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U.S. Forest Products Annual Market Review and Prospects, 2001–2005

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Abstract

This report provides general and statistical information on forest products markets in terms of production, trade, consumption, and prices. The current state of the United States economy is described. Market developments are described for sawn softwood, sawn hardwood, softwood log trade, wood-based panels, paper and paperboard, fuelwood, and forest products prices. Policy initiatives that can impact domestic markets and international trade in wood products are also discussed in some detail. Projections for the year 2005 are also presented.

Keywords: production, trade, prices

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Executive Summary

Economic activity in the United States was predicted to slow during the second half of 2004 as noted by the 3.7% projected growth in Gross Domestic Product (GDP) during the fourth quarter. The U.S. economy will probably expand at a slower rate in 2005 than predicted earlier in the year, according to 34 forecasters surveyed by the Federal Reserve Bank of Philadelphia. The forecasters now expect year-over-year growth in real GDP to average 3.5% in 2005, down from their previous prediction of 3.7%. Measured on an annual-average basis, unemployment is expected to be 5.5% in 2004, although the forecasters are expecting a slight decline in the rate in 2005. The forecasters see prices rising slightly higher in 2004 and then lowering in 2005. With continued low mortgage rates, the expectation for continued strength in the housing sector is high. If the value of the dollar continues to decline and lumber prices rise, this should bolster U.S. lumber and paper products production and trade. Because of the importance of domestic markets in forest products trade, certain policy initiatives are also projected to add millions of dollars to the U.S. economy in 2005.

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General Economic and Major Market Trends

The U.S. economy was predicted to grow at a slower rate during the second half of 2004 and during 2005 than predicted earlier in the year, according to 34 forecasters surveyed by the Federal Reserve Bank of Philadelphia (www.philadelphiafed.org/files/spf/spfq404.pdf). The forecasters expect real Gross Domestic Product (GDP) to grow at an annual rate of 3.7% in the fourth quarter of 2004. Likewise, they expect year-over-year growth in real GDP to average 4.4% in 2004. Growth is currently expected to average 3.8% at an annual rate in each of the last two quarters of 2004. They project growth of 4.3% in 2004 and 3.7% in 2005.

Current-dollar GDP (the market value of the nation's output of goods and services) increased 1.5% ($177 billion (billion = 10^9)) in the second quarter of 2004 to a level of $11,649.3 billion. In the first quarter, current-dollar GDP increased 1.9% ($201.7 billion).

Measured on an annual-average basis, unemployment is expected to be 5.5% for 2004 and forecasters expect unemployment to drop to 5.3% in 2005.

On the inflation front, consumer price index (CPI) inflation is expected to average 3.4% in 2004 and 2.1% in 2005. On an annual-average over annual-average basis, inflation in the GDP price index will rise 2.2% in 2004 and 2.3% in 2005.

The deceleration in real GDP growth in the second quarter of 2004 reflects a deceleration in private inventory investment and an upturn in imports. This was partially offset, however, by the acceleration in personal consumption expenditures and residential fixed investment.

In 2004, the price index for gross domestic purchases, which measures prices paid by U.S. residents, increased 3.5% in the second quarter compared with an increase of 3.4% in the first. Excluding food and energy prices, the price index for gross domestic purchases increased 2.5% in the second quarter, the same increase as in the previous period.

Real personal consumption expenditures increased 1.6% in the second quarter of 2004, compared with an increase of 4.1% in the first. Real nonresidential fixed investment increased 12.1% in the second quarter, compared with an increase of 4.2% in the first. Real nonresidential fixed investment increased 14.7% in the second quarter, in contrast to an increase of 5.0% in the first. Nonresidential structures increased 7.1% in the second quarter, in contrast to a decrease of 7.6% in the first. Equipment and software increased 13.6% in the second quarter, compared with an increase of 8.0% in the first. Real residential fixed investment increased 14.7% in the second quarter, compared with an increase of 5.0% in the first.

Real Federal government consumption expenditures and gross investment increased 2.7% in the second quarter, compared with an increase of 7.1% in the first. National defense increased 1.9%, compared with an increase of 10.6%. Nondefense expenditures decreased 4.5%, compared with an increase of 0.2%. Real State and local government consumption expenditures and gross investment decreased 2.2%, the same as in the first quarter.

With a large forest resource and high production and consumption of wood products, the United States continues to play an important role in world forest products markets. The United States has the world's highest consumption of paper and paperboard (about 88 million metric tons in 2003), which is mostly supplied by domestic production and imports from Canada (AF&PA 2004). In the U.S. forest products industry, more than 460 million cubic meters of softwood and hardwood timber are harvested annually and about 89 million cubic meters of lumber and 27 million cubic meters of structural panel products were manufactured in 2003.

New housing construction remained high through 2003 and through the first half of 2004. This type of construction accounts for more than a third of U.S. annual consumption of softwood sawn wood and structural panels and for substantial volumes of other softwood and hardwood products. Total housing starts increased 0.6% in August to a seasonally adjusted annual rate of 2,000,000 units. Three of four regions in the United States contributed to the August increase in housing starts. The largest increase of 6.5% was recorded in the Northeast (196,000 annual rate for August), followed by gains of 4.8% and 1% in the Midwest (370,000) and South (907,000), respectively. Authorizations for building permits decreased in August by 5.5% to a seasonally adjusted 1,952,000. Despite the decline, the rate was 3.3% above the 2003 annual rate. Housing starts averaged an adjusted 1,912,000 units, compared with 1,943,000 units in the previous quarter, while permits increased between the first and second quarters from 1,934,000 to 2,009,000.

Single-family housing starts for August held essentially the same when compared with the previous month at 1,667,000.

