

AN UPDATE ON TIMBER CERTIFICATION: POTENTIAL IMPACTS ON FOREST MANAGEMENT

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ABSTRACT. The status of two international and two national certification systems in North America is summarized by region. Forest area, industrial wood production, and exports are examined for indications of potential linkages of supply regions with certified wood markets. Major demand regions for coniferous and nonconiferous wood products are assessed in relation to potential impacts on forest management through increased demand for certified products. With the exception of Zambia, where more than 1.2 million hectares of forests have been certified under the Forest Stewardship Council system, the majority of certified forest areas are located in Europe and North America. On a global scale, less than 0.5% of forests are certified under a third-party, independent eco-labeling system. Although the origin of demand for certified wood is Europe, the leading importers of coniferous and nonconiferous wood products are primarily in Asia where the demand for certified wood products has not been as apparent.

KEY WORDS. Timber certification, wood products, international trade, FSC, ISO, global forestry.

INTRODUCTION

Standards of forest management and forestry practices over the last half-century have ranged from site-specific forest management plans to forest management policy on a broad geographic level. During the last decade, several efforts have evolved to certify that global forestry management practices are implemented in a manner that reflects the goals of ecological, economic, and social sustainability. This paper provides an update on timber certification by summarizing the status of two international and two national certification activities in North America. This report attempts to provide insight into the rate of expansion of certification and the potential impact of this expansion on global forest resources.

The extent of certification under most systems is difficult to assess. Since some certification systems are just beginning to receive applications for certification, their data are scant. The majority of the data presented here are from databases of the World Wide Web home pages and Internet communications of various certification bodies. Wood production and forest area data were taken from the United Nations Food and Agricultural Organization (FAO) Yearbook of Forest Products (FAO 1996) and State of the World's Forests 1997 (FAO 1997). The implications of certification systems in general are discussed in the summary.

CERTIFIED FOREST AREAS

The four certification systems covered in this paper are the Forest Stewardship Council Standards and Principles of Sustainable Forestry, the International Organization for Standardization (ISO) 14001 Series for Environmental Management Systems, the American Forestry & Paper Association) Sustainable Forestry Initiative and the Canadian National Sustainable Forest Management System Standard. Although other certification systems are evolving, evaluating the status of these four systems covers the majority of currently measurable certification efforts. This report will also provide insight into the potential for the supply of certified wood in world markets.

Forest Stewardship Council

The Forest Stewardship Council (FSC) provides the only independently audited certification system for eco-labeling that uses only third-party assessments, as opposed to first-party systems, which are generally internal assessments, and second-party systems, which are client assessments typically conducted by industry associations for their members (Cabarle et al. 1995). The FSC system is available on an international level with a marketable ecological label. The FSC Principles and Criteria are currently applied by five FSC-accredited certifying organizations based in the United States, the United Kingdom, and the Netherlands. These FSC-accredited agencies certify the performance of forestry management practices and chain of custody procedures of forest products producers. The area of forests certified under FSC standards is expanding rapidly in terms of the rate of increase; yet, the total area of certified forests remains less than 0.5% on a global basis (Table 1). Even with the most recent surge in FSC certification activities, annualized to a rate of more than 8 million hectares per year, it would take approximately 30 years to certify 10% of global forests.

During the first 6 months of 1998, an additional 4 million hectares of forests were certified under the FSC on approximately 62 new and existing operations, and as of June 1998, more than 10 million hectares of forests for 94 operations were certified. Belize, Zambia, and New Zealand are among the countries that have FSC-certified forests for the first time, adding more than 1.2 million hectares to the world total since the end of 1997. Other recent FSC certifications include a 173,166-hectare state forest in Poland and a 221,000-hectare private plantation forest in Brazil.

The distribution of forests certified under the FSC remains heavily skewed towards European and North American forests. Indeed, about half the forest areas certified under the FSC since December 1997 are in Europe (primarily Sweden and Poland) and more than 74% of the total areas certified under the FSC are in the United States, Canada, and Europe. The most significant increases in certified areas include 2.1 million hectares in Sweden, which is almost double the December 1997 area of FSC-certified forests in this country. The increases in Sweden reflect the completion of an agreement in early 1998 between Swedish forest industries and environmental organizations on a set of national sustainable forestry standards and principles that utilize both the FSC and ISO guidelines (Swedish Forest Industries Association 1997).

