentage will be raised after current one is achieved. The main challenge here is to make sure that current partners are capable

and willing to comply with SCoC while contracts with new suppliers are no longer possible without full commitment.

4.4.2. Training for procurement personnel

Training is the second method to ensure sustainable sourcing and is implemented across the whole Group. It is highly prioritized in order to make sure that every single purchaser is aware of Sustainability and Global Responsibility related issues and is capable of making right purchasing decisions. During 2014 a total of 169 employees working in procurement received comprehensive training in this field. (Global Responsibility Performance 2014, p. 31.) The main objective was to eliminate any lack in sustainability related knowledge which might result in decisions that contradict corporate sustainability framework.

4.4.3. Cooperative work with suppliers

Introduction of SCoC has presented a minimum of legally binding requirements for suppliers that have to be fulfilled unquestionably. However, this does not mean that SE is not willing to assist suppliers in improving some issues. Cooperation with supplier entails frequent onsite meetings and visits, audits including third parties and information sharing. This is done in order to make sure that human and labour rights are observed, health and safety standards are fulfilled and environmental performance is maintained. In essence, it is about ensuring that work is conducted in accordance with responsible business practices on a daily basis.

In practice, responsible sourcing is run by purchasers that are in frequent contact with suppliers. Meetings to discuss current work and future directions are arranged often particularly after introduction of SCoC. Purchasers have to negotiate new agreements or update current ones to make sure that SCoC is integral part all future contracts. Purchasers are also obliged to visit supplier’s production facilities to get firs-hand impressions of suppliers’ work and to witness agreed practices.

SE has arranged a meeting in Helsinki for top suppliers' right after SCoC was launched. During this event a total of 98 identified key suppliers were provided with a detailed explanations regarding SCoC and its importance for their relations with SE. (Global Responsibility Performance 2014, p. 31.)

4.4.4. Supplier auditing

Alongside onsite meetings supplier monitoring and evaluation is also done electronically and with the help of third party auditors. In 2014 SE has adopted an automated system which is monitoring and tracking down suppliers who may have been black listed in any relevant context. E.g. supplier who have encountered some sort of economic or financial sanctions, trade restrictions or any limitations imposed by international organizations. This system is designed to provide additional assurance for purchasers who are responsible for checking the legitimacy and authenticity of suppliers' operations.

One of the long-term goals of SE is to commission third party audits for the majority of direct suppliers. Audits are done by recognized external service providers and are meant to make sure that practices of wood providers and other suppliers are fulfilling requirements of SCoC. Purchasers of SE are also trained by external auditing companies.

Suppliers are picked for auditing after pre-evaluation that determines suppliers' receptivity for social and environmental risks, the structure and characteristics of supply chain and SE's purchasing power. This pre-evaluation is used as a tool to map potential risks before assigning third party audits for supplies.

In 2014 a total of 61 audits were conducted in Asia among supplies who provide chemicals, waste management services, corrugated board, pallets and other materials. 56 of them were done in China and 5 in India. These audits registered non-compliance particularly in occupational health and safety conditions. Many violations were also related to working hours and compensation, safety procedures and environmental performance. Many of the audited suppliers, located particularly in growth markets, did

not have an adequate management systems to resolve mentioned problems. However despite numerous violations, none of the suppliers were involved in child or bonded labour.

All 61 audits were continued with discussions and resulted in corrective measures. Strict timetables were established for necessary improvements and the fulfillment of which was monitored by local purchasers. Additional agreements were made in case suppliers are found to be in need of practical support from SE. Stora Esno does not want to terminate contracts immediately if supplier is not meeting the requirements of SCoC but will firs provide assistance and guidance in matters that need improvement and will wait for prompt corrective actions. Regardless of this supporting approach seven supplier relationships had to be terminated in 2014 due to their unwillingness to commit to the code. (Global Responsibility Performance 2014, p. 31.)

Most of the pulp used by SE is internally produced but in some Asian locations with problematic logistics and partial quality issues SE is acquiring pulp from external suppliers. It is important to know the origin of fibre used in pulp and to make sure that it's properly documented. This is why all pulp suppliers are cowered by SE's traceability system and third-party-verified certificates are minimum requirement for all acquired pulp. In addition, all sourced pulp is compliant with the EU Timber Regulation which makes sure that none of the illegally harvested timber enters European market. A lot of effort has been made with suppliers since 2014 to secure high business standards, to further advance sustainability related work and to increase cooperation in all areas. SCoC was at the center of this process and was accepted by all external pulp providers. (Global Responsibility Performance 2014, p. 32.)

4.4.5. Sustainable forest management and procurement

As previously discussed SE is active promoter and practitioner of economically, socially and environmentally sustainable forest and tree plantation management. Most of the wood is purchased from private and state owned forests located in Sweden, Finland, Baltic countries, Central Europe and Russia. Each region has own wood supply unit

which is responsible for wood sourcing for mills located in their respective areas. Stora Enso has large plantations in Brazil, Uruguay and China which are operating under the mills that they are assigned to provide wood for.

In 2014 SE has increased its shareholdings from 43% to 49% in one of the largest forest owners in Sweden, Bergvik Skog. This transaction has strengthened the relationship between companies and highlighted the importance of secured access to wood near mills is Sweden. Stable access to wood supply is essential of SE's business but none of the wood can come from unsustainable and none verified sources. Following figure illustrates division of procured wood by region.

