UNIVERSITY OF GOTHENBURG
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# ENVIRONMENTAL DISCLOSURE IN FINNISH AND SWEDISH ANNUAL AND SUSTAINABILITY REPORTS – a study of forest industry


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# Abstract

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**Title:** Environmental Disclosure in Finnish and Swedish Annual and Sustainability Reports – a study of forest industry

**Background and problem discussion:** Sustainable development and corporate social responsibility are more and more important issues in the business world. Companies want to increasingly disclose information on their sustainable performance, and for example disclosures on environmental performance help organizations to manage relationships with their stakeholders. Most of the sustainable reporting follows the Global Reporting Initiatives Guidelines. Furthermore, reporting can be influenced by public concern, culture, size and environment-sensitivity of the company.

**Aims:** This study aims to examine what environmental disclosures look like between Finnish and Swedish forest, paper and pulp industry companies. Comparison is done by examining sustainability and annual reports of selected companies.

**Method and theory:** This study concentrates on environmental disclosures in sustainability and annual reports of forest companies. The theoretical framework is based on voluntary and mandatory regulations, and furthermore, on cultural, legitimacy and stakeholder theories. The method used to analyze companies is an extended content analysis model, so called CONI (consolidated narrative interrogation) model, developed by Beck, Campbell and Shrives (2006).

**Empirical findings:** The empirical findings consist of investigating environmental disclosures in sustainability and annual reports of three Finnish and three Swedish forest, paper and pulp industry companies. Most of the CONI models categories can be found in the reports, and environmental disclosures are comprehensive. Majority of the disclosures are similar and disclosure type is mostly narrative.

**Conclusion:** There are many similarities in environmental reporting between forest industry companies in Finland and Sweden. Companies operating in same, environmentally intensive industry tend to have many environmental disclosures and these disclosures tend to be similar. In addition, companies report that it is profitable to be sustainable.

**Key words:** environmental reporting, content analysis, CONI model, Corporate Social Responsibility (CSR), culture, sustainability

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# 1. Introduction

## 1.1 Background

Sustainable development has been on the agenda worldwide for almost 30 years. The World Commission's (1987) report stated that sustainable development can ensure that both the needs of people today and in the future can be met. The future can be more prosperous, just and secure, and the economies can grow but the future growth must be based on sustainable policies (World Commission 1987).

Sustainability can be described as an ability for something to last for a long time, or indefinitely (Global Reporting Initiative). In accounting, sustainability became better known when Elkington's (in Bremser 2014) TBL - triple bottom line - framework for measuring corporate sustainability was introduced in the 1990's. Typically organizations have measured only economic performance and concentrated on delivering profit to shareholders. The TBL framework considers sustainable dimensions and adds social and environmental aspects. The environmental aspect generally refers to an organization's use of nature's resources (e.g. energy, water) and what by-products (e.g. waste, pollution) its activities produce. (Hubbard 2009)

Even though all the three dimensions of sustainable development, environmental, social and economic, are acknowledged, we have concentrated on the economic dimension. The biodiversity of the environment, Global Living Planet Index, has declined by over 50 percent in forty years according to WWF's Living Planet report (WWF 2014). The report shows significant overconsumption; globally we need 1.5 earths to maintain the level of consumption we have now; in Finland over three and in Sweden almost four earths.

Companies and industries are needed to provide important products and services for society but the growth has been unsustainable and at the same time public concern towards environment has grown (World Commission 1987). Sustainability means opportunities and risks to an organization; and sustainable business practices can create long-term shareholder value (Dow Jones Sustainability Indices). Sustainability can increase profits through for example risk and brand management, cost reductions, goodwill and increased employment satisfaction (English & Schooley 2014). Consumers and companies play an important role in society in making better choices; consumers should consume less and more responsibly and companies should produce more responsibly (WWF 2014). Due to regulation, awareness and pressure of stakeholders, internal commitment to environmental responsibility, a desire to remain competitive and value of goodwill have forced but also motivated companies to act more responsibly (English & Schooley 2014).

Corporate Social Responsibility (CSR) has become a major issue in the business world. It means that companies take responsibility for their impact on society (European Commission). As companies increasingly want to be more sustainable and do their share of sustainable development, they increasingly want to communicate on their sustainability performance and impacts to their stakeholders. Corporate Responsibility reporting is nowadays considered to be a mainstream practice worldwide (KPMG 2013). Integrating sustainability reporting with financial reporting can provide management and stakeholder with the information they want (English & Schooley 2014).

## 1.2 Problem discussion

Management awareness of the environmental issues increased and environmental standards were adopted frequently at the beginning of the 2000's (Houldin in Beck, Campbell & Shrives 2006). This led to an increase in Corporate Social Responsibility and reporting. According to KPMG's survey (2013), corporate responsibility reporting has been quite stable in Europe in the 2010's but worldwide the growth has been significant. In 2013 the European average rate of reporting was 73 percent. Reporting has risen in Sweden to 79 percent but in Finland it fell, however, to 81 percent.

However, CSR reporting has long been voluntary, and a weakness is that it has not been regulated by legislation (Gray, Kouhy & Lavers 1995). Many companies support the Global Reporting Initiative Guidelines in their reporting. The GRI Sustainability Reporting Guidelines are an international standard for reporting environmental, social and economic performance. It is a very common tool, especially in Sweden, where over 90 percent of reporting companies refer to GRI in their reports (KPMG 2013). Other frequently mentioned environmental standards are UN Global Compact and ISO 14001. The Global Compact is United Nations' policy for businesses to commit their activities according to ten principles, one of them being in the environmental area. ISO 14001 is a standard on environmental management systems, which recommends reporting. (Carrot and Sticks 2006)

Annual and sustainability reports and the internet are ways for companies to present themselves, also present their Corporate Social Responsibility. Annual reports are seen as a reliable source (Neu, Warsame & Pedwell 1998), and an effective public relations method giving a positive picture of an organization and its environmental performance (O'Donovan 2002). Communication can also generate feelings and cause behavioral changes (Krippendorff 2004). Annual reports are seen as a primary source of information of many stakeholder groups but also of researchers. PwC (2011) divides users of annual reports into two broad categories: those who are entitled to receive the annual report and those who have an interest in it. According to PwC (2011), the primary purpose of annual reports is to provide shareholders and investors with the information needed in decision making. They are also the most important audience for environmental disclosures when environmentalists and government are other relevant audience (Neu et al. 1998).

Environmental disclosures have both social and economic dimensions, as for example high emission levels have effects on the environment and people and thus can create a negative corporate image (Buhr & Freedman 2001). Environmental disclosures help an organization to manage relationships with the relevant public and influence the image the public has on the organization and its activities (Neu et al. 1998). It is suggested that primarily the organization's most relevant public influence on the level and type of environmental disclosures in annual reports and their power affects communication strategies (Neu et al. 1998). Public concern increases the level of disclosure (Deegan, Rankin & Tobin 2002). Buhr and Freedman (2001) have suggested that "similar sized companies in the same industry should have similar environmental impact and therefore, ideally, similar disclosure". Furthermore, Patten (1991, in Neu et al. 1998) suggests that large firms operating in environmentally-sensitive industries are more likely to provide environmental disclosures. Nobes (1998) also points out that the main reason for differences in financial reporting is different purposes for reporting.

Accounting patterns have been studied in different parts of the world but cultural factors have not been fully considered to explain differences in accounting (Gray 1988). However, the importance of culture has recently been recognized in the accounting literature. It has been shown that accounting follows different patterns in different parts of the world and thus this can be one of the causes in the background to differences (Gray 1988). Some authors think that as culture can influence accounting, it can at the same time influence disclosures in annual reports. Accounting is described for example as published financial reporting and accounting system as a set of practices used in a published annual report (Nobes 1998). Accounting is affected by the environment, including the culture of the country (Nobes 2004). However, some large companies may adopt different practices that prevail in the country and probably it should be referred to dominant accounting system in the country, or accounting systems can change as a result of new laws which come from for example the EU directives (Nobes 1998).

### 1.3 Aims

Corporate communication is an under-investigated area of CSR (Wanderley, Lucian, Farache & de Sousa Filho 2008). The aim of this study is to describe and analyze how environmental issues are reported in Finnish and Swedish annual financial and sustainability reports. Are there similarities or differences between cultures, which aspects of environmental issues are disclosed and to what extent.

The following research question will be answered in this study:

> What does environmental disclosure in Finnish and Swedish sustainability and annual financial reports look like? Are there any cultural differences?

## 2. Theoretical framework

### 2.1 Definition of concepts

#### 2.1.1 Corporate Social Responsibility and Corporate Social Reporting

CSR as a concept has a long and varied history from the early 1930's, and it was originally often referred to as social responsibility, SR (Carroll 1999). There are many definitions of CSR. According to Dahlsrud's (2006) research it contains five dimensions, which are environmental, social, economic, stakeholder and voluntariness dimensions. The most common definition was European Commission's definition: "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis" (Dahlsrud 2006).

Organizations can benefit from CSR in terms of risk management, cost savings, human resource management and stakeholder relationships (European Commission). Freeman and Velamuri (in Melé 2009) have suggested that the goal of CSR is to create value to organization's stakeholders when organizations are fulfilling their responsibilities. The financial community is seen as a primary user of CSR (Gray et al. 1995).

There is no internationally agreed definition on Corporate Social Reporting but the general idea is to disclose sustainability information as part of corporate communication (UNEP). Sustainability reporting means reporting on the economic, social and

environmental impacts the company's activities have. The fourth dimension in reporting is governance: the organization's governance model and what kind of link there is between organization's strategy and its commitment to a sustainable global economy. In addition to communicating these four sustainable values, reporting helps the organization to measure the impacts and set future goals. (Global Reporting Initiative) Reporting should disclose information to relevant stakeholder groups and function as an organization's contribution to sustainable development (UNEP). Especially in the future stakeholders are very important (Carroll 1999). In practice this information can be published in stand-alone reports or as part of annual reports. Corporate sustainability reports can include, besides environment information on social aspects (e.g. employees, health, commitment in society), also economic aspects (e.g. stakeholders) and governance (e.g. sustainability management).

### 2.1.2 Definition of Global Reporting Initiative

Global Reporting Initiative is a non-profit organization which has developed the Sustainability Reporting Framework. These standards help organizations to publish a sustainability report on their activities' economic, social and environmental impacts. The report is a tool to report on an organization's successes and failures in their sustainability performance. GRI's mission is to make sustainability reporting a routine in organizations. (Global Reporting Initiative) The framework consists of principles, guidance and protocols on how to report and it gives standard disclosures on what to report (Global Reporting Initiative 2006). When companies are using the GRI Guidelines, benchmarking and comparing performance with respect to for example laws, codes, organization itself and other organizations over time can be more reliable, relevant and standardized (Global Reporting Initiative 2006, 2013b). However, the GRI Application level is not an assurance on engagement (GRI).

Most companies use the G3 or G3.1 Guidelines. The third generation of the GRI Sustainability Reporting Guidelines G3 Guidelines were launched in 2006 and were updated to G3.1 version in 2011. G3 concentrates on sustainability disclosures, G3.1 provides extended guiding on local community impacts, gender and human rights. (Global Reporting Initiative) Each dimension of sustainability has different aspects, which are described by several performance indicators. For example environmental dimension's aspect "Emissions, effluents and waste" has a wide range of, mostly quantitative, indicators for different kind of pollution (Global Reporting Initiative 2011). The G3 and G3.1 Guidelines have both core indicators and application levels A, B and C. The core indicators are generally applicable indicators and are considered material to most organizations (Global Reporting Initiative 2006). The application levels indicate transparency and the extent to which the guidelines have been applied in sustainability reporting and the quantity of indicators. The status "plus +" tells if the sustainability reporting is externally assured. (Global Reporting Initiative)

The next generation of sustainability reporting G4 Guidelines were released in 2013 and must be used latest 2016 (Global Reporting Initiative). The newest guidelines are easier to use, more focused and more credible. The emphasis is on material aspects of the economic, environmental and social impacts that are significant to an organization's business and its stakeholders (Global Reporting Initiative). In G4 there are also aspects under each dimension of sustainability and several performance indicators. Change to G3 and G3.1 is that all the indicators under each aspect are considered as equal inputs and

core indicators are missing but amount of disclosures has increased. The G4 Guidelines have two in accordance options, core and comprehensive options. The core and comprehensive options focus on the process of identifying material aspects than to prove that a certain number of indicators has been reported. In the comprehensive option reporting is wider and all the indicators related to material aspects have to be disclosed. (Global Reporting Initiative 2013a)

## 2.2 Legislation and regulations

The EU countries are regulated by the EU Commission's Directives. There is for example Modernisation Directive which obligates big companies to disclose environmental and employee issues on their reports. The EU has been very active on CSR in the last decade and has given some sustainability reporting instruments, recommendations and recommendations based on IFRS standards. Non-financial information disclosure is recognized as a key issue in accountability and trust building according to the valid EU Strategy for Corporate Social Responsibility. However, sustainability reporting has long been voluntary and still many of the companies do not disclose non-financial information even though awareness has grown. (Carrots and Sticks 2013) The EU Commission (European Commission Statement 2014) has adopted a new directive fall 2014. From the financial year 2017, large, defined companies have to disclose more non-financial information, and they must include in their management reports their impacts on economic, social and environmental matters according to this new EU Directive.

The legislation on reporting environmental issues seems somehow loose in both countries. There are laws in both countries but the EU Directives give more precise information on reporting on environmental issues. The Finnish law on book keeping gives guidelines to financial statements. A company must report important impacts on personnel and environmental issues (Bokföringslag). If a company gives out an annual report which often contains much more descriptive information for example CEO letter and more precisely on environmental impacts, also the annual report must give right and sufficient information (Bokföringslag). Especially two EU's Directives have influenced on the Finnish regulations (Näsi & Kankaanpää 1995). The Commission of Bookkeeping (Bokföringsnämden 2006a, 2006b) gives general but more precise advice on the extent on environmental reporting in financial statements.

The most important laws in the Swedish accounting legislation are the Annual Account Act of 1995 and the Book Keeping Act of 1999 (Deloitte). The Annual Account Act is based on three EU's Directives (Deloitte). Similarly in Sweden the Annual Account Act has regulations for annual reports: a company must report their environmental and personnel issues (ÅRL 1995). According to Miljöbalk (1998), if a company's activities have impact on the environment, it has to report these impacts. Miljöbalk is a compact Environmental Code which integrated all the Swedish environmental regulations in 1999, and it has emphasis on sustainable development (Miljöbalk 1998).

## 2.3 Theoretical background

### 2.3.1 Cultural perspective

Culture as part of management and organizations has not strongly been recognized in the management research. Hofstede (1983) argues that management is managing people who are influenced by culture from the beginning of their lives. Therefore organization science is influenced by national cultures on management, and culture affects organizations in various ways. Nationality is important to management for political (e.g. government and legal system), sociological (symbolic value) and psychological (national culture factors arise from childhood and education) reasons. (Hofstede 1983)

Hofstede's (1981) definition for culture is "the collective programming of the mind which distinguishes the members of one human group from another and is a system of collectively held values". Culture refers to societies or nations, whereas subculture to the level of an organization, profession or family (Gray 1988) or national culture (Hofstede 1981). Hofstede (1981) divides characters used in social science literature in three levels of uniqueness in human mental programming, where universal level is shared by all, collective level describes culture and is shared by a group and individual level describes individual personality. Culture patterns arise mostly from societal norms, value systems that are shared by the majority. Their origin comes from ecological factors such as geography, and they have led to development of social institutions such as family or legislation. (Hofstede 1981)

Nobes (1998) mentions culture to be a reason for international differences in accounting. Also Gray (1988) states that Hofstede's cross-cultural research (1981) may explain international differences in accounting systems because culture affects accountants' values which in turn affect accounting. Hofstede (2001, 1984, 1983, 1981) has researched cultural elements that affect behavior in work situations in organizations. The research was done on 40 national cultures and it describes national cultures through four different, independent dimensions. The dimensions are individualism, power distance, uncertainty avoidance and masculine-femininity dimension. The most relevant dimensions for leadership are individualism and power distance. Individualism is individual freedom and obligation to look after oneself and own family whereas the other end of the scale, collectivism, is ties to larger groups of people or as Gray (1988) simplifies these as I and we. Power distance is related to how society deals with the fact that people are unequal and in organizations the degree of centralization of authority and the degree of autocratic leadership. Gray (1988) describes this as "an issue how a society handles inequalities among people when they occur". Uncertainty avoidance tells how society deals with the fact that future is unknown, does it try to change it and how easily people take risks. In weak uncertainty avoidance societies the atmosphere is more relaxed and flexible, and practice counts more than principles (Gray 1988, Hofstede 1993). Masculine-femininity dimension describes the roles of sexes in a society, what kind of roles different sexes can have and the degree of tough values like competition, making money, performance and success. In more feminine societies dominant values are more feminine: appreciation of the quality of life, good relationships and care for the weak and the environment. (Hofstede 1993, 1983)

Many management and accounting studies (Gray 1988, Hofstede 1983, Nobes 1998) tend to in most cases lump Finland and Sweden together as it is presumed that there is little

difference between these two countries compared to the rest of the world. High individualism, low uncertainty avoidance, low power distance and femininity dimensions imply that the Nordic countries are highly professional, flexible, optimistic and transparent close to Anglo cluster (Gray 1988) and that strategic, long-term thinking, trust and co-operation predominates (Hofstede 2001). More accurate examination of Hofstede's (1983) study reveals that both Finland and Sweden have quite high level of individualism; Sweden is slightly more individualistic. Individualism was described as loosely integrated society, freedom and interest in oneself. Individualistic countries have also high wealth. Furthermore, individualist countries, such as wealthy western countries often show small power distances. Both of the countries have small power distance but Finland has slightly higher power distance. Low power distance means that other employees can participate in decision-making, take initiative and there is more cooperation. Finland has much stronger uncertainty avoidance than Sweden. In weak uncertainty avoidance societies people feel secure, tolerate different behavior and opinions, do not work as hard, risks are taken easily and society is more flexible. On the far end of the feminine side of the masculine-feminine dimension are the four Nordic countries and the Netherlands even though Finland is the most masculine of this cluster. The quality of life and interest in the preservation of environment described feminism. (Hofstede 1983)

Hofstede (2001, 1983) also states that Finland is close to Germany in several cultural dimensions and refers (Hofstede 1983) to another researcher that Finland belongs to same group with Germany where organizations have more bureaucracy and work like a well-oiled machine according to rules while in Scandinavia and Great Britain organizations are more implicitly structured and work like a village market without decisive hierarchy and problems are solved by negotiating.

### 2.3.2 Legitimacy and stakeholder perspectives

Environmental disclosures and annual reports have been studied from legitimacy theory (Buhr & Freedman 2001). Legitimacy theory talks about society and expectations of the society. Perspective in legitimacy theory is that society, politics and economics are inseparable and economic activities cannot be investigated in the absence of these frameworks (Deegan 2002). Organizations do not have the right to resources and they exist as long as society considers them being legitimate (Deegan 2002). However, the control lies in organizations (several authors in O'Donovan 2002). In order to manage legitimacy, organization needs to know how legitimacy can be gained, maintained and lost; furthermore, it is easier to maintain legitimacy than gain or repair it (O'Donovan 2002). Managing legitimacy contains identifying stakeholders' needs and wants over time (O'Donovan 2002). There are different kinds of stakeholders, and legitimacy activities are faced with balancing between the needs of competing stakeholders. The communication of legitimacy issues is assumed to be strongest towards the most important publics. (Neu et al. 1998) O'Donovan (2002) states that different organizations have a different level of legitimacy, and that a high level organization might react faster. Legitimacy studies have found out that information is disclosed in order to legitimize the organization and that for example issues with high media coverage were issues most disclosed in annual reports (Deegan et al. 2002). It is also suggested that legitimacy helps organization to legitimize itself (Neu et al. 1998).

Stakeholder theory goes beyond legitimacy theory and accepts that there are different groups than just society. Different groups have different opinions and capabilities to affect the organization (Deegan 2002). In addition legitimacy and stakeholder theories complement each other in understanding corporate social disclosure practices (Gray et al. 1995). Freeman (2010) defines a stakeholder as any group or individual who can affect an organization or is affected by the organization's activities. For example employees, customers, government or environmentalists include in the company's external environment. The Corporate Social Responsibility concept was one that widened the stakeholder definition from closer interest group to larger audience (Freeman 2010).

Stakeholder theory is a managerial concept of organizational strategy and ethics. The main idea of the theory is that an organization's success depends on how well relationships with different stakeholders are managed (Freeman & Phillips 2002). There are two sides of stakeholder theory; managerial branch (managerial theory) comprehends that different stakeholders need to be managed and ethical branch (normative theory) helps to treat their stakeholders (Deegan 2000 in Freeman & Phillips 2002). Management has a moral duty to protect the organization and at the same time all stakeholders' interests (Melé 2009). Balancing between stakeholders' interest can be difficult (Melé 2009). Stakeholder theory is close to European companies' social behavior (Melé 2009).

### 2.3.3 Previous research

There are some studies of influences of culture and nationality on organizations and accounting. Hofstede's and Minkov's (2013) study on national clusters showed a tendency in homogenous clusters. 15 of Finnish regions (total 19) formed a national cluster and two formed a close link with the Swedish cluster. 20 of Swedish regions (total 21) formed a homogenous national cluster. Despite close political, economic, and historical ties between the Scandinavian countries, most of their regions formed very distinct national clusters (Hofstede & Minkov 2013). Hofstede (2001) argues that organizations are bound by national cultures. According to Hofstede's, Neuijen's, Ohayv's and Sanders's (1990) study employee values are affected more by nationality, age, education and key persons' values than organization per se. The organizational culture was more influenced by practices than the nation: shared perceptions of daily practices were the core of an organization's culture (Hofstede et al. 1990).

Mechanistic approach has been a dominant approach in accounting literature, and the studies have concentrated on volume rather than narrative information (Beck et al. 2006). However, popularity of narrative approach has recently increased. For example shown in Aerts's, Cormier's and Magnan's (2006) study in three countries that companies within the same industry tend to imitate one another in environmental reporting, especially if the reporting had high quality or was quantitative. The study was a longitudinal content analysis where similarities within a reference group at an industry-country level were measured. It showed that similarity was the lowest in paper and forest industry and highest in distribution, in fact in more environment-sensitive industries similarity was lower. The similarities were highest in France, lowest in Canada.

Adams and Kuasirikun (2000) found out in their comparative analysis of environmental reporting in the British and German chemical and pharmaceutical companies that environmental reporting was at a higher level in German companies. This could be due to more developed environmental regulations and early concerns with the environmental

issues in Germany. Contrarily to Gray's (1988) analysis in their study German reporting was not considered to be more secret than Anglo reporting.

O'Donovan (2002) found that the legitimacy theory explains why environmental information is disclosed in annual reports. Mainly issues with higher environmental effect were disclosed. Disclosing environmental information presented organizations in a positive light. According to an analysis of CSR information in the internet in emerging countries by Wanderley et al. (2008) CSR disclosure in the web was strongly influenced by the country of origin of the company, more by country than industry sector. Authors admitted that the reason for their findings could come from differences in political culture, freedom of the press and business competition in emerging countries (Wanderley et al. 2008).

# 3. Methodology

## 3.1 Approach

Text analysis is one of the tools to find out what statement a text makes and what it tells about the surrounding society (Ahrne & Svensson 2011). Content analysis is one of the approaches analyzing text in terms of communication and messages and observing certain subjects and symbols (Bryder 1985) or common patterns and themes in text (Bergström & Boréus 2012). Content analysis is a tool to reduce and split data into more useful units (Krippendorff 2004). According to Krippendorff (2004) it is "a research technique for making replicable and valid inferences from texts to the contexts of their use" and it can be used to investigate how people use text, what it tells them and what actions it evokes.

Content analysis can be broadly classified into mechanistic and interpretative approaches (Beck et al. 2006). Originally content analysis has been quantitative (Bergström & Boréus 2012). The data is organized into categories that are based on these themes or concepts (Mikkelsen 2005). Mechanistic approach provides information on numerical frequencies of predetermined framework which can then be ranked from best to worst (Beck, Campbell & Shrives 2006). Interpretative approach aims to interpret text and it is more concerned with quality and characteristics of the narrative (Beck et al. 2006). The interest lies on language, meanings and sentences (Lundahl & Skärvad 1999) and on explaining (Bryman 2012).

Some advantages of content analysis are the possibility to overview larger data or to make comparisons (Bergström & Boréus 2012) and the fact that the data is public (Bauer & Gaskell 2000). In addition, it is a transparent and flexible method where categories or research questions can be changed or formulated again afterwards. It may yield rich data and makes it easy to make analyses over time (Bryman & Bell 2007). The data can be investigated in detail (Bryman 2012). A disadvantage of content analysis is that it has been accused of not being theoretical enough or not necessarily answering the question why. In addition, it can be too subjective: researchers' own views can influence what is investigated as being important and what is not. (Bryman & Bell 2007) If a certain word or theme occurs several times we tend to assume that this phenomenon is very important when in fact it is not always the right interpretation. Furthermore, some obvious words or phenomena might not be mentioned at all so we might ignore them. Words can also have many meanings or meanings can change over time, which complicates analysis.

(Bergström & Boréus 2012) A disadvantage of qualitative analysis is that it is harder to replicate. If the amount of data is small it is more difficult to generalize on overall results (Bryman 2012).

Moreover, when investigating organizational documents the research can usually only be done on the basis of public documents (Bryman & Bell 2007). Credibility and representativeness might be harmed as the company has produced these documents itself (ibid. 2007). For example some authors have stated how companies did not openly disclose information on environmental disasters that their operations had caused (von Berg 2013).

## 3.2 The selection of the method

Content analysis has often been used in disclosure studies of accounting literature (Beck et al. 2006). It is often used to examine texts and documents, such as annual reports, over time (Bryman & Bell 2007). Content analysis has for example been used to investigate when and how strong environmental issues are reported and how the reporting develops (Lundahl & Skärvad 1999).

The method used in this study is an extended content analysis instrument by Beck, Campbell and Shrives (2006) where quantitative and qualitative approaches are combined. Consolidated narrative interrogation, CONI, can be used both in mechanistic and interpretative analyses, and thus this matrix approach can disclose richer content analysis: more information, different variables, depth and interpretation of meanings. The instrument is based on several previous studies. Authors investigated British and German companies whether there are differences in environmental disclosure in annual reports. The aim of the study was to investigate if and to what extent companies in similar industries but in different countries had similar or different patterns in environmental reporting. Another aim was to investigate if the information had changed over time. Beck et al. (2006) referred to many authors that size and industry have significant influence on disclosure behavior. The advantage of the CONI approach is that it can analyze all the narrative without restricting oneself to words, sentences or paragraphs.

The data of the study was annual reports and the time period was five years. The companies studied were 14 pairs of companies from the matching industry, size i.e. turnover and service and product portfolio; one company from each country. During this time period environmental reporting was voluntary in both countries. (Beck et al. 2006)

The study was accomplished in three steps. First, all the relevant and most common contents per theme were categorized and sub-divided (content diversity). CONI model consists of 12 content categories and 48 sub-categories. Second, the data was analyzed at information content or character level (content quality). Five different levels of disclosure types were used as coding categories and content. Disclosure types are presented further below and in Appendix 2. Third, a mechanistic method was used to count phrases and words per content sub-category. (Beck et al. 2006)

The 12 categories of the CONI model are general environmental related disclosures, responsibility, pollution, sustainability, environmental liabilities, environment-related activities, business related risks, pressure groups, information on separate environmental report, energy, information on feedback from stakeholders and other environmental

disclosure. For example the first category "General Environmental related disclosures" defines any mention dealing with environmental policy and concern for the environment which then is categorized into seven sub-categories according to depth of the disclosure from general mention to aims, management systems and processes, disclosure guidelines used, initiatives adopted, results from the policy and mentioning long-term policy. The number of sub-categories varies under each category, and it is the widest in the "Pollution related disclosure" category where disclosures are investigated according to different pollution type to targets, actions and product related disclosures.

