FORESTRY & LOGGING

Research Brief

SASB’s Industry Brief provides evidence for the disclosure topics in the Forestry & Logging industry. The brief opens with a summary of the industry, including relevant legislative and regulatory trends and sustainability risks and opportunities. Following this, evidence for each disclosure topic (in the categories of Environment, Social Capital, Human Capital, Business Model and Innovation, and Leadership and Governance) is presented. SASB’s Industry Brief can be used to understand the data underlying SASB Sustainability Accounting Standards. For accounting metrics and disclosure guidance, please see SASB’s Sustainability Accounting Standards. For information about the legal basis for SASB and SASB’s standards development process, please see the Conceptual Framework.

SASB identifies the minimum set of disclosure topics likely to constitute material information for companies within a given industry. However, the final determination of materiality is the onus of the company.

Related Documents

- Forestry & Logging Sustainability Accounting Standards
- Industry Working Group Participants
- SASB Conceptual Framework

CONTRIBUTORS

Andrew Collins  Himani Phadke
Henrik Cotran  Arturo Rodriguez
Bryan Esterly  Jean Rogers
Anton Gorodniuk  Quinn Underriner
Jerome Lavigne-Delville  Gabriella Vozza
Nashat Moin

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INTRODUCTION

Forests have long been a renewable source of raw materials, energy, and food. Forests are home to the majority of the world’s plant and animal species and provide invaluable ecosystem benefits such as air and water filtration, nutrient and waste recycling, and climate regulation. Timber and wood fiber are used widely in construction, papermaking, and energy generation, while forests provide livelihoods for millions of people worldwide. The regenerative ability of forests is unique among other primary sources of materials, an attribute that will likely become increasingly important as global resource constraints grow. When managed responsibly, forests can provide benefits to society and the planet over the long term.

Emerging sustainability trends and challenges are shaping the forestry industry. Rising demand for agricultural land, wood building materials, and paper, combined with the effects of a changing climate, will likely place increasing strain on the world’s forests. Forestry companies are an important element in the management of forest ecosystems. Forestry and logging activities have the potential to impact fragile forest ecosystems as well as forest-dependent communities, while climate change will affect forest productivity in unpredictable ways. Therefore, the sustainable management of environmental and social capital can help forestry companies mitigate downside risks associated with their activities, as well as create opportunities to capture additional economic value from the forest ecosystem.

Management (or mismanagement) of certain sustainability issues, therefore, has the potential to affect company valuation through impacts on profits, assets, liabilities, and cost of capital.

Investors would obtain a more holistic and comparable view of performance were Forestry & Logging companies to disclosure information in their regulatory filings on the material sustainability risks and opportunities that could affect value in the near and long term. This would include both positive and negative externalities, and the non-financial forms of capital that the industry relies on for value creation.

Specifically, performance on the following sustainability issues will drive competitiveness within the Forestry & Logging industry:

- Enhancing the environmental and economic value of forestlands while minimizing the potential ecological impacts of operations;
- Maintaining strong relations with forest-dependent communities, with special consideration for the rights and claims of indigenous peoples; and
- Adapting forest management to the potential positive and negative effects on forest productivity due to climate change.

SUSTAINABILITY DISCLOSURE TOPICS

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INDUSTRY SUMMARY

The Forestry & Logging industry consists of companies that own and/or manage natural and planted forestry lands and timber tracts, operate non-retail tree nurseries and rubber plantations, or conduct logging and harvesting operations that produce timber.1

U.S. exchange-listed forestry and logging companies operate primarily in the U.S. and Canada. All listed companies are domiciled in the U.S., except for one that is domiciled in Canada. Some of these firms have operations outside North America as well, including in South America, China, and New Zealand.1 Companies whose securities are traded over the counter are domiciled in several different countries including Finland, Sweden, Austria, Canada, and China.2 Forestry operations in the U.S. are concentrated in the Southeast and West Coast regions, while smaller commercial forest industries exist in Maine and the Great Lakes region.3

The industry’s principal customers include wood products manufacturers, pulp and paper producers, and construction companies. Companies may also sell timber through international commodity markets. Industry demand is driven largely by demand for wood building materials and paper products, which typically correlate with construction activity and business and consumer spending. The strength of domestic currencies is a factor for companies that export products.4 Since timber is commoditized, companies compete largely on price and quality. Prices are partly determined by the cost of shipping timber, as well as the impacts of weather events on timber harvests. In addition, companies that have their timberlands certified to third-party forestry management standards can sell certified timber to downstream customers. There can be a price premium for certified timber.5

The Forestry & Logging industry is mature, with relatively low growth rates. Growth has been most robust in developing markets because of population increases and industrialization, while developed economies have experienced slow growth.6 The U.S. is the largest producer and consumer of wood products, and rising demand in markets including China and India has driven U.S. exports.7 As of September 2015, total global revenues in the most recent reported fiscal year were approximately $25.3 billion. Total revenues from forestry activities of U.S. exchange-listed industry companies were $3.2 billion.8

Capital and labor intensity varies by activity. For timberland management activities, purchases of equipment and raw materials such as fertilizer, pesticides, seedlings, and fuel are among the greatest operating expenses. Purchases of land or the obtainment of harvest licenses can also represent considerable costs. According to IBISWorld estimates, purchases represent approximately 50 percent of revenues in the timberland services industry, while wages account for nearly 10 percent.9 Listed forestry companies tend to hire contractors to perform logging operations on lands they own or manage.10 Logging operations typically require manual labor to operate heavy equipment such as logging machines, saws, skidders, log loaders, trucks, and generators. Purchases and wages account for approximately 43 percent and 18 percent,

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1 Industry composition is based on the mapping of the Sustainable Industry Classification System (SICSTM) to the Bloomberg Industry Classification System (BICS). A list of representative companies appears in Appendix I.

8 While some integrated companies may also operate sawmills, wood products facilities, and pulp and paper facilities, sustainability issues arising from these activities are addressed in SASB’s Building Products & Furnishings (CN0603) and Pulp & Paper Products (RR0202) industries.
respectively, as a share of revenues in logging operations. As of September 2015, the most recent fiscal year median gross margin of companies in the industry was 28.3 percent, while the median net income margin was approximately 8.5 percent.

The industry is global as a result of widespread demand for timber and the presence of commercial forests on every continent. Major timber-producing regions are in North America, Brazil, China, and northern Europe. This is due largely to the abundance of natural forests in these areas and climates conducive to rapid tree growth. Commercial forestry occurs in managed natural forestland and forest plantations. Forestlands may be publicly or privately owned or leased. Plantation-style forestry constitutes an increasing share of global forestlands, given the rising competition for land, enhanced productivity potential, supportive government policies, and new technologies including genetically altered species. This form of silviculture can result in higher forest yields and reduced impacts on natural forests, although there are potential environmental and social concerns.