In August, the seasonally adjusted annual rate for multifamily housing starts rose 1.5% to 333,000 units, while permits declined to 414,000, a 13.8% drop from July. Spending on private construction was at a seasonally adjusted $758.3 billion, 0.4% above the revised June estimate of $755.3 billion. Residential construction was $537.5 billion in July, 3% above the revised June estimate of $536.1 billion. Nonresidential construction was at a seasonally adjusted $220.8 billion in July, 0.8% above the revised June estimate of $219.1 billion. The National Association of Home Builders forecast (NAHB 2004) calls for the housing sector to remain strong, with starts and sales ending in 2004 slightly above 2003 levels.

Investment in residential repair and remodeling kept pace with the strong new residential construction market in 2003 that continued into 2004. Expenditures for improvements and repairs of residential properties were at a seasonally adjusted annual rate of $198.8 billion in the first quarter of 2004. This estimate is 19.3% above the fourth-quarter 2003 estimate of $166.7 billion. Expenditures for maintenance and repairs to all properties amounted to a seasonally adjusted annual rate of $54.4 billion during the first quarter of 2004, increasing more than $40.1 billion in the fourth quarter of 2003. Improvements amounted to $144.4 billion in the first quarter of 2004, exceeding the $126.6 billion in improvements during the fourth quarter of 2003.

Of the three following indicators of demand for wood products, the first two increased in the first two quarters of 2004 relative to 2003:

- Industrial production—an important demand determinant for pallet lumber, containerboard, and some grades of paper—increased 7.2% in 2004, second-quarter production was up after posting gains early in the first quarter of 2004.
- Furniture and related products—a determinant of high-grade lumber production—increased 3.8% in the first two quarters of 2004 compared with 2003.
- Paper products output—a determinant of pulpwood and wood residue use, as well as recycled fiber availability and use—remained unchanged during the first two quarters of 2004 compared with the same period in 2003. The index (1997 = 100) of paper products output for the first half of 2004 remained at 93.4.

In summary, housing starts should remain strong in 2004, after a very strong showing in 2003; activity in the principal markets for U.S. timber was also slightly higher in 2003 than in 2002. After a strong start during the first two quarters of 2004, growth is expected to moderate for the rest of the year. Although the rate of growth is slowing, most analysts predict that conditions favorable to the growth of timber markets will continue. Selected U.S. economic indicators are shown in Table 1.

Table 1—Selected U.S. economic indicators, 2001–2005

	Actual			Estimated	
Indicator	2001	2002	2003	2004	2005
Gross domestic product[a] (billion 2000 dollars)	10,128	10,487	11,004	11,386	11,514
New housing starts[b] (thousand units)	1.601	1.710	1.853	1.904	1.843
Mobile home shipments[b] (thousand units)	192	168	131	130	147
Nonresidential investment in structures[c] (billion 2000 dollars)	306.1	251.6	237.4	240.0	241.0
Total industrial production[d] (Index: 1997 = 100)	111.2	110.5	111.1	115.1	116.1
Furniture and fixtures[e] (billion 1997 dollars)	103.0	101.3	101.0	101.0	98.0
Paper products[e] (Index: 1997 = 100)	96.0	94.4	92.3	93.4	92.4

[a]BEA (2004).
[b]NAHB (2004).
[c]Value of construction put in place, June 2004.
[d]Council of Economic Advisors (2004).
[e]Federal Reserve Bulletin, August 2001 through 2004.

Timber Products Production, Trade, and Consumption

Statistics and prospects for the production, trade, and consumption of timber products for 2002 to 2005 are shown in Table 2.

Sawn Softwood

Housing and other construction markets have been strong in 2004 and are likely to finish the year at slightly higher levels than those recorded a year ago, which continues to drive softwood lumber consumption. According to the Western Wood Products Association, during the first 8 months of 2004, softwood lumber consumption increased 8.3% from last year's record pace, and shipment of softwood lumber from western mills increased 4.7% during the first 8 months of 2004 compared with 2003 shipments. In this period, production increased in the West by 5.9% and in the southern pine region by 4.9%. Apparent consumption for the first 8 months of 2004 was 70.0 million cubic meters, 8.3% above the apparent 64.7 million cubic meters for the first 8 months of 2003. The U.S. housing construction industry is predicted to remain strong through 2004. Timber production therefore should remain strong after its strong start this year.

Table 2—Production, import, export, and consumption statistics and prospects for selected wood products, 2003–2005[a,b]

Sawn softwood	2003	2004	2005
Production	61,914	62,105	62,110
Imports	50,003	50,113	50,207
Exports	2,257	2,300	2,342
Consumption	108,935	109,918	109,975

Coniferous logs	2003	2004	2005
Production	173,005	173,460	174,001
Imports	1,937	2,036	2,097
Exports	6,912	7,006	7,108
Consumption	168,030	168,490	168,990

Sawn hardwood	2003	2004	2005
Production	27,853	27,860	27,865
Imports	1,873	1,892	1,907
Exports	2,918	2,975	2,990
Consumption	26,807	26,777	26,782

Hardwood logs	2003	2004	2005
Production	61,578	61,604	61,697
Imports	190	200	205
Exports	2,168	2,172	2,180
Consumption	59,600	59,632	59,722

Coniferous plywood	2003	2004	2005
Production	13,452	13,015	13,000
Imports	1,432	880	901
Exports	309	330	333
Consumption	14,575	13,949	14,043

Nonconiferous plywood	2003	2004	2005
Production	1,855	1,855	1,866
Imports	2,817	3,054	3,102
Exports	203	155	146
Consumption	4,469	4,675	4,667

Oriented strandboard (OSB)	2003	2004	2005
Production	12,049	12,062	13,008
Imports	8,045	8,088	9,005
Exports	584	590	595
Consumption	19,510	19,560	21,498