The categories and sub-categories of the CONI model.

| **Category** | **Definition** | **Sub-categories** |
|---|---|---|
| **GEN** | General Environmental related disclosures: any mention dealing with environmental policy and concern for the environment | 1. Any general mention<br>2. Aims<br>3. Management system and processes<br>4. (Disclosure) guidelines such as the ACCA guidelines adopted<br>5. Initiatives (e.g. Responsible care)<br>6. Results e.g. Awards won, Results from the policy<br>7. Long-term - any mention of long-term policy |
| **RES** | Who is responsible for the implementation and the environmental behavior? | 1. Top-management - top management or board<br>a. Committee/audit - any committee or group<br>b. Membership; c. Aims and objectives<br>2. Results<br>3. Anybody in the org. e.g. reference to each employee |
| **POLL** | Pollution related disclosures | 1. Air: a. Emissions; b. Actions/targets undertaken<br>2. Water: c. Emissions; d. Actions/targets<br>3. Waste<br>e. Situation; f. Control /reduction; g. Recycling<br>4. Land: h. Emissions; i. Action /targets<br>5. Results<br>6. Products<br>j. Product related disclosures; k. Product development |
| **SUSTAIN** | Disclosures related to sustainability | 1. Any mention of sustainability<br>2. Involvement to UNCED, Brundtland, Rio, Kyoto<br>3. Conservation of natural habitat/species |
| **LIAB** | Environmental liabilities | 1. Financial disclosure<br>2. Balance sheet within voluntary section<br>3. Justification for no disclosure |
| **ACT** | Environment-related activities | 1. Training of staff<br>2. Project involvement<br>3. Awards<br>4. Sponsoring |
| **BRR** | Business related risk | 1. Specific environmental risks related to the business<br>2. Attempts to reduce/manage these risks<br>3. Costs involved |
| **PRESS** | Pressure Groups | 1. Shareholders<br>2. Other Stakeholders<br>3. Government |
| **SER** | Separate Environmental Report | 1. Available<br>2. Reference within annual report<br>3. Contact detail |
| **ENE** | Energy related disclosures | 1. Conservation/saving attempts<br>2. Use, development, expl. of alternative energy sources |
| **IRP** | Information retrieval processes to obtain feedback from stakeholders | |
| **Other** | Any other environmental disclosure not fitting the categories above | |

Disclosure type increases that is the number of the disclosure type is bigger in the scale of one to five when more information or numerical information such as emissions, emissions targets, consumption, waste or expenditure is given. Disclosure type one is purely narrative, giving just a little information, type two gives more information, type three gives only quantitative information, type four both qualitative and quantitative explanations and finally disclosure type five gives both narrative, quantitative and comparable information. However, Beck et al. (2006) acknowledged that there was also a sixth disclosure type, a zero for non-mention, but it was not used in their study.

Five disclosure types of the CONI model.

| **Disclosure type** | **Definition** |
|---|---|
| 1 | Disclosure addresses issue related to category definition; pure narrative |
| 2 | Disclosure addresses issue related to category and provides details; pure narrative |
| 3 | Disclosure addresses issue related to category in numerical way; purely quantitative |
| 4 | Disclosure addresses issue related to category in numerical way, including qualitative explanations; narrative and quantitative |
| 5 | Any numerical disclosure to the category including qualitative statements demonstrating year comparisons; narrative, quantitative and comparable |

The results of the study were, as presumed, that the British companies were more transparent than the German. Nearly all the companies in both countries provided some environmental information. The majority of disclosures were general information on management systems, policies and results. The study also found out that the two countries had similar disclosure patterns. Country differences were found in two categories: responsibility was higher in the British and sustainability higher in Germany. Comparison of the quality between the countries did not show significant differences. Both countries gave significantly more narrative disclosure than more explanatory or numerical one. (Beck et al. 2006)

## 3.3 Reliability and validity

Reliability and validity describe that a right phenomenon is investigated in a right way (Ekengren & Hinnfors 2012). The research is valid if the quality of the results leads to accept them as true (face validity), findings are publicly acknowledged (social validity) and empirical findings and theory support the research (empirical validity) (Krippendorff 2004). Validity means that the right and the most important concepts are used in the study, both in theoretical and empirical studies (Ekengren & Hinnfors 2012). The concepts used must be representative in order to help us to find answers to research questions (Bryder 1985). Furthermore, results should represent text and its context (Bauer & Gaskell 2000). In this study most common concepts such as CSR and GRI are used.

There are three types of reliability: stability, reproducibility and accuracy (Krippendorff 2004). The information has to be trustworthy and the research is done with accuracy (Ekengren & Hinnfors 2012). Especially in content analysis reliable data is very important (Bryder 1985). When the research is accurately done the same results will be obtained as the research is repeated (Krippendorff 2004). Reliability is also the degree to which certain community agrees on the text and interpretations, responses to it and uses it (Krippendorff 2004). This study has investigated which of the CONI model's categories

can be found from company sustainability and annual reports. The reliability and validity of this study is increased as the same categories and sub-categories are used for all the reports.

### 3.4 The selection of data

The purpose of this study is to compare Finnish and Swedish annual and sustainability reports. The reports investigated were published in English. In cases where companies have increasingly produced separate environmental reports, it can be possible to find very little environmental performance information in the annual report (Buhr & Freedman 2001). That is why the primary source of data are sustainability reports published on company websites and environmental reporting in these reports. If a company has not published a sustainability report, an annual report is investigated instead. Sustainability reports have chosen to be the primary data as they give more precise information on the environment. Only pages covering environmental reporting have been investigated. Exception is that if some important information on the CONI models categories is missing it has been looked for elsewhere from the reports. Companies refer to corporate websites for more information on sustainability which is ignored in this study.

The selection of the data was based on the choice and number of the countries and industry, company size and number of the companies. The first criterion was country. To be able to do comparison, two countries were chosen. Companies based in Finland or Sweden were chosen to this study. These countries were chosen because they are close to each other, have a close relation and are culturally close to each other. Furthermore, Sweden is an interesting country to compare to as it is a pioneer in environmental reporting and was the first country in the world where publicly owned companies were to publish sustainability reports (Sweden.se). Sweden is even considered the most sustainable country in the world (Environmental Leader). The second criterion was industry. The number of industries was limited to one industry. The chosen industry was forest industry because its activities have a very large effect on the environment. Third, the biggest companies according to their sales from each country were chosen to the study. The biggest companies were chosen because it can be presumed that they would have a high and wide quality of environmental disclosures and published reports. Source for the Finnish companies was Talouselämä-magazine's latest list of 500 biggest Finnish companies and for the Swedish companies Veckans Affärer VA-500 Ranking list. Fourth, six companies, three from Finland and three from Sweden, were chosen to be able to do comparison between the countries. The sustainability and annual reports from financial year 2013 were investigated in this study.

## 4. Empirical study

### 4.1 Presentation of the companies

**Metsä Group** is a Finnish forest industry group whose core business consists of tissue and cooking papers, paperboard, pulp, wood products, wood supply and forest services. The origin of the company can be traced back to the beginning of 20$^{th}$ century. Metsä Group has operations in almost 30 countries and production in nine. Metsä Group's speciality is that the parent company Metsäliitto Cooperative is owned by 120,000

Finnish forest owners. In 2013 the sales were EUR 4.9 billion and the number of employees was 11,000. (Metsä Group)

**Stora Enso Oyj** is a Finnish-Swedish company, but based in Finland and that is why considered Finnish. It was founded in 1998 when Swedish Stora and Finnish Enso merged, but Stora Kopparberg is first mentioned in the late 1200's. Stora Enso is a global rethinker of the paper, biomaterials, wood products and packaging. Sales in 2013 were EUR 10.5 billion (third largest company in Finland), and it operates in 35 countries. The number of employees was 28,000. (Stora Enso)

**UPM-Kymmene Corporation** is a Finnish biofore that is bio and forest, company. It was founded in 1995 but the roots of the company lie in the early 1870's. Cornerstones of UPM's business are fibre- and biomass-based businesses, recyclable raw materials and products. Sales in 2013 exceeded EUR 10 billion (fourth largest company in Finland) and it is present in 65 countries. The number of employees was 21,900. (UPM)

**BillerudKorsnäs** is a Swedish company and a leading provider of renewable packaging material. It was established in 2012 when Billerud acquired Korsnäs but the origin lies in the 19$^{th}$ century. Sales in 2013 were about EUR 2.3 billion and it operates in around ten countries. The number of employees was 4,300. (BillerudKorsnäs)

**Holmen** is a Swedish forest industry group who manufactures printing paper, paperboard and sawn timber and runs forestry and energy production operations. Holmen was founded in 2000 but the origin lies in 1875. Sales in 2013 were about EUR 1.9 billion, and Holmen operates in three countries. The number of employees was 1,500. (Holmen)

**Svenska Cellulosa Aktiebolaget SCA** is a Swedish, leading global hygiene and forest product company. It was founded in 1929 and started as a pure forest company. Nowadays SCA has many strong brands on personal care, tissue and forest products. Sales in 2013 were EUR 10.7 billion (tenth largest company in Sweden in 2013) and it operates in about 100 countries. The number of employees was 22,700. (SCA)

## 4.2 Empirical findings

The CONI models categories, sub-categories and disclosure types are used to investigate the forest companies' sustainability and annual reports and different kind of environmental disclosures in them. All company specific information on CONI-model's categories, sub-categories and used disclosure types can be found in Appendix 3.

The category of general environmental related disclosures had seven different sub-categories from general to long-term mention. The responsibility category describes who is responsible for the implementation and environmental behavior. The most emphasis has the pollution category with 12 sub-categories from pollution type, emissions and situation, actions and targets to reduce pollution to recycling and product related disclosures. The sustainability category is described by sustainability mentions to international agreements and conservation of natural habitats. The sub-categories of environmental liabilities vary depending of the level of the information. Environment-related activities present training, involvement in projects, awards rewarded and sponsoring given. Business related risks are divided to risks, attempts to reduce them and cost involved to them. Pressure groups are divided from shareholders other stakeholders

and government. Information on separate environmental report tells if the company has a separate environmental report or is it part of annual report. The energy-related issues are divided to conservation and saving attempts and use and development of alternative energy sources. The two last categories are information on feedback from stakeholders and other environmental disclosure which do not have any sub-categories. All the sub-categories are analyzed on the basis of different disclosure types. The disclosure types tell the level of information, from purely narrative to narrative, quantitative and comparable information.

### 4.2.1 Metsä Group

Metsä Group published a Sustainability Report in 2013. It is committed to the UN Global compact and has an own Code of Conduct. Metsä Group follows the G3.1 Guidelines, and the sustainability reporting is at Application level of A+. The most relevant indicators to Metsä Group's activities have been chosen. Mitopro Oy has assured the reporting.

Metsä Group's strategy is to focus on areas where they have a clear competitive advantage with good growth prospects but at the same time growth and sustainability go hand in hand. The main principles of the environmental policy are environmental responsibility, energy efficiency, sustainable forestry, and requiring environmental responsibility from the suppliers. The long-term focus is on material, energy and water efficiency and to maintain low levels of emissions and waste to gain competitive edge. The main stakeholders are customers, suppliers and especially Finnish forest owners. The objective is to improve the quality of life of stakeholders, and especially the forest owners' voice is heard. Products are designed also from the customer perspective providing customers benefits and sustainable and responsible products with ecolabels. Legislation and the EU directives are mentioned many times. Metsä Group is a partner in many forums and environmental stakeholder projects, and it follows many ISO initiatives, EU Ecolabel and Nordic Swan. 82 percent of the supplied wood is either FSC or PEFC certified. Metsä Group is interested to help its forest owners to join these certifications. Metsä Group does not give precise information in sustainability report on who is responsible for the environmental work but R&D function is mentioned to be responsible for efficiency strategy.

Each mill has permits and limits for discharges to water, emissions to air and noise, and Metsä Group has targets to reduce all the pollution. The environmental impacts are assessed through different processes, for example footprints, life cycle assessment LCA or greenhouse gas protocol. Fossil $CO_2$ reduction target for the whole Metsä Group is 30 percent by 2020 from the 2009 level, and the target was already exceeded 2013. The main tools for reduction of $CO_2$ are energy and transport efficiency, use of wood-based fuels, biomass and recycling of residuals in energy production. The share of wood-based biofuels in the Group's own energy production is 85 percent. Forestry industry uses a lot of water, but the Group's mills are located in water abundant areas. The main wastewater impact is eutrophication, and the process waters are cleaned or recycled. When materials and bi-products are used and recycled as efficiently as possible, the amount of waste and wastewater is minimized. Recycled waste is used in energy production or for example as fertilizers. However, efficiency can still be improved and Metsä Group seeks new ways to re-use residuals and reduce the amount of waste. However, the grade of recycling is already 91 percent of total waste. Metsä Group has also target for energy efficiency: to improve efficiency by 10 percent by 2020 from 2009 level; progress by 2013 was 5

percent. This is done by investing in energy saving actions and efficiency, conducting energy analyses, modifying processes and cooperating with equipment manufacturers.

Metsä Forest in Russia has been awarded a prize on its sustainable work in Leningrad area. Training is a part of sustainability, responsibility, risk management and to be prepared for new laws and directives. Risks can be related to suppliers, production and permit limit excess; environmental assessments deducts risks. Fines were paid in Russia when permit level of water discharges exceeded. As a whole, sustainability is a key word in the whole business. Metsä Group is a product oriented company, and their products are responsible and a sustainable alternative to nonrenewable products. Forests are managed sustainably, also from the supplier side, and biodiversity of forests is valued.

### 4.2.2 Stora Enso

Stora Enso published a Global Responsibility Report in 2013. It supports the UN Global compact and has an own Code of Conduct. Sustainability reporting has been done in accordance with the G4 Guidelines, and it corresponds to comprehensive level. Nearly all the indicators are fully reported. The assurance is done by Tofuture Oy.

Stora Enso is a renewable materials company focusing on growth markets, creating value to stakeholders globally. Energy efficiency is a top priority for Stora Enso, and the mills are responsible for finding ways to optimize their energy use. In addition, long-term targets are to reduce $CO_2$ emission and improve material and water efficiency and sustainability to save natural and financial resources. Stora Enso creates innovative products and sustainable solutions from renewable resources. Different stakeholders demand sustainability. Stora Enso's Global Responsibility Strategy is largely based on feedback from stakeholders, and furthermore, products and services are developed in cooperation with the stakeholders. Stora Enso promotes several ISO initiatives. 78 percent of total wood supply is certified wood (mostly FSC and PEFC). These certification schemes are also offered to forest-owners in Finland and Sweden. Every division and unit has specialists who are responsible for daily sustainability issues and environmental management.

Stora Enso has an ambitious future vision called "A Vision Zero" where there is no waste to landfill, no harmful air emissions, and no wastewater discharges. Fossil carbon footprint is estimated on an annual basis. In 2013 $CO_2$ emissions were 28 percent lower than 2006, and the 2025 target is reduction by 35 percent. The major source for $CO_2$ emission are energy consumption and purchase of energy. The most effective ways to reduce emissions are energy efficiency and bioenergy, biomass and water. Emissions are reduced in the entire value chain, and there are internal forums to find ways to improve energy efficiency and an energy efficiency investment fund for energy saving investments. The electricity consumption has in fact decreased, however, Stora Enso might have to start purchase ETS allowances. The share of biomass in energy production decreased slightly to 77 percent from 2012. Biomass energy is produced from by-products and harvesting residues. Water treatment is top class, however, emissions increased. 97 percent of the waste is reused as residuals, and it is still under developing.

Stora Enso is a member of many associations, and it is recognized in many sustainable indices for its sustainability performance. Stora Enso was named as one of the World's Most Ethical Companies in 2013. Stora Enso has many different stakeholder groups some

of which are partners in several environmental oriented projects and dialogues. Training of staff has been given in for example in sustainability, supplier chain responsibility and in preparation of forthcoming forest legislation. A risk and cost for the operation is climate change and thus extreme weather events, but evaluating these risks is an integral part of management. Forests and tree plantations are sustainably managed, and both are in a long-term interest, especially interest is in conserving the biodiversity. In addition forests help in global warming as they absorb carbon. However, stakeholders are interested in the environmental impacts of the tree plantations, but they are established on land with only low biodiversity values.

### 4.2.3 UPM

UPM published an Annual Report in 2013. It is committed to the UN Global compact's principles and has an own Code of Conduct. Annual report includes sustainability and environmental disclosures. UPM follows the GRI G3 Guidelines, and the sustainability reporting meets B+ level. Majority of the indicators are fully reported. The performance indicators and GRI Application level have been assured by PricewaterhouseCoopers.

The foundation for corporate responsibility and sustainable development is the Biofore strategy. The goal is an integration of bio and forest industries into a new, sustainable and innovation-driven future where value is created from renewable and recyclable materials and products, e.g. biofuels and biocomposites, which are replacements for fossil-based products. Responsible and efficient use of resources and increased the use of ecolabels create competitive advantage and long-term economic and environmental value. UPM has set long-term responsible environmental targets for 2020, and environmental impacts over the entire lifecycle are annually evaluated. Almost all the sites are ISO-certified, and UPM is a global frontrunner in the use of EU EMAS. 80 percent of all wood used is from either FSC or PEFC certified forests. These and other ecolabels meet sustainability demands set by stakeholders. The Group Executive Team, CEO and the Environment and Responsibility Team manage the global corporate responsibility agenda; and at the grass root mill workers participates the Clean Run campaign.

Continuous target is to improve energy efficiency, and it has been done through energy audits and innovations. The majority of air emission come from energy generation. UPM produces more energy than it is using in the production. The target to reduce $CO_2$ emissions is by 15 percent by 2020 compared with 2008, but the outcome is not in the line with target even though fuel mix and efficiency are improved. In the long run, since 1990, $CO_2$ emissions have been reduced by 25 percent. Emissions are reduced by choice of low-emission fuels and increasing and investing in the use of renewable energy and improving energy efficiency. 67 percent of the fuels used worldwide come from renewable sources, and UPM is the second largest producer of biomass-based energy. Sustainable and responsible use of water are in a key role, even though UPM works in water-sufficient areas. Emissions to water and wastewater are reduced by effluent treatment plants and monitoring. Wastewater volumes have been reduced but the development is not in the line with the 2020 target. Waste is considered as today's new material, and 90 percent of waste is reused in new products or in energy production. Furthermore, UPM is the world's largest user of paper for recycling.

UPM has won many awards and achieved top positions some of which are EU Ecolabel Communication Award and Sustainable Biofuels Award, and it renewed its position in

the Dow Jones Sustainability Index. The evaluation of global sustainability megatrends, risks and stakeholder expectations is an integral part of UPM's strategy process. UPM has several environmental projects with diverse stakeholder groups. There is no disclosures on environmental liabilities. Risks can occur from climate change or production but they can be reduced by taking higher targets than what come from environmental regulations and by using many initiatives. Biodiversity is part of forests management.

### 4.2.4 BillerudKorsnäs

BillerudKorsnäs published a Sustainability Report in 2013. The work is guided by the UN Global Compact and a Code of Conduct. BillerudKorsnäs follows the G4 Guidelines, at core level. BillerudKorsnäs does not give information like Stora Enso that are the indicators fully or partially reported. Ernst & Young AB have assured the sustainability report.

BillerudKorsnäs' packaging solutions increase profits and contribute to sustainable future. BillerudKorsnäs' motto is "Innovation is our passion, Sustainability is our future". Sustainable development is one of the pillars of its strategy, and it will be achieved through good financial results, development of environmental activities and society; now and in the future. Resource efficiency is important for financial and environmental reasons. The environment is considered throughout the product life cycle. BillerudKorsnäs has targets for sustainability in both the short and long term, which they transparently want to report to all stakeholders. Stakeholders can give feedback in many ways: Many stakeholder groups' expectations and individual demands are answered, because customers are increasingly demanding information on products' environmental impacts and sustainability performance. For example a sustainability and material analysis was done amongst the most important stakeholders in line with GRI G4. BillerudKorsnäs has also close contacts with local people in forest areas and with authorities, who for example check the production permits. BillerudKorsnäs is a member of number of networks, it follows many external and ISO initiatives, and all the timber purchasing is guaranteed to be from responsible origins. Many levels of the company from equivalent responsible staff to board, Senior Vice President and Sustainability Council are responsible for the environmental work.

BillerudKorsnäs has different targets on emissions and reductions in production and other activities. Ambitious environmental targets come from internal and many external sources, legislation for example. Ambitious vision is to phase out fossil fuels from production to which energy-related investments and efficiency improvements aim. Emissions from production have already been reduced by 28 percent from the previous year, and target by 2020 is to reduce by further 23 percent. Also emissions to water have been cut. However, transport has caused a rise in fossil $CO_2$ emissions, but initiatives have been started to minimize emissions and increase trail transport. Waste is minimized through efficiency, and by-products are recycled or used in energy production. Target of 2014 is to reduce energy consumption by 2 percent. Production is mainly based on bioenergy from process residues; 97 percent of BillerudKorsnäs' fuel is bioenergy. The environmental impacts are assessed with the EPD system, and the environmental performance with LCA.

BillerudKorsnäs is awarded for green and climate friendly cargo, and recognized in WWF's Environmental Paper Company Index. It is interested in biodiversity and social values of the forests, and the company checks new areas for threatened species and key biotopes even though it does not own significant forest assets. BillerudKorsnäs mentions no environmental liabilities. Training is given in working processes and sustainability issues. The company has some environmental oriented projects. Climate change increases risks and damages to land. It has been suspected that there has been some deviations from the company's code of conduct for example in Asia, but it has not been seen as a major problem as production outside Europe and North America is little. However there are risks in purchasing and thus suppliers are analyzed and evaluated carefully.

Sustainability is fundamental to BillerudKorsnäs' business. The whole product chain from suppliers should be sustainable, and products from renewable wood raw materials are solutions to transition from fossil materials. Environmentally adapted production reduces emissions to air and water, increases the company's energy recovery, raises the proportion of renewable energy and cuts the use of fossil energy. BillerudKorsnäs wants to be known for its responsibility and excellent performance in sustainability.

### 4.2.5 Holmen

Holmen published an Annual report including sustainability report in 2013. It implements the UN Global Compact and has a Code of Conduct for suppliers. Holmen reports in line with the G3.1 Guidelines, at Application level A+. GRI register can be found on the web site, but Holmen does not give information on the depth of reporting. The sustainability reporting is reviewed by KPMG AB.

Holmen's strategy is based on sustainability which strengthens the profitability in the long term. The business concept is to run and develop profitable and sustainable business. The basis of future growth lies on forest holdings and high proportion of energy production. Holmen has even generated revenues from electricity certificate trading. Production and investments are based on environmental and energy considerations (energy and resource-efficiency), and the long-term focus on innovation are new, sustainable, resource-efficient and wood-based replacements for oil-based products. Stakeholders have been identified based on their relationship with the company, importance and how the company impacts them. Customers and investors are increasingly interested in sustainability. Stakeholders are involved in prioritizing environmental principles in company's environmental and energy policy. Priorities are energy and and climate issues. Certified environmental and energy management systems, e.g. ISO and EU Ecolabel, help to reach the environmental and energy targets. The share of certified wood (FSC, PEFC or similar) varies according to availability. The responsibility of environmental work is defined in company's environment and energy policy, and the responsibility lies on the CEO, business area and other managers while the Director of environmental and sustainable affairs coordinates the work.

Environmental impacts of operations must be acceptable to humans and the environment, and the focus is on achieving the sustainability targets. Laws and permits regulate the operations. The main impacts are emissions to air and water, noise and waste, and these impacts are assessed by e.g. carbon footprint. Holmen stresses its operations positive impacts on climate. The $CO_2$ emissions are measured in tons, and from fossil sources they have declined. Holmen supports the EU strategy to cut emissions by 2020 by over 20

percent compared with 2005. To cut emission from fossil sources, Holmen mentions wind and hydro power, energy efficiency and the forests and company's products as tools to store carbon dioxide. Energy is divided into thermal and electrical energy; and the amount of bio-based thermal production has almost doubled from 2012. The target to reduce use of fossil fuels for 2020 is 75 percent compared with 2005, and the outcome for 2013 was 52 percent. The targets cut energy costs and have a positive impact on the climate. The amount of waste sent to landfills has declined, as by-products and waste are reused 99 percent.

Holmen has no disclosures on environmental liabilities. It takes part in many environmental projects. Holmen has targets to reduce operations' risks, and it has several ways to prevent and manage risks. Risks can emerge from operations, landfills or phased out operations, damages in the forests or exceedings from threshold values. The forests are managed sustainably and the environment, recreational values and long-term survival of flora and fauna are considered.

The sustainability work is done in a systematic manner, help with policies, certified management systems, suppliers, targets and follow-up systems. Holmen has for many years been recognized for its sustainability work and is included in several sustainability indices. Holmen has also been recognized for an investment to make a mill nearly free from fossil fuels. Holmen is continuously analyzed in terms of risks, opportunities and materials to ensure sustainability, responsibility and long-term profitability.

### 4.2.6 SCA

SCA published a Sustainability Report in 2013 and has been one of the best sustainability reporters in Sweden for many years (FAR). It is committed to the UN Global compact, and has an own Code of Conduct. Sustainability reporting is prepared in accordance with the GRI G3 version, and it meets A+ Application level. The report is reviewed by PwC.

SCA's business and products are based on the responsible and efficient use of forest and other natural resources. It is Europe's largest private forest owner, and thus emphasis is on a long-term sustainable forest management. Environmental and other targets drive business and create value to stakeholders; energy saving and efficiency are important. One of the environmental targets is biodiversity of the forests. Negative impacts on climate are reduced when forest-based products, which can be recycled, reused or that are biodegradable, replace other materials. About 60 percent of timber and pulp are FSC or PEFC certified and other certificates are also recognized. However SCA mentions only two ISO certificates. The responsibility of environmental work is on the Corporate Senior Management team and Senior Vice President Sustainability, furthermore, targets and activities are broken into business unit levels.

Emphasis of the work is to reduce environmental impacts of the products. Shareholders expect the smallest possible impact on the environment and responsibility in the entire value chain. SCA has ambitious environmental targets from fibre to finished product, and it is examining how to reduce the impacts of products throughout the whole product cycle, e.g. using LCA. An aim is to optimize water use and effluent treatment, and almost all the mills have treatment systems. A target is also water sustainability, especially in water-stressed areas. Minimize, reuse and convert are the keywords for managing SCA's waste and by-products from production; in the whole chain from raw materials to end-

consumer. 75 percent of the waste is recycled. Target to reduce carbon emissions is also ambitious: by 20 percent by 2020 compared with 2005. The outcome for 2013 was 12 percent. Climate change thus carbon emissions are tackled by investing in new technology, new transport initiatives, efficiency, biofuel and wind power. Noteworthy is that as the forests grow, they absorb $CO_2$ 2.6 million net tons while SCA's emissions are only 1.8 million tons in production operations. Thus SCA has provided a surplus in the ETS emission rights scheme. Biofuels compose 49 percent of the fuel consumption. According to SCA's renewable energy program the production of biofuels from their forests is expected to triple and wind power to fivefold; by-products are also a source of energy.