During the 1990s and early 2000s, many vertically integrated pulp and paper companies divested their substantial timberland holdings in an effort to consolidate their operations and monetize non-strategic assets, among other reasons. Today, a share of divested timberlands are owned or managed by corporate entities called timber investment management organizations (TIMOs) and real estate investment trusts (REITs). The top five companies listed in Appendix I are structured as REITs that own income-producing timber tracts. TIMOs typically manage forests as assets that generate cash flows or resale value on behalf of institutional or private equity investors.

Forestry companies take a long-term approach to managing forestlands as productive assets. Sustainable forestry management (SFM) refers to forestry methods that maintain the productive capacity of forest ecosystems while minimizing environmental and social impacts. Implementing SFM in commercial forests is important for maintaining the renewability of forest resources. In addition, factors such as global climate change may affect forest productivity and the industry’s long-term outlook.

Financial analysts covering forestry and logging companies will typically examine parameters including timber prices, fuel and freight costs, liquidity, debt expenses, weather conditions, and foreign-exchange fluctuations.

LEGISLATIVE AND REGULATORY TRENDS IN THE FORESTRY & LOGGING INDUSTRY

Regulations in the U.S. and abroad represent the formal boundaries of companies’ operations, and are often designed to address the social and environmental externalities that businesses can create. Beyond formal regulation, industry practices and self-regulatory efforts act as quasi-regulation and also form part of the social contract between business and society. In this section, SASB provides a brief summary of key regulations and legislative efforts related to this industry, focusing on social and environmental factors. SASB also describes self-regulatory efforts on the part of the industry, which could serve to pre-empt further regulation.
The Forestry & Logging industry is subject to regulation by various agencies at the federal, state, and local levels. Generally, regulations address the industry’s potential environmental impacts. The following section provides a brief summary of key regulations and legislative efforts related to this industry.

The Forestry & Logging industry’s influence on biodiversity, natural habitats, and indigenous peoples has resulted in the passage of legislation in the U.S. and abroad. Laws concerning the rights of indigenous peoples vary by country and may be based on individual treaties between identified groups and governments. For example, in Canada, many provincial laws governing forestry management do not apply to aboriginal peoples or their land, while aboriginal nations may have existing individual land claims or treaties with provincial or federal governments, resulting in a complex and case-sensitive legal environment that forestry companies must navigate.

Meanwhile, companies and governments have implemented programs designed to conserve and enhance forest resources. In 1992, Canada adopted SFM principles for the management of public forestland, which accounts for 94 percent of the country’s forests. Canada’s 10 provinces and three territories have jurisdiction over 90 percent of the country’s forests and develop and enforce forestry legislation, regulations, and policies. Provinces and territories typically grant companies harvesting rights following the approval of forest management plans, while companies are required to report on the operations and are subject to audits and penalties for a failure to meet standards.

The U.S. National Forest Management Act of 1976 established rules for managing national forest lands. Provisions of the act include the consideration of wildlife, water quality, logging, reforestation, sustainable timber harvesting, and road building. Under the U.S. Lacey Act, amended in 2008, it is a federal crime to import illegally logged wood into the U.S. The Lacey Act has directly affected the business practices of timber producers and manufacturers, triggering a rise in demand for certified wood products. In the U.S., the Endangered Species Act (ESA), established to protect threatened species and their habitats, could limit logging and forestry operations in regions that contain endangered species. The U.S. Fish and Wildlife Service and the Commerce Department’s National Marine Fisheries Service administer the ESA.

In Canada, the Species at Risk Act (SRA) of 2002 and aims to prevent the loss of wildlife species, provide for the recovery of species, and manage species of special concern. The act affects any entity owning or operating in lands in which a species at risk is found.

The European Union Timber Regulation prohibits illegally logged timber from entering the European market by requiring companies that trade wood products to have “due diligence” tracking systems in place. Furthermore, Brazil has implemented environmental policies that govern water contamination, air pollution, land use, forestry, and climate change, with provisions for licensing and penalties, all of which can affect the operations of forestry and logging companies in the country.

In 2008, the United Nations’ Reducing Emissions from Deforestation and Forest Degradation (REDD) program was established to address the growing threat of carbon emissions from deforestation in developing countries, which is attributed in part to agricultural practices and deforestation. REDD factors in the key roles that indigenous peoples and local communities play in forestry management worldwide. The REDD
program could have implications for the Forestry & Logging industry's operations in emerging-market countries, including how timberlands are managed. Additionally, during the historic 21st United Nations Conference of the Parties (COP) in December 2015, several parties made commitments to implement policy and incentives to reduce emissions from deforestation and forest degradation. While the details of countries’ specific commitments are not yet determined, the forestry sector may have further economic opportunities from carbon sequestration.

Voluntary third-party wood and fiber-sourcing certification standards arose in the 1990s as an approach to improve forest management. Forestland certification occurs when a third-party determines that a company meets the standards set by a certification program and may include provisions for the conservation of biodiversity and air and water resources, the rights of indigenous peoples, community relations and human rights, and management planning and monitoring activities, among others.

The Programme for the Endorsement of Forest Certification (PEFC) is the world’s largest timber certification organization as measured by total certified forest area. Other notable standard-setting organizations include the U.S.-based Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI). In some countries, governments mandate the use of third-party certifications in forestry. Three third-party certification systems are currently used by companies operating in Canada to meet government standards for forestry and harvesting.

SUSTAINABILITY-RELATED RISKS AND OPPORTUNITIES

Industry drivers and recent regulations suggest that traditional value drivers will continue to impact financial performance. However, intangible assets such as social, human, and environmental capitals, company leadership and governance, and the company’s ability to innovate to address these issues are likely to increasingly contribute to financial and business value.

Broad industry trends and characteristics are driving the importance of sustainability performance in the Forestry & Logging industry:

- **Management of environmental capital**: Forestry and logging companies derive value from the natural forest ecosystem and the regenerative ability of forests. Companies can mitigate possible environmental impacts and ensure value creation over the long term through adhering to environmentally sustainable forestry practices.

- **Social license to operate**: Forestry companies rely on permits from public, private, and indigenous groups to harvest timber and depend on support from employees and local communities. Adverse social or environmental impacts, or a negative public perception of forestry activities, could harm this social license to operate.

As described above, the regulatory and legislative environment surrounding the Forestry & Logging industry emphasizes the importance of sustainability management and performance. Specifically, recent trends suggest a regulatory emphasis on environmental conservation and consideration of communities’ interests, which
will serve to align the interests of society with those of investors.

The following section provides a brief description of each sustainability issue that is likely to have material financial implications for companies in the Forestry & Logging industry. This includes an explanation of how the issue could impact valuation and evidence of actual financial impact. Further information on the nature of the value impact, based on SASB’s research and analysis, is provided in Appendix IIA and IIB.