Particleboard	2003	2004	2005
Production	8,711	8,281	7,908
Imports	1,523	1,483	577
Exports	445	440	443
Consumption	9,789	9,324	8,042

Medium-density fiberboard (MDF)	2003	2004	2005
Production	2,689	2,700	2,706
Imports	1,321	1,340	1,351
Exports	171	169	175
Consumption	3,839	3,871	3,882

Insulation board	2003	2004	2005
Production	2,755	2,755	2,755
Imports	311	310	305
Exports	106	115	117
Consumption	2,960	2,950	2,943

Roundwood pulpwood	2003	2004	2005
Production	161,576	161,702	161,914
Imports	127	628	604
Exports	997	1,066	1,109
Consumption	160,706	161,264	161,409

Hardboard	2003	2004	2005
Production	1,264	1,180	1,195
Imports	1,062	1,050	1,045
Exports	191	193	195
Consumption	2,135	2,037	2,045

[a]All volumes are reported in 1,000 cubic meters. Numbers for 2004 and 2005 are estimates.
[b]Sources: APA–The Engineered Wood Association; American Forest and Paper Association; Forest Resources Association; Composite Panel Association.

Sawn softwood imports increased 11.4% during the first 8 months of 2004 relative to the same time period a year ago. The volume of Canadian imports increased by 9.0% during this period. Canadian imports constituted 91% of all sawn softwood imports. However, other suppliers such as Europe and Latin America were able to increase their share of the U.S. market. Total sawn softwood imports were 50.1 million cubic meters in 2003, an increase of 1.2% compared with 2002.

During the first 8 months of 2004, U.S. exports decreased 13.8% compared with exports for the same period in 2003. Exports to Canada declined 2.9%, exports to Japan fell 16.5%, and exports to Mexico fell 40.1%.

Production of sawn softwood increased 5.4% in the first 8 months of 2004 compared with the same period in 2003. In 2003, 62.2 million cubic meters of sawn softwood was produced. Production of sawn softwood for 2004 is forecast to exceed 2003 levels.

Sawn Hardwood

Sawn hardwood production declined by 6.4%, to 24.0 million cubic meters, in 2003. Imports increased by 7.4% compared with the same period in 2002. During the first 8 months of 2004, the rise in exports exceeded the rise in imports: exports rose 124.9% and imports 29.3%. Exports to European Union countries increased 4.5%, and exports to Pacific Rim nations rose 25.0%. Given the decline in U.S. production and volatile trade figures, and a strong housing market, apparent consumption for 2004 is forecast to decline slightly from the 2003 volume.

Softwood Log Trade

Softwood log exports to the Pacific Rim increased 11.6% in the first 8 months of 2004 compared with exports in the same period of 2003. Softwood log exports to the European Union also increased, by 31.9%. Total softwood log exports from the United States increased slightly (0.5% in the first 8 months of 2004 compared with 2003 exports). This level is well below export levels throughout the 1990s. During 2004, timber harvest from National Forests continued to decline but at a slower rate than that in previous years. The most decline has been occurring in the Pacific Northwest. The U.S. South has undergone a steady increase in softwood log production, in part because of the harvest decline in the West.

Hardwood Log Trade

Hardwood log exports decreased and imports increased during the first 8 months of 2004. Exports decreased 4.1% and imports increased 2.6%, compared with this period in 2003. For all of 2003, exports to Canada fell 6.1% below 2002 levels. During the first 8 months of 2004, exports to the Pacific Rim increased 28.0% and exports to the European Union increased 12.4%. During 2003, hardwood log imports from Canada fell from the previous year, by 31.1%. In the first 8 months of 2004, hardwood log imports from Canada fell 18.9% compared with the same period in 2003. Canada traditionally provides about 95% of U.S. imports.

Pulpwood

Roundwood production for pulp and wood-based panel mills was 162 million cubic meters in 2003, up slightly from 2002. Roundwood pulpwood production is expected to continue to increase during 2004. Pulpwood supplied from residues is decreasing relative to roundwood. The roundwood portion of pulpwood was 137 million cubic meters in 2002, a 2.5% decrease from 141 million cubic meters in 2001 (FRA 2004). Trade patterns have continued to have a significant impact on paper and paperboard production and have affected pulpwood use. Exports of paper, paperboard, and converted products are forecast to increase by 6.1% in 2004. Imports of paper and paperboard are also forecast to increase by 2.1% during 2004. Even with a strong dollar and the renewed strength of the U.S. economy, paper and paperboard production still fell 1.5% in 2003. These consecutive year declines constituted the sharpest reductions in paper and paperboard production since the mid-1970s. Most U.S. paper companies managed to remain profitable in 2003, but industry earnings remained at about half their 2000 levels.

Softwood Plywood

Softwood plywood production was 13.0 million cubic meters in 2003, according to APA–The Engineered Wood Association (APA 2004). This level of production was 3.3% below that of 2002. The volume of softwood plywood production fell throughout the 1990s, and the decline continued in 2003. Softwood plywood production for the first three quarters of 2004 increased by 1.1% compared with the first quarter of 2003. The APA–The Engineered Wood Association prediction that plywood production will increase in 2004 appears to be accurate; production rose during the first three quarters.

Softwood plywood imports and exports varied inversely in 2003 compared with 2002 data; imports rose sharply by 34.6% and exports declined 12.5%. Softwood plywood imports increased 17% and exports decreased 8.7% during the first three quarters of 2004. Plywood exports to Canada increased by 20% during the first three quarters of 2004, and plywood imports from Canada increased. Given these estimates, consumption of plywood is estimated to increase in 2004, even as more market share for structural panels continues to be taken by oriented strandboard (OSB).

Oriented Strandboard

According to APA–The Engineered Wood Association (APA 2004), OSB production for the first three quarters of 2004 was above production during this period in 2003 by 4.6%. In 2003, 12.0 million cubic meters of OSB was produced, compared with 11.9 million cubic meters in 2002. The growth rate from 2002 to 2003 was slightly higher than the 2.5% growth rate experienced between 2001 and 2002.