SCA was voted the Best Sustainability Report 2012, and it has been recognized in the WWF Environmental Paper Company Index. It is also qualified in several sustainable indices. SCA offers sustainable solutions, and wants to create long-term sustainable growth. Sustainability is also expected from the suppliers.

# 5. Analysis

Empirical findings and thus analysis are based on the environmental disclosures in the forest companies' sustainability and annual reports. Four of the reports were sustainability reports. UPM and Holmen published annual reports with sustainability reports. Those reports tend to be long, but there was no correlation between the length of the report, the level of GRI reporting or environmental disclosures. Most of the reports were visual, but Stora Enso's report contained least pictures. In addition to the reports, more information on the environment and the sustainability can be found on the corporate websites.

All the companies in the study belong to the largest companies in the forest industry worldwide. According to PricewaterhouseCoopers' (2014) survey on global forest, paper and packaging industry Stora Enso was 3th, SCA 4th, UPM 5th, Metsä Group 12th, Billerud 36th and Holmen 43rd of the 100 biggest companies. All the companies participate in the UN Global Compact initiative and have an own Code of Conduct.

The consolidated narrative interrogation, CONI, model consists of 12 content categories and 48 sub-categories. Categories vary from general disclosures to responsibility, pollution, sustainability, liabilities, activities, risks, pressure groups and energy related disclosures. There were not found any major country specific differences but disclosures were similar. There were least disclosures in the main categories "Who is responsible for the implementation and the environmental behavior" and "Environmental liabilities". Sub-categories with least disclosures where responsibility and management related sub-categories, land emissions and actions and targets related to them, liabilities, sponsoring, costs involved in risks, shareholder and government sub-categories. None of the companies gave disclosure on sub-category "Involvement/Commitment to UNCED, Brundtland, Rio, Kyoto"

The majority of the disclosures in all of the companies were significantly more narrative than numerical. Disclosures gave either less or more narrative information and the disclosure types were one and two where two gives more details. Quantitative and qualitative disclosures, i.e. disclosure types four and five which both give qualitative and qualitative information, and five also compares to previous years were given mainly on

pollution and emission disclosures. There were only minor differences in disclosure types or categories between the companies, and majority of the disclosures were at similar level. The majority of the disclosures given concerned energy, sustainability, emissions and $CO_2$ issues. UPM gave the most information on the responsibilities of the employees. Stora Enso was the only company to give a financial disclosure on environmental liabilities; and Metsä Group was the only company to disclose information on costs regarding business related risks. Below is a summary and variation of companies' disclosure types in each sub-category.

## Summary on the CONI model's categories, sub-categories and company disclosures

| Category and definition | Sub-categories | Disclosure types: Metsä Group | Stora Enso | UPM | Billerud-Korsnäs | Holmen | SCA |
|---|---|---|---|---|---|---|---|
| **GEN** | | | | | | | |
| General Environmental related disclosures | 1. Any general mention | 1 | 1-2 | 1 | 1-2 | 1 | 2 |
| policy and concern for the environment | 2. Aims | 2 | 1-2 | 1-4 | 1-2 | 1-2 | 1-2 |
| | 3. Management system and processes | 2 | 1-2 | 2-4 | 2 | 1-2 | 2 |
| | 4. (Disclosure) guidelines such as the ACCA guidelines adopted | 2 | 2 | 2 | 2 | 2 | 2 |
| | 5. Initiatives (e.g. Responsible care) | 1-5 | 1-2 | 1-2 | 1-2 | 1-2 | 2-4 |
| | 6. Results e.g. Awards won, Results resulting from the Policy | 1-2 | 2 | 1-4 | 2-4 | 1-2 | 2-4 |
| | 7. Long-term - any mention of long-term policy | 2 | 1-2 | 1-2 | 1-2 | 1-2 | 1-2 |
| **RES** | | | | | | | |
| Who is responsible for the implementatic | 1. Top-management - top management or board | | 1 | 2 | 2 | 2 | 2 |
| and the environmental behaviour? | a. Committee/audit - any committee or group | 2 | 1-2 | 2 | 2 | 2 | 2 |
| | b. Membership | | | | | | |
| | c. Aims and objectives | | | 2 | | | |
| | 2. Results | | | | | | |
| | 3. Anybody working with the organisation e.g. reference to each employee. | | | 3 | | | 2 |
| **POLL** | | | | | | | |
| Pollution related disclosures | 1. Air | | | | | | |
| | a. Emissions | 2-5 | 1-5 | 1-5 | 2-5 | 1-4 | 1-5 |
| | b. Actions/targets undertaken | 2-5 | 1-5 | 2-5 | 2 | 1-2 | 2-5 |
| | 2. Water | | | | | | |
| | c. Emissions | 2-5 | 2-5 | 4 | 5 | 1 | 2-4 |
| | d. Actions/targets | 1-2 | 2 | 1-5 | 2 | 1-2 | 1-5 |
| | 3. Waste | | | | | | |
| | e. Situation | 2-5 | 2-5 | 2-5 | 2 | 1 | 1-2 |
| | f. Control /reduction | 2 | 2 | 1-5 | 2 | 1 | 1-4 |
| | g. Recycling | 1-5 | 1-4 | 2-4 | 1-4 | 1-4 | 1-4 |
| | 4. Land | | | | | | |
| | h. Emissions | 1 | 1-5 | 5 | | 1-4 | 2 |
| | i. Action /targets | 1 | 2 | 1 | | 1 | 2 |
| | 5. Results | 1 | 1 | 1 | 1 | 1 | 1 |
| | 6. Products | | | | | | |
| | j. Product related disclosures | 1-2 | 1-2 | 2 | 1-2 | 1-2 | 1-2 |
| | k. Product development | 1-4 | 2 | 1-4 | 2 | 1-2 | 1 |
| **SUSTAIN** | | | | | | | |
| Disclosures related to sustainability | 1. Any mention of sustainability | 1-2 | 1-2 | 1-2 | 1-5 | 1-2 | 1-2 |
| | 2. Involvement/Commitment to UNCED, Brundtland, Rio, Kyoto | | | | | | |
| | 3. Conservation of natural habitat/species | 1-2 | 1-2 | 2 | 1-2 | 2 | 2-4 |
| **LIAB** | | | | | | | |
| Environmental liabilities | 1. Financial disclosure | 1 | 2-5 | | | | |
| | 2. Balance sheet within voluntary section | | | | | | |
| | 3. Justification for no disclosure | | | | | | |
| **ACT** | | | | | | | |
| Environment-related activities | 1. Training of staff | 1-2 | 1-2 | 2 | 1-2 | 1-2 | 1-2 |
| | 2. Project involvement | 2 | 1-2 | 1-2 | 2 | 1-2 | 2-4 |
| | 3. Awards | 2 | 2 | 1 | 1 | 1-2 | 2 |
| | 4. Sponsoring | 1-2 | 1 | 1 | 1 | | 1 |
| **BRR** | | | | | | | |
| Business related risk | 1. Specific environmental risks related to the business | 1-5 | 2 | 1-2 | 1-2 | 1-2 | 2 |
| | 2. Attempts to reduce/manage these risks | 1-2 | 1-2 | 1-2 | 2-4 | 1-2 | 1-2 |
| | 3. Costs involved | 4 | 1 | | | | |
| **PRESS** | | | | | | | |
| Pressure Groups | 1. Shareholders | | | | 2 | 2 | |
| | 2. Other Stakeholders | 2-4 | 1-4 | 1-2 | 2 | 1-2 | 2 |
| | 3. Government | 2 | 2 | 1 | 1-2 | 1-2 | 1 |
| **SER** | | | | | | | |
| Separate Environmental Report | 1. Available | x | x | | x | | x |
| | 2. Reference within annual report | | | x | | x | |
| | 3. Contact detail | | | | | | |
| **ENE** | | | | | | | |
| Energy related disclosures | 1. Conservation/saving attempts | 2-5 | 1-5 | 1-5 | 1-5 | 1-5 | 1-4 |
| | 2. Use, development, exploration of alternative energy sources | 5 | 1-5 | 2-5 | 1-5 | 1-4 | 2-4 |
| **IRP:** Information retrieval processes to obtain feedback from stakeholders | | 1-4 | 1-2 | 2 | 2 | 1-2 | 2 |
| **Other:** Any other environmental disclosure not fitting the categories above | | 1-5 | 1-4 | 2 | 1-2 | 2-4 | 1-2 |

There were many similarities between forest companies, their values and operations. Sustainability reporting was in quite the same level in both countries. In both countries there was one company that follows either the G3, G3.1 or G4 Guidelines but in different levels. Stora Enso could be considered to have the highest level of reporting as it was reporting in accordance with the newest G4 Guidelines and at comprehensive level, while Finnish UPM's could be considered to report at the lowest level as it reported according to the G3 Guidelines at B+ level. Despite the G3 level of sustainability reporting, UPM gave most disclosures on awards it has been given. However, SCA gave most disclosures on the sustainability indices it has been recognized or listed in. Holmen and UPM were the only forestry companies awarded the highest rating on the CDP Climate Performance Leadership Index 2014 A List (Holmen 2013). The A has been awarded for companies' good climate performance and efforts to mitigate climate change. In addition, Stora Enso, UPM and Holmen were also chosen to the UN Global Compact 100 index based on their good business practices.

Sustainability was very important to all the companies. It was seen to increase long-term profitability and growth, forests were managed sustainably, raw materials were expected to be responsible and certified, and products to be sustainable. The companies invested in innovations. However, sustainability can be easier achieved in the western world. Outside Europe and North America there might be more risks and difficulties for example in illegal logging, water abundance or social problems.

Efficiency was a key performance indicator in all the companies. The environmental impacts were reduced but also profitability increased when materials in the entire value chain from raw materials to energy were used efficiently. The most important was the efficiency in energy consumption. Energy costs were the biggest operational costs. Emissions cause climate change, and there are regulations to decrease them. Efficient production decreased the amount of waste, however, at the same time waste was used as a source of bioenergy.

One of the main targets for all the companies was to reduce carbon dioxide emissions, and the companies had long-term targets for emissions. Some companies disclosed information on that emissions from transport increased, but UPM was the only company whose outcome was not in the line with its targets. Energy efficiency was the most important tool to reduce emissions. As forests bind carbon dioxide, also forest growth was mentioned to be one of the tools to bind $CO_2$ and reduce emissions. The companies had invested in and used increasingly bioenergy to reduce $CO_2$ emissions. Two of the Swedish companies were investing in wind energy. Furthermore, the products from renewable raw materials can replace traditional fossil-based products. However, all the Finnish companies disclosed information on nuclear energy, and they are also owners of nuclear energy. From Swedish companies only Holmen mentioned nuclear energy. Especially for the Finnish companies nuclear energy is one of the most important $CO_2$ emission-free energy sources. In addition, it can be seen from UPM's figures that as the production of paper and pulp went down in the late 2000's, it had positive effects on $CO_2$ emissions. Some companies mentioned this connection adversely. In Finland diminished paper and pulp production has also reduced the industry's need for energy as a whole (Yle 2013) and thus probably reduced $CO_2$ emissions as emissions and production can be linked with each other.

Forest companies have several stakeholders groups. Cooperation was quite dense with them: their value of life was improved, their demands for sustainable products and expectations of decreased environmental impacts was answered; and suppliers were expected to be responsible. Forest companies are active partners of society and different networks. Government as a stakeholder or pressure group was mentioned mainly through legislation. National legislation, for example on forestry, and the European Union's Directives and the EU Timber regulation are binding to these companies based in the EU. Metsä Group was the only company to have many critical opinions on directives, strict permit limits, given timeframes and costs changes bring but at the same time it mentioned to follow many EU regulations.

According to stakeholder theory, an organization has different kind of stakeholder groups which are affected by an organization's operations or which can affect it. As stated before forest companies have many different stakeholder groups which have different opinions and ways to influence in the companies. They are important part to companies' operation as for example they have demands on sustainability and legislation, permits and limits and companies have demands on sustainability of raw materials. These relationships are wanted to be cared for as an organization's success depends also on how well relationships are managed. Moreover, forest companies have gotten legitimacy to forests and the environment and this legitimacy the have to nurse according to the needs and wants of stakeholders. To keep good relationships with the stakeholders the forest companies can be seen to disclose environmental information. Furthermore, it has been found (O'Donovan 2002) that due to legitimacy theory explains that companies disclose information on important environmental issues and that companies want to disclose this information as it presents them in a positive light.

The environmental disclosures in sustainability and annual reports of the forest companies were very similar. A previous study (Aerts, Cormier & Magnan 2006) stated that companies within the same industry tend to imitate another's high quality environmental reporting, however it was showed that the similarity was the lowest in environmental-sensitive and paper and forest industries. In this study environmental reporting was similar but it cannot be proved that it would be due to imitations.

A significant part of responsibility and sustainability are the raw materials. The lack of CONI models categories is that there was no mention of raw materials or neither transport. For example SCA disclosed a lot of information on responsible raw materials, water usage and transport, which are important part of forest industry and production chain.

According to Hofstede's studies and cultural dimensions Finland and Sweden were close to each other. Moreover, Finland was according to several Hofstede's cultural dimensions even closer to Germany. Similarities were that the Nordic countries had high individualism, low uncertainty avoidance, low power distance and femininity dimensions. These implied that the countries were highly professional, flexible, optimistic, transparent, co-operative and long-term thinking. However, there were some minor differences between Finnish and Swedish societal value dimensions. Sweden was slightly more individualistic and it had higher level of wealth. Thus Sweden could be slightly more loosely integrated society, and people could have more freedom and interest in themselves. Sweden had slightly lower power distance which could mean that there is more cooperation and in organizations employees can participate easier in decision-making. Sweden had much weaker uncertainty avoidance than Finland. Swedish people

could thus feel themselves more secure and take risks more easily. Moreover they could tolerate better different behavior and opinions than the Finns. Sweden was more feminine than Finland and that is a value that thinks more of the environment and feminine values. However, any significant cultural differences could not be found in the sustainability and annual reports, and thus slightly different cultural dimensions could not be proved in the environmental disclosures. Furthermore, there were similarities in sustainability and annual reports, but similarly it cannot be proved that they arise from cultural similarities.

# 6. Discussion

## 6.1 Discuccion

The aim of this study was to describe and analyze what do environmental disclosures look like in Finnish and Swedish annual financial or sustainability reports, find out similarities or differences between cultures, investigate which aspects of environmental issues are disclosed and to what extent in these countries.

Significant culture related similarities or differences in the reports between the countries' environmental disclosures could not be found and proven. Environmental disclosures were similar in both countries but it cannot be proven that they come from cultural similarities. However, minor differences between the countries and the reports were found in so-called softer values. According to Hofstede's (1983) studies Sweden was more feminine than Finland; and feminine societies value and will protect the environment more. All the Swedish companies disclosed information on recreational values of the forests in their reports, from the Finnish companies only Metsä Group. To reduce $CO_2$ emission two of the Swedish companies had wind power investments which were not brought up in the Finnish company reports. Furthermore, all the Finnish companies disclosed information on nuclear energy, and they are also owners of nuclear energy. From Swedish companies only Holmen mentioned nuclear energy. Especially for the Finnish companies nuclear energy was one of the most important $CO_2$ emission-free energy sources. Nuclear energy is considered to have much less life-cycle emissions than for example coal or natural gas (Ydinreaktioita.fi 2011). Thus nuclear energy can be considered to be a good energy resource to reduce $CO_2$ emissions but that leads to other discussions if it is responsible or not. At the moment Finland is building more nuclear energy, partially to meet the needs of paper and pulp industry.

As said earlier, this study found many similarities in environmental disclosures between Finnish and Swedish forest company reports. However, due to small sample, the conclusions cannot be generalized. There can be seen four reasons why environmental disclosures are similar and why companies want to disclose environmental and sustainability information in both of these countries. Firstly, it seems that these forest industry companies, some larger, some smaller but still big, have similar kind of environmental impacts and therefore similar kind of environmental disclosures as previous research has suggested (Buhr & Freedman 2001). Secondly, as the forest industry is an environmentally-sensitive industry, the companies have provided significant amount of environmental disclosures, which is also previously shown (Patten 1991, in Neu et al. 1998).

Thirdly, reasons can be found from legitimacy and stakeholder theories. Legitimacy theory states that an organization does not have a right to resources and it can be part of society if it has similar values which it wants to declare to society. There is a special interest in the environment among these forest industry companies. The environment, the forests, are the resource and raw material for the forest industry. This raw material is renewable and has to be taken care of sustainably. Forests are also accessible to public and most of these companies disclose information on recreational values of the forests. Stakeholder theory states that an organization has different kind of stakeholder groups which are affected by an organization's operations or which can affect it. The stakeholders of forest companies are for example consumers, customers, forest owners, governments and suppliers. All the studied companies disclosed information on stakeholders. Companies want either to communicate of their environmental efforts and achievements or to answer their demands and expectations and get feedback, as well as possible. Furthermore, customers are increasingly interested in the environmental impacts of the products and operations; and governments on regulations. Most of the companies disclosed information on improving life quality of the stakeholders, developing products that would better correspond to customers' needs. Companies have also special interest in suppliers as the raw materials are expected to be responsible.

Fourthly, it has been stated that sustainability can increase profits through cost reductions and risk management (English & Schooley 2014). Forest industry is especially energy intensive industry. Costs on energy are high and the emissions' limits and the EU regulation are getting tighter. Profitability improves when energy efficiency is improved: companies invest in energy efficiency, bioenergy and reduction of carbon dioxide emission in production, energy production and transportation. Sustainability comprehends also other resource efficiencies. Important resources of forest industry are raw materials and water. When resources are used efficiently they are needed less, but furthermore, less waste is created. However, forest companies have invested in reduction of waste and reuse: waste and residuals are used as raw material, mainly in energy use.

## 6.2 Recommendations for further studies

This study could be developed further and more companies, industries and reporting years could be investigated. A quantitative method to count words and themes could be used. Same kind of study could be done to investigate similarities and differences in same industry but between companies worldwide. Furthermore, the same issues could be investigated by doing a comparison between communication of environmental or other CSR issues in annual reports and in corporate websites.

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# Appendix 1: Categories and sub-categories in the CONI model

| Category | Definition | Sub-categories |
|---|---|---|
| **GEN** | General Environmental related disclosures: any mention dealing with environmental policy and concern for the environment | 1. Any general mention<br>2. Aims<br>3. Management system and processes<br>4. (Disclosure) guidelines such as the ACCA guidelines adopted<br>5. Initiatives (e.g. Responsible care)<br>6. Results e.g. Awards won, Results resulting from the Policy<br>7. Long-term - any mention of long-term policy |
| **RES** | Who is responsible for the implementation and the environmental behaviour? | 1. Top-management - top management or board<br>a. Committee/audit - any committee or group<br>b. Membership<br>c. Aims and objectives<br>2. Results<br>3. Anybody working with the organisation e.g. reference to each employee. |
| **POLL** | Pollution related disclosures | 1. Air<br>a. Emissions<br>b. Actions/targets undertaken<br>2. Water<br>c. Emissions<br>d. Actions/targets<br>3. Waste<br>e. Situation<br>f. Control /reduction<br>g. Recycling<br>4. Land<br>h. Emissions<br>i. Action /targets<br>5. Results<br>6. Products<br>j. Product related disclosures<br>k. Product development |
| **SUSTAIN** | Disclosures related to sustainability | 1. Any mention of sustainability<br>2. Involvement/Commitment to UNCED, Brundtland, Rio, Kyoto<br>3. Conservation of natural habitat/species |
| **LIAB** | Environmental liabilities | 1. Financial disclosure<br>2. Balance sheet within voluntary section<br>3. Justification for no disclosure |
| **ACT** | Environment-related activities | 1. Training of staff<br>2. Project involvement<br>3. Awards<br>4. Sponsoring |
| **BRR** | Business related risk | 1. Specific environmental risks related to the business<br>2. Attempts to reduce/manage these risks<br>3. Costs involved |
| **PRESS** | Pressure Groups | 1. Shareholders<br>2. Other Stakeholders<br>3. Government |
| **SER** | Separate Environmental Report | 1. Available<br>2. Reference within annual report<br>3. Contact detail |
| **ENE** | Energy related disclosures | 1. Conservation/saving attempts<br>2. Use, development, exploration of alternative energy sources |
| **IRP** | Information retrieval processes to obtain feedback from stakeholders | |
| **Other** | Any other environmental disclosure not fitting the categories above | |

(Beck, Campbell & Shrives 2006)

# Appendix 2: Disclosure types in the CONI model

Type 1: Mention of a given sub-category, providing only little detail
Type 2: Explanation, giving more information than just a mere mention
Type 3: Giving some numerical information
Type 4: Containing added details, explanation of numerical information
Type 5: Numerical information with comparison (typically trend, target or industry average)

(Beck, Campbell & Shrives 2006)

# Appendix 3: CONI-model's company disclosures 2013

## Appendix 3: Company disclosures 2013 – Metsä Group

| Category | Definition | Sub-categories | | Metsä Group | p. | Discl. type |
|---|---|---|---|---|---|---|
| **GEN** | General Environmental related disclosures: any mention dealing with environmental policy and concern for the environment | | | | | |
| | | 1. Any general mention | x | We generate well-being at work, in local communities and in society at large, and commit to global sustainability principles. | 15 | 2 |
| | | 2. Aims | x | What matters is using energy, raw materials and other resources efficiently and maintaining low levels of emissions and waste. | 15 | 2 |
| | | | | The various tools used to describe a product's environmental impacts and production chains do so in very different ways (LCA, carbon footprint, water footprint) | 21 | 2 |
| | | | | The value chain of wood-based products is largely paved with green renewable carbon recycling from forest to product and through product degradation to the atmosphere and back to new wood growth. | 30 | 2 |
| | | 3. Management system and processes | x | Our environmental management is guided by our Environmental Policy and compliance with the ISO 14001 standard for environmental management. The main principles of the Group's Environmental Policy are environmental responsibility, energy and environmental efficiency, sustainable forestry, and requiring environmental responsibility from our suppliers. | 14 | 2 |
| | | | | The Life Cycle Assessment (LCA) assesses the environmental impacts associated with all stages of a product's life cycle. The Environmental Product Declaration (EPD) is based on LCA calculations and reports the product's potential environmental impacts from raw material source to production, and provides information on both renewable and nonrenewable materials and energy resources. The Paper Profile or carbon footprint calculations are more limited in scope. | 20 | 2 |
| | | 4. (Disclosure) guidelines such as the ACCA guidelines adopted | x | GRI G3.1 guidelines / level A+ | 50 | 2 |
| | | 5. Initiatives (e.g. Responsible care) | x | UN Global Compact | | |
| | | | | Code of Conduct | | |
| | | | | All Serla products have the Nordic ecolabel. | 17 | 1 |
| | | | | In 2013, some 82% of the wood supplied by Metsä Group was PEFC and/or FSC® (Licence Code FSC-C014476) certified (82% in 2012). Additionally, Metsä Forest offers forest owners who have a forest management agreement with the company the possibility to join the Group's PEFC and/or FSC group certifications. | 24 | 5 |
| | | | | We want to be a credible discussion partner. The forums we are involved in include (many forums) | 11 | 2 |
| | | | | ISO 9001, 14001, 50001, 22000 BRC; OHSAS 18001 in many production units | 46 | 1 |
| | | | | European Standard EN 15804 | 20 | 2 |
| | | | | Metsä Group is involved in the development of the EU Ecolabel as well as the Nordic Swan criteria. | 20 | 1 |
| | | | | Starting from 1 July 2013, the Construction Product Regulation entered into force and CE marking became mandatory for all construction products covered by a harmonised standard or a European Technical Assessment. | 21 | 2 |
| | | | | Metsä Group holds Chain-of-Custody certificates in all wood supply and production units. | 23 | 1 |
| | | | | Because Metsä Group was one of the pioneers in developing the wood origin tracing systems in Russia, it gave us a solid base for adapting to the EU Timber Regulation's requirements. The aim of the EU Timber Regulation (EUTR) is to ensure that companies take actions to avoid illegally harvested timber entering the EU market. Metsä Group has the necessary process in place to fulfil the | 23 | 2 |
| | | | | The GHG Protocol, which categorises the emissions from direct and indirect sources, is the most widely used tool to quantify greenhouse gas (GHG) emissions. | 29 | 2 |
| | | | | The work is supported by the Energy Efficiency Systems and the ISO 50001 Energy Management Systems. | 29 | 2 |
| | | | | The final decisions on the allocations of freeof-charge CO2 allowances per mill for the EU's third CO2 Emissions Trading Scheme (EU ETS) for the period 2013–2019 were still somewhat unclear at the end of 2013. Thanks to its high share of bioenergy, Metsä Group expects to receive sufficient CO2 allowances. | 30 | 2 |
| | | | | In 2013, the national implementation plans of the new Energy Efficiency directive were prepared. For the time being, Metsä Group expects that our Energy Efficiency System and on-going continuous efforts are for the most part sufficient for compliance. | 30 | 2 |
| | | | | Each mill has environmental permits that set the limits for discharges to water, emissions to air and noise. | 36 | 2 |
| | | | | The Blueprint drives EU water policies over the long-term and enhances the implementation of the Water Framework Directive in all member states by 2015. | 32 | 2 |
| | | | | In July 2013, the European Commission issued the final draft of the revised Best Available Techniques Reference Document (BREF) for the production of pulp, paper and board, which sets the requirements for environmental permits for all pulp and paper mills in Europe. The proposed emission levels will require some investments and steady operations. | 37 | 2 |
| | | 6. Results e.g. Awards won, Results resulting from the Policy | x | | | |
| | | | | We at Metsä Group have reached great results but we can always do more. | 15 | 1 |
| | | | | The Committee for Natural Resources of Leningrad Region awarded Metsä Forest Podporozhe 'Best Forest Leaseholder' for its contribution to sustainable use, regeneration and the protection of forests in Leningrad region, Russia. | 3 | 2 |
| | | | | Metsä Group's new office building in Espoo, Finland, won its category in the Iconic Awards and was the public's favourite to win the Wood Award. | 19 | 1 |
| | | 7. Long-term - any mention of long-term policy | x | Metsä Group's R&D strategy focuses on material, energy and water efficiency. An R&D roadmap for 2020 identifies three focus areas: Process efficiency and resource value; Renewable raw materials as a competitive edge; Value-added products and services | 21 | 2 |
| **RES** | Who is responsible for the implementation and the environmental behaviour? | | | | | |
| | | 1. Top-management - top management or board | | | | |
| | | a. Committee/audit - any committee or group | x | R&D cooperation between Metsä Group's business areas has been systematically deepened over the past few years. This work is led by Metsä Group's R&D team, which comprises representatives from each business area and the Group's sustainability function. | 21 | 2 |
| | | | | The district councils have 125 elected members across the districts and meet twice a year. The councils' most important task is to act as an information channel between the members and the Cooperative's wood supply and forest services organisation, Metsä Forest. | 25 | 2 |
| | | b. Membership | | | | |
| | | c. Aims and objectives | | | | |
| | | 2. Results | | | | |
| | | 3. Anybody working with the organisation e.g. reference to each employee. | | | | |
| **POLL** | Pollution related disclosures | | | | | |
| | | 1. Air | | | | |
| | | a. Emissions | x | In building and construction materials, product safety means that there are no emissions of harmful chemicals into indoor air | 21 | 2 |
| | | | | Due to the latest bioenergy investments, Metsä Group has been able to reach its target to reduce fossil CO2 emissions by 30%. | 28 | 5 |
| | | | | Target: To reduce fossil CO2 emissions in production by 30% per product tonne by 2020 from the 2009 level. Progress: -32% (2009–2013). Comments: we were able to achieve the CO2 reduction target already in 2013. | 28 | 5 |
| | | | | Together, Scope 1 and 2 emissions per tonne of production decreased by 32% from the 2009 emission level, more than our 30% reduction target from 2009 to 2020. Roughly 50% of the emissions materialised in Finland. | 29 | 5 |
| | | | | Greenhouse gas emissions decreased to 855,000 tonnes CO2 (962,000 tonnes in 2012). | 36 | 5 |
| | | | | Acidification emissions increased to 6,698 (6,183) tonnes SO2 eqv. due to higher sulphur emissions from the chemical pulp mills. | 36 | 5 |
| | | b. Actions/targets undertaken | x | To this end, transport efficiency is one of the key performance indicators and part of the bonus systems in certain positions within the Group. We are committed to reduce emissions in a cost-effective way. (longer and heavier trucks) | 27 | 2 |
| | | | | However, together they reduced CO2 emissions by 140,000 tonnes with a further 35,000 tonnes expected to be reduced later on. (bioenergy projects) | 29 | 4 |
| | | | | A new biomass plant is being built in conjunction with Metsä Tissue Mariestad mill in Sweden. It will reduce the mill's oil use by 90% and decrease the mill's CO2 load by approximately 4,000 tonnes, i.e. 25% from the present. | 29 | 5 |
| | | | | They were lower than the previous year due to replacing fossil fuel with wood-based fuels as process fuel at Husum and Joutseno pulp mills and changes in Kyro mill's energy production where the new biopower plant was in use for the first full year. | 29 | 2 |
| | | | | The reduction is the result of replacing fossil oil with wood-based biofuels at Husum and Joutseno pulp mills, and changes in Kyro | 36 | 2 |
| | | | | By utilising the best available technology and cleaner fuels, Metsä Tissue will be able to cut the mill's CO2 emissions per production by 60%; NOX emissions by over 50%; and virtually eliminate SO2 emissions. | 37 | 4 |
| | | | | Additionally, the Commission is planning to set more stringent limits also for small and medium size power plants as a part of the air quality review. Metsä Group considers the proposed emission limits too stringent and the relative cost of reducing the emissions too high compared to achievable environmental benefits. | 37 | 2 |

