



Eco-Link

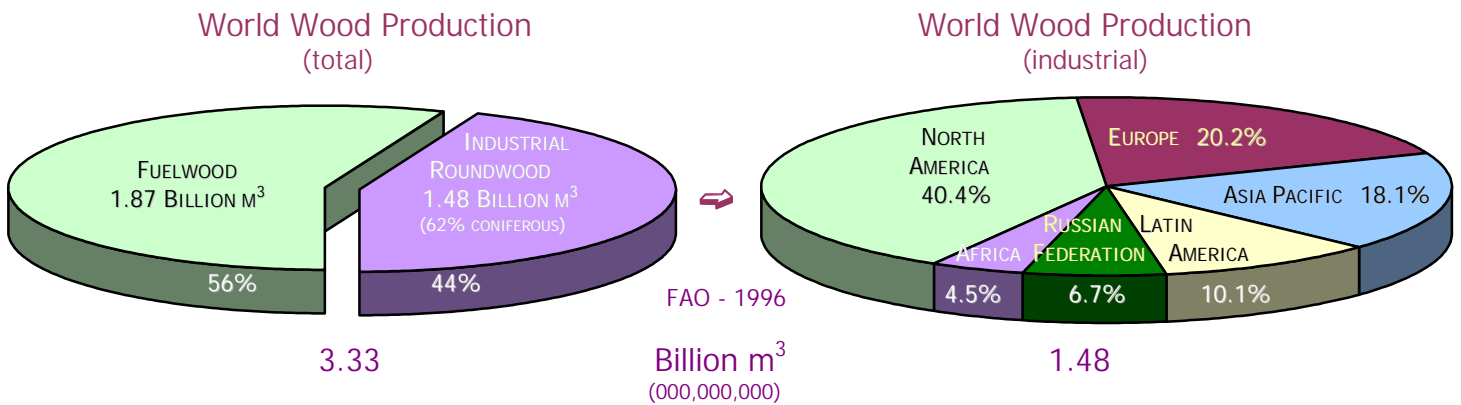
Linking Social, Economic, and Ecological Issues

Global Wood Trends

Volume 8, Number 4

The primary factors determining the demand for wood are population and economic growth. Between 1960 and 1998 the world population doubled and the world economy (Gross Domestic Product, or GDP) grew three and a half times. World wood production grew along with the population and economy, but per capita consumption of wood has actually flattened out at about .6 cubic meters. This seeming paradox is explained by changing patterns and trends in economic growth, consumption, and wood processing technology.

In the next 50 years the world population is expected to increase (UN medium projection) from today's 5.95 billion to 9.36 billion. Virtually all of this population growth will be in developing countries where the demand for industrial wood is low and the demand for fuel wood is high. Currently 56% of all the wood produced in the world is fuel wood, or energy wood, for cooking and heating. The other 44% is industrial roundwood used to make lumber, engineered wood products and paper.



The demand for wood and the competing demands on forests will increase steadily; yet there is no impending fiber supply crisis, at least on a global scale. Intensive management of private forests, plantations, recovered fiber, new technologies, processing efficiencies, and international trade help to keep the “supply crisis” at bay. At the end of the day supply and demand must balance. However, there is a great deal of concern over regional or local scarcities that may either reduce standards of living or create energy shortages and global warming through the increased use of substitute products and fossil fuels. If there is a forestry crisis, it is most obvious in developing countries where runaway population growth and poverty are putting tremendous pressure on forests for fuelwood and agriculture. Between 1980 – 1995 forestlands decreased by 200 million hectares (ha) in the developing world and increased by 20 million ha in the developed world for a net loss of 180 million ha.

Approximately 80% of the world's industrial wood is produced and consumed in developed nations. About ¼ of all industrial wood enters international trade, and the Pacific Rim will continue to dominate the \$120 billion in trade. Developed countries dominate world trade in forest products accounting for about 80% of both exports and imports, but developing regions, particularly Asia and Latin America, are becoming more important. Trade in forest products is expected to increase, and will be necessary to offset projected wood deficits in Asia and a tight softwood supply in the United States. Global wood projections assume increasing recovery and recycling of paper and paperboard, and a higher reliance on private forests and plantations for wood production.

Population and Economy

The world population is about to pass the 6 billion mark. Approximately 80% live in the developing world, and this is where 98% of the population growth will be in the next 50 years. In some developing countries, personal income and the use of industrial wood products will increase. In others, the economy will not be able to keep pace with population growth preventing these nations from escaping poverty. Population growth will actually be negative in some developed countries. Without immigration, the United States would have zero population growth.