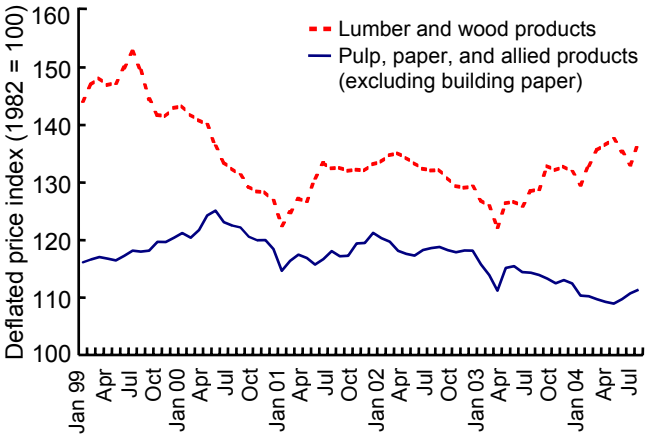

Figure 1. Recent trends in real producer prices of forest products (deflated with all-commodity producer price index).

Between 1996 and 2000, OSB capacity grew rapidly in the United States and Canada—by 25% in 1996, 5% in 1997, 5% in 1998, and 3% in 1999. It remained level in 2000 and 2001. The volatile pricing trends for OSB continued through 2003—prices at the end of the year were lower than those at the end of 2002. After an increase in the first quarter of 2004 and a decline in the second quarter, OSB prices are again rising toward a new high for the year.

In 2003, structural panel consumption increased 2.2% to 33.8 million cubic meters. OSB consumption was a record 20.0 million cubic meters and constituted 59% of the structural panel total. About a quarter of this increase can be explained by the higher levels of housing starts. Because OSB now accounts for 59% of structural panel consumption (1% rise from 2003), OSB consumption is expected to continue to exceed plywood consumption. Structural panel production during the first 8 months of 2004 was 1.5% greater than it was one year earlier.

Hardwood Plywood

Hardwood plywood production was estimated at 1.9 million cubic meters in 2003, unchanged from 2002 production. This includes core material such as softwood plywood and OSB. An increase of about 1% to 2% in hardwood plywood production is estimated for 2004, with total production increasing to about 2.0 million cubic meters. Hardwood plywood imports increased 25.9% in the first 4 months of 2004 compared with 2003. If this trend continues, hardwood plywood imports will probably exceed 3.0 million cubic meters in 2004. The amount of hardwood plywood exported in 2003 was 2.8 million cubic meters.

Particleboard and Medium-Density Fiberboard

Information from the Composite Panel Association (CPA 2004) indicates that particleboard and medium-density fiberboard (MDF) production both declined during 2003. Particleboard production was 7.1 million cubic meters, a decrease of 8.5%, and MDF production was 2.7 million cubic meters, a decrease of 6.3%. During the first 8 months of 2004, particleboard imports decreased by 0.1% and MDF imports increased by 35.1% on a volume basis. Particleboard exports decreased by 12.7%, and MDF exports increased by 38.0%.

Hardboard

Based on data from the American Hardboard Association, 1.3 million cubic meters of hardboard was produced in 2003; this level of production is expected to drop 6.6% in 2004. Hardboard imports increased 16.6% in 2003, and this trend continued during the first 4 months of 2004 as imports increased 32.8%. Hardboard exports decreased 3.2% in 2003 but increased 74.7% in the first 4 months of 2004.

Insulation Board

Information from the American Forest and Paper Association (AF&PA 2004) showed that 2.7 million cubic meters of insulation board was produced in 2003, unchanged from 2002. Production of insulation board has been flat for several years, resulting in a stable level of apparent annual consumption of about 3.0 million cubic meters.

Fuelwood

Using data from the most recent U.S. Department of Energy survey (DOE 2004), adjusting for the 2002 winter weather and a declining trend in fuelwood use per household, fuelwood consumption was estimated to be 46 million cubic meters in 2002, a decrease of 1.2% from 2001. Most fuelwood is used for household heating and esthetic enjoyment. Industry uses mill residues rather than roundwood for fuel. A small portion of roundwood fuelwood is used for electric power production. Use for electric power is limited by the low cost of coal and natural gas alternatives. Fuelwood consumption for 2004 is estimated to be below the level for 2003.

Forest Products Prices

Recent trends in the wholesale price of forest products are different across two broad categories: lumber and wood products (such as wood-based panels) and pulp and paper products (Fig. 1). Throughout the late 1990s, the producer price of lumber and wood products as reflected by the producer price index (PPI) continued to fluctuate around a level reached by the mid-1990s before peaking during the second half of 1999. The PPI for lumber and wood products has continued to increase during the first half of 2004, after a brief decline during the second quarter. Changes in the price of softwood lumber accounted for much of this change and most of the volatility in the index. In 1999, the deflated composite price index reached an all-time high (at a level more than 50% higher than that of the base year, 1982), followed immediately by a sustained decline that continued throughout 2000 and into 2002. The PPI reached its lowest level in 5 years during this period. In spite of these sustained

low prices, U.S. demand for lumber and wood products during 2002 remained near record levels. In contrast, the PPI of prices in the pulp and paper sector has exhibited considerably less short-term volatility. The period of declining prices from the previous peak (1994–1995) ended in 1997, and by early 1998, the composite index had reached the level of the mid-1990s. In deflated terms, the composite index has had little volatility and a flat trend; these indicators did rise in the latter months of 2003 and the beginning of 2004. Pulp and paper price trends continue to decline.