Appendix IIA also provides a summary of the evidence of investor interest in the issues. This is based on a systematic analysis of companies’ 10-K and 20-F filings, shareholder resolutions, and other public documents, which highlights the frequency with which each topic is discussed in these documents. The evidence of interest is also based on the results of consultation with experts participating in an industry working group (IWG) convened by SASB. The IWG results represent the perspective of a balanced group of stakeholders, including corporations, investors or market participants, and public interest intermediaries.

The industry-specific sustainability disclosure topics and metrics identified in this brief are the result of a yearlong standards development process, which takes into account the aforementioned evidence of interest, evidence of financial impact discussed in detail in this brief, inputs from a 90-day public comment period, and additional inputs from conversations with industry or issue experts.

A summary of the recommended disclosure framework and accounting metrics appears in Appendix III. The complete SASB standards for the industry, including technical protocols, can be downloaded from www.sasb.org. Finally, Appendix IV provides an analysis of the quality of current disclosure on these issues in Securities and Exchange Commission (SEC) filings by the leading companies in the industry.

ENVIRONMENT

The environmental dimension of sustainability includes corporate impacts on the environment. This could be through the use of natural resources as inputs to the factors of production (e.g., water, minerals, ecosystems, and biodiversity) or environmental externalities and harmful releases in the environment, such as air and water pollution, waste disposal, and greenhouse gas (GHG) emissions.

In addition to producing economic value from timber, forests provide many environmental benefits including climate regulation and water filtration. Companies may be able to capture additional financial value from protecting and enhancing these ecosystem services, especially as the value of such services becomes increasingly recognized by policymakers and other businesses. On the contrary, unsustainable forestry operations can adversely affect the forest ecosystem, harming its productivity and creating regulatory and reputational risks for companies in the industry.

Ecosystem Services & Impacts

The forestry sector derives economic value from the natural capital of the forest ecosystem. Along with their timber output, forests provide valuable ecosystem benefits, sometimes termed environmental or ecosystem services. These include carbon sequestration, wildlife habitat and biodiversity, water purification and storage, soil formation, and recreational opportunities. In some instances, there may be opportunities to
generate additional revenue from non-timber ecosystem services.

Companies manage forests as long-term productive assets, benefiting from forests’ natural regenerative ability. In developed countries, many commercial forests are managed and harvested in an environmentally sustainable manner, which protects the forest ecosystem and maintains its productivity. However, certain forestry management practices could adversely affect the forest ecosystem, possibly harming long-term forest productivity and causing reputational or legal repercussions.

In developed economies such as the U.S. and Canada, stringent regulations related to water quality and endangered species protection, as well as the presence of harvesting rights that are contingent on environmental preservation, can create operational risks for companies. Some U.S.-listed companies have forestry operations in emerging markets that are in higher risk countries, which may lack effective legal frameworks or incentives for sustainable forestry management. This poses higher risks of illegal logging, deforestation, and other unsustainable practices. Environmentally unsustainable forest management could impact forest productivity, permitting for timber harvesting, and the industry’s reputation and companies’ license to operate.

With rising concern over resource constraints and wildlife protection, policy makers and the private sector are placing increasing value on the ecosystem services provided by forests. Companies could garner additional value from direct payments for ecosystem services that include wetland mitigation, carbon capture and storage, the sale of land for conservation purposes, or recreational fees. Forestry owners have historically not received compensation for these benefits in most regions; however, payments for ecosystem services are on the rise in the U.S.\textsuperscript{38}

Sustainable forest management refers generally to forestry practices that aim to create sustainable benefits to the environment and society while minimizing the degradation of the forest ecosystem.\textsuperscript{39} Increasingly, firms are utilizing third-party certification programs to promote SFM within their operations and to meet customer demand for certified wood products. Third-party certification programs such those from the FSC and the SFI establish proprietary principles and guidelines that meet environmental and social impact criteria. The use of SFM methods could enhance the ecosystem services generated by forests, strengthen relationships with key stakeholders, secure long-term timber harvest contracts and timber harvest limits, facilitate expansion, and mitigate operational risks related to negative ecological impacts. These outcomes can result in direct financial benefits to companies through increased land and timber value, higher revenues, and a stronger reputation.

Company performance in this area can therefore be analyzed in a cost-beneficial way through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Area of forestland certified to a third-party forest management standard, percentage certified to each standard;
- Area of forestland with protected conservation status;
- Area of forestland in endangered species habitat; and
- Discussion of approach to managing opportunities from ecosystem services provided by forestlands.
Evidence

The conservation of forests as biological, social and economic assets is of critical importance to the Forestry & Logging industry. Potential harm to the forest ecosystem stemming from unsustainable forestry practices could adversely affect the industry’s regulatory and financial standing, as well as its reputation.

Forests constitute a vast global resource and ecosystem. In 2015, the United Nations (U.N.) Food and Agriculture Organization’s Global Forest Resources Assessment found that forests covered approximately 30.6 percent of the world’s land area, or approximately 4 billion hectares. Together, Russia, Brazil, Canada, the U.S., and China contain more than half the world’s forests. Nearly 30 percent of forests are used for the production of forest products. Approximately 93 percent of global forests are naturally regenerated and 7 percent planted forest. Primary forests, which represent approximately 35 percent of total forest acreage, are especially important biomes for biodiversity; about 66 percent of terrestrial species originate from primary forests.

Due to the increasing recognition of forests’ environmental and social value, a market for ecosystem services is emerging. While this market is nascent, it is growing, suggesting that the forestry sector may have an economic opportunity. The U.S. Forest Service (USFS) estimated that ecosystem service payments in the U.S. from government and non-government organizations and individuals in 2007 totaled nearly $1.9 billion. Landowners receiving the payments include private landowners and companies. These payments were for services including carbon offsets, conservation easements, hunting fees, and wetland and conservation banks. The majority of payments were for so-called bundled services, which encourage general conservation activities such as government conservation programs and the purchase of conservation easements by land trusts. Notably, payments for forest carbon offsets grew by an average of 99 percent annually, with most sales transacted through the Chicago Climate Exchange. (Forest carbon sequestration is currently captured in the emerging disclosure topic Carbon Sequestration, discussed below). Payments in 2005 totaled approximately $1.7 billion, implying an increase of nearly 11 percent over two years. The USFS anticipates that the market for many ecosystem services will continue to grow. Some payments were indirect, for example in the form of tax benefits. The USFS was unable to calculate some ecosystem service payments because of data limitations, suggesting that the actual value of payments is greater.

Top companies describe the value provided by forests in addition to timber. Holmen AB, a major Swedish forestry company, succinctly summarized its view of the value of ecosystem services in its annual report: “The basic idea behind ecosystem services is to highlight nature’s value to humanity. The forest provides many such services. The production of fibre raw material is one example that already has a market value. The forest’s capacity to capture and store carbon dioxide (CO₂), improve biodiversity and deliver social assets are examples of areas that may offer business potential.”