POPULATION	(000,000)			
	Country/Region	1950	1998	*2050
	China	562	1,255	1,517
	India	369	976	1,533
	Africa	228	763	2,000
	Europe	546	728	638
	USA	152	270	394
	Brazil	53	165	243
	Russia	101	147	114
	Japan	83	126	109
	World	2,556	5,954	9,360

* UN Medium Projection 9.36 Billion. High Projection 27 Billion. Low projection 3.6 Billion

The world GDP was over 28 trillion dollars in 1997. The United States and Japan accounted for 42.2%. The top ten 1997 GDP's and the projections for 1998 and 1999 growth follow:

ECONOMY		Dollars (000,000)	% of World GDP	Projected Growth	
				1998	1999
	1 United States	7,745,705	27.5	3.6	1.8
	2 Japan	4,201,636	14.5	-2.8	-0.5
	3 Germany	2,100,110	7.5	2.7	2.0
	4 France	1,396,540	4.9	3.0	2.6
	5 UK	1,271,710	4.5	2.6	0.9
	6 Italy	1,145,370	4.1	1.3	1.9
	7 Brazil	786,466	2.7	0.5	-1.0
	8 Canada	603,085	2.1	2.8	2.2
	9 Spain	531,419	1.8	3.8	3.4
	10 Korean Republic	442,543	1.6	-7.0	-1.0
	Top Ten	20,224,584	71.2		
	World	28,157,012	100	2.2	2.2

1997 GDP figures: World Bank, 1998 and 1999 projections: International Monetary Fund

China, including Hong Kong, will not replace Japan anytime soon. Their combined GDP was 171 Billion in 1997, or just .6% of the world GDP. However, China does have an emerging affluent population of about 250 million along the east and south coasts that represents a significant emerging market.

North America The United States and Canada account for about 40% of world industrial roundwood production.



The North American Timber Trends Study indicates that North America will remain relatively self-contained for timber supply in the foreseeable future. However a key observation is that the region will face increasing timber demands without an available reserve of high-quality coniferous roundwood. This could cause a rise in prices of wood, accelerate the substitution of engineered wood for solid wood, and cause greater substitutions by non-wood materials. By 2010, softwood plantations in the South and Pacific Northwest will reach merchantable size and should ensure adequate supplies in the long term. In the short term, the US may resort to more intensive use of hardwoods and to imports. Prospects for US timber supplies are also affected by non-market forces; adoption of 'ecosystem management,' and the application of the Endangered Species Act.

The world's largest consumer of industrial roundwood is the United States, buoyed by plentiful capital, low interest, low inflation, continuous stock market corrections, and high consumer confidence.

Most U.S. imports come from Canada, which actually increased its total production of softwood lumber by 30% between 1991-1997 due to increased volumes from Eastern Provinces. British Columbia's share of Canadian production fell from 60% to 50% in this period.

Japan Japan has the second largest economy in the world and housing starts are usually on par with the United States (1.6 million in 1996). However,



Japan is now in recession with a negative growth rate, a trillion dollars in bad debt to banks, no credit, low corporate investment, and low consumer confidence. Housing starts are expected to drop to 1.25 million in 1998. Japan is heavily forested, but the forests consist of small trees on difficult terrain, so Japan has been a huge importer of logs, green lumber, and more recently of dry lumber and engineered wood products. There will be more protectionism to maintain jobs in the logging, sawmilling, and building products sectors. The Japanese culture is becoming westernized, the population is aging rapidly, and there is a leadership crisis. Recovery is expected to be slow, but there may be another Japanese miracle in the making. In the world of wood, the United States market will become even more important to exporters and all eyes will be on China's emerging market.

China While China has vast potential as a market for industrial wood, it also has the capability to meet many of its own needs. However, due to



flooding and logging restrictions in a couple of provinces, and the rush to construct housing, imports could increase to 10-15 million m³ in the next couple of years. China's production of industrial roundwood is estimated to be 40-45 million m³, down from 55 million in the mid-80's. Imports have ranged from 2-4 million m³/yr, or 5-10% of total consumption. China is still primarily a log market, smaller than Taiwan or Korea. China's imports pale when compared to Japan's 30-40 million m³/yr. China's currency has devalued consistently against the US dollar so logs are 7-10 times more expensive over the last 10 years. Privatization of housing is a key issue in China. It would provide an incentive to build and repair; however, banking, mortgage, insurance, and the valuation systems must be put in place. The population move from rural to urban puts more pressure on the government to build housing in the cities.