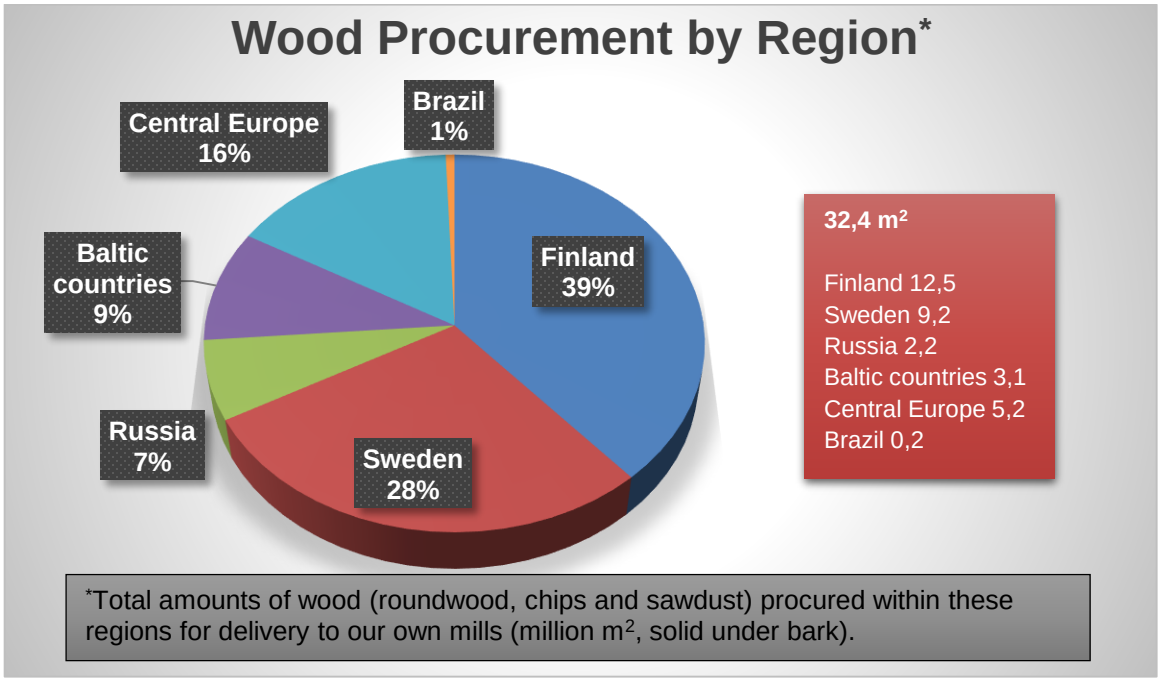

Figure 14. Wood procurement by region (Global Responsibility Performance, 2014)

All round wood, chips, sawdust and externally sourced pulp must come from sustainable and certified sources. In addition, the origin of all procured wood must be traceable in order to make sure that all trees has been harvested according to national

and EU law, other relevant regulation as well as SE's own sourcing policy. (Global Responsibility Performance 2014, p. 35.)

4.5. Differences and characteristics of regional sourcing

According to the interviewees there are colossal differences in sourcing conditions and applied practices between countries due to a variety of region specific factors. Some of the differences are related to legislation, political and economic situation, technological advancement and culture while others to procurement object. Chemicals, wood, machinery and services have their own procurement challenges that have to be dealt with. Regardless of regional and national differences SE is using its Supplier Code of Conduct and forest certification schemes as main tools for insuring positive change in suppliers operations and securing fulfillment of minimum requirements set by corporate sustainability and responsibility policy. Following subchapters will describe sourcing characteristics in different regions and associated problems in greater detail.

4.5.1. Sourcing conditions in Finland and Sweden

In Finland and Sweden sustainability performance of logging and harvesting is often monitored with the help of local institutes. Forest Development Centre Tapio is an independent third party company that is conducting sustainability evaluations of forest management in Finland. (Global Responsibility Performance 2014, p. 36.)

Stora Enso is offering opportunities to Swedish and Finnish forest owners to certify their land under two certification schemes. Now over half of Sweden's forests are under Programme for the Endorsement of Forestry Certification (PEFC) and third-party-verified Forest Stewardship Council's (FSC) chain of custody scheme.

In Sweden supplier monitoring involves comprehensive self-assessment sessions that determine how environmentally sound are scheduled felling operations and if there is a need for corrective measures. Special monitoring programme is performed annually in order to make sure that all environmental concerns are addressed and eliminated

before final felling. Monitoring is performed yearly in around 100 felling sites and if stakeholders have any concerns, questions or complaints regarding upcoming forest operations they may express them to local wood supply units of SE. (Global Responsibility Performance 2014, p. 36.)

In general, there are no major problems with forest certification or suppliers compliance with SCoC in Finland or Sweden. Issues like child labor and employee abuse are missing, environmental regulation is in place and governmental control is adequate. However, interviewees explained that some of the biggest companies in Europe that supply to SE are not so eager to sign SCoC and sometimes refuse it directly. They consider that committing to the code would place them in a disadvantageous position if SE would detect some violations since failing to fulfill SCoC agreement allows SE to cancel made orders and to terminate ongoing contracts. And no supplier of high influence or size is eager give this type of leverage to SE even if their sustainability performance is excellent or even stricter that SE's. On the other hand small and medium-sized suppliers are submitting under the code without problems because they are in such position that does not allow refusal. Business with SE is simply too important to them to cause resistance especially when SCoC is compulsory for every supplier. In this sense power positions, dependency level, purchasing volumes, company size and the nature of the relationship are matters that affect suppliers' attitude toward introduced sustainability requirements.

Europe is also regarded as mature market from the perspective of sustainability and responsibility adoption to business. Here environmental awareness is on a good level and consumers demand and choose more environmentally friendly solutions that are produced with social considerations. Sustainability is a trend that is gradually becoming a standard for any business ranging from mining companies to catering services. Sustainability is a must if company wants to stay competitive in tightening competition. This means that sustainability requirements are nothing special and suppliers are giving in easier to requirements.

4.5.2. Sourcing conditions in Russia

Just in Russian area SE has supplier base of 600-700 suppliers, including all possible services, but not many of them are considered as key suppliers. Most of them are working in wood provisioning sector and have committed to SCoC. SE classifies Russian suppliers mostly based on costs, reliability and performance fluency. Alongside these criteria suppliers are categorized according to the provided product or service. Wood provisioning, documentation or legal services and logistics are different offers in which SE is valuing different supplier characteristics. For example in wood sourcing the most important supplier characteristic is stable supply, in legal services it can be speed or price and in logistics reliability and lead-times are the most important.