Forest areas certified by the FSC indicate several other trends (FSC 1997, 1998). Approximately 71% are under private ownership and more than 90% are listed as natural (as opposed to plantation) forest areas. However, these trends vary by region. In tropical Africa, for instance, 100% of the areas are private, natural forests. FSC-certified plantation forests in Africa are located primarily in South Africa (not included in the tropical category) where 348,859 hectares were certified as of June 1998 (FSC 1998). In tropical Asia, about 80% of the forest areas are government owned and a similar proportion is under natural forest management. For all Asia, the breakdown between private and government-owned forests and between natural and plantation forests is about evenly distributed in both cases. The FSC-certified forests in tropical America (including Mexico) are primarily private and communal lands, and about two-thirds are natural forests. In the United States and Europe, FSC-certified forests are essentially 100% natural, but the United States has a more even distribution of private and government-owned forests. The certifications of 722,210 hectares of State and county forests in Pennsylvania and Minnesota account for the significant proportion of public lands now certified under the FSC in the United States.

Table 1. Actual and potential areas of certified forests and forest products						
Region	FSC-certified areas			ISO 14000, estimated ($\times 10^6$ ha)	Canadian SFM, potential 1998–2000 ($\times 10^6$ ha)	AF&PA SFI, potential ($\times 10^6$ ha)
	$\times 10^6$ ha	% total FSC-certified	% total forests			
Africa	1.772	17	0.30			
Tropical	1.299	13	0.30			
Asia/Oceania	0.114	1	<0.05			
Tropical	0.069	1	<0.05			
Americas	2.348	23	0.20			
Tropical	0.891	9	0.10			
US, Canada	1.457	15	0.30	1.2	7.3	22.0
Europe	6.093	59	0.63	0.2		
Total certified areas ^a	10.328	100	0.30	1.4	7.3	22.0

^aTotal equals sum of values for Africa, Asia/Oceania, the Americas, and Europe.

Sources: Abusow and Rotherham 1998, FSC 1998, Hale 1998, Hansen 1998, Sahlberg 1998.

ISO 14001—Environmental Management Systems

The evaluation of forestry and forest products operations under the ISO 14001 series for environmental management systems (EMS) provides the option of third-party auditing (Hansen 1998); however, the ISO 14001 system does not allow for the attachment of an eco-label as such and it is not specifically a performance-based certification assessment. Presently, there are few data to adequately depict the extent to which the ISO 14001 standards have been adopted into the forestry and forest products sectors. The

overwhelming majority of the companies certified under ISO 14001 are electronics, chemical, and utility/power industries (Hale 1998). The few documented examples of forestry or forest products companies under ISO registration include four certificates granted in Finland for activities ranging from procurement and marketing of wood raw materials to timber production and silviculture. One of these companies has historical levels of production at 20.5 million cubic meters of wood raw material, of which 16.8 million cubic meters is roundwood, and a second company cares for approximately 200,000 hectares of forest land (Sahlberg 1998).

In the United States, only one paper company has been recently registered under the ISO 14001 series. Given the perceived preference of forest industries to accept the ISO 14001 series of certification rather than the FSC system, the potential volume of certified wood (albeit not entirely third-party, independent) in the market may increase significantly as ISO evaluations expand.

AF&PA Sustainable Forestry Initiative

The AF&PA Sustainable Forestry Initiative (SFI) is a comprehensive system of principles, guidelines, and performance measures that integrates the perpetual growing of trees with the protection of wildlife, plants, soil, air, and water quality (AF&PA 1997). Although this is not a performance-based system, the implementation of SFI components has the potential to affect more than 90% of U.S. private industry forest land management, representing a potential forest area of 22 million hectares (Hansen 1998). As of the beginning of 1996, all members of the association have been required to sign a letter of commitment to the SFI to maintain membership. Although the association has lost a few members as a result of this requirement, it is continuing to evolve into a more credible system of certification by adopting some ISO 14001 guidelines and providing the option of third-party auditing (Berg 1998).