Russia Since 1990 the "reported" roundwood production in the former USSR has declined by about 66%, from 300 million m³ to 100 million m³.



Despite the decline, the Russian Federation is still the world's third largest producer of roundwood behind the USA and Canada. However, Russia is now a country with negative economic growth, negative population growth, no rule of law, and a crumbling infrastructure. Investors have pulled out. Sustainable Forestry is an oxymoron in Russia. The Siberian Taiga stretches 1.3 million square miles (3.37 million km²) to Russia's Far East Pacific Coast, making up a quarter of the planet's timber reserves. The Taiga is twice the size of the Amazon rainforest. Huge fires have raged unchecked, and illegal logging has soared during the last decade, damaging the Taiga. While situated to serve Eastern and Western markets, the future looks grim for Russia, which is now most important to the world for military and humanitarian reasons. Investors will look elsewhere.

Industrial Roundwood			PRODUCTION
	Amount (000,000 m ³)	% of total	
North America	600	40.4	
Europe	300	20.2	
Asia - Pacific	270	18.1	
Latin America	150	10.1	
USSR	100	6.7	
Africa	66	4.5	
	1,480	100.0%	

Other Economies A future “wall of wood” is coming from industrial plantations around the world. Countries like New Zealand, Chile, Brazil, and South Africa have large, intensively managed plantations of exotic species. New Zealand and Chile will double their production in the next 20 years. While Radiata pine has been the key species, many softwood plantations are being replanted with fast growing hardwoods (Eucalyptus). In today’s economy the emphasis is on maximizing the per hectare fiber production. Gains in silviculture and genetics continue to push the fiber production capability of plantations. As more forestlands are set aside (reserved) in developed nations and more deforestation occurs in developing nations, industrial plantations will be ever more critical in meeting the worlds need for industrial wood fiber. The larger questions are markets for this fiber and profitability.

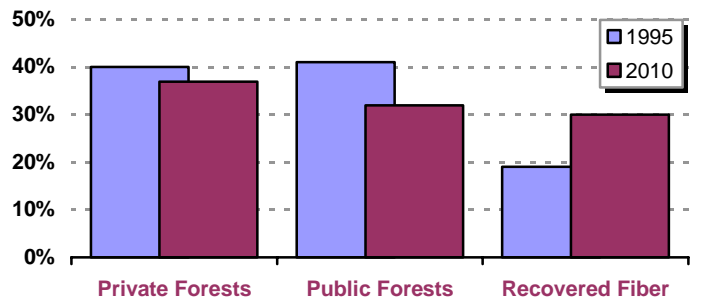
Sources of Industrial Fiber



Recovered fiber is projected to offer the largest percent increase as a source for industrial wood products worldwide. In fact, in the late 80’s and early 90’s increased use of recovered paper is estimated to have accounted for all the increase in consumption of fiber for paper and paperboard. By 2010

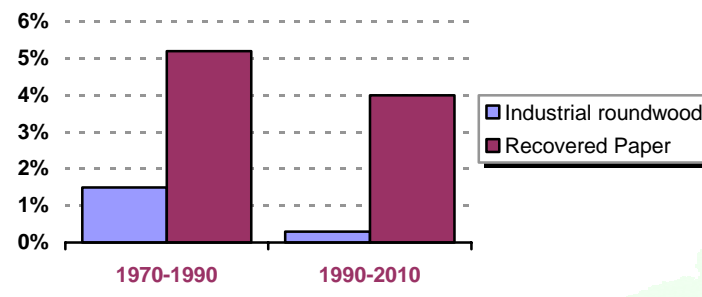
recovered fiber is expected to meet 30% of industrial wood demand. More industrial fiber will come from private forests as harvests on public lands are constrained. There is a projected shift in the composition of industrial roundwood towards smaller logs, which is consistent with the increasing importance of paper, paperboard, and engineered wood panels.