Summary of Timber Products

Economic activity in the United States was strong during the first three quarters of 2004, as evidenced by the predicted year-over-year growth of 4.4%, signaling continued strength in major sectors of the economy. Although GDP growth slowed during the second half of 2004, a number of factors, such as a strong housing sector and favorable monetary policy, are likely to continue to boost activity as the economy moves through the second half of 2004. With continued low mortgage rates, the expectation for continued strength in the housing sector is high. The future strength for other domestic and foreign trade sectors of the wood products industry depends on future lumber prices, which have been strong so far this year, and the value of the dollar. A decline in the value of the dollar should bolster U.S. wood and paper products exports.

Policy Initiatives

Forest Law Enforcement and Governance

Forest law enforcement and governance are the foundations upon which all real forest conservation must rest. Government must have the will and the capacity to administer and enforce forest and wildlife plans, to effectively manage parks and protected areas, and to ensure that forest concessionaires respect the law.

The United States has been a leader in raising international awareness of illegal logging and identifying actions to address it, such as through the G-8 and Regional Forest Law Enforcement and Governance (FLEG) ministerial processes. A Presidential initiative launched by Secretary of State Powell in 2003, FLEG provides for bilateral and regional assistance to developing countries to build their capacity to address illegal logging.

The FLEG process was born out of frustration with the inability of the international community to address the problem of illegal logging. FLEG was seen as a neutral process by which producer and consumer countries could come together publicly to recognize their mutual but differing responsibilities. Both the East Asia (EA FLEG) and Africa (AFLEG) meetings resulted in successful negotiations of Ministerial Declarations and lists of voluntary "indicative actions." Barriers to FLEG success include the lack of political will to ensure follow-up; institutional barriers faced by donors (for example, inflexible spending plans); lack of clear data on illegal logging and trade; lack of policy coherence between donors and national agencies; possible distorting effect of trade measures; and the reality that the problems will not be solved in the West.

The United States has taken a keen interest in international conservation. United States funding for the Tropical Forest Conservation Act has doubled, and two new forest conservation initiatives have been launched—the Congo Basin Forest Partnership and the President's initiative to help developing countries address the problem of illegal logging and associated trade, including wildlife issues. Both initiatives are well funded in the U.S. Government budget. The Congo Basin Forest Partnership is funded at $53 million for 4 years. In 2003, the President's Initiative Against Illegal Logging was budgeted at approximately $15 million. These initiatives are aimed at producing concrete results and involve partnerships between governments, international organizations, nongovernmental organizations (NGOs), and the private sector.

The Congo Basin initiative builds upon the commitments made in Yaoundé in 1999, when Heads of State from the countries of the western Congo Basin committed themselves to work together to protect areas of high biodiversity and wildlife, to sustainably manage forest resources, and to provide economic opportunities for local residents. The vision and foresight of these Heads of State in recognizing the need for regional cooperation and partnership with NGOs, the private sector, and international organizations cannot be too highly praised.

The U.S. Government believes that it can assist the governments of Africa in this regard. The United States and the NGOs that the United States works with in this region have expertise that can be shared. The United States can provide technical and capacity building assistance; help in promoting ecotourism; expertise in park and forest management and landscape planning; and assistance to local communities, which must be actively involved in any successful forest conservation project. The United States can offer satellite imaging and remote sensing technologies, to be shared in a transparent manner, which can help African nations to monitor forest trends, roads, and logging camps. The United States is committed to international cooperation on timber trade issues.

From the standpoint of the United States, AFLEG is based upon the sovereign responsibilities of all nations to protect, develop, and conserve their natural resources for the benefit of future generations. At the last ministerial, each government made a commitment to enforce its own laws and to cooperate internationally on these matters.

Forest Certification

The private sector is advancing certification to provide a market-based approach to improving forest management.

Certification is the process through which some entity evaluates the management practices of a particular forest property and assures markets and consumers that it meets their standards for a well-managed forest. This certification can be awarded by a neutral and independent third party or by a second-party program that enables an organization to endorse the practices of its affiliate or achieve a certain management standard as a condition of membership in the organization. Several certification systems operate in the United States and are a mix of for-profit, nonprofit, third-party, and second-party organizations. One estimate indicates that almost 17% of timber lands in the United States were enrolled in one of the five major certification programs in spring 1999, with that number growing to almost 30% by summer 2002. Large private industrial holdings make up most of the certified properties. State forests are the most predominant group among public sector enrollees. Small nonindustrial private forest owners constitute the smallest share.

Major certification systems operating in the United States include the Sustainable Forestry Initiative (SFI), Forest Stewardship Council (FSC), American Tree Farm System (ATFS), International Standards Organization (ISO) 14001, and Green Tag Forestry.

Sustainable Forestry Initiative

The SFI (www.aboutsfi.org/core.asp) is a third-party certification system. As of July 2004, more than 93 million acres of forest land in North America had been independently certified to the SFI standard, 38.5 million acres in the United States and the remainder in Canada. Of the leading certification schemes in operation in the United States, only the SFI program has a strict separation between standard setting and accreditation of certifying bodies. Recognized international protocols (ISO) for auditing explicitly require that these functions be separate.

Forest Stewardship Council

Founded in 1993, the FSC (www.fsc.org) certifies almost 5 million acres (2 million hectares) in the United States. During the past 10 years, 42 million hectares in more than 60 countries have been certified according to FSC standards, while several thousand products are produced using FSC-certified wood and carrying the FSC trademark. The FSC operates through its network of national initiatives in more than 30 countries. The FSC is an independent, not-for-profit, nongovernmental organization based in Bonn, Germany, that provides standard setting, trademark assurance, and accreditation services for companies and organizations interested in responsible forestry. Among certifiers, FSC is unique in that it can provide participants with a chain of custody certification.