In its fiscal year (FY) 2014 Form 10-K, Potlatch reported the primary activities of its resources segment: “the management of our timberlands to optimize the value of all possible revenue producing opportunities while adhering to our

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*Primary forests are forests of native tree species that have previously not been disturbed by human activity or have attained significant age without significant disturbance.*
strict stewardship standards … The segment also generates revenues from non-timber resources such as from hunting leases, recreation permits and leases, mineral rights leases, biomass production and carbon sequestration.”

In some cases, companies are implementing forest management practices that could generate value from future ecosystem services. The Brazilian Forestry Code requires forest owners to allocate 20 percent of their lands for preservation, conservation, and environmental recovery. As a result, Fibria Cellulose has protected 36 percent of its lands. The company maintains a long-term target to promote environmental recovery and restore 40,000 hectares of its timberlands between 2012 and 2025 through the planting and stimulation of native species. This is being done to enrich biodiversity, protect endangered species, and enhance environmental services such as carbon capture and water availability and quality. The company also invests in studies, technology, and forest monitoring efforts, which, it says, “improve the environmental conditions of our plantations, and ensure that we protect the native ecosystem and availability of natural resources in the areas in which we operate.”

These efforts to enhance ecosystem services could ultimately benefit the company by increasing forest productivity or generating value from future payments for ecosystem services.

While many forestry and logging companies and private landowners follow stringent SFM guidelines, the potential exists for detrimental impacts on the forest environment. Logging infrastructure—including vehicles, roads, and skid trails—and clear-cutting can foster erosion and soil depletion, restricting trees’ access to water and nutrients and diminishing their growth rates. Externalities could extend beyond the forest; the high erosion caused by logging operations can result in the sedimentation of receiving streams, which harms the aquatic environment and increases the risk of downstream flooding.

At the same time, planted timber cultivation is projected to grow significantly as the world’s timber needs and competition for land resources rise. Today, plantations constitute a small share of total commercial forest acreage. Plantations generally utilize monoculture methods, where one fast-growing species, such as eucalyptus or some species of pine, is planted across thousands of contiguous acres. Although plantations can result in higher yields, this type of silviculture, if not properly managed, can have potential externalities, including soil degradation, pesticide runoff, and biodiversity changes.

Such intended and unintended externalities can have reputational impacts resulting from concerns of nearby communities and the broader public, which may reduce demand for a company’s products, as well as increase the likelihood of regulatory attention to these issues. These impacts could also ultimately harm forest productivity.

Concern over possible impacts on the environment could result in legal action, which could affect the regulatory environment that forestry companies operate in. In 2006, the Northwest Environmental Defense Center filed a case with the Oregon Department of Forestry and four timber companies, arguing that logging-road runoff should be treated as industrial pollution. Sediment samples in two Oregon rivers had suspended sediment levels found to be hazardous to fish and other aquatic life, including the Coho salmon, which is on the endangered species list. Following the suit, the Ninth Circuit Court of Appeals ruled that logging roads did require industrial Clean Water Act permits. However, in March 2013, the U.S. Supreme Court overturned the Court of Appeals decision. Currently, the
United States Environmental Protection Agency (EPA) does not regulate road runoff as industrial point-source pollution. The Supreme Court left further decisions on the applicability of stricter regulation to the EPA. Although the case was overturned, it exemplifies the regulatory risks that stem from the potential ecological impacts of forestry and the potential for more stringent regulations in the future.

The protection of endangered or threatened species is another important consideration for companies, with possible implications for access to land and reputational risk. The U.S.’s ESA and Canada’s SRA require protective measures to preserve species’ habitats, including in areas within or abutting timberlands. Weyerhaeuser reported in its 2013 Form 10-K, “The identification and protection of habitat and the implementation of range plans and land use action plans may, over time, result in additional restrictions on timber harvests and other forest management practices that could increase operating costs for operators of forestlands.”

Although most of the timberlands managed by listed companies of the Forestry & Logging industry are in North America, some companies have operations in higher-risk areas such as Brazil, where an estimated 47 percent of primary forest-logged areas are illegally logged. Illegal logging is estimated to account for between 20 and 40 percent of global timber production; it occurs mostly in regions with weaker legal and regulatory environments, such as parts of South America, Southeast Asia, and Eastern Europe. In the U.S., only an estimated 3 percent of timber harvested is illegally logged.

Increasingly, forestry operations must adhere to strict environmental and social standards to receive government or private permits. Companies’ timber limits, the rights to harvest timber from forestlands, are in some regions partly dependent on maintaining SFM practices. Regarding its limits in Canada, Resolute Forest Products stated in its FY 2013 Form 10-K, “The harvesting rights licenses in Ontario are 20 years in length and automatically renew every five years, contingent upon our continual compliance with environmental performance and reforestation requirements.”

Companies may also have their third-party certifications suspended or canceled if environmental criteria of forest management are not met. For example, in December 2013, the FSC suspended three of Resolute Forest’s certifications for forests in Quebec and Northwestern Ontario following evidence that the company had not properly assessed potential impacts of its operations on the habitat of woodland caribou and safeguarding forests with high conservation value. Negotiations between Canadian Provisional governments and First Nations also contributed to the suspensions. In July 2015, the Rainforest Alliance extended one of the suspensions by one year, and the company must undergo a conformance audit before the end of the extension, or the Rainforest Alliance will terminate the company’s certification agreement.

Alleged ecological impacts may force companies to manage potential reputational damage. Reputational impacts could affect demand for a company’s products. For example, Greenpeace Canada has urged customers of Resolute Forest Products to cease sourcing paper products from the company given concerns over woodland caribou. Some of Resolute’s customers, including Best Buy, have shifted paper purchases away from the company because of the negative press. Resolute has stated that its forestry practices are in compliance with Ontario province regulations. According to an estimate by analyst Stephen Atkinson of Dundee Capital Markets, the activism
and subsequent drop in demand resulted in a reduction of the company’s gross profit by between $50 and $100 million over three years.\textsuperscript{56}

Third-party certification allows companies to demonstrate that they follow sustainable forestry practices. This is an important tool for mitigating potential reputational impacts. In addition, certification schemes are now widely established as complements to government forest policy. In some countries, third-party programs such as those by PEFC and the FSC are required to meet nationally legislated standards. In countries such as China and Indonesia, third-party certification is part of national forest policy; in Canada, provincial governments help fund third-party chain-of-custody certification. As of 2013, 61 countries had some certified public forests. Companies may be required to achieve certification to secure timber permits in some regions.\textsuperscript{57}

In addition to its importance in operations, forest certification can be a revenue driver. Some of the industry’s downstream customers have implemented guidelines regarding the use of sustainably sourced wood and fiber in order to meet demand from their own customers, driving demand for certified products. For example, in 1999, Home Depot, a major retailer of lumber and other wood building materials, instituted a wood-purchasing policy that established a preference for wood sourced from sustainably managed forests. The company embraced FSC certification as a tool to establish the traceability of wood products through the supply chain, and Home Depot is now the largest retailer of FSC-certified wood in the U.S.\textsuperscript{58} In this example, forest certification allows access to a key end market.