Canadian Sustainable Forest Management

The Canadian Sustainable Forest Management (SFM) system is a national system of sustainable management based heavily upon the ISO 14001 system, with detailed modifications to reflect the Canadian forestry situation (Hansen 1998). The SFM includes third party auditing, but it does not provide a label for marketing purposes. The SFM was designed for application to Canadian forests; however, the potential for this system to contribute to certified forest areas in other countries is developing.

At least nine companies in Canada will register under the SFM by 2000 (Abusow and Rotherham 1998). The forest areas of these companies cover more than 7.3 million hectares, with annual allowable cuts ranging from 280,000 to more than 2.2 million cubic meters and totaling more than 11 million cubic meters. As of June 1998, only one forestry operation in Canada, covering less than 20,000 hectares, had been certified under the FSC system (FSC 1998).

WOOD PRODUCTION AND INTERNATIONAL TRADE LINKAGES TO CERTIFICATION

One way to assess the potential impact of certification on forest management is to observe the global distribution of forest areas, regional levels of industrial roundwood production available for international trade, and primary trade linkages among importers and exporters. In this section, these variables are examined for the three tropical regions of Africa, Asia, and the Americas and the temperate/boreal world regions of the United States, Canada, and Europe. This examination summarizes, for a country or region, the proportion of forest area and quantity of industrial wood production, the proportion of industrial roundwood production, and the proportion of industrial roundwood and sawnwood production that is exported. The selection of these variables is based on the assumption that the pressure on a producer to certify its forests or forest products will depend upon, among other factors, its level of industrial wood production and the quantity of wood traded internationally and therefore subject to changes in international demand. Producers in countries that consume the majority of their wood production domestically will be sensitive to domestic demand for certified wood. On the other hand, countries that export large quantities of industrial wood are more likely to respond to international demand for certified wood. Therefore, the level of demand for certified wood in the major importing countries could influence long-term expansion of certified wood markets and consequently the management of forest resources.

Supply Linkages to Certification

Tropical Africa. In tropical Africa, 22 countries account for at least 90% of forest area. The Democratic Republic of Congo (DRC, formerly Zaire) covers 22% of regional total forest area, the largest proportion represented by any individual country in the region, yet it accounts for only 7% of industrial roundwood production (FAO 1996). These 22 countries consume 63% or more roundwood in the form of fuelwood and charcoal; at least 10 countries consume 90% or more. Consequently, only five countries export significant quantities (> 10%) of their industrial roundwood production. Several countries export significant proportions of their total industrial roundwood and sawnwood production to foreign markets: the Cameroon, 37%; Congo, 44%; Gabon, 81%; Ghana, 22%; and Ivory Coast, 11%. As a result of their dependence on export markets in Europe, these countries are more likely to certify their forest management practices to maintain markets in response to demand for certified wood.

Tropical Asia and Oceania. Only eight countries in tropical Asia account for at least 90% of the natural forest area in the region. Indonesia, India, and Papua New Guinea represent more than 64% of the total and more than 67% of industrial roundwood production in the region, when the production of wood in Malaysia is included. The countries in this region produce larger proportions of their total roundwood as industrial wood products, with only India and Thailand accounting for less than 18% of roundwood production as industrial wood. In addition, Malaysia, Myanmar, and Laos are significant exporters of industrial roundwood and sawnwood. Although only a few countries account for the majority of industrial roundwood production, there is a higher level of dependence

upon export markets for roundwood and sawnwood than in tropical Africa. In tropical Asia and Oceania, the majority of wood exports go to other countries in Asia where demand for certified wood products is not as visible as in Europe or North America, for example.

Tropical America. Only six countries represent more than 90% of the forest area in tropical America. Brazil, which accounts for 61% of total forest area, generates more than 77% of this region's industrial roundwood production. Countries in tropical America are significant producers of industrial roundwood, yet they export 2% or less of this wood. Sawnwood exports are more significant and the most likely markets to be affected by the pressures of certification generated by buyers in Europe, North America, and Asia. Clearly, any certification efforts in tropical America will have to be active in Brazil on a broad scale to have widespread influence on forest resources in the region.