| Category | Defini-tion | Sub-categories | | Metsä Group | p. | Discl. type |
|---|---|---|---|---|---|---|
| | | 2. Water | | | | |
| | | c. Emissions | x | The main wastewater impacts are eutrophication and oxygen demand caused by phosphorus and nitrogen nutrients as well as organic matter. | 32 | 2 |
| | | | | The Group's total wastewater volume totalled 146 (149) million m3. The Group's COD load was 42,934 (43,629) tonnes and phosphorus 54 (50) tonnes; nitrogen decreased to 624 (637) tonnes. | 32 | 5 |
| | | | | Eutrophication emissions were 179 (184) tonnes P eqv. | 36 | 5 |
| | | d. Actions/targets | x | One of environmental goals for wood supply: Decrease impacts to water | 22 | 1 |
| | | | | Process waters are carefully cleaned before they are released back into the watercourse, ensuring that the environment surrounding our mills is not threatened by our water use. In most cases, the mills have their own wastewater purification plants. | 32 | 2 |
| | | | | Metsä Group has set a goal for its wood supply to decrease the impacts to water in forestry operations. | 32 | 2 |
| | | | | The process water is continuously recycled throughout the process and reused several times, either directly or after the internal purification. It is also effectively cleaned before releasing it back to the watercourse. | 33 | 2 |
| | | | | The improvements in water usage and wastewater treatment have also reduced the amount of wastewater decreasing the mill's eutrophication impacts. | 37 | 2 |
| | | 3. Waste | | | | |
| | | e. Situation | x | Material efficiency means efficient use of natural resources and efficient re-use of waste and residuals. | 34 | 2 |
| | | | | Some 50,000 tonnes of wood-based and mixed ash is generated annually as a byproduct in energy production at Metsä Group's mills | 34 | 4 |
| | | | | The amount of waste generated at the production units varies greatly between the Group's business areas as different processes generate different types and amounts of residuals. However, all mills have significant potential to improve their resource efficiency. | 34 | 2 |
| | | | | In 2013, the total amount of residuals and waste generated by Metsä Group's production units was 845,000 tonnes (805,000 tonnes in 2012) mainly consisting of fibre sludge, ashes from energy production and green liquor sludge from chemical pulp production. From this, only 76,000 (81,000) tonnes were landfilled consisting mostly of green liquor sludge. | 34 | 5 |
| | | f. Control /reduction | x | Metsä Group continuously seeks new ways to re-use residuals and reduce the amount of waste by enhancing recovery processes and increasing the energy use of organic waste. | 34 | 2 |
| | | g. Recycling | x | Process efficiency and resource value contains several R&D topics that need continuous efforts including increasing the yield of production, minimising the use of energy and finding optimal use for the side-streams. | 21 | 2 |
| | | | | The Group supplied 4.4 TWh woodbased fuels originating from process side streams and logging residuals. | 28 | 2 |
| | | | | The ash is further used as construction material in roads, sports grounds and landfill sites, for example, and as a forest fertiliser for peatlands. | 34 | 2 |
| | | | | Furthermore, 766,000 tonnes representing 91% of the total waste amount was recycled (608,117 tonnes i.e. 88%) in bioenergy production or as fertiliser, for example. | 34 | 5 |
| | | | | Waste is mainly recycled for material and energy use. | 35 | 1 |
| | | 4. Land | | | | |
| | | h. Emissions | x | Residuals and waste will be landfilled only if they cannot be used elsewhere. | 34 | 1 |
| | | i. Action /targets | x | *to reduce waste* | | |
| | | 5. Results | x | many results | | |
| | | 6. Products | | | | |
| | | j. Product related disclosures | x | Our products are sustainable alternatives to many nonrenewable products and raw materials. | 15 | 1 |
| | | | | We know the environmental footprints of our products and want to discuss them with you transparently. | 15 | 1 |
| | | | | Serla brand is a promise of responsible products and behavior to its customers. | 17 | 1 |
| | | | | Rapid construction, lightness and durability are some of the fundamental qualities of Metsä Wood's solutions. | 18 | 1 |
| | | | | Ensuring product safety is extremely important in products that are used in human or food contact applications | 21 | 2 |
| | | k. Product development | x | For customers, this means lighter weights and even better optimised products. | 16 | 1 |
| | | | | Metsä Board's folding boxboards are in total as much as 30% lighter than some competing cartonboards, thus providing customers with a considerable yield benefit. | 16 | 4 |
| | | | | Responsibility has been the starting point also in creating the new, practical Serla Household sheet | 17 | 2 |
| | | | | Serla acts responsibly throughout the product lifecycle and brings innovations to consumers' versatile and changing needs. | 17 | 2 |
| | | | | Rapid construction, lightness and durability are some of the fundamental qualities of Metsä Wood's solutions. | 18 | 1 |
| | | | | use of ecolabels | 20 | 1 |
| **SUSTAIN** | Disclosures related to sustainability | | | | | |
| | | 1. Any mention of sustainability | x | We generate well-being at work, in local communities and in society at large, and commit to global sustainability principles. | 15 | 2 |
| | | | | Our products come from sustainably managed forests. For every tree that is harvested we make sure that new ones get planted for the coming generations. Together with our partners, we secure a sustainable supply of raw materials for our units and a supply of renewable products for our customers. | 15 | 2 |
| | | | | SUSTAINABLE OFFERING: Sustainable products, services and innovations | 15 | 2 |
| | | | | Metsä Group's products demonstrate how we in practice and in a sustainable way improve the well-being of everyone. | 16 | 2 |
| | | | | The new service to secure the growth of the seedling stands promotes the sustainable use of forests and aims at securing the growth of highquality wood also in the future. | 19 | 2 |
| | | | | Our products enable our customers to make sustainable choices and improve their environmental footprint. | 20 | 2 |
| | | | | One of environmental goals for wood supply: Ensure legal and sustainable wood supply | 22 | 1 |
| | | | | The survey of the biodiversity values of Metsä Group's leased forests in Podporozhye, Russia, that was commissioned in 2007 continues. | 23 | 2 |
| | | | | Metsä Forest Finland, Russia, Estonia and Latvia perform regular wood supplier and logging site audits to verify the wood origin and sustainability of the wood supply. | 23 | 2 |
| | | | | Metsä Group considers forest management and Chain-of-Custody certifications to be excellent tools to both ensure and further evolve the sustainability of the supply chain and forestry operations. | 24 | 2 |
| | | | | We only deal with reliable suppliers who act responsibly and are committed to sustainability. | 26 | 1 |
| | | | | New solutions for more efficient, reliable and sustainable logistics throughout the whole transportations chain are continuously developed. | 27 | 2 |
| | | 2. Involvement/Commitment to UNCED, Brundtland, Rio, Kyoto | | | | |
| | | 3. Conservation of natural habitat/species | x | One of environmental goals for wood supply: Maintain biodiversity | 22 | 1 |
| | | | | Metsä Group does not use genetically modified trees or raw materials. | 21 | 2 |
| | | | | They (northern forests) also provide a wide range of benefits from recreation possibilities and berry and mushroom picking to the maintenance of hydrological systems and soil quality. | 22 | 2 |
| | | | | These operations imitate natural processes, such as prescribed burning, in order to safeguard biodiversity. Metsä Group started surveying species dependent on forest fires in its northern Finland forests in 2013 and will continue this work in the coming years. | 22 | 2 |
| **LIAB** | Environmental liabilities | | | ENVIRONMENTAL LIABILITIES REMAIN THE SAME: We constantly evaluate our liabilities from closed down, sold or leased industrial properties as well as decommissioned landfills. We reduce our liabilities through thorough remediation work. | 36 | 2 |
| | | 1. Financial disclosure | x | ENVIRONMENTAL LIABILITIES REMAIN THE SAME | 36 | 1 |
| | | 2. Balance sheet within voluntary section | | | | |
| | | 3. Justification for no disclosure | | | | |
| **ACT** | Environment-related activities | | | | | |
| | | 1. Training of staff | x | Metsä Group's crisis management team conducts regular training to prepare for possible emergency situations. | 36 | 2 |
| | | | | One of environmental goals for wood supply: Secure the knowledge of personnel and contractors. | 22 | 1 |
| | | | | In 2013, water protection actions included a completion of extensive training for forest specialists in Metsä Forest's Finnish operations on the new water protection requirements on peat lands. | 23 | 2 |
| | | | | In order to ensure the wood supply's upto-date knowledge and the subcontractors' competence in quality and environmental issues, Metsä Forest has established an online training platform. The plan is to extend the use of the online tool to cover all subcontractors during 2014 including forest services, harvesting, wood energy and wood transportation contractors. | 23 | 2 |
| | | | | Training has mainly focused on reforestation methods, pre-commercial thinning and forest road construction. | 24 | 2 |
| | | | | Metsä Forest has been preparing for the forthcoming changes already in 2013 by organising training on Forest Act changes and on uneven-aged silviculture, among others. | 25 | 2 |
| | | | | An extensive training programme on peatland forest management was completed for Metsä Group's forest specialists in 2013. | 34 | 2 |
| | | | | Metsä Group's crisis management team conducts regular training to prepare for possible emergency situations. | 36 | 2 |
| | | 2. Project involvement | x | To strengthen the external R&D networks, Metsä Group co-founded and acts as a chairman in the Finnish Bio-economy Cluster, FIBIC Ltd, an umbrella organisation for large, forward-looking research programs. | 21 | 2 |
| | | | | Metsä Group participated in a cooperation network under the METSO programme in 2011–2013 aiming to develop the nature management of the ecotones of forest areas towards enhancing game species' habitat requirements | 23 | 2 |
| | | | | Metsä Group participated in the revision working group of the Forestry Development Centre Tapio's Forest Management Recommenc | 25 | 2 |
| | | | | During 2013, Metsä Group was active in R&D projects related to the re-use of waste. A fine example is the TUULI project in Finland, which is a national scale collaboration project to create new products, materials and business opportunities from ashes derived from biomass. Metsä Group has also financed academic studies and other R&D projects related to the re-use of waste during 2013. | | |
| | | | | Moreover, we are participating in the UUMA2 project through the Finnish Forest Industries Federation, which aims to increase the use of waste materials in soil and road construction. | 34 | 2 |

| Category | Definition | Sub-categories | | Metsä Group | p. | Discl. type |
|---|---|---|---|---|---|---|
| | | 3. Awards | x | The Committee for Natural Resources of Leningrad Region awarded Metsä Forest Podporozhe 'Best Forest Leaseholder' for its contribution to sustainable use, | 3 | 2 |
| | | 4. Sponsoring | x | We focus on sponsoring sustainability initiatives and aim to improve the well-being of children and young people. | 43 | 1 |
| | | | | Let's Help Young People -campaign, WWF Finland (aim to promote sustainable forestry), employment opportunities to young people | 3 | 2 |
| **BRR** | Business related risk | | | | | |
| | | 1. Specific environmental risks related to the business | x | | | |
| | | | | Each mill has environmental permits that set the limits for discharges to water, emissions to air and noise. | 36 | 2 |
| | | | | One serious malpractice was found in 2013 and it led to a termination of the wood delivery contract with the supplier. | 23 | 2 |
| | | | | Our new target is to audit all of risk-rated key material suppliers against sustainability criteria by 2015. | 26 | 1 |
| | | | | The waste can be hazardous: The amount of hazardous waste was 1,256 (2,021) tonnes and mainly contained oils, chemicals and batteries. | 34 | 5 |
| | | | | In addition, mills carry out actions to prevent accidental releases and conduct regular environmental risk analyses. | 36 | 2 |
| | | | | All environmental incidents that resulted in major permit violations, claims, compensations or significant media coverage are detailed in the following table. In addition, minor and short-term non-compliances with environmental permit requirements were also reported at Metsä Board Gohrsmühle mill in Germany and Simpele mill in Finland. Traces of oil from Äänevoima's oil incident in 2011 were detected in Lake Kuhnamo at Äänekoski, Finland. Metsä Fibre's Joutseno mill suffered from abnormally high emissions of reduced sulphur compounds during the year, which generated several complaints of bad odours in the surrounding residential areas. | 36 | 2 |
| | | | | Quite many incidents in 2013 (the permit limits of emissions exceeded) | 37 | 2 |
| | | 2. Attempts to reduce/manage these risks | x | We continuously assess the environmental risks of both our own and our partners' operations. Environmental impacts and related risks are mitigated by sustained development of our production processes. | 36 | 2 |
| | | | | We continuously assess the environmental risks of both our own and our partners' operations. | 36 | 1 |
| | | | | The authorities were informed immediately and corrective actions were taken in all cases. The authorities were informed and oil traces exposed by the lake's exceptionally low water level were cleaned immediately from the shoreline. Corrective actions have been | 36 | 2 |
| | | 3. Costs involved | x | Svir sawmill in Russia paid EUR 20,527 for exceeding the permit level for water discharges. In addition, a fine of EUR 622 was paid to the Russian Environmental Department in the North-Western Federal District. | 36 | 4 |
| **PRESS** | Pressure Groups | | | | | |
| | | 1. Shareholders | x | Cooperative's owner-members | | |
| | | 2. Other Stakeholders | x | By behaving responsibly towards our employees and society, we can improve the quality of life of our stakeholders. | 15 | 2 |
| | | | | Metsä Group's products demonstrate how we in practice and in a sustainable way improve the well-being of everyone. | 16 | 2 |
| | | | | Carta Elega's shade was developed to better meet customer needs. (white shade) | 16 | 2 |
| | | | | Consumers are increasingly interested in the environmental impacts of the choices they make when purchasing a product. Ecolabels help consumers make those choices. | 20 | 2 |
| | | | | various methods to communicate environmental impact | | |
| | | | | Metsä Group has a long tradition of working closely with its key stakeholders, especially with Finnish forest owners, and the wood we use mainly originates from family-owned forests that belong to the members of the Cooperative. | 22 | 2 |
| | | | | Ethical business practices are the foundation of Metsä Group's purchasing operations. Transparency and responsibility of the entire supply chain are of rising interest to our customers and other stakeholders. | 26 | 2 |
| | | | | This fuel enables our customers to replace fossil fuels and reduce their fossil CO2 emissions by some 1,200,000 tonnes annually. | 28 | 4 |
| | | 3. Government | x | The new Finnish Forest Act entered into force at the beginning of 2014. Moreover, the Act on the Prevention of Forest Damages entered into force at the beginning of 2014. The Forest Management Association Act will come into force in 2015. The Nature Conservation Act and the Act on the Financing of Sustainable Forestry are under revision in 2014. | 25 | 2 |
| | | | | Since legislation in Europe is driving our industry to reduce and re-use waste, we must overcome the current barriers and develop new products and processes. By allowing inorganic wastes in landfilling and for re-use in earth construction, the authorities would encourage the forest industry to seek new solutions for wastes with high organic content from incineration | 35 | 2 |
| **SER** | Separate Environmental Report | | | | | |
| | | 1. Available | x | Sustainability Report 2013 | | |
| | | 2. Reference within annual report | | | | |
| | | 3. Contact detail | | | | |
| **ENE** | Energy related disclosures | | | | | |
| | | 1. Conservation/saving attempts | x | For this transport and logistics company, Metsä Wood's wooden structures' extremely small carbon footprint in comparison with other materials on the market was an important criterion. | 18 | 2 |
| | | | | Increasing the share of bioenergy along with improving energy efficiency are the Group's main means to combat climate change. | 28 | 2 |
| | | | | Target: To improve energy efficiency by 10% by 2020 from the 2009 level.. Progress: 5% (2009–2013). Comments: The considerable production efficiency improvements at mills combined with continued specific energy saving actions resulted in a big improvement in the energy efficiency. | 28 | 5 |
| | | | | Improving energy efficiency is an integral part of all major investments in production capacity. | 30 | 2 |
| | | | | Our long-term target is to enhance our energy efficiency by 10% by 2020 from the 2009 level. To date, we have improved it by 5%. | 30 | 5 |
| | | | | The benefits include improved material efficiency, reduced energy use and a lower noise level. | 37 | 2 |
| | | 2. Use, development, exploration of alternative energy sources | x | Group's own energy production accounted for 85% (83%), partly as a result of the bioenergy projects taken into use at Kyro and Joutseno mills in late 2012. The full potential of these investments was not reached in 2013 as the biomass gasification plant at | | |
| | | | | Metsä Fibre Joutseno mill in Finland failed to reach its full capacity due to problems in the ramp-up phase. | 28 | 5 |
| | | | | Energy efficiency is improved mainly by conducting energy analyses, modifying processes and cooperating with equipment manufacturers. In 2013, altogether 96 actions (87 in 2012) were completed that will potentially reduce annual electricity consumption | 29 | 5 |
| **IRP** | Information retrieval processes to obtain feedback from stakeholders | | x | | | |
| | | | | We know the environmental footprints of our products and want to discuss them with you transparently. | 15 | 1 |
| | | | | Since knowing the environmental impact of our products is essential to our customers, we use various methods to communicate the environmental impacts of both our products and processes. All these tools differ somewhat in what is reported and how wide the scope is. | 20 | 2 |
| | | | | Most customer complaints are filed due to visual or mechanical damages originating from production. | 21 | 2 |
| | | | | Metsä Forest continuously gathers customer service feedback on each forest management operation. In 2013, approximately 30,000 responses were received (response rate 35%) to gather the forest owners' wishes and ideas on how to improve the services. The results have been very good and they have further improved during the last few years. | 25 | 4 |
| **Other** | Any other environmental disclosure not fitting the categories above | | x | | | |
| | | | | Metsä Group's main raw material, sustainably grown wood, is renewable and recyclable. | 20 | 2 |
| | | | | With these regionally tighter regulations and timeframe, it is challenging to find feasible solutions to fully mitigate the negative impact to Metsä Group's logistics costs. (different content levels on emissions) | 27 | 4 |
| | | | | Metsä Group sees that in the future, the EU should have only one CO2 reduction target and it should not set binding targets on renewable energy or energy efficiency. Furthermore, the EU should not unilaterally tighten its CO2 reduction target since combating climate change requires global actions. The EU's unilateral measures might even have a negative impact on the climate if it leads to the transfer or growth of industrial production in areas with higher CO2 emissions compared to the EU. | 30 | 2 |
| | | | | As water is essential in our processes, our mills are located in areas with abundant water sources. | 32 | 1 |
| | | | | Metsä Group's environmental obligations at the end of 2013 totalled EUR 28 (27) million. | 36 | 5 |

# Appendix 3: Company disclosures 2013 – Stora Enso

| Category | Def. | Sub-categories | | Stora Enso | p. | Discl. type |
|---|---|---|---|---|---|---|
| GEN | General Environmental related disclosures: any mention dealing with environmental policy and concern for the environment | | | | | |
| | | 1. Any general mention | x | Stora Enso's operations are based on the processing of renewable resources. | 58 | 1 |
| | | | | We always rethink the old and expand to the new to offer our customers innovative solutions based on renewable materials. | 2 | 2 |
| | | | | At the core of Stora Enso's business is our aim to replace non-renewable materials with products and solutions based on renewable materials – and thus utilise our expertise on renewable materials to promote sustainable living globally. | 16 | 2 |
| | | 2. Aims | x | We are transforming ourselves into a renewable materials company that creates value for our stakeholders globally. | 4 | 1 |
| | | | | We strive to continuously improve the energy, material and water efficiency of our operations and business models, in order to enhance business benefits and save natural resources and financial resources. | 54 | 2 |
| | | | | Our ultimate "Vision Zero" is of an industry with no waste to landfill, no harmful air emissions, and no wastewater discharges. | 55 | 2 |
| | | 3. Management system and processes | x | management systems such as ISO and OHSAS | 11 | 1 |
| | | | | We practice economically, socially and environmentally sustainable forest and tree plantation management. The right balance between these different aspects of sustainability varies by region | 48 | 2 |
| | | | | Stora Enso works according to internationally approved principles and forest management practices, and applies established planning procedures when setting up sustainable plantations. | 49 | 2 |
| | | | | Stora Enso has management systems in place to ensure that all our units adapt the relevant best environmental practices | 55 | 2 |
| | | 4. (Disclosure) guidelines such as the ACCA guidelines adopted | x | GRI G4 / comprehensive level | | |
| | | 5. Initiatives (e.g. Responsible care) | x | UN Global Compact | | |
| | | | | Code of Conduct | | |
| | | | | These traceability systems are third party verified through the FSC Chain of Custody/Controlled Wood scheme, the PEFC™ Chain of Custody/Due Diligence System and ISO 14001. | 48 | 1 |
| | | | | Stora Enso is also actively participating in the Water Footprint Network and in the development of an international ISO standard for water accounting. | 60 | 2 |
| | | | | ISO 9001, 14001, 22000, 50001, OHSAS 18001, BRC/IoP/FDA | 66 | 1 |
| | | | | many memberships in associations | 15 | 1 |
| | | | | In 2013 we renewed our participation agreement with the Global Forest & Trade Network (GFTN). This initiative of the World Wide Fund for Nature (WWF) aims to eliminate illegal logging and drive improvements in forest management. | 48 | 2 |
| | | | | The European Union's emission trading system (ETS) | 56 | 2 |
| | | | | harvested timber and timber products in EU markets. Stora Enso's wood procurement practices ensure that we fulfil these obligations. | 48 | 2 |
| | | | | During 2013 we were also involved in the development of the United Nation Global Compact's Sustainable Agriculture Principles | 49 | 1 |
| | | | | During 2013 Stora Enso also continued to participate in wider initiatives that aim to enhance sustainable plantation forestry globally through dialogues with other companies, governmental organisations and the WWF. | 49 | 2 |
| | | | | In 2013 Stora Enso and 25 other leading forest product companies signed up to the Leadership Statement on the Value and Future of Forest Certification created by the World Business Council for Sustainable Development (WBCSD) Forest Solutions Group. | 49 | 2 |
| | | | | In Estonia, we continued a pilot project for SmartLogging certification | 50 | 2 |
| | | 6. Results e.g. Awards won, Results resulting from the Policy | x | External recognition: Carbon Disclosure Leadership Index, UN Global Compact Stock Index, STOXX® Global ESG Leaders indices, FTSE4Good Index, RobecoSAM Sustainability Award, World's Most Ethical Companies | 69 | 2 |
| | | | | Stora Enso has qualified for inclusion in RobecoSAM's 2014 Sustainability Yearbook and received the Bronze Class distinction for excellent sustainability performance. | 69 | 2 |
| | | | | Stora Enso was named by the Ethisphere Institute as one of the World's Most Ethical Companies in 2013 | 69 | 2 |
| | | | | For the fourth consecutive year Stora Enso achieved a high rating in the Carbon Disclosure Project's Nordic 260 Climate Disclosure Leadership Index (CDLI) in 2013. | 57 | 2 |
| | | 7. Long-term - any mention of long-term policy | x | Water management is one of our long-term focus areas covered by Key Performance Indicators in our Global Responsibility work. | 60 | 1 |
| | | | | Sustainable forest management is in our immediate and long-term interest, as it keeps forests healthy and productive, and thus helps to secure the long-term availability of this renewable resource. | 47 | 2 |
| | | | | This is also important from a business perspective, as plantations are always intended to be long-term investments | 49 | 1 |
| RES | Who is responsible for the implementation and the environmental behaviour? | | | | | |
| | | 1. Top-management - top management or board | | | | |
| | | a. Committee/audit - any committee or group | x | The Stora Enso Group's divisions and support functions are responsible for daily sustainability issues and their operational management. | 11 | 2 |
| | | | | issues, manage environmental liabilities, and cooperate with the respective environmental authorities, federations and lobbying organisations. | 55 | 2 |
| | | | | All of our units have operational responsibility for their own environmental management. | 55 | 1 |
| | | | | Stora Enso's business units also follow regulatory requirements regarding environmental risk assessment. | 56 | 1 |
| | | | | To help us reach our target we have set up an internal team of energy efficiency specialists, an Energy Forum Network, various topic specific energy campaigns and a centralised energy efficiency fund. | 59 | 2 |
| | | | | Its energy efficiency manager is responsible for coordinating and steering our energy efficiency work and promoting the spread of related information. | 59 | 2 |
| | | | | Our mills are therefore ultimately responsible for optimising and rethinking their existing processes so as to maximise their own energy efficiency. | 59 | 2 |
| | | b. Membership | | | | |
| | | c. Aims and objectives | | | | |
| | | 2. Results | | | | |
| | | 3. Anybody working with the organisation e.g. reference to each employee. | | | | |
| POLL | Pollution related disclosures | | | Our ultimate "Vision Zero" is of an industry with no waste to landfill, no harmful air emissions, and no wastewater discharges. | 55 | 2 |
| | | 1. Air | | | | |
| | | a. Emissions | x | Most of the greenhouse gas emissions generated by our operations come from the energy we purchase and produce at our mills. | 55 | 1 |
| | | | | In 2013 our CO2 emissions per saleable tonne of pulp, paper, and board were 28% lower than the 2006 benchmark level, so we are on our way towards reaching our target. | 55 | 5 |
| | | | | production. | 55 | 2 |
| | | | | Our energy consumption is also the greatest source of our CO2 emissions, so improving our energy efficiency is a vital way to reduce our climate impact | 58 | 2 |
| | | | | The transportation of our final products accounted for 16% of our total carbon footprint in 2013. | 60 | 4 |
| | | | | These emissions include carbon dioxide (CO2), sulphur dioxide (SO2) and nitrogen oxides (NOx). | 60 | 1 |
| | | b. Actions/targets undertaken | x | Our key environmental targets direct us to reduce our carbon dioxide (CO2) emissions and process water discharges, while also steering us towards continuous improvements in the material efficiency of our operations. We monitor our progress towards these targets and other indicators of our environmental performance on a quarterly basis, and report our consolidated results every year | 55 | 2 |
| | | | | Stora Enso is constantly working to reduce carbon dioxide (CO2) emissions along the company's value chain. This involves promoting sustainable forestry, creating innovative products based on renewable raw materials, and developing cleaner and more efficient processes and operations. | 55 | 2 |
| | | | | The most effective way for us to reduce our fossil CO2 emissions is to further improve our energy efficiency and to increase the share of bioenergy in our total energy use. | 55 | 2 |