**Value Impact**

Sustainable management of the forest ecosystem can help companies sustain long-term financial returns from timber resources as well as potentially enhance timber production, land value, risk mitigation, and potential payments for ecosystem services.

More productive, healthier forests could increase the volume or quality of salable timber, increasing revenues and profitability. More productive forests, or third-party certified forests, could also have a higher market value and thus increase the value of a company’s timber inventory balance sheet assets. Companies could additionally receive direct or indirect payments for ecosystem services, increasing revenues.

Conversely, unsustainable forest management could harm the forest ecosystem. If these impacts result in lower timber productivity in the medium to long term, companies could experience lower revenues or higher operating costs from, for example, increased fertilization or other efforts to raise timber yields. Furthermore, harm to wildlife and forest habitats could result in reputational harm, reducing demand for a company’s products. This could adversely affect revenues and future government permitting for timber harvesting. Companies could also experience greater difficulty or cost associated with obtaining forest certification of their lands or products, or lose current certifications, with impacts on revenues and market share.

Reputational factors could raise the risk premium and cost of capital of companies perceived as lacking adequate environmental protection, particularly when certification is revoked or demand is significantly affected.

The area of forestland certified to a third-party forest management standard and percentage certified to each standard provides information on the strength of a company’s forestry management and exposure to operational or reputational risks from adverse environmental or social impacts. It
can also indicate a companies’ revenue-generating ability from certified forest products.

The area of forestland with protected conservation status can indicate a company’s exposure to legislation that could restrict forestry operations in those lands.

The area of forestland in endangered species habitat is a proxy for a company’s risk from possible future endangered species legislation.

The discussion of the approach to managing opportunities from non-timber ecosystem services provided by forestlands offers information on the positioning of a company to expand into new markets and capture untapped revenue potential.

**SOCIAL CAPITAL**

Social capital relates to the perceived role of business in society, or the expectation of business contribution to society in return for its license to operate. It addresses the management of relationships with key outside stakeholders, such as customers, local communities, the public, and the government.

Forestry operations occur over significant tracts of land, and companies come into contact with a variety of stakeholders including communities and indigenous peoples. For some communities, forests are the foundation of their livelihoods and culture. Governments and interest groups worldwide recognize the importance of indigenous claims to forestlands and may consider the social impacts of forestry when allotting timber harvesting permits. Global certification standards similarly consider social impacts of forestry when granting certification to forestry operations or wood products. Engagement with indigenous peoples is an essential part of successful operation of some forestry companies.

**Rights of Indigenous Peoples**

Forests contribute to the livelihoods of millions of people worldwide. Effective relations and engagement with indigenous populations can be of critical importance to forestry companies, as indigenous peoples have claims to lands and unique legal protection in key forestry regions, including Canada and Brazil. Forestry operations have the potential to affect indigenous communities through environmental externalities, cultural impacts, or competition for non-timber resources such as land, water, and game.

Furthermore, indigenous peoples, whose rights are more formally being recognized worldwide, are often the most vulnerable sections of the population, with limited capacity to defend their unique rights and interests.

Without indigenous peoples’ consent, companies may not be able to attain necessary logging permits or gain physical access to land. Formal disagreements with indigenous populations could affect a company’s ability to operate and cause adverse reputational impacts. Furthermore, major certification standards consider impacts on indigenous peoples when granting certification to forest managers. The ability to obtain certification is an important financial driver for many companies.

Companies can adopt various strategies to manage the risks and opportunities associated with indigenous rights and interests, such as maintaining positive relations with local stakeholders and accommodating their needs. Companies can provide indigenous communities with employment opportunities, revenue sharing, and increased local commerce. Due diligence processes and practices companies can adopt can include impact evaluations, assessment reports, monitoring and audits, processes to receive and
respond to public inquiries, partnerships and agreements with indigenous peoples and local communities, and community meetings and multi-stakeholder dialogues. These actions can mitigate the risk of disruptive protests, legal challenges, and the loss of the ability to operate on or near indigenous peoples’ lands. Company performance in this area can therefore be analyzed in a cost-beneficial way through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Area of forestland in indigenous land; and
- Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights, and the local community.

Evidence

Managing relations with and protecting the rights of indigenous peoples are factors that can impact forestry and logging companies’ social license to operate, reputation, certifications, and harvest permitting.

The PEFC estimates that forests contribute to the livelihoods of about 1.6 billion people worldwide, that 60 million indigenous peoples are fully dependent upon forests, and that a further 350 million people depend on forests for income and food. Thus, the actions of forestry companies can directly affect the lives of many, underscoring the importance of indigenous community inclusion and maintaining strong relations with indigenous communities in all aspects of operations.³⁹

The more-formal recognition of the rights of indigenous peoples worldwide could create risks for companies that poorly manage such relations. The U.N. Declaration on the Rights of Indigenous Peoples calls for free, prior, and informed consent from indigenous peoples on decisions that affect them.⁶⁰

Given this greater awareness, several countries, including Canada and Brazil, have implemented laws and initiatives to protect indigenous peoples’ rights. Canada’s federal Aboriginal Forestry Initiative is an effort to foster enhanced indigenous participation in Canada’s forestry sector. Canada projects that forestlands under the control and management of First Nations will rise by as much as 40 percent between 2010 and 2022, based on current backlog of legal claims and treaty land entitlements.⁶¹ In 2014, the Supreme Court of Canada made its first ruling concerning the declaration of aboriginal title to lands. The court granted more than 1.09 million acres of land in British Columbia to the Tsilhqot’in First Nation. The case could have important implications in cases where there are outstanding claims to land by First Nations in Canada.⁶²

In Brazil, the Constitution of 1988 established rights for indigenous peoples, including acknowledgment of their rights to social organization, customs, languages, beliefs, and original rights over the lands that they traditionally occupied. The constitution states that it was the federal government’s duty to demarcate indigenous lands, protect them, and ensure that indigenous properties and assets are respected.⁶³

Disagreements with indigenous populations could put companies’ access to timber assets at risk, directly jeopardizing companies’ financial assets or revenue streams. For example, members of Grassy Narrows, a First Nations group in Canada consisting of about 1,500 people, has staged a continuous logging blockade on its approximately 3.2 million acres of treaty land in Ontario, Canada, since December 2, 2002. The group sought to end industrial use of its lands without prior and informed consent. The blockade led several companies, among them large, publicly traded forestry firms, to either cease clear-cut
logging operations in the territory or refuse to accept wood harvested therein.  