Like in any other continent or region Supplier Code of Conduct functions as the main guidance for supplier relationship management it Russia. It is the central regulating document to which all supplier must commit. After introduction of SCoC sourcing specialists were concerned whether it would be fulfilled as Russian regulation and operating standards are not so strict in comparison to newly presented code. There was quite a bit of resistance from some suppliers in a form of expressed concerns related to practical realization of criteria and sometimes open criticism. Additional challenges arouse when SE has adopted wood traceability system that enables greater monitoring of wood supply and makes sure that all incoming volumes are registered and certified in government portal. At the beginning this system was seen as an obstacle that slowed down the process and required additional input from suppliers.

A lot of resultative work has been made in forest certification with WWF Russia and local logging companies. SE has continued expansion of own Forest Stewardship Council (FSC) certification scheme across logging companies who wish to certify their wood. Three established FSC groups are making forest certification more accessible and cost-effective for small and medium-sized forest companies as well as helping with documentation and organization of contracted audits. Increasing demand from supplier's' clients and other stakeholders for product that meet high sustainability standards has been also registered (Global Responsibility Performance 2014, p. 38.)

At the moment there are a lot of room for improvement with SCoC application in Russia. The amount of compliance issues and investments that suppliers may have to spend to resolve issues are not yet know because audits have not been completed. However, one third of wood suppliers are audited annually and implementation of SCoC training organized by SE is in progress. After suppliers are trained and committed to the code their performance is assessed and verified by audits.

There are cases in which some suppliers are unwilling to adopt or unable to respond to the criteria set by SCoC but these situations do not make anyone nervous as in today's Russian market there is always possibility to purchase elsewhere. In this sense SE does not have to push suppliers to adjust their operations because dependency on certain suppliers is not significant. In addition, Stora Eso is in good negotiating position when it comes to wood purchasing due to the purchasing volumes and options to conduct business with other suppliers.

Regardless of challenges in Russian market SE has also registered an exceedingly positive tendencies. The transition speed towards better sustainability can be categorized as moderate but as Russian authorities are putting more effort to make industries more sustainable introduced requirements are becoming compulsory within suppliers' own operating environment. Keeping in mind all positive tendencies and development, bad predictability in business environment remains to be the main challenge in Russian market at the moment. Same applies to suddenly changing legislation and stiff performance of governmental officials. Russian market is attractive because of the good cost levels but according to the interviewees companies must also act really carefully there. Awareness of environmental and social issues in Russian market is growing but is still far from not European levels. Attitude towards sustainability could also be much better.

4.5.3. Sourcing conditions in South America

SE has been endorsing forest certification in Latin America as in Europe and Russia. Some of the recent developments include better certification opportunities for small wood providers in Brazil. With certification schemes SE is aiming for streamlined plantation management, improved working conditions and establishment of protected conservation areas. Additional effort has been made by Montes del Plata which is a joint venture of SE in Uruguay. The company began to develop a new FSC certification programme that is supposed to promote certification among third party wood suppliers and forest growers. (Global Responsibility Performance 2014, p. 38.)

SE has approximately 300 of local suppliers in Brazil, including material and service providers, from which 5% are considered as key suppliers. They are classified based on cost, reliability and strategic importance since some of the suppliers have much greater contribution to SE's competitiveness. For example, few partners have shown special commitment to the relationship with SE by attending and responding to extraordinary situations that may have threatened the business. Such suppliers are valued highly as they know the way SE operates and provide sufficient support. Additional emphasis or preference is given to supplier that are located in close proximity from SE's production facilities and can also contribute to the overall development of the region.

In general, it is more challenging to acquire services than materials mainly because companies are not fully documented and certified as required by the guidelines of SE. However, some companies have made investments in order to attend needs of SE while others have decided to exit the relationship. One chemical supplier in particular has developed products that anyone else is unable to provide and thus gained high importance status. As result of close cooperation SE has also achieved cost savings through development of new product with one supplier. In this sense, SE is ready and willing to share know-how that will contribute to the relationship and generate mutual benefits.

When it comes to responsible business in Latin America the main concerns are child labor and compliance with Supplier Code of Conduct. The most challenging situation that SE had to face in this region is when suppliers have their own code of conduct or similar guidelines. It takes more time and effort to resolve such situations and to find mutually acceptable agreement. Introduction of SCoC did not bring any significant problems or changes in supplier's work because even before SCoC they had to fulfill a list of similar requirements. Some things must be changed now but transition has been rather smooth. Alongside SCoC, one major requirement for suppliers is certification under Programme for the Endorsement of Forestry Certification (PEFC) and third-party-verified Forest Stewardship Council's (FSC) chain of custody scheme. All wood is supplied externally and none of it can come from none certified sources. This objective has proven to be quite challenging at times according to the questionnaire respondents.

4.5.4. Sourcing conditions in Asia

In the past decade SE has managed to expand its operations to geographical locations with excellent business opportunities. Asia, particularly China, is seen as one of the most important areas for investments and growth. However, such growth areas are also presenting compliance problems majority of which are related to human right violations, child labour, poor working conditions and safety issues. In 2014 SE has conducted 56 third party audits for direct suppliers in order remedy these tendencies. (Global Responsibility Performance 2014, p. 38.)

There are around 300-350 suppliers working with SE and 10-20% of which are considered as key suppliers or partners. All of them are classified by product categories and assessed based on their reliability, supply stability, cost saving potential, service level and importance of the relationship. Like in any other location SE must emphasize SCoC and see if supplier has similar vision regarding future business. SCoC is used as main guideline in relationship development where close collaboration and suppliers' ability to keep their promise is highly valued. In case of supplier's inability to fulfill its promise or requirement SE has some backup solutions. Usually there are two-three

suppliers for same product that are securing stability of material flow with convenient logistics that help to avoid supply disruptions.