| Category | Def. | Sub-categories | | Stora Enso | p. | Discl. type |
|---|---|---|---|---|---|---|
| | | b. Actions/targets undertaken | | tonne of pulp, paper, and board by 35% from 2006 levels by the end of 2025. This CO2 intensity target covers both emissions generated directly by our own facilities (Scope 1), and indirect emissions produced during the generation of the electricity and heat we purchase (Scope 2). | 55 | 5 |
| | | | | Reductions in our CO2 intensity in previous years have been achieved through investments in biomass boilers that have reduced our use of fossil fuels, and through increases in our internal production of power and heat. | 55 | 2 |
| | | | | Sustainable forest and plantation management plays a vital role in mitigating global warming. Trees absorb carbon dioxide from the atmosphere and store the carbon it contains. Carbon is also stored in harvested wood products | 56 | 2 |
| | | | | We actively promote transport solutions with good environmental performance. | 60 | 1 |
| | | | | We are working to reduce our emissions to air by using more renewable energy and by increasing our energy efficiency. | 60 | 2 |
| | | 2. Water | | | | |
| | | c. Emissions | x | During 2013 our normalised discharges of chemical oxygen demand (COD), calculated per saleable tonne of pulp, paper and board, continued to decline. | 61 | 5 |
| | | | | In 2013 our normalised discharges of nitrogen and phosphorus increased. Over the past five years our normalised discharges of phosphorus have increased by 2% and discharges of nitrogen have increased by 11%. | 61 | 5 |
| | | | | In 2013 we continued to reduce our normalised discharges of Adsorbable Organic Halogen Compounds (AOX). | 61 | 2 |
| | | | | In 2013 despite our efforts the volume of the Group's process water discharges per saleable tonne increased slightly | 61 | 2 |
| | | d. Actions/targets | x | Our environmental targets include quantitative and qualitative targets for process water discharges. During 2013 we extended these process water discharge targets to 2015 | 60 | 2 |
| | | | | These initiatives include the CEO Water Mandate of the UN Global Compact and the work of the World Business Council for Sustainable Development on water risk assessment tools. Stora Enso is also actively participating in the Water Footprint Network and in the development of an international ISO standard for water accounting. | 60 | 2 |
| | | | | Stora Enso uses top class wastewater treatment systems to ensure that the water we release is purified, ecologically safe, and meets all regulatory requirements. Our water treatment systems also recycle water within mills where feasible, reducing the need for water | 61 | 2 |
| | | | | We strive to continuously reduce water use at our pulp, paper and board mills. | 61 | 2 |
| | | 3. Waste | | | | |
| | | e. Situation | x | Our waste reuse rate across the Group in 2013 was 97% (97% in 2012). Stora Enso's production processes generate various wastes, the vast majority of which are reused as residuals | 62 | 5 |
| | | | | We dispose of hazardous wastes by ensuring that they are safely processed at hazardous waste facilities or incinerators. | 62 | 2 |
| | | f. Control /reduction | x | We are constantly looking for new and innovative ways to reuse materials that would otherwise end up as wastes. | 62 | 2 |
| | | | | In our Global Responsibility Strategy and on the basis of our review of our Key Performance Indicators (KPIs) we have decided to discontinue our previous target on waste to landfill, but instead to focus on improving material efficiency as a broader concept. | 62 | 2 |
| | | g. Recycling | x | In Spain we largely use used recycled beverage cartons as raw material for board production at our Barcelona Mill. | 21 | 1 |
| | | | | Almost all of the water we use directly comes from lakes and rivers, and around 95% of this total volume is recycled back to the environment. This recycling occurs either after appropriate treatment (for process water), or without treatment where this is not | 60 | 4 |
| | | | | We are constantly looking for new and innovative ways to reuse materials that would otherwise end up as wastes. | 62 | 2 |
| | | 4. Land | | | | |
| | | h. Emissions | x | Whenever a mill is closed down, Stora Enso ensures that the mill site and surrounding area is properly cleaned and restored, in accordance with local laws, regulations, and environmental permits. | 63 | 2 |
| | | | | different kind of waste to landfills (2009-2013) | 63 | 5 |
| | | | | The impacts of tree plantations on local water balances and soils interest many of our stakeholders. | 49 | 1 |
| | | i. Action /targets | x | some of the land owned by Stora Enso is protected | 53 | 3 |
| | | | | In our Global Responsibility Strategy and on the basis of our review of our Key Performance Indicators (KPIs) we have decided to discontinue our previous target on waste to landfill, | 62 | 2 |
| | | 5. Results | x | many results | | |
| | | 6. Products | | | | |
| | | j. Product related disclosures | x | Stora Enso's work has several links to agriculture along our value chain, ranging from the development of innovative land use practices in our tree plantations to providing the food industry with sustainable packaging solutions. | 49 | 2 |
| | | | | Russian wood suppliers' customers, consumers and other stakeholders are increasingly demanding that their products meet high sustainability standards. | 50 | 2 |
| | | | | We recognise a strategic opportunity in the fact that all Stora Enso's products are based on renewable materials with a comparatively low carbon footprint. | 56 | 2 |
| | | | | All our papers, boards, packages and solid wood products are based on renewable raw materials and safely recyclable. | 16 | 1 |
| | | k. Product development | x | Stora Enso is constantly working to reduce carbon dioxide (CO2) emissions along the company's value chain. This involves promoting sustainable forestry, creating innovative products based on renewable raw materials, and developing cleaner and more | 55 | 2 |
| | | | | At the summit, Stora Enso highlighted the role that renewable packaging and recycling systems can play in enhancing resource efficiency globally. | 55 | 2 |
| **SUSTAIN** | | Disclosures related to sustainability | | | | |
| | | 1. Any mention of sustainability | x | We also publicised our sustainability requirements among our PfR suppliers and analysed their sustainability performance. | 21 | 2 |
| | | | | At the core of Stora Enso's business is our aim to replace non-renewable materials with products and solutions based on renewable materials – and thus utilise our expertise on renewable materials to promote sustainable living globally. | 16 | 2 |
| | | | | Sustainable forest management also helps to maintain other valuable features of forests, such as biodiversity. | 56 | 2 |
| | | | | Sustainable forest management is in our immediate and long-term interest, as it keeps forests healthy and productive, and thus helps to secure the long-term availability of this renewable resource. | 47 | 2 |
| | | | | Our key environmental priorities in sustainable forestry include the conservation of biodiversity, soil protection, and preserving the quality and quantity of water resources. | 48 | 2 |
| | | | | All of the roundwood, chips, sawdust and externally purchased pulp supplied to our mills comes from sustainable sources. | 48 | 1 |
| | | | | The sustainability performance of Stora Enso's forestry operations is often monitored in cooperation with local institutes. | 48 | 2 |
| | | | | We promote credible forest certification as a tool to enhance sustainable forest management practices. (PEFC, FSC) | 49 | 2 |
| | | | | These systems are used to verify that our plantation operations meet recognised standards for sustainable plantation management | 49 | 2 |
| | | | | Our purchased pulp meets the same sustainability criteria as our purchased wood. | 52 | 2 |
| | | | | To find out more about our external pulp suppliers' sustainability performance, we sent them a specially designed sustainability questionnaire during 2012. | 52 | 2 |
| | | | | Our responsibility requirements for suppliers and the sustainability audits we conduct at suppliers' facilities both include strict environmental criteria. | 55 | 2 |
| | | | | We promote forest certification and chain-of-custody certification schemes to guarantee that all our wood originates from sustainably managed forests and tree plantations. | 56 | 2 |
| | | | | Water issues are an integral element in our sustainable forest management and land use | 61 | 2 |
| | | 2. Involvement/Commitment to UNCED, Brundtland, Rio, Kyoto | | | | |
| | | 3. Conservation of natural habitat/species | x | In Sweden, Stora Enso is working with Bergvik Skog in several projects that aim to conserve biodiversity and minimise the negative impacts of logging. | 51 | 2 |
| | | | | In Finland, Stora Enso has continued to actively promote the voluntary METSO forest biodiversity protection programme run by the Finnish government. | 51 | 2 |
| | | | | Sustainable forest management also helps to maintain other valuable features of forests, such as biodiversity. | 56 | 2 |
| | | | | In the areas around Veracel's plantations we protect local biodiversity by restoring natural Atlantic rainforest habitats, and by supporting related environmental education and academic research. | 6 | 2 |
| | | | | biodiversity is key topic in forests and land use | 9 | 1 |
| | | | | We constantly monitor the impacts of our plantation operations on local biodiversity and water levels. | 26 | 1 |
| | | | | Our key environmental priorities in sustainable forestry include the conservation of biodiversity, soil protection, and preserving the quality and quantity of water resources. | 48 | |
| | | | | Ecological landscape plans and biodiversity assessments conducted to identify valuable habitats form the basis for management planning in tree plantations and in our associate forest companies | 50 | 2 |
| | | | | We only establish tree plantations on lands with low biodiversity value, such as former pasturelands. During 2013 we continued our efforts to preserve and enhance biodiversity in various countries. | 50 | 2 |
| | | | | Stora Enso never converts natural forests or protected areas into plantations. | 49 | 1 |
| | | | | We also actively combat illegal logging, which is one of the causes of forest loss and degradation, threats to biodiversity and | 56 | 2 |

| Category | Def. | Sub-categories | | Stora Enso | p. | Discl. type |
|---|---|---|---|---|---|---|
| **LIAB** | Environmental liabilities | | | issues, manage environmental liabilities, and cooperate with the respective environmental authorities, federations and lobbying organisations. | 55 | 2 |
| | | 1. Financial disclosure | x | Our calculations on environmental provisions estimate that a total sum of EUR 106 million (EUR 114 million) is needed to cover the Group's future environmental liabilities, such as removing mercury and other contaminants from closed mill sites. | 63 | 5 |
| | | 2. Balance sheet within voluntary section | | | | |
| | | 3. Justification for no disclosure | | | | |
| **ACT** | Environment-related activities | | | | | |
| | | 1. Training of staff | x | This monitoring aims to measure the environmental quality of the assessed operations and use the resulting information to take corrective actions and improve operations where necessary, by providing suitable training, for instance. (forestry operations) | 48 | 2 |
| | | | | Stora Enso has been preparing to comply with new Finnish forest legislation that will come into force in January 2014 by training personnel and participating in the revision of the Finnish forest management guidelines. | 50 | 2 |
| | | | | Our employees and forestry contractors receive on-the-job training on ecological management. | 50 | 1 |
| | | | | More than 500 personnel have so far been trained to apply the method. ("Right method") | 51 | 2 |
| | | | | Our mills regularly provide training on environmental issues for their employees. | 55 | 1 |
| | | | | We also frequently organise broader sustainability training sessions for our employees, customers and local communities in our operational areas. | 55 | 2 |
| | | | | We use face-to-face meetings as well as e-learning platforms to inform our customers and train our sales staff on environmental and social responsibility issues. Training sessions include practical exercises emphasising the relevance of sustainability issues in all of our daily work. | 16 | 2 |
| | | | | We train our purchasing personnel on supply chain responsibility issues on a one-to-one basis, through group training sessions, and with the help of an e-learning tool. Such training targets Group-level and unit-level purchasers in all purchasing categories. | 20 | 2 |
| | | | | In 2013 Stora Enso's PfR Management Team and PfR purchasers received training on our sustainability requirements. | 21 | 1 |
| | | 2. Project involvement | x | Together with WWF Russia and local logging companies we have continued to expand our own FSC certification group for wood suppliers who wish to certify their forest lease areas under FSC. | 50 | 2 |
| | | | | In Finland, Stora Enso has continued to actively promote the voluntary METSO forest biodiversity protection programme run by the Finnish government. | 51 | 2 |
| | | | | Stora Enso is also cooperating with Fauna and Flora International (FFI) on biodiversity monitoring in the tree plantations. | 26 | 2 |
| | | | | In Uruguay, our joint venture company Montes del Plata is well under way with the implementation of its Ecoregion Planning scheme, which integrates ecoregion landscape criteria into an improved forest planning tool. | 51 | 2 |
| | | | | We are also a member of the committee of the Perintömetsä (Heritage Forest) programme organised by WWF Finland. | 51 | 2 |
| | | | | Stora Enso Wood Supply Finland also participates in ongoing work that aims to create an FSC Controlled Wood Risk Assessment for Finland. (also Sweden) | 50 | 2 |
| | | | | In 2013 we renewed our participation agreement with the Global Forest & Trade Network (GFTN). This initiative of the World Wide Fund for Nature (WWF) aims to eliminate illegal logging and drive improvements in forest management | 48 | 2 |
| | | | | In 2013 we also participated in the Forest Programme of the Carbon Disclosure Project (formerly Forest Footprint Disclosure) in order to measure and transparently report the forest footprint of our entire value chain. | 48 | 2 |
| | | | | Veracel also works with a shipping company and the Humpback Whale Institute to monitor and conserve humpback whales in | 51 | 1 |
| | | 3. Awards | x | External recognition: Carbon Disclosure Leadership Index, UN Global Compact Stock Index, STOXX® Global ESG Leaders indices, FTSE4Good Index, RobecoSAM Sustainability Award, World's Most Ethical Companies | 69 | 2 |
| | | 4. Sponsoring | x | In 2013 we were a sponsor at the World Climate Summit 2013 held in Warsaw, Poland. | 55 | 1 |
| **BRR** | Business related risk | | | | | |
| | | 1. Specific environmental risks related to the business | x | In March 2013, a coalition of NGOs placed a complaint before the UN Human Rights Council (UNHRC) about Stora Enso's land leasing practices in Guangxi, China. The NGOs also referred to the biodiversity challenges caused by eucalyptus plantations. We have clarified our position and responded to all allegations related to land use in Guangxi. | 14 | 2 |
| | | | | Potential risks were also identified in relation to ethical business practices in the operating environment and environmental management issues. | 30 | 2 |
| | | | | Due to the energy-intensive nature of our operations, we are subject to risks related to climate change and costs related to energy and climate regulations. Climate change is expected to increase the frequency of extreme weather events such as storms, flooding and droughts in many regions. Storms can result in serious wind damage to forests, often leading to the short-term oversupply of timber, but reduced supply in the medium term. | 56 | 2 |
| | | | | Our assessments of water-related risks in our operations and our supply chain indicate that almost all of Stora Enso's production units are located in regions where water is a relatively abundant resource. | 60 | 2 |
| | | | | We also strive to continuously improve water management along our supply chain in order to manage our water-related risks. | 61 | 2 |
| | | risks | x | By engaging with our stakeholders we can prioritise issues, reduce possible risks and take advantage of new businesses opportunities. | 14 | 1 |
| | | | | Stora Enso evaluates risks and opportunities related to climate change according to the enterprise risk management process as part of our Group-wide risk and opportunity assessment work. This process forms an integral part of our management approach. | 56 | 2 |
| | | | | Stora Enso's business units also follow regulatory requirements regarding environmental risk assessment. | 56 | 1 |
| | | | | For more information on our supplier sustainability risk assessments and audits see pages 19-20. | 45 | 1 |
| | | 3. Costs involved | | Due to the energy-intensive nature of our operations, we are subject to risks related to climate change and costs related to energy and climate regulations. | 56 | 1 |
| **PRESS** | Pressure Groups | | | | | |
| | | 1. Shareholders | | *some disclosures on shareholders but not environmental* | | |
| | | 2. Other Stakeholders | x | Stora Enso's Global Responsibility Strategy and the related actions are largely based on feedback from our stakeholders. | 14 | 1 |
| | | | | Significant stakeholder groups for Stora Enso include: Consumers, Customers, Employees, Forest-owners, Governments, Investors, Local communities, Media, NGOs, Partners and suppliers | 14 | 2 |
| | | | | In 2013 a training programme for local stakeholders was continued, and 11 local residents received forestry training before being hired on a permanent basis. (Laos) | 27 | 3 |
| | | | | Stora Enso focuses on local stakeholder engagement as part of our everyday field operations. | 26 | 1 |
| | | | | Stora Enso develops products, services and production processes in collaboration with our customers and other stakeholders. | 16 | 1 |
| | | | | Our operations have wide-ranging impacts on different groups of stakeholders locally, regionally and globally. | 22 | 1 |
| | | | | To promote our goals concerning sustainable forestry we actively network with other stakeholders. | 48 | 1 |
| | | | | We are actively working with our stakeholders to spread sustainable forest management and enhance certification systems. | 49 | 2 |
| | | | | As part of our systematic sustainability approach we also worked with local communities, trained our contractors, and developed and implemented new plantation planning methods | 49 | 2 |
| | | | | Since 2005, Stora Enso has also offered Finnish forest-owners the opportunity to join an FSC group certification scheme managed by the company. (also in Sweden) | 49 | 2 |
| | | 3. Government | x | In Finland, Stora Enso has continued to actively promote the voluntary METSO forest biodiversity protection programme run by the Finnish government. | 51 | 2 |
| | | | | This voluntary work is part of a government initiative designed to restore Atlantic rainforest ecosystems and connect the remaining areas with ecological forest corridors, enabling birds and animals to move from one area to another. | 50 | 2 |
| **SER** | Separate Environmental Report | | | | | |
| | | 1. Available | x | Global Sustainability Report | | |
| | | 2. Reference within annual report | | | | |
| | | 3. Contact detail | | | | |

| Category | Def. | Sub-categories | | Stora Enso | p. | Discl. type |
|---|---|---|---|---|---|---|
| ENE | Energy related disclosures | | | | | |
| | | 1. Conservation/saving attempts | x | Electricity consumption has decreased | 58 | 5 |
| | | | | Energy efficiency is a top priority for Stora Enso | 58 | 1 |
| | | | | electricity and heat consumption per tonne of pulp, paper and board production by 15% by 2020 compared with the baseline year of 2010. | 60 | 5 |
| | | | | While the Energy Services function plays an important role by helping mills find ways to optimise their energy use, | 60 | 2 |
| | | | | These forums work together systematically to share best practices and to find ways to improve energy efficiency with regard to targets set for each business area. | 59 | 2 |
| | | | | Another cornerstone of our energy work is our centralised energy efficiency investment fund. In 2013, this fund amounted to 10 million euros available for allocation to energy saving investments on an annual basis. | 59 | 4 |
| | | | | This investment will enable us to replace over 85% of the fossil fuels used at Enocell with biomass. | 59 | 4 |
| | | | | Reducing the water demand of our mills helps to improve the energy and material efficiency of our production. | 61 | 2 |
| | | 2. Use, development, exploration of alternative energy sources | x | The most effective way for us to reduce our fossil CO2 emissions is to further improve our energy efficiency and to increase the share of bioenergy in our total energy use. | 55 | 2 |
| | | | | Since 2007 we have estimated our Group-wide carbon footprint on an annual basis, with the aim of identifying the main sources of fossil CO2 emissions across our operations. | 57 | 2 |
| | | | | It is therefore essential for our success that we have access to a reliable energy supply at reasonable cost. | 58 | 2 |
| | | | | In 2013 the share of biomass in our internal energy production decreased slightly to 77% | 58 | 5 |
| | | | | Pulp and paper production results in by-products such as black liquor, bark, and different kinds of sludge. These materials together with harvesting residues and recovered wood all constitute important biomass sources for our internal energy generation. | 58 | 2 |
| | | | | In 2013 some 82% (81%) of our purchased electricity was generated from low-carbon sources including nuclear energy and renewable energy. | 58 | 5 |
| | | | | Water also plays a key role in creating the electricity we use and purchase, particularly in hydropower plants. | 60 | 1 |
| | | | | Many of these materials are used for our internal bioenergy production, or for agricultural purposes, brick manufacturing and road construction by our stakeholders. | 62 | 2 |
| IRP | Information retrieval processes to obtain feedback from stakeholders | | x | Our stakeholders can send any feedback, questions and complaints relating to forest operations to our wood supply units, all of which have grievance mechanisms in place. | 48 | 2 |
| | | | | We use face-to-face meetings as well as e-learning platforms to inform our customers and train our sales staff on environmental and social responsibility issues. | 16 | 2 |
| | | | | To establish open and fruitful stakeholder dialogue Stora Enso's technical staff make regular visits to nearby communities. (Laos) | 27 | 2 |
| | | | | But change must involve listening to our stakeholders to help us constantly chart the right course – and rethink our operations. | 5 | 1 |
| | | | | In 2013 we continued to engage our internal and external stakeholders in our materiality review and Global Responsibility Strategy process through our Online Advisory Panel. | 8 | 2 |
| | | | | We obtain stakeholder feedback largely through our regular contacts with our stakeholders at meetings, fairs, community visits, public hearings, open house events or other events organised by or for our stakeholders. | 14 | 2 |
| Other | Any other environmental disclosure not fitting the categories above | | x | issues, manage environmental liabilities, and cooperate with the respective environmental authorities, federations and lobbying organisations. | 55 | 2 |
| | | | | We always conduct environmental and social impact assessments for any greenfield plantation projects. | 49 | 1 |
| | | | | We believe that many key solutions for limiting climate change and other environmental challenges will be based on the use of renewable raw materials, cleaner and more energy efficient production processes, and sustainable forest management practices. | 55 | 2 |
| | | | | Wood can also be used as a substitute for carbon-intensive and non-renewable raw materials | 56 | 2 |
| | | | | Stora Enso would have to start purchasing allowances leading to additional costs estimated at EUR 42 million | 57 | 4 |