Current & Projected Sources of Timber & Fiber used for Industrial Products Worldwide

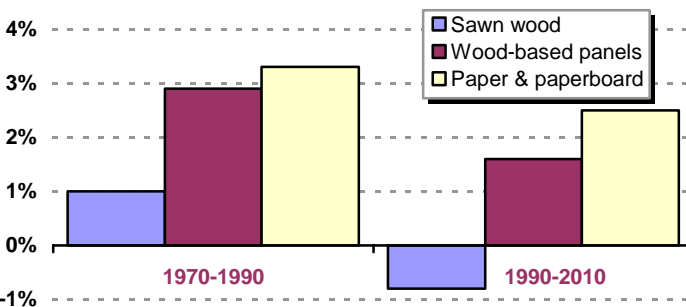


According to the Food & Agricultural Organization (FAO) the production of industrial coniferous roundwood peaked in 1990. It has since fallen by 250 million m³. Growth in world consumption of industrial roundwood is most likely to slow significantly over the next 20 years, whereas consumption of recovered paper will continue a steady rate of increase.

Actual & Projected World Consumption of Industrial Roundwood & Recovered Paper – Annual Growth Rate

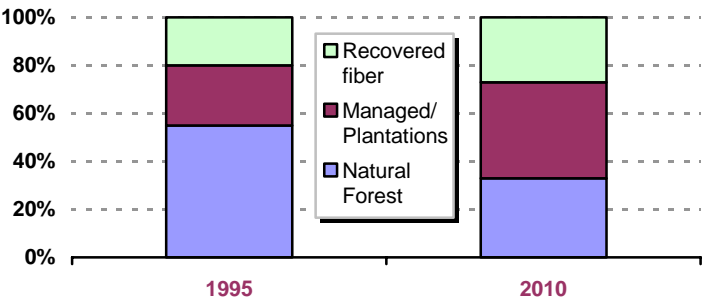


Actual & Projected World Consumption of Forest Products, 1970-2010 – Annual Growth Rate

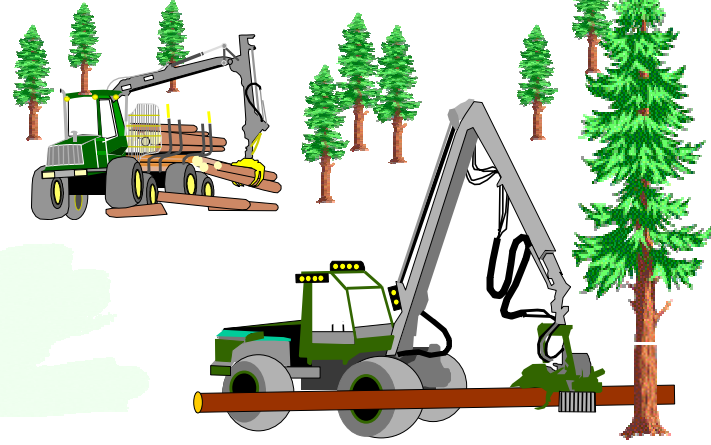


Advances in technology and manufacturing have allowed us to produce more with less. Oriented Strand Board (OSB) is one of the greatest success stories in the wood products industry. OSB has overtaken plywood in the U.S. housing market. OSB has been continuously improved and was given a real boost as supplies of plywood logs became constricted. OSB is also used to manufacture I-Joists. Engineered-Wood Products have allowed better utilization of forest resources, using wood residues and trees that were previously considered too small or otherwise undesirable. Stress testing has reduced the amount of material needed to build safe structures, further stretching raw materials. Computers have facilitated fast and efficient design, creating ever-broader acceptance of EWP. The market for sawn wood will increasingly be in high value specialty applications.

Estimated and Projected world sources of Industrial Wood Fiber: Natural Forest, Managed Forest, and Recovered Fiber

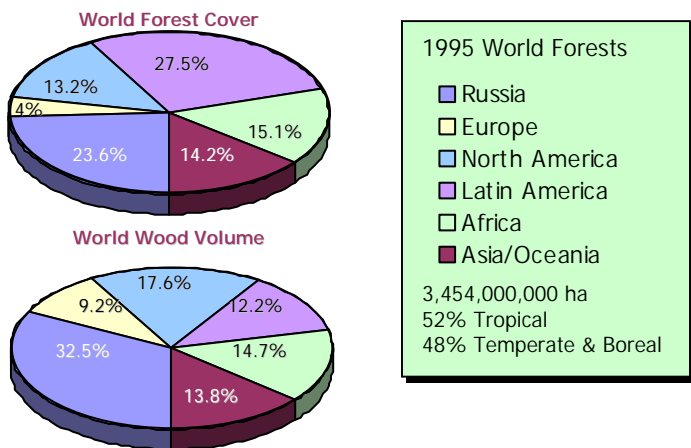


In 1995 there were an estimated 81.2 million ha of plantations (tree crops) located in the developing world with 33.8 million of these in China. More and more plantations are being planted with eucalyptus (tropical) and poplar (temperate) to avail of the superior fiber production per hectare. There are another estimated 80-100 million ha of plantations in developed countries, but it is sometimes hard to delineate between plantation and natural forests.