One of the most challenging products to acquire within sustainability guidelines is coal. Some supplier and their sub-suppliers may not follow the principles of sustainable sourcing which is why SE has to evaluate them yearly and to monitor them on a daily basis. One coal supplier underwent an audit that revealed inability to meet one particular requirement of SCoC and as a result this company was dropped from the list of qualified coal providers. First-tier suppliers are also actively encouraged to push their subcontractors to commit to sustainability principles.

After introduction of SCoC most of the resistance tended to come from bigger globalized companies with high influencing power. On the other hand, convincing local small and medium sized companies to sign the SCoC is easier. The amount of investments needed to improve some sustainability criteria is the main factor here. Suppliers will hesitate or even refuse the contract if price for necessary improvement is too high.

All suppliers in China understand the purpose of SCoC and see that it is designed for the good of the people and the future of their company but at the same time they are concerned about increase of costs which could reduce their competitiveness. They trying to improve some aspects of their business in order to accept SCoC but it is not always possible to achieve full commitment. In case of violations SE has to keep at least two or three suppliers for each product in order to secure that all materials are coming from acceptable sources. SE conducts follow ups after corrective actions of suppliers and provides additional advice and training when necessary. If supplier cannot match SE’s requirements of SCoC after several attempt the relation is terminated.

In general, sustainability in China is a problematic topic. The country’s economic development model is acknowledged wonder that is driven by heavy industrialization but which is also extremely polluting and end devastating to the environment. However, Chinese government does not think that pollution and emissions is something that has

to be dealt with right away. Economic growth will remain to be the main priority as long as there will be people that struggle with poverty. (The Guardian, 2012) In recent years country has made significant investments into sustainable technologies which means that sustainability is gaining importance but it will not be achieved at the expense of economic growth. This is something that companies have to remember when presenting strict sustainability requirements to suppliers that are not even pushed by government or stakeholders.

5. CONCLUSION

The purpose of this thesis was to describe and compare sourcing practices and challenges in different geographies, to discuss possible options to advance sustainability of global sourcing, and to provide examples to answer why sourcing driven by sustainability principles is so challenging to implement. The focus was on comparison between Europe & Asia & South-America from the perspective of sustainable sourcing. By analyzing sourcing practices of the case company it was possible to describe main differences and challenges of each continent, available sourcing options, forming supplier relationships and ways to cause positive chance. This chapter will present the outcome and conclusions of this work. It summarizes the main points of gathered academic researches, provides answers to proposed research questions, suggest future research and some recommendations for the case company.

5.1. Main points of collected academic literature on sustainable sourcing

Researchers are presenting similar guidelines regarding global sourcing and related challenges. They discuss that successful sourcing begins with qualified and skilled personnel that is responsible for negotiations and purhcaing decisions. The second requirement is acquisition of reliable and up to date information about the markets in which company already operates or plans to enter. Such information includes situation analysis of recent changes in environment, assessment of market developments and list of disposable suppliers with global performance capabilities. Accurate forecasts of worldwide demand in product categories, description of internal purchasing needs and customer expectations are also needed for successful market entry. Suppliers with global capabilities are the ones that are able to competitively respond to buyers' expectations in terms of service or product design, quality, cost, lead time and delivery. According to literature mentioned sourcing attributes are usually achieved by training programs that are designed to improve capabilities and knowledge of purchasing personnel. Or in other words, employees must be qualified and have adequate skills to pursue company objectives. This is also one of the methods SE is using to enforce

sustainable sourcing. As previously discussed a total of 169 procurement employees received comprehensive training in sustainability and global responsibility matters in order to eliminate any lack of knowledge which might result in decisions that contradict corporate sustainability framework. However, training is something that needs to be done periodically because of the changing nature of the environment and emerging challenges. For example, in Russia changes in law and other regulation are often sudden and may have considerable impact on established business procedures. Because of this company must ensure that purchasing people are aware of market developments and trends that may impact achievement of sourcing objectives.

Training and development of skills is fundamental measure to advance stainability of sourcing but the process of selecting and evaluating suppliers' performance are considered to be more important and complex. Suppliers' site visits is crucial method to evaluate different aspects of their performance but it becomes increasingly difficult and complicated if buyer has to assess more than several sites in a worldwide supply chains. Suppliers' global capacity, financial condition, process capability, supply chain management practices, logistical networks, willingness to cooperate with buyers' terms and technological advancement are matters that are assessed by visiting teams but there is more to that. Sustainability is presenting additional set of environmental and social criteria that is reportedly difficult to implement and monitor.

Regardless of evaluation object, auditing process should have predefined criteria and benchmarks that are in accordance with suppliers' capabilities and surrounding market conditions. In other words, requirements should be reasonable and enough time should be given to suppliers if they are willing to improve their sustainability. However, companies cannot practice criteria adjustment for individual supplies because all terms are predefined and written in corporate policy. Problems occur when stainability standard cannot be fulfilled in some markets and some relationships must be terminated.

According to the studies the most important factor for companies in sourcing from developing regions is cost. Right after cost comes political stability, cultural and

physical proximity, reliability and opportunity for long term business. Benefiting from lower cost levels in developing countries is the main reason for entering global markets and there is nothing wrong with that. However, setting low cost as the main sourcing criteria is sometimes not a good choice. Researchers imply that companies may inherit serious problems while going after lowest possible price in developing countries. Poor quality, lack of experience, various human right and environmental violations are the main issues that buyer may have to deal with and which are quite damaging to reputation if exposed to public. Therefore, it is very important to source from the right suppliers in order to obtain stable and cost effective supply chains that do not compromise sustainability principles. There are five main criteria according to which suppliers' environmental performance can be monitored: environmental collaboration, environmental competency, environmental management system, pollution control and carbon footprint of products. SE is categorizing suppliers based on the importance of the relationship, cooperation level, reliability and suppliers' ability to deliver their promise. Of course cost considerations are not in the last place but process and offer quality come before the price.