# Appendix 3: Company disclosures 2013 – UPM

| Category | Definition | Sub-categories | | UPM | p. | Discl. type |
|---|---|---|---|---|---|---|
| GEN | General Environmental related disclosures: any mention dealing with environmental policy and concern for the environment | | | | | |
| | | 1. Any general mention | x | Businesses based on renewable and recyclable raw materials form the core of UPM's Biofore strategy. | 39 | 1 |
| | | 2. Aims | x | Responsible use of resources brings with it advantages with regard to energy, production and cost efficiency. | 39 | 1 |
| | | | | Environmental management systems certified in 100% of production units (continuous) | 42 | 4 |
| | | | | For this ambitious goal (More with Biofore) to be achieved, material efficiency needs to play a key role in all company operations. | 43 | 1 |
| | | | | Sustainable use of water is one of UPM's core environmental principles. | 48 | 1 |
| | | 3. Management system and processes | x | Code of Conduct | 40 | 2 |
| | | | | UPM Restricted Chemical Substance List (UPM RSL), updated in 2013, takes product safety further to ensure that UPM's products are safe to use and environmentally sound. If it is anticipated that a chemical will include prohibited substances, UPM starts discussions with its suppliers about the role of restricted substances in the product. | 41 | 2 |
| | | | | All except 2 sites have certified environmental management systems in place. UPM is a global frontrunner in the use of EU EMAS. | 42 | 4 |
| | | | | UPM's continuous target is to improve energy efficiency. Energy efficiency has been significantly improved by energy audits, promoting innovation and internal campaigns over the last 15 years. | 45 | 2 |
| | | | | UPM's Supplier Code defines suppliers' minimum compliance requirements in terms of responsibility with regard to matters such as environmental impact, human rights, labour practices, health and safety, and product safety. | | |
| | | 4. (Disclosure) guidelines such as the ACCA guidelines adopted | x | GRI G3, level B+ | | |
| | | | | UPM is committed to the principles of inclusivity, materiality and responsiveness, as defined in the AA1000 AccountAbility Principles Standard (2008). | 41 | 2 |
| | | | | UPM is also committed to the ten principles of the UN Global Compact. The ten principles are derived from internationally recognised | | |
| | | 5. Initiatives (e.g. Responsible care) | x | standards in the areas of ... the environment.... | 40 | 2 |
| | | | | UN Global Compact | | |
| | | | | Code of Conduct | | |
| | | | | EU Eco-Management and Audit Scheme (EMAS). | 43 | 1 |
| | | | | UPM uses eco-labels, such as the EU Ecolabel and German Blue Angel, PEFC and FSC forest certification labels. | 43 | 1 |
| | | | | The majority of UPM's production sites, as well as its forestry operations, are covered by environmental, quality and health and safety systems, which are certified in accordance with the ISO 9001, ISO 14001 and OHSAS 18001 standards respectively. | 43 | 2 |
| | | | | All of UPM's own forests and eucalyptus plantations are certified according to the FSC and/or PEFC certification schemes. In addition, UPM has an FSC Group Certificate in Finland and a UKWAS Group Certificate in the UK to which private forest owners can sign up. | 47 | 2 |
| | | | | Third-party-verified eco-labels are commonly used to prove good environmental performance. | 50 | 1 |
| | | 6. Results e.g. Awards won, Results resulting from the Policy | x | UPM regained its position in both the European and World Dow Jones Sustainability Indices (DJSI) and received other external recognition for its climate, forestry and innovation actions. | 39 | 2 |
| | | | | UPM is awarded the EU Ecolabel Communication Award 2012 for its commitment to sustainable products | 40 | 1 |
| | | | | UPM wins Sustainable Biofuels Award in Rotterdam | 40 | 1 |
| | | | | UPM receives EMAS registration in China | 40 | 1 |
| | | | | UPM renews its world-class position in the Dow Jones Sustainability Index | 40 | 1 |
| | | | | UPM achieves a top position in Carbon Disclosure Project's (CDP) Nordic Climate Disclosure Leadership Index (CDLI) for the fifth year running | 40 | 1 |
| | | | | In 2013, UPM was awarded the EU Ecolabel Communication Award for increasing public awareness and knowledge of the EU Ecolabel. | 43 | 1 |
| | | | | In 2013, UPM received the Sustainable Biofuels Award 2013 for Breakthrough Innovation in Technology at the World Biofuels Markets Congress & Exhibition for its success in developing an innovative production process for an advanced renewable diesel, UPM BioVerno. | 43 | 2 |
| | | | | UPM achieved a top position in the Carbon Disclosure Project (CDP) Nordic 260 Climate Disclosure Leadership Index (CDLI) for the fifth year running. The index evaluates companies' climate reporting. | 45 | 4 |
| | | | | In 2013, most of the total consumption and emission figures remained on a rather stable level compare to the previous year. | 49 | 2 |
| | | 7. Long-term - any mention of long-term policy | x | The foundation for corporate responsibility at UPM is the company's Biofore strategy. It sets the direction for innovation, product development, and safe and sustainable operations. | 39 | 2 |
| | | | | Creating competitive advantage and long-term value: High performing people, Resource efficiency, Ecolabels and certification | 40 | 1 |
| | | | | In the pulp business, process water consumption has been defined as a strategic development project. | 48 | 1 |
| | | | | In 2010, UPM set long-term environmental targets for 2020, and defined indicators to measure performance in key areas. In 2012, UPM revised the targets and tightened when reasonable. | 49 | 2 |
| | | | | In 2010, UPM set long-term environmental targets for 2020, and defined indicators to measure performance in key areas. In 2012, UPM revised the targets and tightened when reasonable. UPM aims to continuously reduce environmental impacts over the entire lifecycle of its products and the company bases its annual performance evaluation on these indicators. | 49 | 2 |
| RES | Who is responsible for the implementation and the environmental behaviour? | | | | | |
| | | 1. Top-management - top management or board | x | UPM's global corporate responsibility agenda is managed by the Group Executive Team (GET), headed up by the President and CEO. The GET sets the agenda and direction for future development. | 39 | 2 |
| | | a. Committee/audit - any committee or group | x | The daily practices are integrated into each business and, at corporate level, the responsibility agenda is managed by the Environment and Responsibility team, which co-ordinates the various initiatives by business areas and functions. | 39 | 2 |
| | | b. Membership | | | | |
| | | c. Aims and objectives | x | Clean Run campaign | 40 | 2 |
| | | 2. Results | | | | |
| | | 3. Anybody working with the organisation e.g | x | "1,200 ENVIRONMENTAL OBSERVATIONS AND IMPROVEMENT IDEAS AT PULP AND PAPER MILLS" | 41 | 3 |
| POLL | Pollution related disclosures | | | | | |
| | | 1. Air | | Creating climate solutions | 39 | 1 |
| | | | | In 2013, improvements at pulp mills had a big impact on the further reduction of NOx and SO2 emissions. ACIDIFYING FLUE GASES | | |
| | | a. Emissions | x | DOWN BY OVER 30% OVER THE LAST TEN YEARS | 46 | 5 |
| | | | | Acidifying flue gases down by over 60% over the last ten years. | 48 | 5 |
| | | | | The majority of UPM´s airborne emissions are caused by energy generation at its pulp and paper mills. | 50 | 4 |
| | | | | Direct air emissions include emissions from UPM power plants and a respective share of co-owned power plants connected to UPM's energy supply. In addition to direct CO2 emissions, UPM is also evaluating and reporting its indirect CO2 and other greenhouse gas emissions. Power purchased from the grid results in an additional 3 million tonnes. Areas such as transport and raw material production result in an additional 7 million tonnes. | 50 | 4 |
| | | b. Actions/targets undertaken | x | By 2020, UPM aims to reduce fossil CO2 emissions by 15% compared with the 2008 level. | 42 | 5 |
| | | | | Development not in line with the target. Despite of good improvements in the fuel mix and energy efficiency, actions have not compensated the increased level caused by the Myllykoski acquisition. | 42 | 2 |
| | | | | Using fly ash instead of burning limestone reduces CO2 emissions significantly. | 44 | 2 |
| | | | | Since 1990, specific CO2 (carbon dioxide) emissions per tonne of paper have been reduced by approximately 25%. | 46 | 5 |
| | | | | Increased usage of renewable energy and improved energy efficiency are decreasing fossil CO2 emissions. | 46 | 2 |
| | | | | Choice of fuels, combustion technology and flue-gas purification are the primary ways to reduce these emissions. The targets for air emissions focus on the reduction of fossil carbon dioxide emissions. | 50 | 2 |
| | | 2. Water | | Using water responsibly | 39 | 1 |
| | | | | UPM`s paper and pulp production is the main source of emissions to water. Emission levels and environmental impacts are regulated and | | |
| | | c. Emissions | x | monitored. | 50 | 4 |
| | | d. Actions/targets | x | The largest investment was the rebuild of the biological effluent treatment plant at the UPM Pietarsaari pulp mill in Finland. | 39 | 2 |
| | | | | UPM's environmental costs, which were mainly attributable to effluent treatment and waste management, totalled EUR 134 million (133 million), including depreciation. | 39 | 5 |
| | | | | UPM has reduced wastewater volumes per tonne of paper by 25% and per tonne of chemical pulp by 20% over the last ten years. | 48 | 5 |
| | | | | Development not in line with the target. Average specific waste water volume for UPM increased due to a higher weight of pulp in portfolio, despite of the fact that UPM Fray Bentos has one of the lowest process water uses in the industry. | 42 | 2 |
| | | | | Development in line with the target. 16% reduction achieved for the UPM average product since 2008. | 42 | 4 |
| | | | | UPM is currently reviewing water management and material efficiency at several mills. | 48 | 1 |
| | | | | When using water, UPM's target is to minimise the impacts of operations on local water resources and safeguard the natural water cycle in forests. UPM's main production plants are located in areas where there is sufficient water available. | 48 | 2 |
| | | | | The COD load has decreased by over 30% per tonne of paper, and by 50% per tonne of chemical pulp, over the last ten years. | 48 | 5 |
| | | | | All effluents are treated both mechanically and biologically in the effluent treatments plants, before being released into watercourses. The targets have been set for process wastewater volume and chemical oxygen demand (COD) | 50 | 2 |

| Category | Defini-tion | Sub-categories | | UPM | p. | Discl. type |
|---|---|---|---|---|---|---|
| | | 3. Waste | | Reduce, reuse and recycle | 42 | 1 |
| | | | | Sustainable products and climate, water, forest and waste management have been defined as the key areas of environmental responsibility. | 39 | 2 |
| | | | | UPM's environmental costs, which were mainly attributable to effluent treatment and waste management, totalled EUR 134 million (133 | | |
| | | e. Situation | x | million), including depreciation. | 39 | 5 |
| | | | | Development nearly in line with the target, despite of the fact that amount of landfilled solid waste increased. | 42 | 2 |
| | | | | Waste is today's new material. UPM is committed to maximising the reuse of materials and minimising the generation of waste. | 44 | 2 |
| | | | | Ash resulting from bioenergy generation forms the most significant proportion of UPM's solid waste. | 44 | 2 |
| | | | | Much of the process waste is either used as raw material or in energy generation. Most production sites have reduced the volume of solid waste and improved handling by sorting waste at the source | 50 | 4 |
| | | f. Control /reduction | x | 40% reduction in solid waste to landfill by 2020 | 42 | 4 |
| | | | | UPM has developed innovative ways to reduce its own waste and reuse waste in new products. | 44 | 1 |
| | | | | By 2020, UPM aims to reduce the amount of its solid waste sent to landfill by 40% compared with the 2008 level. The reduction target was increased in 2012 because of the good progress made. | 44 | 4 |
| | | | | The material efficiency programme, launched in 2011, continued at the paper mills. The objective is to reduce process water consumption and suspended solids. | 48 | 2 |
| | | | | "Our primary objective is to operate the new wastewater treatment plants with minimal emissions and maximising energy efficiency | 48 | 2 |
| | | | | By 2020, UPM aims to reduce wastewater volume by 15% and COD load by 20% in pulp and paper production compared with the 2008 levels. UPM's 2020 COD reduction target was increased in 2012 because of the good progress made. | 48 | 5 |
| | | | | The targets for water are to decrease process wastewater volume and effluent load. | 49 | 1 |
| | | | | The target for waste is to reduce the amount of production waste sent to landfills. | 50 | 1 |
| | | | | Renewability, recyclability and resource efficiency have been identified as critical issues for UPM's current and future | | |
| | | g. Recycling | x | business and a response to resource scarcity and societal needs on a large scale. | 39 | 2 |
| | | | | Today, approximately 90% of all UPM's production waste is reused or recycled. Nearly all organic production residues, including bark and wood residues, as well as fibrecontaining solids from deinking and effluent treatment, are used in energy generation at mill sites. | 44 | 4 |
| | | | | UPM is also the world's largest user of paper for recycling for the production of graphic papers, consuming 3.5 million tonnes of paper for recycling in 2013. | 44 | 4 |
| | | 4. Land | | | | |
| | | | | The amount of waste to landfills increased significantly by approx 50,000 t. The reason is that former reuse possibilities at one site ceased | | |
| | | h. Emissions | x | and new ways are being investigated. | 50 | 5 |
| | | i. Action /targets | x | The target for waste is to reduce the amount of production waste sent to landfills. | 50 | 1 |
| | | 5. Results | x | many results | | |
| | | 6. Products | x | UPM's products are made from renewable, biodegradable and recyclable raw materials. | 43 | 1 |
| | | | | UPM products are produced in a way that uses less water, less energy and fewer raw materials, and at the same time generates less waste, | | |
| | | j. Product related disclosures | x | giving the products more economic and environmental value. | 39 | 2 |
| | | | | raw material portfolio and sourcing, production, deliveries and product use are taken into account until the product is recycled, reused or disposed of. | 39 | 2 |
| | | | | Environmental declarations for all product groups (continuous). Environmental declarations are available for all relevant UPM products. | | |
| | | | | In 2013, Raflatac developed a lifecycle assessment tool for its label products. | 42 | 2 |
| | | | | Product safety plays an important part in providing customers with products that are safe to use and environmentally sound. | 43 | 2 |
| | | | | UPM products are mainly based on renewable raw materials that are recyclable and biodegradable. | 50 | 2 |
| | | | | In addition, UPM's wide range of expertise in biomass utilisation and recycling combined with the existing sourcing network provides a solid platform for the development of new, higher value-added businesses. Many of UPM's current and new products provide alternatives | | |
| | | k. Product development | x | to non-renewable materials. | 39 | 2 |
| | | | | New business opportunities with ecodesign: Biofuels, Biocomposites, Biochemicals | 40 | 1 |
| | | | | 25% growth in the share of eco-labeled products by 2020. Increase of eco-labeled sales in line with the target. UPM was the first user of the new EU Ecolabel for newsprint paper grades. | 42 | 4 |
| | | | | UPM businesses have adopted an ecodesign approach in their product development processes, which means systematic integration of environmental aspects into product design at an early stage, covering the whole lifecycle. | 43 | 2 |
| | | | | The targets for products are to increase the share of eco-labeled products, certified environmental management systems and availability of environmental product declarations. | 50 | 2 |
| **SUSTAIN** | Disclosures related to sustainability | | | | | |
| | | 1. Any mention of sustainability | x | UPM's Biofore strategy represents a commitment to sustainable development | 39 | 1 |
| | | | | The evaluation of global sustainability megatrends, risks and stakeholder expectations is an integral part of UPM's strategy process. | 39 | 2 |
| | | | | Sustainable products and climate, water, forest and waste management have been defined as the key areas of environmental responsibility. | 39 | 2 |
| | | | | UPM is awarded the EU Ecolabel Communication Award 2012 for its commitment to sustainable products | 40 | 1 |
| | | | | UPM wins Sustainable Biofuels Award in Rotterdam | 40 | 1 |
| | | | | To support the company's strong focus on stakeholder engagement and sustainable development further, UPM is committed to… | 41 | 2 |
| | | | | Products with eco-labels, environmental product declarations and certified operations are the methods used to inform the company's stakeholders about sustainability, transparency and risk management. | 41 | 2 |
| | | | | UPM manages its forests with a view to enhancing biological diversity, natural ecosystems and the carbon cycle, and operates according to the principles of sustainable forest management. | 47 | 2 |
| | | | | UPM continued its co-operation with the WWF's New Generation Plantations Project in Uruguay to develop and promote sustainable plantation practices. | 47 | 2 |
| | | | | Certified chain of custody systems ensure that wood is sourced from sustainably managed forests. | 49 | 1 |
| | | 2. Involvement/Commitment to UNCED, Brundtland, Rio, Kyoto | | | | |
| | | | | The aim of UPM's global biodiversity programme is to maintain and increase biodiversity in forests and to promote best practices in | | |
| | | 3. Conservation of natural habitat/species | x | sustainable forestry. | 47 | 2 |
| | | | | UPM manages its forests with a view to enhancing biological diversity, natural ecosystems and the carbon cycle, and operates according to the principles of sustainable forest management. | 48 | 2 |
| | | | | The aim of UPM's global biodiversity programme is to maintain and increase biodiversity in forests and to promote best practices in sustainable forestry. | 47 | 2 |
| **LIAB** | Environmental liabilities | | | | | |
| | | 1. Financial disclosure | | | | |
| | | 2. Balance sheet within voluntary section | | | | |
| | | 3. Justification for no disclosure | | | | |
| **ACT** | Environment-related activities | | | | | |
| | | | | Although the environmental challenges differ, the key focus of the campaign (Clean Run) remains the same: to further improve the mills' environmental performance by promoting environmental awareness, identifying issues before they have an environmental impact, | | |
| | | 1. Training of staff | x | encouraging immediate reporting and learning from others. | 40 | 2 |
| | | | | UPM provides regular training in the area (e.g. environmental practices, and Code of Conduct training is part of the induction of new employees. | 40 | 2 |
| | | 2. Project involvement | x | Clean Run campaign | 40 | 2 |
| | | | | UPM has signed a voluntary commitment with BSAG to participate in the Baltic Sea rescue mission. | 41 | 1 |
| | | | | UPM also contributed heavily to the creation of EU Ecolabel criteria for converted paper products. | 43 | 1 |
| | | | | In connection with the biodiversity programme, UPM carried out several projects with stakeholders in 2013 ("Biodiversity in Good Company" initiative, WWF, BirdLife, Aves) | 47 | 2 |
| | | 3. Awards | x | UPM is awarded the EU Ecolabel Communication Award 2012 for its commitment to sustainable products | 40 | 1 |
| | | | | UPM wins Sustainable Biofuels Award in Rotterdam | 40 | 1 |
| | | 4. Sponsoring | | (Naming NGOs like WWF, BSAG, Aves Uruguay and BirdLife implies to sponsoring) | 47 | |
| **BRR** | Business related risk | | | | | |
| | | 1. Specific environmental risks related to the business | x | Although climate change or resource scarcity could potentially become a risk, | 39 | 2 |
| | | | | No significant environmental incidents occurred in 2013. However, there were several minor temporary deviations from permit conditions. | 40 | 2 |
| | | | | Anticipating and managing risks: Code of Conduct, Environmental performance, Responsible sourcing and forestry | 40 | 1 |
| | | | | In 2013, UPM became the sector leader for the materials industry in the CDP's (Carbon Disclosure Project) forests programme, which evaluates companies' disclosure of their exposure to deforestation risks. | 47 | 2 |
| | | | | Environmental risks: A leak, spill or explosion; Image: Damage to reputation, possible sanctions | | |
| | | | | Direct cost to clean up and to repair potential damages to production unit, loss of production | 8 | 2 |
| | | | | UPM also sees opportunities as its products are based on renewable raw materials, the majority of its energy generation and use is based on | | |
| | | 2. Attempts to reduce/manage these risks | x | fossil CO2-neutral sources and most | 39 | 2 |
| | | | | UPM has invested to ensure compliance and performance that exceeds environmental regulations. | 39 | 1 |
| | | | | These deviations were reported to the relevant authorities immediately, and corrective and preventive measures were taken. | 40 | 2 |
| | | | | Maintenance, internal controls and reports; Certified environmental management systems (ISO 14001, EMAS) | 8 | 2 |
| | | 3. Costs involved | | | | |

| Category | Definition | Sub-categories | | UPM | p. | Discl. type |
|---|---|---|---|---|---|---|
| **PRESS** | Pressure Groups | | | | | |
| | | 1. Shareholders | | only in economic disclosures | | |
| | | 2. Other Stakeholders | x | The evaluation of global sustainability megatrends, risks and stakeholder expectations is an integral part of UPM's strategy process. | 39 | 2 |
| | | | | In connection with the biodiversity programme, UPM carried out several projects with stakeholders in 2013 (WWF, Birdlife, the "Biodiversity in Good Company" initiative in Germany). | 47 | 2 |
| | | | | Value creation with stakeholders: Dialogue, feedback and engagement | 40 | 1 |
| | | | | To support the company's strong focus on stakeholder engagement and sustainable development further, UPM is committed to… (AA1000) | 41 | 2 |
| | | | | Products with eco-labels, environmental product declarations and certified operations are the methods used to inform the company's stakeholders about sustainability, transparency and risk management. | 41 | 2 |
| | | | | These labels demonstrate a commitment on the part of UPM to meet a wide range of sustainability criteria, set by external stakeholders. | 43 | 2 |
| | | | | In connection with the biodiversity programme, UPM carried out several projects with stakeholders in 2013 ("Biodiversity in Good Company" initiative, WWF, BirdLife, Aves, IUCN) | 47 | 2 |
| | | 3. Government | x | The Group participates in government schemes aimed at reducing greenhouse gas emissions | 85 | 1 |
| **SER** | Separate Environmental Report | | | | | |
| | | 1. Available | | | | |
| | | 2. Reference within annual report | x | UPM does not publish a separate environmental and corporate responsibility report but has integrated the contents into this annual report. | 41 | 2 |
| | | 3. Contact detail | | | | |
| **ENE** | Energy related disclosures | | | | | |
| | | 1. Conservation/saving attempts | x | UPM products offer an alternative to fossilbased products, because they are renewable and store carbon. UPM is continuously reducing the carbon footprint of its operations and improving energy efficiency. | 45 | 2 |
| | | | | UPM has a wide range of energy sources and it maximises the use of carbon-neutral energy. Biomass-based fuels make up approximately 84% of the fuels used by UPM in Finland and approximately 67% of those used worldwide. UPM is the second-largest generator of biomass-based electricity in Europe. In addition, UPM has invested significantly in renewable energy since 2000. | 45 | 4 |
| | | | | In 2013, UPM's environmental investments totalled EUR 29 million (35 million) | 39 | 5 |
| | | | | UPM provides comprehensive environmental information that has been assured by third parties from corporate level right through to the mills and individual products | 41 | 2 |
| | | | | Forest: Maintain high share of certified fibre 85%: The share of certified fibre increased to 80% from 77% in 2012. 100% coverage of chains of custody (continuous): Chains of custody coverage is approximately 99 %. | 42 | 5 |
| | | | | From its energy-saving investments carried out in 2013, UPM gained savings of EUR 6.1 million, achieved 32,000 t avoidance in CO2 emissions and 138,000 MWh reduction in energy consumption. The annual savings are EUR 8.7 million, 48,000 t and 195,000 MWh. | 45 | 4 |
| | | | | 78% OF ELECTRICITY GENERATED BY UPM IS FREE FROM FOSSIL-FUEL CO2 EMISSIONS | 45 | 4 |
| | | | | However, pulp mills are producing more energy than they are using. | 49 | 1 |
| | | | | UPM has invested significantly in the use of renewable and CO2-neutral energy to reduce the environmental load from energy generation. | | |
| | | | | UPM's CO2 target is strongly connected to energy sources and energy efficiency. | 49 | 2 |
| | | 2. Use, development, exploration of alternative energy sources | x | UPM's investments in biomass-based power and heat generation (CHP) at the production sites have more than doubled the capacity. | 45 | 5 |
| | | | | Big steps were made through investments in renewable energy production, but also by continuously increasing energy efficiency. | 46 | 2 |
| **IRP** | Information retrieval processes to obtain feedback from stakeholders | | x | UPM-Kymmene Corporation continues to demonstrate a strong commitment to inclusivity and stakeholder engagement. The Company regularly engages in dialogue with diverse stakeholder groups. In 2013, the Company strengthened its approach to stakeholder engagement through the establishment of the Stakeholder Relations function. | 53 | 2 |
| **Other** | Any other environmental disclosure not fitting categories above | | x | In 2013, most of the total consumption and emission figures remained on a rather stable level compare to the previous year. Improvements are visible in the reduction of effluent load (COD, AOX) and air emissions (NOx, SO2), which are resulting from both special projects and continuous improvement efforts. | 49 | 2 |

# Appendix 3: Company disclosures 2013 –BillerudKorsnäs

| Category | Definition | Sub-categories | | BillerudKorsnäs | p. | Discl. type |
|---|---|---|---|---|---|---|
| GEN | General Environmental related disclosures: any mention dealing with environmental policy and concern for the environment | | | | | |
| | | 1. Any general mention | x | Innovation is our passion, Sustainability is our future | 1 | 1 |
| | | 2. Aims | x | Sustainable development is one of the pillars of BillerudKorsnäs' strategy. This means that the company, in addition to creating good financial results, seeks to develop its environmental activities, take responsibility for its employees and play an active role in the development of society – today and into the future. | 9 | 2 |
| | | | | BillerudKorsnäs' vision is to phase out fossil fuels from its production. | 19 | 1 |
| | | | | Throughout the product life cycle, and in marketing, from the development stage to production and ultimately recycling and waste, consideration for health and the environment is incorporated as a statutory requirement. | 26 | 2 |
| | | 3. Management system and processes | x | BillerudKorsnäs guarantees responsible origins for all timber purchasing, backed by a management system with targets, policies and guidelines. | 15 | 2 |
| | | | | Environmental Product Declarations for 10 products in line with the international EPD system. These report significant environmental impacts, including resource and energy use. | 21 | 2 |
| | | | | It is part of the sustainability strategy and part of responsible business for BillerudKorsnäs to have the business externally audited in line with recognised and credible systems and to provide correct and transparent reporting, as in this sustainability report. | 27 | 2 |
| | | 4. (Disclosure) guidelines such as the ACCA guidelines adopted | x | GRI G4, core level | | |
| | | 5. Initiatives (e.g. Responsible care) | x | Ambitious environmental targets: Internal targets/certification/industry agreements/minimum undertakings in legislation and official requirements | 9 | 2 |
| | | | | The Swedish production plants have energy management systems under ISO 50001 or EN 16000 and work with an Energy Efficiency Programme (PFE) to reduce energy consumption and costs. | 19 | 2 |
| | | | | All the company's plants outside Sweden are certified in line with OHSAS 18001. | 22 | 1 |
| | | | | BillerudKorsnäs took part in the revision of the FSC® Chain of Custody standard in 2013. The guidelines state that all timber must come from forest certified under FSC® or PEFC™ or from a controlled origin in line with the traceability certification FSC® Chain of Custody/Controlled Wood. | 15 | 2 |
| | | | | UN Global Compact, CDP – Driving Sustainable Economies, Environmental Product Declaration, WWF Environmental Paper Company Index, WWF Check Your Paper, EcoVadis, Sedex (Supplier Ethical Data Exchange), Paper Profile ,Folksam, Investor initiative Sustainable value creation | 27 | 2 |
| | | | | Within the EU, initiatives are being taken to stimulate the growth of bio-based products and to phase out fossil-based ones. | 13 | 2 |
| | | | | Environmental Product Declarations that the company had drawn up in 2013 (page 21) in line with the international EPD system (www.environdec.com). | 13 | 2 |
| | | | | Before work begins in an area, the species database ArtDatabanken is checked to see whether it might be home to threatened species. BillerudKorsnäs also uses geographical information systems (GIS) with detailed information about the forests and the authorities' maps and databases to check which areas are to be protected. | 16 | 2 |
| | | | | The declarations are based on standardised reporting and life cycle analysis in line with ISO 14025 and ISO 14044. | 21 | 2 |
| | | | | Code of Conduct | | |
| | | | | Examples of legislation and regulations that steer BillerudKorsnäs' work on product safety:<br>EU Directives and Regulations: 2001/95/EC (general product safety), EC 1935/2004 (framework for materials in contact with food), EC 2023/2006 (good manufacturing practice GMP) | 26 | 2 |
| | | | | Several management systems form the basis of systematic work on product safety at the production plants, such as ISO 9001 (quality) and ISO 14001 (environment) plus in some cases also ISO 22000 or FSSC 22000 for food safety. | 26 | 2 |
| | | | | BillerudKorsnäs is a member of a number of networks to learn from, contribute towards and influence development in the forest industry and the packaging sector. | 27 | 2 |
| | | 6. Results e.g. Awards won, Results resulting from the Policy | x | BillerudKorsnäs was awarded Green Cargo's climate certificate in 2013 as the company's total transport of wood chips in Sweden by rail, carried out by Green Cargo during 2012, had a climate impact of less than 10 grammes of carbon dioxide per net tonne-kilometre. | 18 | 4 |
| | | | | BillerudKorsnäs AB is recognised by WWF for leadership in transparency for disclosing their ecological footprint in the WWF Environmental Paper Company Index 2013." | 30 | 2 |
| | | 7. Long-term - any mention of long-term policy | x | Sustainability strategy in the value chain | 8 | 1 |
| | | | | BillerudKorsnäs shall have measurable targets for sustainability in both the short and long term, so that all stakeholders are clear about what the company wants to accomplish. | 8 | 2 |
| | | | | Sustainable development is one of the pillars of BillerudKorsnäs' strategy. This means that the company, in addition to creating good financial results, seeks to develop its environmental activities, take responsibility for its employees and play an active role in the development of society – today and into the future. | 9 | 2 |
| | | | | Environmental adaption is a strategy for BillerudKorsnäs and emissions to air and water have been successively cut. | 17 | 2 |
| RES | Who is responsible for the implementation and the environmental behaviour? | | | | | |
| | | 1. Top-management - top management or board | x | The board and management are responsible for the ongoing work related to environmental, safety, quality and social responsibility as well as sustainable development, and for the presentation of the sustainability report in accordance with applicable criteria issued by the Global Reporting Initiative (GRI), and BillerudKorsnäs AB's proprietary accounting and calculation principles applicable to sustainability reporting. | 39 | 2 |
| | | a. Committee/audit - any committee or group | x | Efforts to benefit the environment are founded on environment managers and equivalent responsible staff at the plants checking that environmental legislation and production conditions are complied with. | 17 | 2 |
| | | | | Efforts to benefit the environment are founded on environment managers and equivalent responsible staff at the plants checking that environmental legislation and production conditions are complied with. | 17 | 2 |
| | | | | The person responsible for sustainability issues at managerial level is the Senior Vice President Communication & Sustainability, while a Sustainability Manager is responsible for operational work on sustainability together with a Sustainability Developer. A Sustainability Council meets 3 to 4 times a year to evaluate work on sustainability and particular incidents, monitor targets and identify issues for development. | 25 | 2 |
| | | b. Membership | | | | |
| | | c. Aims and objectives | | | | |
| | | 2. Results | | | | |
| | | 3. Anybody working with the organisation e.g. reference to each employee. | | | | |
| POLL | Pollution related disclosures | | | | | |
| | | 1. Air | | | | |
| | | a. Emissions | x | For the target on fossil-free production of carton, paper and pulp, there has been a powerful reduction of emissions during the latest years. During 2013 the emissions were 28% lower than during the reporting period the year before (page 31). For 2014 the forecast is to keep this level and until 2020 the target is a further reduction by 23%. (outcome 39, target 39) | 10 | 5 |
| | | | | The company's operations involve large-scale transport, giving rise to emissions of fossil carbon dioxide and substances such as NOx, Sox, and particulates. | 18 | 2 |
| | | | | For BillerudKorsnäs Light emissions of fossil carbon dioxide fell by approximately 10% throughout the chain [EN 19], between 2008 and 2012. | 21 | 5 |
| | | | | It is particularly interesting that fossil carbon dioxide emissions are continuing to fall dramatically. Fossil-free production: Emissions of fossil CO2 in industry, kg/tonne product; base year 2012 54, target 2013 Reduce, outcome 2013 39. Approx. 28% of remaining fossil carbon dioxide emissions removed. | 31 | 5 |
| | | | | Greenhouse gas emissions CO2eq10; Total, ktonnes 2013: 5 211; 2012: 3 403 | 35 | 5 |
| | | b. Actions/targets undertaken | x | New targets are to increase innovation in products, lower CO2emissions from transport and increase opportunities for young people to obtain experience of the world of work. | 9 | 2 |
| | | | | Environmentally adapted production reduces emissions to air and water, increases the company's energy recovery, raises the proportion of renewable energy and cuts the use of fossil energy | 11 | 2 |
| | | | | The company is now launching a joint initiative with transporters to minimise emissions from timber vehicles. The aim is also to increase transport by rail to plants as this has a major impact on cutting emissions. The principle is to prioritise transport solutions with low emissions where the opportunity is available. | 18 | 2 |
| | | | | Emissions of fossil carbon dioxide are also analysed every year and monitored against the sustainability target and the target set for reducing fossil carbon dioxide emissions in the industry as a whole by 2020 (www.skogsindustrierna.org). | 18 | 2 |
| | | | | Active forestry means that high growth can be maintained over a long period, so that the forest can bind more carbon dioxide. | 16 | 2 |
| | | | | One important conclusion is that the production of the chemicals accounts for the largest proportion of emissions, which will lead to continued enquiries and involvement in the supply chain on the part of BillerudKorsnäs in the years ahead. | 21 | 2 |