American Tree Farm System

Certification of tree farms through the American Tree Farm System (ATFS), under the oversight of the American Forest Foundation (AFF), is the oldest and largest voluntary, third-party verification process in the United States. The ATFS has been certifying the practice of sustainable forestry since 1941. Currently, ATFS is composed of 51,000 family forest owners in 46 states committed to excellence in forest stewardship who own 33 million acres (13 million hectares) of forest land. The ATFS certifies 12 million acres (5 million hectares).

The ATFS has modernized its standards and guidelines for tree farm certification to address contemporary benchmarks for sustainability. It established minimum education and experience requirements for certifying foresters and forest technicians, and it developed a national standardized training curriculum for its inspectors.

Newly developed by ATFS, group certification is a third-party auditing process for evaluating groups of landowners and certifying their well-managed forests under a single certificate held by the group organization.

ISO 14001

The ISO (www.iso.ch/iso/en/isoonline.frontpage) was formed in 1947. It promotes worldwide standards, international consistency, and world trade. The ISO 14000 standards were developed to support the objective of sustainable development discussed at the 1992 Earth Summit of the United Nations Conference on Environment and Development. ISO 14001, adopted in 1996, does not establish performance requirements or specific criteria that define sustainable forestry. Rather, this ISO standard establishes a system for auditing, monitoring, and improving environmental performance within a company to determine if the organization is achieving its stated environmental policies and objectives. It also allows organizations to self-declare (first-party) they are conforming to standards. Since it is not a labeling program, no chain-of-custody certification is conducted. The American National Standards Institute (ANSI) also approves ISO 14001. There are about 1.3 million acres (527,000 hectares) enrolled in ISO 14001.

Green Tag Forestry

Green Tag Forestry (www.greentag.org) is a third-party certification system that was developed by the National Forestry Association in cooperation with the Association of Consulting Foresters and the National Woodland Owners Association. It is national in scope and the only program that is intended solely for use by private forest landowners. A Green Tag forest is a woodland whose stewardship has been certified as incorporating good forestry practices that ensure a balance of natural diversity and sustainable forest productivity. Green Tag certification is available in all 50 states. The program provides recognition to landowners who practice responsible and sustainable woodland stewardship. This recognition may bring a market premium for products from these forests, designated as “green certified” forest products. Certified woodland owners are awarded a certificate and may display a Green Tag sign and

Green Tag labels on products produced from the certified property. Green Tag certification covers 66,000 acres (27,000 hectares) in 12 states.

Industry Competitiveness

Economic globalization has had a permeating influence on the U.S. economy since the early 1990s and thus a permeating influence on the U.S. forest sector as well. With liberalized trade policies and a strong U.S. economy in the 1990s, the value of the U.S. dollar soared from 1996 to 2002. The United States was clearly the global engine of economic growth in the 1990s, more than doubling the value of imported goods (from less than $0.5 trillion in 1990 to an average of $1.2 trillion each year from 2000 to 2003), creating the largest goods trade deficit in history ($549 billion in 2003, a five-fold expansion since 1992) (BEA 2004). The flood of competitive goods from overseas reduced output and profits for U.S. manufacturers, resulting in consolidation, downsizing, and other structural changes in the forest sector as well as all manufacturing.

The forest sector broadly includes a spectrum of enterprises and activities ranging from forestry and forest management to forest products industries and other forest-dependent business enterprises. In the United States, the forest sector encompasses both public and privately owned forest lands, from which wood raw materials are harvested to produce forest products. Primary forest products industries include pulp, paper, and paperboard and the so-called solid-wood industries, including lumber, particleboard, plywood, veneer, posts, poles, and other wood products. A number of large secondary industries or other economic sectors depend heavily on primary forest products, such as the shipping and warehousing sector (dependent on corrugated boxes, shipping containers, and wooden pallets); the publication and print advertising sector (dependent on newsprint and printing paper); the housing and construction sector (dependent on softwood and hardwood lumber, particleboard, and plywood); and the furniture sector (dependent on hardwood lumber, veneer, and particleboard). In general, globalization and consolidation have affected industries with market exposure to international trade. Affects are also apparent where structural change in the overall economy affects domestic demand for products.

Overall U.S. industrial production (measured by the Federal Reserve index) began to weaken during the Asian financial crisis of 1997, peaked in the year 2000, and then dropped precipitously in 2001. Rollbacks in capital investment expenditures and business growth also occurred. The 2001 recession (measured by consecutive quarterly declines in U.S. GDP) was thus largely a business-led recession, reflecting primarily declining profitability and growth in U.S. manufacturing and business in general. Economic stimuli of lower interest rates and tax reductions helped restore economic growth and contributed to a housing boom in 2002 and 2003. United States industrial output was not as quick to respond and only began to show a clear trend toward recovery late in 2003 and 2004.

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Climate Change Policy

Climate change is an extremely important issue for the U.S. Department of Agriculture (USDA). Agriculture and forestry are more sensitive to weather than are other economic sectors. The USDA is committed to understanding how global change affects agriculture and forestry and what we can do to mitigate greenhouse emissions from these sectors.

The array of conservation issues has grown with changes in the structure of agriculture and in farm and forest management practices and with greater public concern about a wider range of issues, including greenhouse gas emissions, carbon sequestration, and energy production and conservation. United States forests and forest products are sequestering a significant quantity of carbon every year, equivalent to roughly 15% of overall U.S. emissions. Carbon sequestration in agricultural soils is offsetting an additional 2% of U.S. emissions. Our challenge is to address the global greenhouse gas issue and protect the environment while carefully considering the interests of American farmers, forest landowners, and ranchers.