When it comes to social sustainability researches are mostly concerned about child labour, human right violations and assurance of ethical conduct between buyer and supplier. Additional concerns are related to environmental damage caused by business and lack of competences to mitigate negative effects. According to studies buyer and seller must have collaborative approach to business if they intend to improve social and environmental conditions and find mutually acceptable agreement. They also point out that essential part of collaborative work is information sharing, transparency and supplier's willingness to allow buyer to conduct on site auditing visits. Supplier control must be realized in order to ensure that none of the unacceptable practices are applied and everything is procured form legal sources.

5.2. Research findings

Both, analysis of the sourcing of the case company and researches implied that the main challenge in global sourcing from the perspective suitability is ensuring that all procured material comes from suppliers that are not involved in any illegal, forbidden, unethical or otherwise questionable practices. The second issues is control and monitoring possibilities that can be quite limited if supply network is wide and the amount of disposable suppliers is great. In general, compliance failures are a persistent challenge in Chinese and South-American market and are particularly related to child labour and human right violations. Companies must work constantly to keep such activities far off but despite all effort to control suppliers and their sub-contractors it is simply impossible to ensure that every stage and process of global supply chain is done according to the required stainability criteria and sufficient ethics. Considerable amount of resources and time are also required to conduct frequent investigations and monitoring of supply chains that are prone to violations.

Another issue is suppliers' inability or unwillingness to fulfill international stainability standards and sustainability requirements presented by buying company. All suppliers understand the purpose of sustainability requirements presented by buyer and see that it is designed for the good of the people and the future of their company but at the same time they are concerned about increase of costs that reduces their competitiveness. Suppliers may try to improve some aspects of their business in order be more sustainable but it is not always possible to commit fully to buyers criteria. This in turn might be harmful to the reputation of buyer. Inability and or unwillingness to commit is partially understandable because required sustainability standards may already be high for Eastern Europe and Russia. Not to mention Asia and South America where significantly lower production and operating costs can be achieved in conditions that for example Stora Enso's SCoC is designed to improve. Regardless of different market settings, business conditions and attitude towards sustainable ways unethical behavior cannot be accepted. In case of Stora Enso another reasons why suppliers are not willing to commit to Supplier Code of Conduct is because it gives the right to Stora Enso to cancel made orders and to terminate the contract if some unacceptable practices

are detected. If suppliers are committed to SCoC it also means that they give permission to comprehensive auditing. Based on this example, any global company might face resistance if they demand commitment to their own code of conduct which suppliers are not ready to fulfill. On the other hand, comprehensive and frequent auditing as well as strict supplier control is exactly what researchers are recommending to advance sustainable sourcing.

Limited pressure to cause change in suppliers' behavior is also a challenge because other clients and stakeholders of suppliers may not require as much as one particular buyer and therefore everything will remain as it was. The importance of buyer to supplier, power balance in the relationship and dependency level are the main factors here. Buyer must have enough influence over supplier in order to be able to push own requirements. In cases where SE has stronger position or is the biggest customer, suppliers' may have no choice but to submit if they want to maintain relationship but in the opposite situation considerable effort is needed to find mutually acceptable solution.

Pushing suppliers to fulfill sustainability criteria may also raise questions about what is reasonable and appropriate to demand and how realistic are such requirements in different places. For example, how should sustainability oriented buyer react if reliable or important supplier is refusing to sign sustainability agreement because it has to pay bribes in a corrupted environment in order to deliver its promise? Or how should buyer act when supplier explains that paying bribes is a necessity from the perspective of process efficiency and that any other company in operating environment is forced to do the same even if they don't want to? One of the interviewees provided this illustration referring to one harbor located on the shore of distant sea. Operators of this harbor require additional payment from service users if they want their loads to be shipped more effectively. This example shows that there are corrupted places around the globe where bribery and other illegalities are uncontrolled and there may not be other ways to get things done. Illegal activities are sort of established practices in such places that every company in some particular market has to deal with. Therefore, company driven by ethical code may face serious barriers or have problems when it refuses to play by the rules in environment in which sustainability, responsibility and ethics may be only

spoken or completely secondary matters. But at the same time this is nothing new because dealing and coping with corruption of local governments and environments is one part of total acquisition costs (TAC) of sourcing from developing countries (Song et al., 2007).

Fulfillment of responsible choices is always more difficult than following established ways and thus requires extra effort and sacrifices. Ensuring that none of the suppliers or their subcontractors are not involved in such practices can be extremely challenging but at the same time it must be done regardless of difficulties. In addition, companies cannot just passively deny illegal activities but have put a considerable amount of work to make sure that their business is not touched by violations. In this sense comprehensive monitoring of supply base is essential.

When it comes to comparison between Europe & Asia & South America from the perspective of implementation of sustainable sourcing there are few thing to consider. According to the interviews there are colossal differences in sourcing conditions and applied practices between countries due to a variety of region specific factors. Some are related to procured object and others to local legislation, political stability, state of the economy and market trends. For example, resolving child labour and human right violations are more challenging in Asian and South American business environments due to the frequency of incidents and needed effort to get rid of such practices. At times safety and environmental performance is also leaving companies wishing for the better. On the other hand environmental performance of East Europe has also lots of room for improvement. Another interesting issue is related to realization of agreements. Suppliers in China tend to be willing to sign any requirements as long as business prospect is good and profit potential is sufficient but the fulfillment of made promises may not be guaranteed. Therefore, any international company has to be prepared to conduct frequent supplier audits and to face violations. More importantly, companies have to develop proper tools to manage violations and develop suppliers' performance. Pointing out suppliers' faults and reminding of them is not enough. Buyer has to be ready to spent time and resources to develop the relationship especially if there are only limited amount of suppliers that can satisfy some particular need.

Interviewed sourcing specialist implied that control and fulfillment of SCoC is one of the biggest challenges in China and Brazil which is why significant effort is put to monitor suppliers through audits. Some suppliers have to be audited annually to ensure agreed sustainability performance. Asia tends to be the most difficult region to control and to ensure compliance. Adoption of SCoC is also slower there because suppliers are concerned about increase of costs that would reduce their competitiveness. Latin America has similar problems but additional challenge is illegal forest harvesting and tracing the origin of the wood. On the positive side or form another perspective, developing markets are the ones that have the biggest growth potential with their dynamic economy, growing demand for sustainable products and competitive cost levels.