| Category | Defini-tion | Sub-categories | | BillerudKorsnäs | p. | Discl. type |
|---|---|---|---|---|---|---|
| | | 2. Water | | | | |
| | | c. Emissions | x | Emissions from processes are checked to ensure that the limits set out in permits are not exceeded. During the year such major improvements were attained at the plant in Gävle that emissions of wastewater for cleaning were cut by over 30% (20 million m3) and emissions of organic material (COD) to the recipient water body were cut by 25% (2 800 tonnes) [EN27]. | 18 | 5 |
| | | d. Actions/targets | x | Environmentally adapted production reduces emissions to air and water, increases the company's energy recovery, raises the proportion of renewable energy and cuts the use of fossil energy | 11 | 2 |
| | | | | Besides investments in new process stages, training and developing working processes on the ground at plants are also important measures in achieving this target. (emissions to water) | 18 | 2 |
| | | | | Besides investments in new process stages, training and developing working processes on the ground at plants are also important measures in achieving this target. | 18 | 2 |
| | | 3. Waste | | | | |
| | | e. Situation | x | The industrial processes are highly energy-efficient and raw material waste is kept to a minimum, with by-products recycled, refined or used for energy recovery. | 12 | 2 |
| | | f. Control /reduction | x | BillerudKorsnäs' packaging solutions embrace resource efficiency on several levels. The industrial processes are highly energy-efficient and raw material waste is kept to a minimum, with by-products recycled, refined or used for energy recovery. | 12 | 2 |
| | | | | Solutions like these can help to reduce waste and to ensure that the resources used in the food production are not consumed unnecessarily. | 13 | 2 |
| | | g. Recycling | x | BillerudKorsnäs' packaging solutions embrace resource efficiency on several levels. The industrial processes are highly energy-efficient and raw material waste is kept to a minimum, with by-products recycled, refined or used for energy recovery. | 12 | 2 |
| | | | | The fibres in the packaging made from paper can be recycled 5–6 times. | 13 | 4 |
| | | | | The chemicals are recycled in closed processes during the cooking process. | 18 | 1 |
| | | | | In addition, internally produced biofuel such as bark and wood residues from the debarking plant are also used. Other bio-based residues, including tar oil, which is a residue from the distillation of the by-product tall oil, are also used in certain industrial processes. | 19 | 2 |
| | | 4. Land | | *no mentions on landfills etc but disclosures on waste* | | |
| | | h. Emissions | | | | |
| | | i. Action /targets | | | | |
| | | 5. Results | x | many results | | |
| | | 6. Products | | | | |
| | | j. Product related disclosures | x | BillerudKorsnäs shall collaborate in the value chain to strengthen and develop the sustainability performance of the products. | 8 | 2 |
| | | | | Environmentally adapted production: Life cycle perspective/precautionary principle/industrial processes/forestry/transport/skills/renewable energy/suppliers | 9 | 2 |
| | | | | Functional and resource-efficient packaging solutions | 8 | 1 |
| | | | | Compared with a plastic tray, for food such as ham, one customer's analysis shows that a tray made from FibreForm can produce considerably lower CO2 emissions. | 12 | 2 |
| | | | | Light packaging that can be stacked efficiently cuts fuel consumption and transport costs. | 13 | 2 |
| | | | | Because BillerudKorsnäs' packaging material is based on renewable wood raw materials and offers documented good environmental performance, the company's products are ideally placed to be part of the solution as society makes the transition from fossil to bio-based materials. | 13 | 2 |
| | | | | Delivering packaging material and packaging solutions used by people all around the world makes high demands in terms of safety for people and the environment. | 26 | 2 |
| | | k. Product development | x | New targets are to increase innovation in products, lower CO2emissions from transport and increase opportunities for young people to obtain experience of the world of work. | 9 | 2 |
| | | | | A high level of innovation improves the functionality of customers' packaging, supports economic development and has many positive environmental impacts. BillerudKorsnäs challenges conventional packaging for a sustainable future. | 12 | 2 |
| | | | | BillerudKorsnäs seeks to evaluate the resource efficiency and environmental performance of its products using life cycle analysis. | 13 | 2 |
| | | | | BillerudKorsnäs is committed to further reducing the impact arising in the production and distribution chain for packaging material. | 13 | 2 |
| **SUSTAIN** | Disclosures related to sustainability | | | | | |
| | | 1. Any mention of sustainability | x | Sustainability is fundamental to BillerudKorsnäs' business. For the future the priority is to contribute to increased sustainability in the value chain of which the company is part. | 8 | 2 |
| | | | | BillerudKorsnäs shall have measurable targets for sustainability in both the short and long term, so that all stakeholders are clear about what the company wants to accomplish. | 8 | 2 |
| | | | | Renewable raw materials from sustainable forestry | 8 | 1 |
| | | | | BillerudKorsnäs' performance and target fulfilment for sustainability shall be reported and reviewed transparently in line with recognised and credible systems. | 8 | 2 |
| | | | | Through its presence in key external arenas, BillerudKorsnäs shall be known for its responsibility and excellent performance in the field of sustainability. | 8 | 2 |
| | | | | It is also important to live up to the expectations investors, customers, other business partners and suppliers, employees and stakeholders in the community have regarding sustainable behaviour and transparent reporting. | 9 | 2 |
| | | | | BillerudKorsnäs' wood raw material must come from sustainably1 managed forests. Sustainability means meeting demand for diversified and economic forest production. | 15 | 2 |
| | | | | For this reason, the aspects reported regarding materials and the use of materials, energy consumption, water consumption, biodiversity, emissions to air and water, transport and products and services are important to the company. | 17 | 2 |
| | | | | BillerudKorsnäs works for sustainability in the value chain. | 26 | 1 |
| | | | | Sustainability in the supplier chain: Number of suppliers audited by a meeting within Purchasing and Supply Chain, n. Base year 2012 6, target 2013 10, outcome 2013 10. Target reached. Audits carried out within Purchasing and Supply Chain. A new supplier evaluation model is being drawn up by Purchasing in 2014. | 31 | 5 |
| | | 2. Involvement/Commitment to UNCED, Brundtland, Rio, Kyoto | | | | |
| | | 3. Conservation of natural habitat/species | x | Renewable raw materials from sustainable forestry provide long-term access to wood raw materials whose origin takes into account the forest's environmental assets and social functions | 11 | 2 |
| | | | | However, it also involves extensive work to support and develop natural values and to ensure that the social values of the forest can be widely enjoyed. | 15 | 2 |
| | | | | More detailed targets for 2020 regarding sustainability in the value chain and experience of the world of work will be drawn up during 2014. | 10 | 2 |
| | | | | In some cases BillerudKorsnäs makes its land available for the use of the general public. | 39 | 1 |
| | | | | To protect biodiversity in active forestry, particular forest with high natural assets, such as key biotopes, is protected from harvesting. Through a system of natural value assessment before harvesting, BillerudKorsnäs continually works to identify forests, sub-areas and smaller biotopes whose natural values are so high that they should not be harvested. The company also works to apply care and consideration in general in all its activities in the forest. This involves creating natural values (e.g. dead timber in the form of tall stumps) and leaving particular sites (e.g. dead timber, large trees and certain deciduous trees) or sub-areas (e.g. marshy sections and zones close to rivers) alone during harvesting to protect sensitive environments. | 15<br>16 | 2<br>2 |
| **LIAB** | Environmental liabilities | | | | | |
| | | 1. Financial disclosure | | | | |
| | | 2. Balance sheet within voluntary section | | | | |
| | | 3. Justification for no disclosure | | | | |
| **ACT** | Environment-related activities | | | | | |
| | | 1. Training of staff | x | BillerudKorsnäs is focusing on training its employees and contractors on the forestry side in correct regenerative felling techniques. | 16 | 2 |
| | | | | Besides investments in new process stages, training and developing working processes on the ground at plants are also important measures in achieving this target. (emissions to water) | 18 | 2 |
| | | | | In 2013 a new e-training course was designed to give new employees a picture of BillerudKorsnäs' markets and products, organisation, health and safety and sustainability issues. | 23 | 2 |
| | | | | Forestry employees are trained in nature conservation to avoid felling in areas worthy of protection. | 16 | 1 |
| | | 2. Project involvement | x | To protect the endangered white-backed woodpecker in Sweden, a collaboration has been launched between the Swedish Environmental Protection Agency, the Swedish Forest Agency, landowners and the Swedish Society for Nature Conservation. | 16 | 2 |
| | | | | In collaboration with WWF, within the Alliance for Beverage Cartons and the Environment (ACE) BillerudKorsnäs is helping to develop the webbased analysis tool WWF Water Risk Filter, which will enable analysis of water use and inform impact reduction strategies. | 18 | 2 |
| | | | | SPICE (SUSTAINABLE PACKAGING & INNOVATION COMMUNICATION EVENT): Berghs School of Communication, BillerudKorsnäs and NINE hold an annual competition which is now also an eight-week long course. | 30 | 2 |
| | | 3. Awards | x | BillerudKorsnäs AB is recognised by WWF for leadership in transparency for disclosing their ecological footprint in the WWF Environmental Paper Company Index 2013." | 30 | 2 |
| | | 4. Sponsoring | x | local and social, focus primarily on youth; also The ornithological association's bird survey. | 28 | 1 |

| Category | Defini-tion | Sub-categories | | BillerudKorsnäs | p. | Discl. type |
|---|---|---|---|---|---|---|
| **BRR** | Business related risk | | | | | |
| | | 1. Specific environmental risks related to the business | x | Damage to land is a problem that otherwise risks increasing as the winter climate becomes warmer | 16 | 1 |
| | | | | The remaining group of suppliers listed 2013 were located in countries such as China, India and South Africa, where an increased risk of deviation from the Code of Conduct may apply. However, these companies were not involved in industries where risks occur and were primarily businesses which carry out local transport or organise trade fairs, so it has been judged that the criteria are also met in these cases. | 25 | 2 |
| | | | | No complaints or prosecutions regarding breach of legislation or voluntary agreements on product impact on health and safety were made against BillerudKorsnäs in 2013. | 26 | 2 |
| | | 2. Attempts to reduce/manage these risks | x | The purchasing of goods and services is founded on risk analyses, supplier evaluations and assessments of natural assets. | 8 | 2 |
| | | | | Because approximately 99.9% of BillerudKorsnäs' approximately 10 000 suppliers are based in Europe and North America, where conditions are similar and legal controls are stringent, there is very little risk of business that is not supported by the Code of Conduct. | 25 | 4 |
| | | | | BillerudKorsnäs works preventively to minimise the risk of accidents. Chemical handling is based on the criteria in current legislation regarding risk analysis, safety reporting and procedures to protect the environment, local residents and employees. Special procedures | 18 | 2 |
| | | 3. Costs involved | | | | |
| **PRESS** | Pressure Groups | | | | | |
| | | 1. Shareholders | x | It is also important to live up to the expectations investors, customers, other business partners and suppliers, employees and stakeholders in the community have regarding sustainable behaviour and transparent reporting. | 9 | 2 |
| | | 2. Other Stakeholders | x | BillerudKorsnäs shall have measurable targets for sustainability in both the short and long term, so that all stakeholders are clear about what the company wants to accomplish. | 8 | 2 |
| | | | | In 2013 a strategy, targets and a structure were drawn up for work on sustainability and a materiality analysis was carried out among the most important stakeholders in line with GRI G4. | 9 | 2 |
| | | | | Transparent reporting: Standardised and comparable/transparency on performance in external arenas/added value for stakeholders | 9 | 2 |
| | | | | BillerudKorsnäs is in close contact with local residents, property owners and reindeer owners. These groups span a range of alternative interests in the forest, such as recreation, leisure, hunting, local businesses and reindeer husbandry. When harvesting in forests close to densely populated areas, local residents are invited for their opinion on the plans. | 16 | 2 |
| | | | | Their purpose is partly to facilitate comparison of the environmental impact of different products, something that customers are increasingly demanding. BENEFITS FOR CUSTOMERS: Transparent information on environmental impact. | 21 | 2 |
| | | | | Forest owners were evaluated during the contractual procedure according to conservation and stakeholders. | 26 | 2 |
| | | 3. Government | x | Ambitious environmental targets: Internal targets/certification/industry agreements/minimum undertakings in legislation and official requirements | 9 | 2 |
| | | | | In several countries, legislation on the use of various forms of plastic is being tightened up, paving the way for renewable alternatives. | 13 | 1 |
| | | | | The basis for sustainable forestry is the Swedish Forestry Act, which sets out the ways in which forest production, nature conservation, cultural heritage preservation and reindeer husbandry must be taken into consideration. | 15 | 2 |
| | | | | In the event of harvesting in or in the vicinity of a Natura 2000 area and when key biotopes are to be defined, the authorities are consulted. | 16 | 2 |
| | | | | For many years the production of the Swedish forest industry has been strictly regulated by the Environmental Code and other legislation. The authorities carry out ongoing checks to ensure that the criteria for production permits are met. | 17 | 2 |
| **SER** | Separate Environmental Report | | | | | |
| | | 1. Available | x | Sustainability Report | | |
| | | 2. Reference within annual report | | | | |
| | | 3. Contact detail | | | | |
| **ENE** | Energy related disclosures | | | | | |
| | | 1. Conservation/saving attempts | x | Production is mainly based on bioenergy from process residues and from external companies. | 8 | 1 |
| | | | | Energy is a major cost for BillerudKorsnäs | 19 | 1 |
| | | | | Energy supply and use are crucial to BillerudKorsnäs' operations at the production plants. | 19 | 1 |
| | | | | A large amount of resources is put into improving the efficiency and increasing the generation of electricity at the plants. The target for 2014 is to reduce energy consumption per tonne of product by a further approximately 2% and to draw up a joint target for the longer term. | 19 | 5 |
| | | | | High energy efficiency: Energy consumption must be cut, MWh/tonne product; base year 2012 6.3; target 2013 Reduce, outcome 2013 5.6. Target reached The improvement was in the region of 10%. | 31 | 5 |
| | | 2. Use, development, exploration of alternative energy sources | x | BillerudKorsnäs has a zero vision for the use of fossil fuel in industrial production | 10 | 1 |
| | | | | Environmentally adapted production reduces emissions to air and water, increases the company's energy recovery, raises the proportion of renewable energy and cuts the use of fossil energy | 11 | 2 |
| | | | | Major, energy-related investments and efficiency improvements mean that the company is now close to attaining its vision of completely phasing out the fossil fuels used in industrial production now that 97% of its fuel is bioenergy. | 17 | 4 |
| | | | | BillerudKorsnäs' role in supplying local, sustainable energy systems makes the company an important cog in the economic and environmental development of its local communities. | 29 | 2 |
| | | | | Fossil-free production: Proportion of bioenergy in manufacturing, %, base year 2012 95,7; target 2013 increase; outcome 2013 96,9. Target reached. The remainder is primarily required for starting and stopping machinery, and in the drying process. | 31 | 5 |
| **IRP** | Information retrieval processes to obtain feedback from stakeholders | | x | The aim is for interaction in the value chain to lead to the consumer choosing functional paper-based products with good sustainability performance. | 8 | 2 |
| | | | | BillerudKorsnäs' products and services are constantly evaluated by customers. Many customers require specific information on sustainability performance in order to strengthen the value chain and the end product. | 8 | 2 |
| | | | | The company welcomes external points of view on every aspect of its operations by e-mail, phone and post. External opinions are gathered on an ongoing basis by the environment manager or equivalent function as statistics and are when needed reported at the annual management's review in line with the management system. | 24 | 2 |
| | | | | Adapting to the customers' individual demands for material for different purposes nevertheless requires that systems are in place in BillerudKorsnäs' working methods. | 26 | 2 |
| | | | | Questions from customers are also addressed and other members of the organisation are trained where necessary. | 26 | 2 |
| | | | | Part of BillerudKorsnäs' communication work includes monitoring customer satisfaction in each business area and the planning process for this in 2014 has commenced. | 27 | 2 |
| **Other** | Any other environmental disclosure not fitting the categories above | | x | For BillerudKorsnäs, resource efficiency, e.g. minimal consumption of materials, is important for financial and environmental reasons. | 12 | 1 |
| | | | | BillerudKorsnäs owns no significant forest assets and instead buys in wood raw material mainly within Sweden. | 15 | 2 |
| | | | | Proximity is a very important factor as short transport distances mean cost and time efficiency, as well as a lower environmental impact. | 25 | 2 |
| | | | | As BillerudKorsnäs was formed in late November 2012, there was no opportunity to specify new shared sustainability targets for 2013. For this reason, the targets were only expressed as ambitions to improve performance through increases or reductions. | 31 | 2 |

# Appendix 3: Company disclosures 2013 –Holmen

| Category | Definition | Sub-categories | | Holmen | p. | Discl. type |
|---|---|---|---|---|---|---|
| GEN | General Environmental related disclosures: any mention dealing with environmental policy and concern for the environment | | | | | |
| | | 1. Any general mention | x | Sustainability is one of the cornerstones of Holmen's strategy. | 36 | 1 |
| | | 2. Aims | x | In ongoing and discontinued operations, the environmental impact must be acceptable to humans and the environment. | 35 | 2 |
| | | | | This involves moving from an economy built on fossil raw materials to a resource-efficient economy that involves renewable raw materials and makes sustainable use of ecosystem services from land and water. | 36 | 2 |
| | | | | The focus is on achieving the company's sustainability targets. | 38 | 1 |
| | | | | R&D by the business areas is focused on functional products and energy and resource-efficient processes. | 39 | 1 |
| | | | | The general aim is for woodbased alternatives to replace many traditional products in the long term in areas such as fuel, textiles and construction materials. | 39 | 2 |
| | | 3. Management system and processes | x | The organisation and management of the environmental activities are stipulated in Holmen's environment and energy policy. | 35 | 1 |
| | | | | Certified environmental and energy management systems incorporating environmental and energy targets. | 35 | 1 |
| | | | | The strategy is to process these raw materials sustainably into products and energy that fulfil important functions in society and generate value for customers, shareholders and other stakeholders. | 36 | 2 |
| | | | | Applicable environmental conditions and regulations combine with Holmen's environmental and energy policy to form the basis for the Group's environmental work. | 37 | 2 |
| | | | | Holmen's operations have certified management systems for the environment, energy and quality | 37 | 1 |
| | | 4. (Disclosure) guidelines such as the ACCA guidelines adopted | x | GRI G3.1 / level A+ | | |
| | | 5. Initiatives (e.g. Responsible care) | x | Environmental and chain-of-custody certification in accordance with criteria issued by the FSC® and PEFC. | 35 | 1 |
| | | | | UN Global Compact | | |
| | | | | Code of Conduct | | |
| | | | | Several certifications for management systems in mills (ISO 14001, ISO 50001, ISO 9001, OHSAS 18001) | 44 | 2 |
| | | | | The Group's mills have participated in the EU Emissions Trading Scheme since 2005. The Group's measures to reduce the use of fossil fuels, and consequently carbon dioxide emissions, have made it possible to sell emission allowances. | 45 | 2 |
| | | | | Forestry operations are certified in accordance with environmental management systems, as well as under criteria issued by PEFC | 45 | 2 |
| | | 6. Results e.g. Awards won, Results resulting from the Policy | x | As a result of its systematic sustainability work, Holmen has been included in several sustainability indexes over a number of years (FTSE4GOOD INDEX SERIES, STOXX® GLOBAL ESG LEADERS INDICES, Ethibel Sustainability Index, Nyse Euronext Vigeo, OMXSUSTAIN) | 37 | 2 |
| | | | | HOLMEN WAS THE ONLY SWEDISH FOREST INDUSTRY COMPANY ON THE UN'S NEW GLOBAL COMPACT 100 LIST. | 38 | 1 |
| | | | | In 2013 Holmen Paper became licensed to use the EU Ecolabel on its products in the category of graphic paper from the mills in Braviken and Hallsta and newsprint from the mill in Madrid. | 45 | 2 |
| | | | | Worth SEK 1.1 million, this investment makes the mill almost entirely free from fossil fuels, setting the standard for the industry. The move has attracted a great deal of positive attention, culminating in November when Iggesund Paperboard won the title 'Investment Project of the Year' at the UK Packaging Awards 2013. | 18 | 2 |
| | | 7. Long-term - any mention of long-term policy | x | In every part of the business, sustainability and long-term profitability are always top of the agenda – all the way from seedling production and silviculture to research into the new products of the future, based on forest raw material. | 36 | 2 |
| | | | | Holmen has long conducted its sustainability work in a systematic manner, with policies, certified management systems, targets and follow-up systems in place to ensure that: Holmen makes efficient use of resources in its production; Holmen's products are adapted to the ecocycle and are recyclable; Holmen's impact on its immediate vicinity and the wider environment is constantly monitored; Holmen offers a safe work environment where employees are able to develop | 36 | 2 |
| | | | | investment. | 43 | 1 |
| | | | | THE ENVIRONMENTAL AND ENERGY POLICY contains general principles for the environmental issues prioritised by Holmen and its stakeholders. The focus is on the significance to the business of energy and climate change issues. | 45 | 2 |
| | | | | Within the Group there is currently a strong focus on innovation in a move to find new and profitable business streams with products that are able to replace alternatives currently based on oil. | 46 | 2 |
| RES | Who is responsible for the implementation and the environmental behaviour? | | | | | |
| | | | | The Board and Group management regularly address current sustainability issues. Overall responsibility lies with the CEO and the heads of the business areas. Operational responsibility for the environment rests with the mill and forest region managers. | | |
| | | 1. Top-management - top management or board | x | Holmen's director of environmental and sustainable affairs coordinates the work, including follow-up of targets and outcomes. | 37 | 2 |
| | | a. Committee/audit - any committee or group | x | Holmen's newly formed New Business Development unit is tasked with identifying future business opportunities based on wood raw material. | 36 | 2 |
| | | | | The allocation of environmental responsibility and the organisation and management of environmental activities are based on the Group's environmental and energy policy. | 45 | 2 |
| | | b. Membership | | | | |
| | | c. Aims and objectives | | | | |
| | | 2. Results | | | | |
| | | 3. Anybody working with the organisation e.g. reference to each employee. | | | | |
| POLL | Pollution related disclosures | | | The main environmental impact consists of emissions to air and water and the occurrence of noise and waste. | 35 | 1 |
| | | 1. Air | | | | |
| | | a. Emissions | x | The main environmental impact of the plants consists of emissions to air and water and the generation of noise and waste. | 43 | 1 |
| | | | | Using data on the most significant fossil carbon dioxide emissions, the figure amounted to 640 000 tonnes for 2013. | 46 | 4 |
| | | b. Actions/targets undertaken | x | In order to verify compliance with the emission regulations set by the environmental authorities, emissions to water and air are measured daily. | 43 | 1 |
| | | | | The purpose of calculating a product's carbon footprint is to show what quantity of greenhouse gases the product generates during its lifecycle. The carbon footprint can be said to be a measure of the product's climate impact. Holmen calculates carbon footprints for the emissions of fossil carbon dioxide generated by the Group's products during manufacture. | 46 | 2 |
| | | 2. Water | | | | |
| | | c. Emissions | x | The main environmental impact of the plants consists of emissions to air and water and the generation of noise and waste. | 43 | 1 |
| | | d. Actions/targets | x | The most important services in Holmen's forests are the production of renewable raw material, plus the capacity to capture and store carbon dioxide and to clean water in a natural ecocycle. | 36 | 2 |
| | | | | measured daily. | 43 | 1 |
| | | 3. Waste | | | | |
| | | e. Situation | x | The main environmental impact of the plants consists of emissions to air and water and the generation of noise and waste. | 43 | 1 |
| | | f. Control /reduction | x | Use of the industry's by-products/waste | 39 | 1 |
| | | g. Recycling | x | Holmen's products are adapted to the ecocycle and are recyclable | 37 | 1 |
| | | | | replacement fibre. | 39 | 2 |
| | | | | Of the waste and byproducts generated by Holmen's operations, as much as 99 per cent was utilized for various purposes. | 44 | 4 |
| | | 4. Land | | | | |
| | | h. Emissions | | Landfills and phased out operations may lead to costs for restoring the environment. | 35 | 1 |
| | | | | Bark and tree offcuts constituted around 70 per cent of the by-products created and used for energy production in Holmen's own plants or dispatched for external energy production. A little more than 30 per cent was used for other purposes. The remainder was sent to landfill. | 44 | 4 |
| | | i. Action /targets | | Use of the industry's by-products/ waste | 39 | 1 |
| | | 5. Results | | many results | | |
| | | 6. Products | | | | |
| | | j. Product related disclosures | x | In disruptions, the environment takes precedence over production. | 35 | 1 |
| | | | | This will enable products that have a negative impact on our environment to be replaced with more sustainable alternatives | 36 | 2 |
| | | | | The safety and security of employees, coupled with environmental adaptations to production processes and products, constitute the central pillars of this work. | 36 | 2 |
| | | | | Holmen's products store carbon dioxide until the end of their lifecycle, when the gas is released as biogenic carbon dioxide during combustion for energy recovery. | 46 | 2 |
| | | | | Calculations of Holmen's carbon footprint indicate that the Group's operations and products have a positive effect on the climate by virtue of the carbon dioxide captured in its forests and products. | 46 | 2 |