On June 6, 2003, USDA announced that it would give consideration to management practices that store carbon and reduce greenhouse gases in setting priorities and implementing forest and agriculture conservation programs. The actions USDA will implement include financial incentives, technical assistance, demonstrations, pilot programs, education, and capacity building, along with measurements to assess the success of these efforts. In fiscal year 2004, USDA planned to invest almost $3.9 billion in agriculture and forest conservation. The USDA estimates that an investment in conservation and a focus that includes carbon sequestration efforts will reduce greenhouse gas emissions and sequester roughly 12 million tons of greenhouse gases (measured in carbon equivalent terms) annually by 2012.

Significant environmental benefits will result from efforts to sequester carbon in forest systems. Forest management helps to maintain desirable water quality, helps to prevent or

lessen flooding, provides for healthy aquatic communities, and supports in-stream uses and downstream withdrawals. A managed forest landscape can enhance wildlife diversity and abundance. Establishing forests on marginal, poor, or degraded agricultural lands can enhance soil carbon storage and nutrient retention capacity, significantly reduce soil erosion, improve wildlife habitat and water quality, and provide increased recreational opportunities and landowner income.

Most U.S. soils have lost at least one-third of their carbon—and some soils up to 60% of their carbon—since they were initially converted to crop production beginning about 200 years ago. The conversion of former cropland into forests, grassland, or wetland fosters the reaccumulation of carbon in soils.

As part of an effort to implement President Bush's strategy to reduce greenhouse gas intensity (ratio of emissions to economic output) in the United States by 18% by 2012, on October 22, 2003, USDA signed a memorandum of understanding with the National Rural Electric Cooperative Association (NRECA) to identify and advance cost-effective, voluntary opportunities for rural electric cooperatives to partner with farmers and ranchers to reduce greenhouse gas emissions. The agreement identifies areas for public–private cooperation in research, standards development, and education. By removing technical and market barriers, the agreement should help increase the use of renewable resources, including forest bioproducts, to generate electricity. For a comprehensive assessment of greenhouse gas emissions and sinks in U.S. agriculture and forests, see USDA (2004).

Wood Energy Promotion

In 2003, and for the fourth year in a row, biomass was the leading source of renewable energy in the United States, providing 2.9 quad (10^{15}) Btu (3.1 EJ) of energy. Biomass was the source for 47% of all renewable energy or 4% of the total energy produced in the United States (DOE 2004). Agriculture and forestry residues, in particular residues from paper mills, are the most common biomass resources used for the generation of electricity, for industrial process heat and steam, and for the production of a variety of biobased products. Biomass is the organic by-product of food, fiber, and forest production. In fact, 48% (1.1 quad Btu; 1.2 EJ) of biomass energy was consumed by the pulp and paper industry, using black liquor. Industry currently dominates biomass consumption in the United States, and this consumption is largely from wood.

The U.S. DOE and USDA awarded a combined total of $25 million in research funding to 22 biomass projects in their joint solicitation for fiscal year 2004. This is an increase from the joint solicitation of the previous fiscal year, in which DOE and USDA successfully collaborated to award $23 million in research. The 2004 effort was coordinated by DOE, which served as the point of contact for administering the process (USDA and DOE rotate administrative responsibilities every year).

The 2004 proposals were divided into eight technical topic areas: (1) thermochemical conversion (syngas cleanup and conditioning and pyrolytic bio-oils, handling and blending characteristics); (2) thermochemical conversion (fundamental breakthrough research); (3) biomass (petroleum refinery evaluations); (4) thermochemical conversion (kraft black liquor gasification); (5) feedstock development and production; (6) biobased products (environmental and economic performance); (7) biomass-focused forest management training; and (8) incentives.

Among the 22 projects selected in 2004 were a number of wood-based or wood-utilizing projects, including development of a wood preservation system from wood bio-oil fractions; sustainable forestry for bioenergy and biobased products; the Hayfork biomass utilization value-added model for rural development; small-scale, biomass-fired gas turbine plants suitable for distributed and mobile power generation; sustainable forestry for bioenergy and biobased products; development of existing biomass resources through education of key supply bottlenecks; advancement of high temperature black liquor gasification technology; and investigation of pressurized entrained flow draft black liquor gasification in an industrially relevant environment. (For additional information, visit www.bioproducts-bioenergy.gov.)

The joint grant program is part of the U.S. Government's effort to increase U.S. energy independence through the development of additional renewable energy resources from the agricultural and agroforestry sectors. Increased demand for production and processing of biomass will support traditional U.S. commodities, such as corn, and create new cash crops for farmers and foresters. A new bioindustry will also encourage better use of agricultural and forestry residues, such as woody biomass. Furthermore, new processing facilities resulting from this increased demand will help stimulate rural communities and economies.

USDA Secretary Ann M. Veneman proclaimed that "biomass research, development, and demonstration projects, including those with special emphasis on forestry products, support the President's goal to enhance renewable energy supplies. … Developing alternative energy sources that reduce pollution and increase energy security is an important part of the Administration's overall energy policy. These grants will help develop additional renewable energy resources and expand markets for agricultural products" (DOE 2004).

Secretary of Energy Spencer Abraham stated that "our agencies have been working together over the last few years to promote our nation's biomass resources, which we believe will enhance our energy security, provide for a cleaner environment, and help to revitalize America's rural economy." Abraham believes that USDA–DOE biomass projects will "move us closer to our goal of establishing biorefineries that produce power, fuels, chemicals and other valuable products."

In December 2003, President Bush signed the Healthy Forest Restoration Act, which was aimed at reducing forest fire risks by making productive use of thinnings from forest lands. These efforts will yield cellulosic materials in the form of brush and small-diameter trees that could be converted into multiple forms of fuel.

Trade, Tariff, and Non-Tariff Barriers

The United States has identified a number of trade practices that have created substantial barriers to trade in wood products. Persistent market access barriers in the wood sector are combined with high and unbalanced tariffs that significantly impair the competitiveness of the U.S. forest products industry.