Based on previously said it would seem that Europe is the least troubled continent but, surprisingly, it has also a fair amount of problems related to SCoC commitment. Despite the fact that many companies have almost identical approach to sustainability they will not sigh any sustainability agreements or documents that are considered as disadvantageous. Some of the biggest and influential companies may simply refuse the terms without further discussion. In such cases relationship is functioning based on power position instead of close collaboration. It is about power balance and “who can demand” and “who can refuse” what. For Stora Enso such refusals mean lengthy negotiation processes because commitment to SCoC is compulsory attachment to all existing and future contracts with suppliers. But only if there is no other place where to buy. Having said that, conducting sustainable sourcing in Europe is easier but forcing supplier to commit to sustainability requirements (SCoC) is more difficult.

Finally, there are some measures that can be applied in order to improve sustainability of sourcing in each region. It all begins from setting corporate sustainability policies and objectives that will determine future actions to achieve them. Stora Enso provided excellent examples of effective tools to improve sustainability of sourcing. Supplier code of conduct is a good way of communicating about what exactly the company wants and forbids form suppliers in order to continue business. After sustainability issues and requirements are clarified, written down and communicated to stakeholders

improvement work may begin. Commitment to Supplier Code of Conduct and forest certification schemes are good tools for fostering positive change in suppliers' operations but they do not guarantee ethical behavior or fulfilment of signed documents as discussed earlier. Based on the analysis considerable amount of resources and time are needed to negotiate and develop mutually satisfying agreements end to ensure their fulfillment. Regardless of continent, supplier analysis and auditing in all stages of the relationship is essential tool to advance sustainability. Suppliers have to be evaluated carefully in terms of performance capabilities, prior reputation and potential risks that buyer may face after engaging and during relationship.

All in all, sourcing is proved to be one of the challenging aspects of business, especially for sustainability oriented companies. Every continent has its own social, economic, political, legal, technological and ecological establishment that may not correspond to other markets and because of this, universal application of sustainability requirements like supplier code of conduct is difficult. Markets and operating suppliers may also not be ready to adopt or implement sustainability trends if there is no need or demand for it. Some companies may also refuse terms if they consider that sustainability demands are set too high, if they cannot afford commitment and if there are no significant benefits to gain from them. Forcing code of conduct upon suppliers is not always possible or reasonable but necessary if company wants to remain true to its cause and maintain its reputation. This is particularly important for Stora Enso which has "Lead" and "Do What's Right" as corporate values.

5.3. Future research

The conclusions of this work were made based on the analysis of sourcing practices of one of the leading providers of packaging solutions, biomaterials, wood and paper in global market. This qualitative case study provided in-depth description of sourcing challenges from the perspective of sustainability and practical examples to makes supply base more sustainable. By analyzing sourcing practices of the case company it was possible to describe main differences and challenges of Europe & Asia & South-

America, available sourcing options, development of supplier relationships and ways to foster positive chance in global supply chain. Further research could build on this work by conducting a broader quantitative investigation. Qualitative questionnaire could be constructed based on the result of this work and sent out to companies working in different industries. Similar criteria could also be used in company selection. All of participating companies would have to have solid presence in all continents that were compared in this work and similar approach to sourcing as Stora Enso. The purpose of quantitative research would be to see if other industries are facing similar sourcing challenges and whether described sustainability issues of sourcing are still actual. Maybe, by the time this follow-up research is done markets have evolved into more sustainable ones and presented completely different problems. In such case, it would be interesting to see what kind of new problems could possible arise if current ones are greatly improved.

5.4. Recommendations for future directions

Stora Enso has a very positive image in all operating locations because of solid financial performance and commitment to sustainable and responsible business practices. Such approach to business does not come as standard in some regions which also highlights the attractiveness of SE.

Regardless of suppliers' change resistance Stora Enso is obliged to push them to improve their operations if it wants to complete its transformation from traditional paper and board manufacturer into renewable packaging company and if it wants to remain true to its commitment to responsible and sustainable business. Even if it may not be reasonable to push suppliers to adopt certain practices at some points of supply chain, SE cannot afford to compromise strict guide lines of SCoC and lose its face. It is simply not possible especially when SE is highlighting its good cause to do good for the people and for the planet. Setting sourcing criteria may limit some economically beneficial sourcing options but in the long run double standards may lead to devastating outcome for a notable company. In other words stakes are too high to play around with declared

intentions and business principles. At the same time company's dependency level on suppliers is rather moderate and there is always alternative supply choices in case of compliance issues or suppliers' failure to meet expectations.

SE should definitely maintain its strict stainability guidelines of SCoC and pursue defined sustainability objectives. Adopted systematic and robust enforcement of sustainable sourcing through certification and audits is supported by a variety of tools that help to assess suppliers' qualifications and advance stainability. This is an excellent foundation for further development. In addition, all compulsory requirements for suppliers have contributed to the competitive position of Stora Enso because global economy needs and customers are looking for partners that are concerned about the state of the planet and the way business is done on it. SCoC and certification are communicating that SE's is active practitioner of sustainable business, that it is interested in doing business only with suppliers that share the same sustainability concerns and that is willing to help those suppliers who wish to work on the same level. Because of this strive to cause positive change Stora Enso is seen as a very attractive, reliable and trustworthy provider and partner. Application of sustainable sourcing does not result in immediate revenues but is a long-term investment that results in benefits for all involved parties.

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Appendix 1. Questionnaire

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Measuring and managing sustainability of sourcing in forest industry
Lappeenranta University of Technology

Thesis purpose:

Studying of the best practices to measure and evaluate the sustainability of sourcing.

Effective and sustainable sourcing management, potential leveraging possibilities within company's' operating networks/relationships and the overall value of sustainable sourcing.

Evaluation of current sourcing options, supplier/partner relationship assessment/audits and ways to influence in global supply chain.

Main challenges in global sourcing and effective ways to make sourcing more sustainable.