Companies could also experience financial impacts related to forest certification programs, which typically include social criteria. Third-party certifications could be suspended or revoked if social impact criteria are not met. For example, in December 2013, the FSC suspended three forest management certificates for forests in Quebec and Northwestern Ontario held by Resolute Forest. The suspensions followed the finding by FSC auditor of non-conformances to FSC standards that address possible impacts to a First Nation’s forest resource interests and economy, as well as certain environmental impacts. The suspensions affected 8 million hectares of timberland. (The company maintains SFI certification of the affected lands). As of December 2015, one of the certifications remains suspended.

Companies recognize in SEC disclosure the potential impact on access to timberlands from indigenous peoples’ land claims. In its 2014 third-quarter Form 10-Q, Weyerhaeuser discussed the impacts of the 2014 Tsilhqot’in First Nation Supreme Court of Canada ruling: “This decision confirms that aboriginal title claims can result in the transfer of public lands and resources to aboriginal ownership and control. We are not directly affected by the Tsilhqot’in ruling, but could be affected in the future if First Nations in our Princeton, BC, operating area are able to establish title.”

Top forestry and logging companies have implemented procedures and programs to strengthen relations with indigenous peoples in areas where they operate. In 2012, Resolute Forest published an Aboriginal Peoples Policy that details the company’s approach to respecting aboriginal people’s rights and cultures. It encourages the hiring of indigenous people by both the company and its contractors, helps develop skills within the community, and provides a framework to consult communities on possible impacts of logging operations. The company has entered into financial partnerships with First Nations to strengthen ties with the local population. For example, the company employs 170 First Nations people at its Thunder Bay sawmill and 135 at its Opitciwan sawmill. Companies can benefit from such partnerships through access to local labor and the mitigation of downside risk from poor relations with local communities.

**Value Impact**

Some forestry companies are dependent on consent or permits from indigenous peoples and governments to gain access to forestlands. Operational disruptions could result from disputes over land claims or forestry permitting due to social concerns. Disagreements with indigenous stakeholders or the introduction of more stringent regulations or permitting requirements, particularly in countries with stronger or improving governance laws. This could affect companies’ access to forestlands, leading to higher operating costs, lower timber harvest volumes, and lower revenues. In addition, companies may experience reputational harm in the event of allegations of negative impacts on forest communities. This could affect brand value, relationships with key customers, the ability to obtain certification of forestlands, and existing revenue or growth potential. Additionally, the suspension or termination of forest certifications due to concerns over indigenous rights and land claims could affect the value of a company’s timber assets. Companies with relatively more frequent certification suspensions could face a higher cost of capital.
Conversely, companies with strong relations with indigenous communities could mitigate operating or regulatory risks, and garner benefits from the increased availability of local labor.

The amount of forestland in indigenous areas can indicate a company’s exposure to potential restrictions on land access due to indigenous land claims or other related factors.

The discussion of engagement processes and due diligence practices with respect to indigenous rights and land claims provides information on a company’s ability to manage risks from operating in indigenous lands.

**BUSINESS MODEL AND INNOVATION**

This dimension of sustainability is concerned with the impact of environmental and social factors on innovation and business models. It addresses the integration of environmental and social factors in the value-creation process of companies, including resource efficiency and other innovation in the production process. It also includes product innovation and efficiency and responsibility in the design, use-phase, and disposal of products. It includes management of environmental and social impacts on tangible and financial assets—either a company’s own or those it manages as the fiduciary for others.

A changing climate will likely lead to positive and negative impacts on forestry operations, creating business uncertainty. Forestry companies could benefit from proactively adapting their forestry management practices to mitigate risks and maximize forest productivity in affected areas.

**Climate Change Adaptation**

Climate change will likely have dynamic impacts on the world’s forests, creating long-term business uncertainty for some timberland owners. Variations in precipitation patterns and temperatures, more frequent extreme weather events and forest fires, and increased prevalence of tree diseases and pests could adversely impact timberlands. Conversely, climate change could also facilitate forest productivity through increased atmospheric carbon, a longer growing season, moderating temperatures in high latitudes, greater precipitation, and an expanded geographic range.

Companies may experience variations in the productivity of their timberlands as a result of climate change. Impacts will likely be location-dependent. Given the significant investment of resources and the years required to grow timber, the effects of climate change could manifest over long periods of time. Impacts may also be acute, such as timber loss from forest fires or harvesting restrictions due to fire.

Firms can begin to manage climate change’s effects by identifying and understanding its potential impacts. Such actions could include undertaking research on the potential impacts of climate change on their forest and timber assets. Companies that implement plans to consider the potential impacts of climate change could benefit from increased understanding of operational risks and opportunities. Company performance in this area can therefore be analyzed in a cost-beneficial way through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Discussion of strategy to manage opportunities for and risks to forest management and timber production presented by climate change.
Evidence

Climate change is likely to have a gradual but significant impact on some of the world’s forests, while impacts will vary greatly depending on local conditions. According to the findings of the Intergovernmental Panel on Climate Change’s Fourth Assessment of Climate Change in 2007, the effects of climate change on forest productivity will likely be felt most acutely at the regional and local levels.73

Higher temperatures and a longer growing season in higher latitudes could increase forest productivity in North American and Scandinavian forests, where many companies operate. Increased atmospheric carbon dioxide concentrations may have already contributed to a rise in forest productivity and could enhance growth in forests globally if regional precipitation and temperature profiles are also conducive to growth. Several climate models have supported increased forest growth in many regions in the next few decades, with double-digit increases in forest growth or timber inventories in some areas.74

While climate change could benefit tree growth in certain regions, it also has the potential to adversely impact forest productivity and cause acute harm to standing timber as a result of extreme weather events, fire, and disease and pest outbreaks. In some regions, climate change may cause droughts to become more frequent and severe. This can result in larger and more intense forest fires, which can rapidly destroy large tracts of forestland.75 According to the U.S. Climate Change Science Program, between 1983 and 2008 the average area of wildfires in the U.S. increased from less than 50 acres per fire to more than 100 acres per fire.76

Forestry companies could experience acute loss of timber or face harvesting restrictions due to fire. In 2007, Plum Creek Timber reported a $4 million fire loss from damage to approximately 41,000 acres of the company’s western Montana timberlands. Sawlog harvest levels in the company’s Northern Resource Segment fell by nearly 150,000 tons in the third quarter of 2007 as extreme fire risk curtailed timber operations. The fire loss reduced its third-quarter net income by $0.02 per share, or nearly six percent.77 More recently, widespread fires in the U.S. West have affected harvesting volumes. During Weyerhaeuser’s second-quarter 2015 financial results conference call, management indicated, “Our harvest volumes are projected to be down in the third quarter versus the second because of the fire restrictions.”78