The U.S. tariffs on imports of wood products are at or near zero, with only a few wood product categories subject to higher rates. These higher rates apply to a limited number of wood products and even then apply to only a limited number of countries, because most countries are eligible for treatment under the generalized system of preferences (GSP) or other trade agreements.

In addition to direct tariff measures, certification, codes and standards, subsidies, and phytosanitary measures can all serve as non-tariff trade barriers.

The U.S. Government has been working closely with the U.S. wood products industry to ensure full implementation of the 1990 U.S.–Japan Wood Products Agreement designed to open the Japanese wood market. Through regular consultations between the U.S. and Japanese governments and consistent U.S. industry pressure and technical exchanges, some progress has been made in the areas of standards, regulations, and product certification. Serious obstacles remain to increased value-added exports because of high tariffs that deny U.S. producers fair and open access to the Japanese market.

Japanese opposition to the elimination of wood tariffs continues to undermine U.S. efforts to achieve the elimination of wood product tariffs on a sectoral basis under the World Trade Organization. Japan's unwillingness to make even modest steps toward liberalization in this area has effectively left market access barriers in place that affect exporters in many other countries as well. Japan is also one of several countries that are strong proponents of "multi-functionality," arguing that nontrade concerns, or the multifunctionality of their agricultural interests, justifies the maintenance of agricultural subsidies and relatively high levels of border protection. Japan and other countries have employed this argument to pursue nontrade objectives such as strengthening the socioeconomic viability and development of rural areas, food security, and environmental protection.

The Japanese government is in the process of establishing a certification and labeling scheme for forest products. According to a report recently issued by Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF), the scheme is expected to contribute to the revitalization of the domestic forest products industry. It is believed that the use of a label will serve to promote domestic forest products as being environmentally sound. An agency within the Japanese government is expected to be responsible for the development of any new scheme, despite the fact that the official government stance is to avoid direct involvement in this issue.

Japanese Forest Subsidies

Japan has historically dedicated large portions of its budget to support the forest sector. The Forestry Agency has set its fiscal 2005 budget request at 500 billion yen (US$4.6 billion), up 14.1% from the 2004 budget. Key budgetary items of the Forestry Agency's budget request are (1) management and maintenance of diversified and healthy forests, (2) establishment of systems for circulative forest resources, (3) education and application of information technology for utilization of forest products and wood biomass, (4) popular participation-type forest management and maintenance, (5) job security for foresters and revitalization of mountain villages, and (6) conservation of forest land. Of the total budget for the Forestry Agency, the request included approximately 20% for flood control, 13% for forest road construction, 13% for forest management, and 11% for urgent measures for maintenance of degraded conservation forests. Although these budget categories are classified as public works and, as such, they are meant to benefit the public rather than industry, they clearly have the net effect of artificially reducing the cost of timber.

Building codes continue to be unreasonably restrictive in several applications where wood has proven to be an optimal material. For example, in Japan, regulations are so restrictive that cost-effective wood frame assemblies, recognized elsewhere for their fire performance, cannot pass the discriminatory fire test for use in construction of wood frame four-story apartment buildings.

Chinese Voluntary Industry Standard

Recently, the China Wood Preservation Center developed a voluntary industry standard for all commercial wood products in China. The standard includes information regarding species, product name, trademark, size, grade, manufacturer, moisture content, manufacturing date, treatment method, inspection agency, and wood certification status. Although the U.S. wood industry worked closely with Chinese government officials to include wood products in China's building code revision, this voluntary standard was developed without any U.S. industry input to the process. If fully adopted, the measure could add millions of dollars in additional handling and storage costs for U.S. wood exporters and could discourage smaller U.S. companies from exporting to China.

Phytosanitary Measures

A number of phytosanitary measures in foreign markets unnecessarily impede trade in forest products. For instance,

in 2003, Brazil instituted new import procedures for white oak and white ash lumber from the United States requiring a phytosanitary certificate and an additional declaration that the wood has undergone a drying process for 720 hours at 70.88˚C. Resolution of such barriers is time consuming and disrupts normal competitive trade patterns.

Since August 2001, the Republic of South Korea has banned wood products from areas where *Phytophthora ramorum*, an organism that causes a disease commonly referred to as sudden oak disease (SOD), has been detected. In California, these areas include the counties of Alameda, Contra Costa, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Mateo, Santa Clara, Santa Cruz, Solano, and Sonoma. In Oregon, wood products from Columbia and Curry counties are banned. In New York, wood products from Nassau County are also banned.

A phytosanitary certificate is required for areas not regulated for SOD. The state of origin must be noted on the phytosanitary certificate. In addition, if the origin is California, Oregon, or New York, the county must also be noted on the certificate.

In 2003, India banned the importation of pine (*Pinus* spp.) and all coniferous logs and timber coming from North America and Asia to prevent the introduction of the pinewood nematode in the northern pine forests. The ban applies to the importation of pine and all coniferous species from the United States in the following forms: logs with bark, wood (sawn or round), wood chips, and sawdust. The risk of introducing the pinewood nematode into India is small to nonexistent, because the vector of the pinewood nematode, the pine sawyer (*Monochamus* spp.), is not present in India. The only species of *Monochamus* in India is *Monochamus leuconotus*, the coffee stem borer, a pest of concern in the growing of arabica coffee. Furthermore, debarking coniferous wood with limitations on grub holes has been shown to be effective in controlling the pine sawyer. Eliminating the presence of the vector by debarking the wood effectively mitigates the risk to a negligible level. Debarking logs and lumber of *Pinus* spp. and other coniferous species is the least trade-restrictive measure. The risks associated with the pinewood nematode are effectively managed without prohibiting these products. While India's provisions for the treatment of coniferous materials address the risks associated with the pinewood nematode, they are more restrictive than necessary to prevent the introduction of this pest.

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