| Category | Definition | Sub-categories | | Holmen | p. | Discl. type |
|---|---|---|---|---|---|---|
| | | k. Product development | x | In product development and investments, the possibilities of combining efficient production with consideration to the environment and energy must be utilised. | 35 | 2 |
| | | | | The development of a sustainable society depends on choosing products that offer good performance in terms of climate and the environment. The European Commission wishes to promote the use of bio-based products in Europe, and standards are now being drawn up to support such a move. | 39 | 2 |
| | | | | Completely new materials and products made from renewable raw materials must be developed and replace those based on fossil fuels. Holmen is a key player in this work, | 39 | 2 |
| | | | | Resource-efficient product solutions | 39 | 1 |
| | | | | New products from wood raw material | 39 | 1 |
| | | | | Holmen's carbon footprint has been worked out on the basis of calculations for its products. | 46 | 1 |
| **SUSTAIN** | Disclosures related to sustainability | | | | | |
| | | 1. Any mention of sustainability | x | Appraisal of suppliers (goods and services) with respect to sustainability aspects based on a code of conduct. | 35 | 1 |
| | | | | Sustainability is one of the cornerstones of Holmen's strategy. | 36 | 1 |
| | | | | Holmen sees active sustainability work as a significant part of its business and as a driver of longterm value creation. | 36 | 1 |
| | | | | Ambitious sustainability work is therefore a natural engine for strengthening the Group's profitability in the long term. | 36 | 2 |
| | | | | The Group has common guidelines for sustainable forestry, plus its forestry is certified under environment management systems and in line with criteria issued by PEFC and FSC®. | 37 | 2 |
| | | | | Holmen maintains sustainable development targets relating to the environment and energy. | 37 | 2 |
| | | | | It allows us to set clear sustainability requirements for our suppliers. (code of conduct to suppliers) | 38 | 1 |
| | | | | In recent years, customers and financial investors have become increasingly interested in the sustainability work of companies. | 38 | 1 |
| | | | | HOLMEN'S GUIDELINES FOR SUSTAINABLE FORESTRY indicate how the forests are to be managed from the points of view of both production and the environment. | 45 | 2 |
| | | 2. Involvement/Commitment to UNCED, Brundtland, Rio, Kyoto | | | | |
| | | 3. Conservation of natural habitat/species | x | Forestry must be undertaken with as much consideration for the environment as possible. The forests are to be managed in such a way that ensures the long-term survival of flora and fauna in the forest landscape. | 35 | 2 |
| | | | | The fact that the forest also offers social assets in the form of recreation and active outdoor pursuits is becoming increasingly relevant in today's modern society | 36 | 2 |
| **LIAB** | Environmental liabilities | | | | | |
| | | 1. Financial disclosure | | | | |
| | | 2. Balance sheet within voluntary section | | | | |
| | | 3. Justification for no disclosure | | | | |
| **ACT** | Environment-related activities | | | | | |
| | | 1. Training of staff | x | Holmen offers a safe work environment where employees are able to develop | 37 | 1 |
| | | | | Training in the method has been given to Holmen's own employees and its contractors. (logging without trace) | 44 | 2 |
| | | 2. Project involvement | x | Since 2012, Holmen has been co-owner of an R&D company in Israel focused on the production of nanocrystalline cellulose (NCC) from wood raw material. | 39 | 2 |
| | | | | Several environmental projects, analyses and actions were carried out during the past year (forestry, energy and climate, water use, treatment plants, safer production, transport, by-products and waste) | 44 | 2 |
| | | | | Holmen takes part in voluntary programmes for energy efficiency and reduced climate impact in Sweden and the UK. These programmes provide the energy-intensive industries with an alternative to energy taxes. | 45 | 1 |
| | | 3. Awards | x | ALL SPECIALITY PAPER from the mills in Braviken and Hallsta plus the newsprint from the mill in Madrid are awarded the EU Ecolabel. | 2 | 1 |
| | | | | Worth SEK 1.1 million, this investment makes the mill almost entirely free from fossil fuels, setting the standard for the industry. The move has attracted a great deal of positive attention, culminating in November when Iggesund Paperboard won the title 'Investment Project of the Year' at the UK Packaging Awards 2013. | 18 | 2 |
| | | 4. Sponsoring | | no disclosures | | |
| **BRR** | Business related risk | | | | | |
| | | 1. Specific environmental risks related to the business | x | There is a risk of incidents occurring and conditions for operations set by the environmental authorities being breached. Landfills and phased out operations may lead to costs for restoring the environment. | 35 | 2 |
| | | | | Active programme to remedy damage to the forest caused by storms and breakage as a result of snow, and by insects, fungus and | 35 | 2 |
| | | | | Short-term targets are set along the way to reduce the number of industrial accidents. | 37 | 1 |
| | | | | Holmen works on preventing and managing any environmental risks that may arise | 43 | 1 |
| | | | | During the year there were a number of cases of exceeded threshold values, as well as complaints and incidents in the industrial and forestry operations. None of these were in any way of a material nature or had an impact on earnings, and they were all resolved by means of corrective measures in the operations' management systems. The incidents were reported to the supervisory authorities. | 45 | 2 |
| | | 2. Attempts to reduce/manage these risks | x | The following points are examples of how Holmen continually works on preventing and managing the environmental risks that may arise: Self-monotoring so that conditions regarding emissions imposed by environmental authorities are fullfilled; Checks of bodies of water outside mills; Checks on the management of chemicals and waste; Environmental risk assessments; Checks and inspections by authorities; Reporting to public authorities; Group-wide climate and energy targets; Certified environmental and energy management systems incorporating environmental and energy targets; Environmental and chain-of-custody certification in accordance with criteria issued by the FSC® and PEFC; Active programme to remedy damage to the forest caused by storms and breakage as a result of snow, and by insects, fungus and moose; The certified systems are regularly checked by external, certified auditors; Appraisal of suppliers (goods and services) with respect to sustainability aspects based on a code of conduct; Self-monitoring of compliance with power industry guidelines for dam safety; Studies and remediation measures are carried out at discontinued psites in consultation with environmental authorities. | 35 | 2 |
| | | | | Sustainability analysts are continuously analysing Holmen in terms of risks and opportunities relating to environmental issues, social responsibility and responsible corporate governance | 37 | 2 |
| | | | | Less site damage in forest | 39 | 1 |
| | | | | In consultation with the environmental authorities, studies were conducted at contaminated discontinued industrial sites where Holmen has operated in the past. | 44 | 2 |
| | | 3. Costs involved | | | | |
| **PRESS** | Pressure Groups | | | | | |
| | | 1. Shareholders | x | The strategy is to process these raw materials sustainably into products and energy that fulfil important functions in society and generate value for customers, shareholders and other stakeholders. | 36 | 2 |
| | | 2. Other Stakeholders | x | The strategy is to process these raw materials sustainably into products and energy that fulfil important functions in society and generate value for customers, shareholders and other stakeholders. | 36 | 2 |
| | | | | operations. | 36 | 2 |
| | | | | The materiality analysis is an important component in promoting Holmen's sustainability work and its importance for the company's business, and longterm profitability, among both internal and external stakeholders. | 37 | 2 |
| | | | | Having Holmen held up as a responsible company is a highly positive signal to all stakeholders. (UN's Global Compact 100 list) | 38 | 2 |
| | | | | Holmen is a key player in this work, but if true breakthroughs are to be achieved, this must happen in collaboration with other stakeholders. External R&D activities are therefore often jointly run at industry-wide level and in collaboration with universities and research institutions. | 39 | 2 |
| | | | | Customers' converting processes | 39 | 1 |
| | | | | Holmen has identified its stakeholders based on their relationship with the company, what impact the company has, and what players affect Holmen. | 47 | 2 |
| | | 3. Government | x | Reporting to public authorities, Group-wide climate and energy targets, Studies and remediation measures are carried out at discontinued psites in consultation with environmental authorities. | 35 | 2 |
| | | | | This is driven by Holmen's ambitions in the environmental sphere, along with the requirements laid down by environmental legislation and the environmental authorities. | 43 | 2 |
| | | | | In 2013, the EU's member states became subject to new regulations concerning industrial emissions, with the entry into force of the Industrial Emissions Directive (IED). | 45 | 2 |
| | | | | The environmental aspects of Holmen's operations are regulated by laws and permits in each country. | 45 | 1 |
| **SER** | Separate Environmental Report | | | | | |
| | | 1. Available | | | | |
| | | 2. Reference within annual report | x | Annual Report with sustainability information | | |
| | | 3. Contact detail | | | | |

| Category | Definition | Sub-categories | | Holmen | p. | Discl. type |
|---|---|---|---|---|---|---|
| **ENE** | Energy related disclosures | | | | | |
| | | 1. Conservation/saving attempts | x | The most important services in Holmen's forests are the production of renewable raw material, plus the capacity to capture and store carbon dioxide and to clean water in a natural ecocycle. | 36 | 2 |
| | | | | The focus is on the significance of energy and climate change issues for the business and wider society. | 37 | 1 |
| | | | | The targets in the area of energy and the environment are of a long-term nature, focusing on increasing growth of the renewable forest raw material, reducing use of fossil fuels and increasing the proportion of company-produced renewable electrical energy. The overall aim of the targets is to secure a raw material base and cut energy costs. The targets are also important from a social perspective, since they have a positive impact on the climate. | 37 | 2 |
| | | | | Every year, the CDP conducts the world's biggest survey of how companies report their carbon emissions, and their strategy and ability to deal with emissions and climate change. Holmen has participated in this survey since 2007. | 37 | 2 |
| | | | | Material substitution, such as when renewable products from the forest replace fossil materials or biofuels from the forest replace oil, is positive for the climate. In addition, paper and paperboard can, once used, be recovered as material and/or bioenergy. | 39 | 2 |
| | | | | Holmen's operations have positive effects in relation to climate change, and this is evident from calculations regarding the Group's carbon footprint. | 39 | 2 |
| | | | | Holmen's operations are characterised by resource-efficient use of renewable raw materials and energy. | 43 | 1 |
| | | | | Raw materials from forests and the ensuing products store carbon dioxide and act as a substitute to materials that impact on the climate. | 43 | 2 |
| | | | | Holmen is in favour of the EU's targets and action programmes. However, the Group's ambitions in the climate and energy area go further. | 43 | 2 |
| | | | | The Group is working towards a goal of reducing use of fossil fuels at the mills. The target for 2020 is a fall of 75 per cent compared with 2005. By 2013, the use of fossil fuels across the Group had fallen by 52 per cent compared with 2005. | 43 | 5 |
| | | | | Reduce the use of fossil fuels in the Group, target 2020: decrease of 75%, outcome 2013 52%. (Base year 2005). | | |
| | | | | Increased production of renewable electricity, relative to electricity consumed by Holmen, target 2020: 67% , outcome 36%(Base year 2005: 31%) | 43 | 5 |
| | | | | generated revenues. | 45 | 2 |
| | | | | It is more difficult to calculate, per product, the positive impact on the climate to which Holmen's operations contribute; for example in terms of capturing and storing carbon dioxide in Holmen's own forests and the reduction in carbon dioxide emissions achieved when building materials and fossil fuels are substituted by sawn timber and biofuels from Holmen. | 46 | 2 |
| | | | | These investments have reduced the use of fossil fuels and will bring further reductions in subsequent years as the investments make their full impact. | 46 | 2 |
| | | 2. Use, development, exploration of alternative energy sources | x | Holmen's energy and climate-related targets are extremely ambitious, which made the commissioning of the new biofuel boiler in Workington particularly important. | 38 | 1 |
| | | | | Prioritized development in production: lower energy consumption, energy efficiency, upgrading hydro power, wind power, fossil-free Swedish units | 39 | 1 |
| | | | | The third climate-related sustainability target requires company-generated renewable electrical energy to increase as a proportion of total electricity consumption by Holmen. | 43 | 2 |
| | | | | The production of electrical energy at Holmen's wholly and partly owned hydro power stations is covered by a permit for water operations, which includes environmental conditions. | 45 | 2 |
| | | | | A permit was granted back in 2012 for wind turbines at Varsvik in the Municipality of Norrtälje. A company owned 50 per cent by Holmen is currently constructing 17 wind turbines that are planned to be operational by autumn 2014. | 45 | 4 |
| | | | | The result is that Holmen's operations contribute positively to the climate by increasing the net amount of carbon dioxide captured in the forests by around 310 000 tonnes. | 46 | 4 |
| | | | | Biofuel from Holmen's forests and byproducts from production are used to generate energy. For 2013, the energy content of the biofuel equated to around 1 100 GWh | 46 | 4 |
| | | | | The Group's investment in renewable energy has positive effects on the climate that will increase as more and more energy is derived from bio-based materials. A key contributor in this respect is the Group's commitment to producing its own wind power. | 46 | 2 |
| **IRP** | Information retrieval processes to obtain feedback from stakeholders | | x | During the year, Holmen conducted a mapping of what internal decision-makers consider the most important aspects of sustainability for the Group. The results are to act as the starting point for a continued focus on sustainability work and its communication. The survey will be supplemented with contributions from external stakeholders. | 37 | 2 |
| | | | | These contacts serve as an important element of the stakeholder dialogue that is maintained, and provide valuable indications of how work on such issues may be developed. | 37 | 2 |
| | | | | We welcome questions and evaluations, as they can provide us with useful insights to help Holmen develop its working practices. | 38 | 1 |
| **Other** | Any other environmental disclosure not fitting the categories above | | x | Holmen is well placed in many ways to make a greater contribution in resolving issues of climate and resource conservation, both on its own and in collaboration with wider society. | 39 | 2 |
| | | | | From a production and climate perspective, the target of 25 per cent growth in Holmen's forests within 40 years is therefore exceedingly important. | 43 | 4 |

# Appendix 3: Company disclosures 2013 –SCA

| Category | Defini-tion | Sub-categories | | SCA | p. | Discl. type |
|---|---|---|---|---|---|---|
| GEN | General Environmental related disclosures: any mention dealing with environmental policy and concern for the environment | | | | | |
| | | 1. Any general mention | x | SCA's business and offering are thus based on the responsible and efficient use of forest and other natural resources. | 30 | 2 |
| | | | | The responsible management of resources is a key part of SCA's business strategy, environmental practices and relationships with external parties. | 30 | 2 |
| | | 2. Aims | x | We do everything we can to reduce the environmental impact of our products. | 30 | 1 |
| | | 3. Management system and processes | x | This is why SCA takes a 360-degree approach, from fiber to finished product, with ambitious environmental targets and a life cycle for people and the environment.perspective in parallel with attaching great importance to ensuring that its products are safe | 30 | 2 |
| | | | | Part of SCA's innovation process is to examine how to reduce the environmental impact of products throughout the product cycle. | 41 | 2 |
| | | 4. (Disclosure) guidelines such as the ACCA guidelines adopted | x | Code of Conduct<br>GRI G3 guidelines / level A+ | 64 | 2 |
| | | 5. Initiatives (e.g. Responsible care) | x | SCA has 37 mills and plants included under the ETS. / The EU Emission Trading Scheme (EU ETS) | 33 | 4 |
| | | | | SCA's own forests have been certified according to the FSC standard since 1999, and the PEFC standard since 2011. | 36 | 2 |
| | | | | Accordingly, we recognize several systems for forestry management, including PEFC, SFI (the Sustainable Forestry Initiative) and CSA (the Canadian Standards Association). | 36 | 2 |
| | | | | SCA's forest management has been ISO 14001 certified since 1998. | 38 | 2 |
| | | | | UN Global Compact | 44 | 2 |
| | | 6. Results e.g. Awards won, Results resulting from the Policy | x | The balance provides an annual surplus (ETS emission rights) of about 200,000 tons of carbon dioxide equivalents, which is lower than in the past. | 33 | 4 |
| | | | | SCA was voted Best Sustainability Report 2012 by the sustainability publication Miljörapporten and CSR experts. | 2 | 2 |
| | | | | SCA was recognized by the WWF for leadership in transparency for disclosing its ecological footprint in the WWF Environmental Paper Company Index 2013. | 2 | 2 |
| | | | | Economic value: SCA is qualified to following indices: Dow Jones Sustainability Indices, The Ethisphere Institute's list, The FTSE4Good index, | 21 | 2 |
| | | | | The Climate Disclosure Leadership Index, Folksam's Index of Corporate Social Responsibility 2013 Included in funds of Vigeo (Ethibel Sustainability Excellence Europe and Ethibel Sustainability Excellence Global) EPCI Euro Ethical Equity and EPCI Global Ethical Equity The OMX GES Sustainability Nordic and OMX GES Sustainability Sweden | | |
| | | 7. Long-term - any mention of long-term policy | x | SCA's ESAVE program has contributed to energy savings and improved efficiency in all operative business units. | 32 | 1 |
| | | | | SCA is Europe's largest private forest owner and takes a long-term approach to the management of its fo | 38 | 2 |
| RES | Who is responsible for the implementation and the environmental behaviour? | | | both in terms of timber production and by showing consideration for the forest's other assets. | | |
| | | 1. Top-management - top management or board | x | SCA's Corporate Senior Management Team bears the overall responsibility for the control of SCA's business in the environmental and social area. SCA has a Group Function in charge of sustainability, led by the Senior Vice President Sustainability, who reports to the CEO and is a member of the Corporate Senior Management Team. | 58 | 2 |
| | | | | down into specific targets and activities to ensure compliance with the Group's objectives and business plans. The Environmental Committee and the Social Responsibility Committee draft proposals for | | |
| | | a. Committee/audit - any committee or group | x | policies and principles for governing the sustainability work, in addition to objectives and action programs at Group level. | 58 | 2 |
| | | b. Membership | | | | |
| | | c. Aims and objectives | | | | |
| | | 2. Results | | | | |
| | | 3. Anybody working with the organisation e.g. reference to each employee. | x | ...my colleagues and I use forest machinery that we exercise care around biotopes, ancient remains and watercourses. | 31 | 2 |
| POLL | Pollution related disclosures | | | We also regularly inspect our machines to make sure that there are no oil or fuel leaks that could harm n | 31 | 2 |
| | | 1. Air | | | | |
| | | a. Emissions | x | SCA has an ambitious target for reducing its carbon emissions. | 32 | 1 |
| | | b. Actions/targets undertaken | x | This clear target, combined with continued investments, the deployment of new technology and a daily focus on efficiency | 32 | 2 |
| | | | | enhancements, is generating significant improvements and progress. | | |
| | | | | Target: SCA will reduce CO2 emissions from fossil fuels and from purchased electricity and heating by 20% by 2020, with 2005 as reference year. | 32 | 4 |
| | | | | Outcome: At year-end 2013, CO2 emissions had declined by 11.8% compared with the reference year. | 32 | 5 |
| | | 2. Water | | (disclosures on water consumption) | | |
| | | c. Emissions | x | SCA works continuously to enhance its effluent treatment and thus the quality of the effluent water discharged from its plants. | 40 | 2 |
| | | d. Actions/targets | x | We aim to optimize our water use and guarantee the highest possible water quality. | 40 | 1 |
| | | | | We aim to achieve water sustainability and we will reduce our water usage in water-stressed regions by year. By year-end 2013, water usage in waterstressed regions declined by 10.4% compared with the reference year of 2010. | 40 | 5 |
| | | | | All SCA pulp and paper mills will employ mechanical and biological water treatment plants by 2015. | 40 | 2 |
| | | | | Of the Group's 44 pulp and paper mills, mechanical and biological effluent treatment systems have been installed at 42 plants. | 40 | 4 |
| | | | | The new facility (France) is yielding COD values that are half of the highest limit value specified under the EU's forthcoming regulations for the best available technology (BAT), and correspond to one-fourth of the permitted BOD levels. | 40 | 2 |
| | | | | Improvements made to effluent treatment, primarily at SCA's Swedish mills (Munksund, Ortviken, Obbola, Östrand), and reductions of suspended particles at the Swedish and Colombian paper mills (Cajica, Medellin) resulted in a significant lowering of COD/BOD emissions (23% and 39%, respectively) and suspended particles (30%). | 40 | 4 |

| Category | Defini-tion | Sub-categories | | SCA | p. | Discl. type |
|---|---|---|---|---|---|---|
| | | 3. Waste | | Waste that is potentially hazardous to human health or the environment is handled according to stringent procedures. | 41 | 2 |
| | | e. Situation | x | Minimize, reuse and convert are the catchwords for managing SCA's waste and by-products from producti | 41 | 1 |
| | | | | The Group initiates partnerships and evaluates smart solutions to minimize waste throughout the entire chain – from raw material to end-consumer. | 40 | 2 |
| | | | | In SCA's production processes, waste is produced in the form of ash, sludge, organic waste and plastic. | 41 | 2 |
| | | f. Control /reduction | x | SCA uses life cycle assessments (LCAs) to minimize waste, all the way from the product design stage to manufacturing and end-use. | 41 | 2 |
| | | | | Following the closure of the sawmills in Holmsund and Vilhelmina in Sweden during the year, a soil contamination survey was conducted to assess whether any remediation efforts were required. Land remediation was carried out in Vilhelmina at a cost of some SEK 2m. Land surveys to identify the need for any remedial action in Holmsund are ongoing. | 41 | 4 |
| | | | | SCA's tissue consists of wood fibers that, beside being renewable, can also be recycled and used to make new tissue. | 41 | 2 |
| | | | | Since the mid-1980s, SCA has actively worked to make thinner products, which reduces waste. | 41 | 1 |
| | | | | SCA is also working to totally eliminate consumer waste by producing biodegradable paper products. | 41 | 1 |
| | | g. Recycling | x | Thanks to innovative solutions, SCA can convert by-products into valuable energy. | 35 | 1 |
| | | | | A significant part of the production waste (1.4 million tons or 75%) is recycled as raw material for other industries, such as the construction industry, or as energy | 41 | 4 |
| | | | | SCA's tissue consists of wood fibers that, beside being renewable, can also be recycled and used to make new tissue. | 41 | 2 |
| | | | | Energy recycling (combustion) of tissue generates renewable energy. | 41 | 1 |
| | | 4. Land | | (use of landfills) | | |
| | | h. Emissions | x | Between 2005 and 2013, the amount of waste sent to landfills declined (in different operations) | 41 | 2 |
| | | | | SCA also has a partnership with Foodservice Packaging Institute in the US to find a way to increase | | |
| | | i. Action /targets | x | recycling and reduce the amount of packaging waste that goes to landfills. | 41 | 2 |
| | | 5. Results | x | Many results | | |
| | | 6. Products | | | | |
| | | j. Product related disclosures | x | Environmentally sound products and services are a natural part of SCA's offering | 30 | 1 |
| | | | | A major climate gain is achieved when forest-based products replace material with a negative climate imp | 37 | 2 |
| | | k. Product development | x | Since the mid-1980s, SCA has actively worked to make thinner products, which reduces waste. | 41 | 1 |
| **SUSTAIN** | Disclosures related to sustainability | | | | | |
| | | 1. Any mention of sustainability | x | The choice of suppliers is controlled by quality, price, capacity, sustainability criteria and SCA's Code of conduct. | 33 | 2 |
| | | | | SCA promotes sustainable forest management and applies Group-wide procedures and resources to improve traceability and ensure that wood raw materials come from non-controversial sources. | 36 | 2 |
| | | | | SCA is a member of the World Business Council for Sustainable Development (WBCSD), | 37 | 1 |
| | | 2. Involvement/Commitment to UNCED, Brundtland, Rio, Kyoto | | | | |
| | | 3. Conservation of natural habitat/species | x | The preservation of biodiversity is the most important environmental target in the management of SCA's forests. The forest is a source of valuable and renewable raw materials, but it also provides a living environment for a multitude of flora and fauna | 38 | 2 |
| | | | | The diversity park in Peltovaara comprises more than 3,000 hectares and is the first in a series of diversity parks to be set up in SCA's forest holdings. | 38 | 4 |
| **LIAB** | Environmental liabilities | | | | | |
| | | 1. Financial disclosure | | | | |
| | | 2. Balance sheet within voluntary section | | | | |
| | | 3. Justification for no disclosure | | | | |
| **ACT** | Environment-related activities | | | | | |
| | | 1. Training of staff | x | We are constantly expected to develop our driving methods so that we can harvest more and more trees in a shorter space of time." | 31 | 2 |
| | | | | (Value for people: training in the Code of Conduct) | 44 | 1 |
| | | 2. Project involvement | x | During the year, SCA exchanged a substantial area of forest land with the Swedish Environmental Protection Agency. SCA transferred 23,000 hectares of forest with substantial conservation value to the Swedish Environmental Protection Agency for use as a nature reserve. | 38 | 4 |
| | | | | Through partnerships with other players, the Group's initiatives become more effective. (CGF, Power of Three, De Graaf Security, SITA) | 41 | 2 |
| | | | | Joint ventures/collaboration with energy producers | 34 | 2 |
| | | 3. Awards | x | SCA was voted Best Sustainability Report 2012 by the sustainability publication Miljörapporten and CSR experts. | 2 | 2 |
| | | 4. Sponsoring | | Value for people: social or other sponsorships | | |
| **BRR** | Business related risk | | | | | |
| | | 1. Specific environmental risks related to the business | x | In the latter part of 2013, a couple of unusually strong storms passed over northern Sweden, causing extensive forest damage… | 38 | 2 |
| | | | | The storm-felled timber must be removed as soon as possible to avoid insect damage… | | |
| | | | | Working in waterstressed areas | 40 | 2 |
| | | 2. Attempts to reduce/manage these risks | x | The favorable outcome of these activities (COD & BOD levels) signifies that SCA is well positioned to comply with more rigorous regulation in the area. | 40 | 2 |
| | | | | Efficient water usage in waterstressed regions | 40 | 1 |
| | | 3. Costs involved | | | | |
| **PRESS** | Pressure Groups | | | | | |
| | | 1. Shareholders | | not in environmental pages: maximize the positive value for shareholders | 17 | 1 |
| | | 2. Other Stakeholders | x | Our stakeholders expect us to assume environmental responsibility across the value chain, from the preservation of biological diversity in the forests to the effective production and use of products. | 30 | 2 |
| | | | | SCA's customers and other stakeholders expect the company to develop products that inflict the smallest possible impact on the environment. | 30 | 2 |
| | | 3. Government | | one of stakeholders | | |
| **SER** | Separate Environmental Report | | | | | |
| | | 1. Available | x | SCA Sustainability Report 2013 | | |
| | | 2. Reference within annual report | | | | |
| | | 3. Contact detail | | | | |

| Category | Definition | Sub-categories | | SCA | p. | Discl. type |
|---|---|---|---|---|---|---|
| **ENE** | Energy related disclosures | | | | | |
| | | 1. Conservation/saving attempts | x | This clear target (reduce carbon emissions), combined with continued investments, the deployment of new technology and a daily focus on efficiency enhancements, is generating significant improvements and progress. | 32 | 2 |
| | | | | Wind power represents a significant part of SCA's renewable energy program. | 34 | 1 |
| | | | | SCA's forests have an annual net growth of 1%, which means that they absorb 2.6 million tons of carbon dioxide per year, which exceeds the total emissions of carbon dioxide from all of SCA's production facilities* by a wide margin. | 37 | 4 |
| | | | | New transport initiatives to reduce emissions (shipping, road, rail) | 33 | 4 |
| | | 2. Use, development, exploration of alternative energy sources | x | SCA works on a broad front to increase access to renewable energy. The forest plays a central role, both as a location for new wind farms and in the production of biofuel. With a focus on resource efficiency, we produce energy by utilizing the raw materials and wood residuals. | 34 | 2 |
| | | | | We will triple our production of biofuels from our forests by 2020, with 2010 as reference year. | 34 | 4 |
| | | | | All use of coal was replaced with natural gas, thus considerably reducing CO2 emissions (France) | 32 | 2 |
| **IRP** | Information retrieval processes to obtain feedback from stakeholders | | x | (Economic value: Insight into and understanding of people's needs and behaviors are fundamental to SCA's innovations. SCA pursues a continuous dialog and interacts with the market, where customer and consumer feedback forms the basis for new insights. Being receptive, available and reliable are our | 22 | 2 |
| **Other** | Any other environmental disclosure not fitting the categories above | | x | The Group undergoes audits to verify compliance with both standards (FSC, PEFC). | 36 | 2 |
| | | | | All of SCA's wood-consuming units are reviewed by independent auditors | 36 | 1 |