Summary

The growing size and urbanization of the world's population will continue to have major impacts on forest cover and condition, the demand for wood and non-wood products, and the ability of forests to fulfill essential environmental functions. In the end, human needs and values will shape forests. Between 1990-1995 there was an estimated loss (FAO) of 65.1 million ha of forest in developing countries, which was partially offset by a gain of 8.8 million ha in developed countries. Although the rate of loss has slowed, the population growth in many developing countries is expected to result in the continued conversion of forestland for agricultural use to feed the hungry masses. While forest area has been continuously shrinking, the world's consumption of wood increased 36% (FAO) between 1970 and 1994. Fortunately the number of hectares in plantations increased from 40 million ha to over 80 million ha in developing countries between 1980 and 1995. More efficient processing, increased recycling and greater use of residues have enabled forest industries to raise the output of processed products significantly, with a proportionally smaller increase of raw materials.



The Russian Federation, Brazil, Canada, the United States, China, Indonesia, and Zaire contain 60% of the world's forests by area.

Long-term adequacy of wood supply depends on the sustainable management of forest resources. Recent developments indicate a dramatically increased emphasis on the environmental services of forests. This is reflected in landscape-level ecosystem management, habitat conservation plans, forest practice codes, participatory management, low impact harvesting, certification schemes, export controls, and more. What were once regional or national issues are now global issues. Forest management practices are changing as people demand more from forests, as new wood products allow the use of different raw materials, and as globalization impacts decisions. Forests can't continue to give everybody everything they want, so trade-offs are inevitable. Fortunately, we have the vision and the tools to make sustainable forestry and sustainable development a reality. However, every nation has a different notion of what 'sustainability' means depending on their current social and economic needs. Nations also differ in their abilities to manage resources and assure effective public participation in the decision making process. It is in everyone's best interest to see all nations develop to the point where they care about sustainable forestry and sustainable development. We all live in one global ecosystem.

Conversion Table

Hectares (ha) X 2.47 = Acres Cubic Meters (m³) X 1.3 = Cubic Yards
 Acres X 0.405 = Hectares Cubic Yards X 0.76 = Cubic Meters
 m³ = 221 board feet of logs (Scribner scale)
 m³ = 423 board feet of lumber
 mmbf = million board feet of logs or lumber
 mmsf = million square feet of panels

Glossary

Capitalism: An economic system characterized by private ownership and initiative. Basic to a free enterprise, or capitalist system is the concept of private property, the right of ownership and use of wealth to earn income.

Consumer Price Index: Indicates how much real prices have gone up and is used to measure inflation.

Developing Countries: All countries in Africa except South Africa, all countries in Asia except Israel and Japan, all countries in Oceania except Australia and New Zealand, all countries in North and Central America except Canada and the USA, and all countries in South America.

Environmental Economics: Takes environmental costs into consideration and internalizes them in the economy. Helps us make good choices.

External Costs: Real costs which society must eventually pay that are not included in the prices of the goods and services we use.

Gross Domestic Product: The value of all the goods and services produced by an economy in a given year.

Gross National Product: Measures the total domestic and foreign income claimed by the residents of an economy. It comprises Gross Domestic Product (GDP) plus net factor income from abroad.

Housing Starts: Key indicator of economic health in countries like the USA, Canada, and Japan. Strong starts are fueled by low mortgage interest rates, plentiful building materials, and high consumer confidence in the economy. Same for remodeling.

Roundwood: All wood, industrial or fuelwood, is classified as 'roundwood' when it is harvested. It is then converted.

Rule of 70: Divide the number 70 by the compound annual growth rate of anything to get the doubling time.

UNCED: United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 provided impetus and commitment to international activity focused on the world's forests. It led to the formation of the UN Commission on Sustainable Development and the Intergovernmental Panel on Forests.

The greater danger for most of us is not that our aim is too high and we miss it, but that it is too low and we reach it.

Michelangelo (1475-1564)

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