Climate variations could also result in the spread of harmful insects or plants. For example, in North America, cold winter temperatures have historically kept some harmful insect species, such as the pine beetle, geographically range-bound. However, increasingly mild winters have allowed the insect to migrate northward in the U.S., damaging forests in the American and Canadian West.79 Since the 1990s, more than 60 million acres of North American forest have experienced tree die-offs from the beetle.80 Furthermore, invasive plant species could expand their natural ranges and compete with native tree species. Trees already weakened by pests or drought may succumb more easily to high winds, heavy snow, and floods caused by extreme weather events.81

In the long term, the natural range of tree species may change, and local conditions may no longer support the growth of some species. If the rate of climate change exceeds the rate at which more-tolerant tree species can be planted or naturally grown, forest productivity may fall.82

In light of these possible impacts, companies could benefit from measures to adapt forest
management to maintain or enhance productivity. Research indicates that adaptation could include the diversifying existing tree species with species that are more tolerant of projected environmental conditions, thus reducing the vulnerability of a forest to insects, disease, or drought. Furthermore, companies could benefit by planting species that could grow more quickly under changed climate conditions. These efforts could require investing in plant breeding to strengthen resistance and increase productivity, monitoring forests to facilitate early detection of impacts, assessing risks and forests’ response to external stresses, and obtaining insurance. While the investment in adaptation could lower financial returns in the short term, it could provide long-term financial benefits through enhanced forest productivity and a mitigated risk to standing timber.

SEC disclosure by major companies addresses climate-related impacts on forest operations. In its FY 2013 Form 10-K, Resolute Forest Products disclosed the risks to forest productivity from climate change. The company stated, “Our operations and the operations of our suppliers are subject to climate variations, which impact the productivity of forests, the distribution and abundance of species and the spread of disease or insect epidemics, which may adversely or positively affect timber production. Over the past several years, changing weather patterns and climatic conditions due to natural and man-made causes have added to the unpredictability and frequency of natural disasters such as hurricanes, earthquakes, hailstorms, wildfires, snow and ice storms, which could also affect our woodlands.”

In its FY 2014 Form 10-K, Catchmark Timber discussed the operational impact, stating, “Severe weather conditions and other natural disasters can also reduce the productivity of timberlands and disrupt the harvesting and delivery of forest products.”

Value Impact

Climate change is likely to have positive and negative effects on forest productivity and health over the long term. Net reductions in productivity due to such factors could lower the volume of salable product, lowering revenues and profitability. Lower growth or timber damage could also adversely affect the value of standing timber inventory and/or land.

Adaptation efforts to maintain forest productivity could increase operating costs as well as research and development and capital expenditures. This could adversely affect profitability and cash flows.

Operational risk could increase as a result of poor management of the issue, leading to acute loss of timber inventory. This could affect a company’s cost of capital if it is viewed as having a higher risk than its peers.

The probability and magnitude of financial impacts are likely to increase over the medium to long term as the manifestations of climate change intensify and become more widespread.

A discussion of a company’s strategy to manage opportunities and risks from climate change allows for relative comparison of companies’ positioning and adaptability to effects on cash flows generated by the sale of forest products. Additionally, analysts could assess potential effects on land or timber inventory value.

SASB INDUSTRY WATCH LIST

The following section provides a brief description of sustainability disclosure topics that are not likely to constitute material information at present but could do so in the future.
Carbon Sequestration: Forests have the potential to sequester massive amounts of CO₂. As trees grow, atmospheric carbon is incorporated into cellulose structures. Carbon is also stored in forest soils, along with underground plant structures. Sustainable forestry practices can increase the ability of forests to sequester carbon.⁸⁶

Forest carbon sequestration has stimulated debate and interest among governments, scientists, and the private sector as to forests’ role in global carbon emissions mitigation. Governments have examined the potential to include forest carbon offsets in national carbon inventory or trading mechanisms, while forest owners increasingly view carbon sequestration as a potential market opportunity. The E.U. ETS does not incorporate forestry-sector emissions because they are deemed to be too difficult to measure, as compared with point emissions from industrial facilities, and would therefore undermine the ETS program’s simplicity and predictability. However, the E.U. will incorporate the forestry sector’s GHG emissions in its 2030 framework, expected to be issued in 2016 or 2017.⁸⁷ It is likely that forest sequestration will be a factor in future regulation.

While the market for forest carbon sequestration is nascent, recent market transactions suggest that it could be a significant in the future. For example, as of June 2014, forest carbon offsets had contributed the largest share of carbon offsets in California’s cap-and-trade program. Furthermore, Ecosystem Marketplace estimates that the volume of UN REDD offsets transacted in 2013 more than doubled to 22.6 million tons of CO₂, with a market value of $94 million.⁸⁸

SEC filing disclosure by forestry companies suggests that there are revenue opportunities from carbon sequestration. Companies both describe the market potential from selling carbon credits and report realized gains from sales. In its corporate sustainability report, Weyerhaeuser states, “[Carbon storage] may be potential sources of value from carbon offset markets, to the extent that these aspects of our business are included in future government policy and regulatory programs to address greenhouse gas emissions … We have not yet engaged in any forest or wood product carbon offset projects to this date, but anticipate participating in carbon credit markets in the near term.”⁸⁹ Rayonier, in the second quarter of 2015, reported on realized gains of $352,000 from the sale of carbon credits.⁹⁰
APPENDIX I
FIVE REPRESENTATIVE FORESTRY & LOGGING COMPANIES

<table>
<thead>
<tr>
<th>COMPANY NAME (TICKER SYMBOL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weyerhaeuser Co. (WY)</td>
</tr>
<tr>
<td>Plum Creek Timber (PCL)</td>
</tr>
<tr>
<td>Rayonier Inc. (RYN)</td>
</tr>
<tr>
<td>Potlatch Corp. (PCH)</td>
</tr>
<tr>
<td>Catchmark Timber (CTT)</td>
</tr>
</tbody>
</table>

This list includes five companies representative of the Forestry & Logging industry and its activities. This includes only companies for which the Forestry & Logging industry is the primary industry, companies that are U.S.-listed but are not primarily traded over the counter, and companies for which at least 20 percent of revenue is generated by activities in this industry, according to the latest information available on Bloomberg Professional Services. Retrieved on December 7, 2015.
### APPENDIX IIA:
Evidence for Sustainability Disclosure Topics

<table>
<thead>
<tr>
<th>Sustainability Disclosure Topics</th>
<th>EVIDENCE OF INTEREST</th>
<th>EVIDENCE OF FINANCIAL IMPACT</th>
<th>FORWARD-LOOKING IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HM (1-100)</td>
<td>IWGs</td>
<td>EI</td>
</tr>
<tr>
<td>Ecosystem Services &amp; Impacts</td>
<td>94*</td>
<td>63</td>
<td>1</td>
</tr>
<tr>
<td>Rights of Indigenous Peoples</td>
<td>67</td>
<td>50</td>
<td>3</td>
</tr>
<tr>
<td>Climate Change Adaptation</td>
<td>75*</td>
<td>58</td>
<td>2</td>
</tr>
</tbody>
</table>

**HM:** Heat Map, a score out of 100 indicating the relative importance of the topic among SASB’s initial list of 43 generic sustainability issues. Asterisks indicate “top issues.” The score is based on the frequency of relevant keywords in documents (i.e., 10-Ks, 20-Fs, shareholder resolutions, legal news, news articles, and corporate sustainability reports) that are available on the Bloomberg terminal for the industry’s publicly listed companies. Issues for which keyword frequency is in the top quartile are “top issues.”