Instructions:

Please answer each set of sourcing related questions that are presented with short introduction. Questions can be answered regardless of the region that you are responsible for. Comparing sourcing of different regions is one of the targets of this questionnaire. **You may answer in English or Finnish**.

Questions:

StoraEnso (SE) supply networks encompass various suppliers from small-scale local service providers to large multinational companies.

- Approximately how many suppliers are currently working with SE and how many of them are considered to be key suppliers or partners? Please list on a regional level (e.g. Russia, China, Latin America) if you are responsible for one area.

- What other supplier classifications/segmentation are used besides size? E.g. reliability, low costs, flexibility etc.

- What kind of things SE emphasizes in supplier relations and what supplier qualifications/characteristics are the most valuable?

SE sources a wide range of raw materials, products and services for local and global business. These raw materials and products include principal fibre sources – wood, pulp and paper for recycling – as well as other materials and services such as chemicals, fillers, energy, fuels, spare parts, and maintenance, logistics and IT services.

- Is there any particular material/product/service that is more challenging to acquire while following guidelines of responsible sourcing?

- What are the main sourcing / purchasing policy, principles, rules and guidelines?

- How many sourcing options are available in case some of the key suppliers are unable to deliver? Is there options and room to maneuver in the field of sourcing?

- What kind of measures are taken in order to secure availability of needed resources?

For StoraEnso responsible sourcing means showing true commitment to global responsibility, addressing the concerns of our key stakeholders, complying with regulatory frameworks, adhering to best practices, and managing supply risks.

- What are the main concerns of SE's stakeholders that have been addressed and has there been pressure to change some of the sourcing practices over the years?

- What kind of recognition or credit SE has gotten for its sustainability oriented sourcing?
-

During 2014 the main focus in SE's approach to responsible sourcing was on implementation of new Supplier Code of Conduct (SCoC) which is a legally binding document that defines minimum requirements for suppliers. Alongside these minimum requirements this approach also involves close cooperation with individual suppliers. SCoC is a thorough document that covers most of the problematic aspects related to

human rights, labour conditions, health and safety issues and environmental impacts. It may have forced some suppliers to make serious adjustments to their business and provide monitoring tools for SE.

- What kind of challenges were encountered after introduction of this new Supplier Code of Conduct? Were there any resistance or compliance failures?

- How did suppliers react to SCoC which may have forced them to make some drastic changes or investments in order to respond to SCoC?

- How would you evaluate or describe SE's influencing power over its suppliers or position in supplier relations?

Stora Enso's tools to ensure sustainable sourcing include: special training for purchasers, close cooperation with suppliers, supplier audits (including third party audits). Supplier assessment and audits are enforced by follow up discussions with corrective action plans, schedules for improvements and agreements on any practical support for supplier.

- Please provide examples of close cooperation with suppliers?

- What kind of support SE is offering to suppliers in order to make their operations more sustainable? Consultancy, investments, know-how sharing etc.

Stora Enso has wood supply units in Finland, Sweden, the Baltic Countries, Russia, Central Europe, Brazil and China. Each assigned for the sourcing of wood for StoraEnso mills in their respective regions.

- How sourcing differs in Europe, Russia, Latin America and China? Please describe region that you are responsible for.

- What kind of differences are present in purchasing criteria for mentioned continents or suppliers? E.g. environmental regulation stricter in Europe than in Latin America.

- Main aspects (political, economic, social, technological, ecological, legal) to consider when doing business in these regions?

- Main challenges and benefits of each region for SE?

SE's key performance indicator for responsible sourcing measures the supplier spend covered by the Supplier Code of Conduct. The target scope covers total annual supplier spending, including wood supply. By the end of Q3 2015, 87% of the Group's spending on materials and services was covered by the new Supplier Code of Conduct. Current goal is 90% supplier coverage by the end of 2016.

- What kind of benefits has been achieved by practicing sustainable sourcing? What is the overall value and return on the effort to make sourcing more sustainable?

- What would be the next step after 90% is achieved?

Different continental regions and countries have different legislation, environmental regulation policies and conditions, attitude towards sustainability, awareness etc.

- How far SE is ready to push or to help suppliers to improve their performance in order to achieve sustainability related benefits?

- Is there a threshold beyond which suppliers are not capable to fulfill SE's sustainability demands and are forced to exit the relationship?

Please provide any additional information related to this topic below or comment freely.

Thank you for your time and answers!

Appendix 2. Supplier Code of Conduct

STORA ENSO SUPPLIER CODE OF CONDUCT MA Y 2014

Introduction

This Supplier Code of Conduct (CoC) outlines the minimum standards Stora Enso requires its Suppliers (as defined below) to comply with when doing business with Stora Enso in addition to observing all laws and regulations governing their activities. Further guidance on how to interpret and implement this CoC is given in the Practical Guide for Stora Enso Suppliers.This CoC forms an integral part of all contracts between the Supplier and Stora Enso.

1. Definitions

A “Supplier” is any person or legal entity which provides Stora Enso with products or services. In addition to Suppliers who have a direct contractual relationship with Stora Enso, this definition also includes the Suppliers’ sub-suppliers. “Stora Enso Representatives” include the company’s employees and legal representatives.

2. Management systems

The Supplier shall have appropriate management systems in place to enable adherence to this CoC or its own equivalent code of conduct, whichever is stricter, as well as all other relevant and applicable laws and regulations. The functioning and quality of the management system shall be in proportion to the size, complexity and risk environment of the Supplier’s business. This means that, at a minimum:

2.1 the Supplier shall adopt a systematic approach to the assessment, mitigation and management of risks related to human and labour rights, occupational health and

safety, responsible business and environmental impact (hereafter referred to as “Code of Conduct Issues”),

2.2 the Supplier shall adopt measurable performance targets in relation to Code of Conduct Issues and define related actions to reach these targets with a view to ensure continuous performance improvement,

2.3 all applicable laws, regulations and contractual terms governing the Supplier’s assignments shall be duly applied and communicated, with sufficient training provided to relevant employees and business partners,

2.4 the Supplier shall have systems in place to enable the reporting of Code of Conduct Issues-related grievances (e.g. a whistle-blowing system),

2.5 the Supplier shall duly ensure and monitor that its own suppliers and sub-suppliers comply with this CoC or their own equivalent code of conduct. The Supplier is liable for the performance of its sub-suppliers as for its own work.