United States, Canada, and Europe. The majority of forest areas that have been certified under any system are in the United States, Canada, and Europe. Although these areas represent less than 20% of the world's forest areas (excluding the former Union of Soviet Socialist Republics), they accounted for more than 57% industrial roundwood production worldwide in 1994. Unlike most tropical forest countries, the United States, Canada, and Europe produce from 81% to 96% of their total roundwood in the form of industrial roundwood. Sawnwood production in these countries as a proportion of world production was only 20% to 25% in 1994. Only Canada relies heavily upon exporting roundwood and sawnwood (74%) compared to 40% for Europe and less than 8% for the United States. Thus, the expansion of certification in Europe and Canada may reflect, to some extent, the dependence of producers in these areas on export markets and the expectations of increased demand for certified wood.

Demand Linkages to Certification

The potential influence of certification on forest management and the sustainability of certified wood supplies are linked primarily through trade linkages between wood-producing countries and major importers. Currently, demand for certified wood has been generated primarily from retail and wholesale buyers and sellers of wood products in Europe and some niche markets in North America (Hansen 1998). The overall impact of demand for certified wood on global forest resources, however, will depend to some extent upon the major importers of wood products in other regions.

The top three importers of coniferous temperate and nonconiferous tropical roundwood, sawnwood, and plywood are, by volume, Japan, China, and the Republic of Korea (Table 2). In 1994, Japan was the top importer of coniferous and nonconiferous roundwood (39% and 33% of total world imports, respectively) and of all plywood (20% of total world imports). China and the Republic of Korea were the next largest importers, by volume, of coniferous or nonconiferous roundwood, sawnwood, and plywood in 1994. Again, the potential impact of international trade in certified wood products on global forest resource management must be considered cautiously. Although comparative measures of environmental consumerism among world regions or countries are lacking,

the potential for certified wood demand markets in Asia is assumed in this report to be considerably less than the established demand for certified products in Europe and in North America.

Table 2. Top importers of nonconiferous and coniferous roundwood, sawnwood, and plywood in 1994

Importing country	Industrial roundwood		Sawnwood		Plywood	
	$\times 10^6 \text{m}^3$	% total world imports	$\times 10^6 \text{m}^3$	% total world imports	$\times 10^6 \text{m}^3$	% total world imports
Nonconiferous						
Japan	7,337	39	1,369	8		
China	2,912	16				
Korea ^a	2,053	11				
Thailand			1,866	11		
Italy			1,735	11		
U.S.			1,003	6		
Total	12,302	66	4,970	36		
Coniferous						
Japan	15,086	33	9,238	10		
Korea	5,833	13				
Sweden	4,459	10				
U.S.			38,684	42		
U.K.			7,821	9		
Total	25,378	56	55,743	61		
Nonconiferous and coniferous						
Japan					3,628	20
China					2,871	16
U.S.					1,449	8
Korea					1,399	8
Total					10,453	58
^a Republic of Korea. Source: FAO 1996.						

SUMMARY

The area of forests certified under the Forest Stewardship Council (FSC), the only internationally available, mandatory third-party auditing certification system, has grown at an increasing rate, particularly between December 1997 and June 1998. However, the total area under FSC certification remains low; the proportion of total global forest area is less than half of 1%. Nevertheless, the certification and registration of forests and forest product companies around the world are expanding under the FSC and the International Organization for Standardization (ISO) as well as national systems like the Sustainable Forest Management (SFM) system in Canada and the American Forestry and Paper Association Sustainable Forestry Initiative in the United States.

Poland, Sweden, the United States, and Zambia account for more than 84% of FSC-certified forest areas, a total of 8.7 million hectares. The area registered under the ISO 14001 series is at least 1.2 million hectares in the United States and several hundred thousand hectares of public and private areas in Finland. The potential forest areas of assessment under the SFM system in Canada and the Sustainable Forestry Initiative in the United States could approach 30 million hectares by 2000.

Trade linkages indicate some areas with high potential for forest management changes resulting from certification, although very little activity has occurred in the tropical forests. The top importers of coniferous and nonconiferous roundwood, sawnwood, and plywood are Japan, China, and the Republic of Korea. Exporters, such as producers in tropical Asia and Oceania, whose markets are primarily in these Asian countries, do not as yet appear to have demand pressures to supply certified wood. Those countries whose exports flow primarily to the European and North American markets, such as several African countries, may face pressures to certify forests to maintain these markets as certification expands globally. However, the broad impacts of the certification movement will be seen in all the programs and initiatives that recognize the value of monitoring, documentation, assessment, and marketing of sustainable forest resources.

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