**IWGs:** SASB Industry Working Groups. During the IWG phase, SASB received stakeholder feedback for the “Forestry & Paper” industry where forestry, logging, and pulp and paper product manufacturing operations were grouped together. After taking into account stakeholder feedback, the Forestry & Paper industry was split into two industries: “Forestry & Logging” and “Pulp & Paper Products.” The IWG scores presented in this table were received on the topics as presented in the original Forestry & Paper industry.

**%:** The percentage of IWG participants that found the disclosure topic likely to constitute material information for companies in the industry. (-) denotes that the issue was added after the IWG was convened.

**Priority:** Average ranking of the issue in terms of importance. 1 denotes the most important issue. (-) denotes that the issue was added after the IWG was convened.

**EI:** Evidence of Interest, a subjective assessment based on quantitative and qualitative findings.

**EFI:** Evidence of Financial Impact, a subjective assessment based on quantitative and qualitative findings.

**FLI:** Forward Looking Impact, a subjective assessment on the presence of a material forward-looking impact.
## APPENDIX IIB:
Evidence of Financial Impact for Sustainability Disclosure Topics

<table>
<thead>
<tr>
<th>Evidence of Financial Impact</th>
<th>REVENUE &amp; EXPENSES</th>
<th>ASSETS &amp; LIABILITIES</th>
<th>RISK PROFILE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Revenue</td>
<td>Operating Expenses</td>
<td>Non-operating Expenses</td>
</tr>
<tr>
<td></td>
<td>Market Share</td>
<td>New Markets</td>
<td>Pricing Power</td>
</tr>
<tr>
<td>Ecosystem Services &amp; Impacts</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Rights of Indigenous Peoples</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Climate Change Adaptation</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

| MEDIUM IMPACT | HIGH IMPACT |
## APPENDIX III
### SUSTAINABILITY ACCOUNTING METRICS – FORESTRY & LOGGING

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACCOUNTING METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecosystem Services &amp; Impacts</td>
<td>Area of forestland certified to a third-party forest management standard, percentage certified to each standard* **</td>
<td>Quantitative</td>
<td>Acres, Percentage (%)</td>
<td>RR0201-01</td>
</tr>
<tr>
<td></td>
<td>Area of forestland with protected conservation status</td>
<td>Quantitative</td>
<td>Acres</td>
<td>RR0201-02</td>
</tr>
<tr>
<td></td>
<td>Area of forestland in endangered species habitat</td>
<td>Quantitative</td>
<td>Acres</td>
<td>RR0201-03</td>
</tr>
<tr>
<td></td>
<td>Discussion of approach to optimizing opportunities from ecosystem services provided by forestlands</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>RR0201-04</td>
</tr>
<tr>
<td>Rights of Indigenous Peoples</td>
<td>Area of forestland in indigenous land</td>
<td>Quantitative</td>
<td>Acres</td>
<td>RR0201-05</td>
</tr>
<tr>
<td></td>
<td>Discussion of engagement processes and due diligence practices with respect to human rights, indigenous rights, and the local community</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>RR0201-06</td>
</tr>
<tr>
<td>Climate Change Adaptation</td>
<td>Discussion of strategy to manage opportunities for and risks to forest management and timber production presented by climate change</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>RR0201-07</td>
</tr>
</tbody>
</table>

* Note to **RR0201-01-A**—For any forest management certifications that were suspended or terminated, the registrant shall disclose the number, associated acreage, and stated reason for suspension or termination.

** Note to **RR0201-01-B**—The registrant shall describe forestry management practices for non-certified forestlands.
APPENDIX IV: Analysis of SEC Disclosures | Forestry & Logging

The following graph demonstrates an aggregate assessment of how representative U.S.-listed Forestry & Logging companies are currently reporting on sustainability topics in their SEC annual filings.

![Graph showing the distribution of sustainability topic disclosures among Forestry & Logging companies.]

- **Ecosystem Services & Impacts**: 63%
- **Rights of Indigenous Peoples**: 50%
- **Climate Change Adaptation**: 58%

*Percentage of IWG participants that agreed topic was likely to constitute material information for companies in the industry.

Note: During the IWG phase, SASB received stakeholder feedback for the “Forestry & Paper” industry where forestry, logging, and pulp and paper product manufacturing operations were grouped together. After taking into account stakeholder feedback, the Forestry & Paper industry was split into two industries: “Forestry & Logging” and “Pulp & Paper Products”. The IWG scores presented in this table were received on the topics as presented in the original Forestry & Paper industry.
REFERENCES

1 Information from SASB’s review of top company SEC filings.
2 Data from Bloomberg Professional service, accessed September 22, 2015, using the ICS <GO> command. The data represents the country of domicile of companies traded over-the-counter (OTC) from the Forestry & Logging industry, using Levels 3 and 4 of the Bloomberg Industry Classification System.
7 Data from Bloomberg Professional service, accessed September 22, 2015, using the ICS <GO> command. The data represents global revenues of companies listed on global exchanges and traded OTC from the Forestry & Logging industry, using Levels 3 and 4 of the Bloomberg Industry Classification System.
10 Ibid.
11 Author’s calculation based on data obtained from Bloomberg Professional services on September 22, 2015, using Equity Screen (EQS) for U.S.-listed Forestry & Logging companies (including those traded primarily OTC) that generate at least 20 percent of revenue from their Forestry & Logging segment and for which Forestry & Logging is a primary SICS industry.


39 “Sustainable Forest Management,” United Nations Food and Agriculture Organization.


42 Ibid. p. 13, 15.

43 Ibid. p. 4–8.


51 SASB analysis of SEC disclosure of land holdings of listed Forestry & Logging companies.

67 “Resolute Forest Products’ FSC Forest Management Certificates to Be Suspended,” Forest Stewardship Council.

78 Weyerhaeuser Inc., 2Q FY2015 Conference Call, August 5, 2015.

79 “Climate Impacts on Forests,” United States Environmental Protection Agency.


83 Ibid. p. 19697–19700.