3. Human and labour rights

3.1 Human rights

The Supplier is required:

3.1.1 to respect human rights and not be complicit in human rights violations within its sphere of influence,

3.1.2 to duly map its human rights impacts whenever the need for such action is agreed,

3.1.3 to have in place adequate remedial mechanisms in case of any human rights violations.

3.2 Basic workers’ rights

The Supplier is required:

3.2.1 not to employ any workers below 15 years (14 years in certain developing countries) or the minimum age according to national legislation, whichever is higher (in line with the ILO Convention 138 on child labour),

3.2.2 to ensure that employing young people above minimum age but under 18 years does not jeopardise their education, health, safety or morals,

3.2.3 to fully recognise employees' right to organise,belong to a union and bargain collectively,

3.2.4 not to use any forms of involuntary labour,

3.2.5 not to discriminate against any employee,

3.2.6 to treat all employees fairly and respectfully.

3.3 Wages and working hours

The Supplier is required:

3.3.1 to pay employees at least the minimum wage and applicable overtime wages defined by national laws or any applicable collective agreements,

3.3.2 to apply normal working hours that comply with applicable law and collective agreements and where no such laws or collective agreements exist working hours will not exceed 48 hours per working week on a regular basis,

3.3.3 to provide all employees with at least one rest day in seven consecutive working days unless regulated otherwise by applicable laws.

4. Occupational health and safety (OHS)

The Supplier is required:

4.1 to fulfil all applicable legal OHS requirements,

4.2 to have a written OHS policy of its own, to demonstrate commitment to OHS, and to assign responsibility for OHS within its organisation,

4.3 to ensure that operational controls such as rules and procedures are in place and communicated to all employees,

4.4 to have emergency preparedness and response procedures in place,

4.5 to increase its employees' awareness of health and safety issues, to enhance safety culture through open communications, and to ensure that its staff have received appropriate OHS training.

4.6 to measure and monitor its OHS performance and OHS hazards with the help of properly conducted workplace inspections and audits,

4.7 to report and investigate all health and safety incidents.

5. Environmental impact

The Supplier is required:

5.1 to fulfil all environmental requirements defined in relevant laws, regulations and environmental permits,

5.2 to assign responsibility for environmental issues within its organisation,

5.3 to ensure that its employees have appropriate knowhow and experience in relation to environmental issues, as well as resources to enable them effectively to meet their responsibilities,

5.4 to ensure that written instructions covering all processes with potential environmental impacts, such as the storage and handling of hazardous materials, are available and that the relevant information is communicated to all employees involved,

5.5 to proactively work to prevent emergencies and ensure the capacity to react appropriately to such events, by analysing, identifying and adopting suitable preventive and corrective measures,

5.6 to handle environmental violations and complaints systematically and communicate them to employees and external stakeholders, including Stora Enso if affected,

5.7 to provide Stora Enso with up-to-date material safety data sheets (MSDS or SDS), as applicable, and any other relevant documents and information requested by Stora Enso.

6. Responsible business

The Supplier is required to conduct its business in full compliance with Stora Enso's Business Practice Policy or the Suppliers' own equivalent ethical rules, whichever are stricter. This means, among other things, that the Supplier is required:

6.1 to conduct business in full compliance with all applicable antitrust and fair competition laws,

6.2 to prevent situations where there is a conflicts of interest between the Supplier and Stora Enso,

6.3 to act in compliance with all applicable anti-corruption laws, by, among other things, refusing to receive or offer bribes, facilitation payments or anything of value for the purpose of obtaining or retaining business or any improper benefit or advantage,

6.4 to act in compliance with all rules and regulations related to the safety and quality requirements of products and services, including rules defined by Stora Enso,

6.5 to transparently and accurately record and disclose details of its business activities, corporate structure, financial situation and performance in accordance with applicable laws and regulations. When doing business with Stora Enso this means among other things that:

6.6 Stora Enso Representatives shall always pay for their own travel and accommodation costs when visiting the Supplier, conferences, reference plants e t c,

6.7 Stora Enso Representatives shall not be offered any gifts, hospitality or expenses that could be considered unreasonable or inappropriate with regard to possible business transactions.

7. General requirements

The Supplier is required:

7.1 to immediately report any non-compliance with this CoC to Stora Enso. The Supplier and any of its employees may report their concerns confidentially to:

Head of Internal Audit
Stora Enso AB
P.O. Box 70395
SE-107 24 Stockholm, Sweden.
See web page www.storaenso.com for more details.

7.2 to disclose information and data regarding issues covered by this CoC at the request of Stora Enso, unless this would conflict with its statutory obligations on disclosure of information.

7.3 to allow Stora Enso, or any third party authorised by Stora Enso and reasonably acceptable to the Supplier, to conduct in the presence of the Supplier an audit of the Supplier’s operations relevant for this CoC including but not limited to the Supplier’s facilities, and relevant extracts from books and records. At the Supplier’s request, the

parties involved in any such audit shall enter into a confidentiality agreement regarding the circumstances disclosed in the audit.

8. Enforcement

8.1 If Stora Enso finds that the Supplier is not meeting the requirements and expectations set out in this CoC, Stora Enso will offer guidance specifying which issues need to be corrected or improved. The Supplier must then take corrective actions promptly as advised by Stora Enso. Stora Enso nevertheless reserves the right to cancel outstanding orders, suspend future orders or terminate the contract with the Suppliers in case of a material breach of this CoC.

8.2 Should the main contract between Stora Enso and the Supplier, to which this CoC forms an Appendix, contain separate termination rules, it is nevertheless understood by both parties that breach of this CoC may be considered a material breach of contract, thus entitling Stora Enso to terminate the contract.