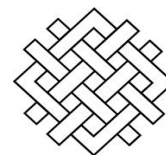


# Forest Production and Trade 2005

EarthTrends  
Data Tables:  
Forest Production  
and Trade



Sources: Food and Agriculture Organization of the United Nations (FAO), World Bank.

	Forest Area (FAO Estimate)				Forest Production			Trade in Forest Products (a)				Exports as a percent of GDP	
	Total (1000 ha)		Percent Change	Percent of Forest Area		Industrial Roundwood 1000 m <sup>3</sup>	Wood Fuel 1000 m <sup>3</sup>	Recovered Paper 1000 mt	Imports 1000 SUS		Exports 1000 SUS		
	1990	2000		Plantation 2000	Certified 2000				1990-1992	2000-2002	1990-1992		2000-2002
	1990	2000	2000	2000	2000-2002	2000-2002	2000-2002	1990-1992	2000-2002	1990-1992	2000-2002		
<b>WORLD</b>	<b>3,963,429</b>	<b>3,869,455</b>	<b>(2)</b>	<b>5</b>	<b>2.09</b>	<b>1,580,986</b>	<b>1,792,431</b>	<b>138,906</b>	<b>#####</b>	<b>144,989,290</b>	<b>#####</b>	<b>136,208,006</b>	<b>0.43</b>
<b>ASIA (EXCL. MIDDLE EAST)</b>	<b>507,619</b>	<b>504,180</b>	<b>(1)</b>	<b>22</b>	<b>0.03</b>	<b>205,462</b>	<b>783,021</b>	<b>40,607</b>	<b>26,807,160</b>	<b>36,246,420</b>	<b>12,598,760</b>	<b>16,677,446</b>	<b>0.23</b>
Armenia	309	351	14	4	0	5	48	..	1	10,023	0	1,043	0.05
Azerbaijan	964	1,094	13	2	0	7	6	0	13	28,717	52	859	0.01
Bangladesh	1,169	1,334	14	47	0	595	27,799	..	22,936	80,709	5,355	4,837	0.01
Bhutan	3,016	3,016	0	1	0	134	4,284	..	11	980	7,130	104	0.02
Cambodia	9,896	9,335	(6)	1	0	142	9,927	..	333	11,472	42,038	18,846	0.50
China (b)	145,417	163,480	12	28	0	94,468	191,049	16,160	6,273,553	14,805,887	1,836,435	3,858,207	0.33
Georgia	2,988	2,988	0	7	0	0	0	..	57	5,093	322	11,952	0.37
India	63,732	64,113	1	51	0	19,123	285,108	850	586,777	948,056	39,487	82,607	0.02
Indonesia	118,110	104,986	(11)	9	0.07	30,997	85,750	1,163	523,976	1,132,375	3,694,788	5,042,278	3.26
Japan	24,047	24,081	0	44	0.01	16,284	129	14,841	13,072,649	11,718,558	1,684,260	1,479,847	0.03
Kazakhstan	9,758	12,148	24	0	0	0	0	0	142	87,996	612	42,225	0.19
Korea, Dem People's Rep	8,210	8,210	0	..	0	1,500	5,561	..	6,209	24,356	4,427	9,143	..
Korea, Rep	6,299	6,248	(1)	..	0	1,577	2,454	5,418	2,987,431	3,465,725	519,486	1,454,365	0.28
Kyrgyzstan	775	1,003	29	6	0	10	17	..	0	12,083	5	428	0.03
Lao People's Dem Rep	13,088	12,561	(4)	0	0	510	5,885	..	781	1,198	34,732	46,312	2.63
Malaysia	21,661	19,292	(11)	9	0.29	16,390	3,286	102	610,141	1,009,719	3,347,628	2,917,456	3.20
Mongolia	11,245	10,645	(5)	..	0	445	186	..	1,530	2,968	1,740	617	0.06
Myanmar	39,588	34,419	(13)	2	0	4,371	35,092	33	5,160	25,654	296,621	257,183	..
Nepal	4,683	3,900	(17)	3	0	1,260	12,745	..	4,181	2,940	221	1,426	0.03
Pakistan	2,755	2,361	(14)	42	0	2,679	28,815	478	169,152	145,821	219	0	0.00
Philippines	6,676	5,789	(13)	13	0.26	2,818	31,992	328	238,325	584,678	104,299	89,110	0.12
Singapore	2	2	0	..	0	..	..	275	972,097	728,491	733,592	504,601	0.57
Sri Lanka	2,288	1,940	(15)	16	0.67	688	5,840	13	78,000	93,904	1,375	7,020	0.04
Tajikistan	380	400	5	3	0	0	0	..	25	3,983	3	80	0.01
Thailand	15,886	14,762	(7)	33	0	7,054	20,400	805	1,220,796	1,091,759	146,389	790,489	0.65
Turkmenistan	3,755	3,755	0	0	0	0	0	..	453	3,880	5	501	0.01
Uzbekistan	1,923	1,969	2	15	0	6	19	..	67	37,231	0	130	0.00
Viet Nam	9,303	9,819	6	17	0	4,183	26,616	140	12,958	172,445	98,121	55,401	0.17
<b>EUROPE</b>	<b>1,030,475</b>	<b>1,035,344</b>	<b>0</b>	<b>3</b>	<b>4.51</b>	<b>475,030</b>	<b>105,960</b>	<b>45,007</b>	<b>56,058,437</b>	<b>65,255,442</b>	<b>50,223,334</b>	<b>68,406,161</b>	<b>0.73</b>
Albania	1,069	991	(7)	10	0	95	244	0	2,298	31,662	832	24,981	0.59
Austria	3,809	3,886	2	..	14.15	10,929	2,934	1,244	1,597,385	2,339,972	3,309,853	4,279,594	2.19
Belarus	6,840	9,402	37	2	0	5,572	951	0	1,001	177,400	21,732	170,257	1.30
Belgium (c)	741	728	(2)	..	..	3,858	550	1,546	0	4,056,444	0	3,460,187	1.48
Bosnia and Herzegovina	2,273	2,273	0	3	0	3,122	987	..	2,569	23,986	7,671	65,335	1.29
Bulgaria	3,486	3,690	6	26	0	2,560	1,976	80	70,326	137,853	52,196	129,566	0.93
Croatia	1,763	1,783	1	3	9.37	2,767	826	64	55,247	264,831	218,777	244,699	1.20
Czech Rep	2,627	2,632	0	..	0.38	13,466	986	379	..	765,211	..	904,935	1.52
Denmark	445	455	2	75	0	1,426	578	316	1,892,159	1,654,771	444,745	363,002	0.22
Estonia	1,935	2,060	6	15	0	8,053	1,817	16	1,341	125,039	37,721	391,281	6.80
Finland	21,855	21,935	0	..	99.84	48,801	4,360	695	613,341	976,153	8,701,969	10,539,746	8.45
France	14,725	15,341	4	6	0.01	38,137	2,383	5,684	6,080,725	7,270,482	4,035,114	5,452,896	0.40
Germany	10,740	10,740	0	..	30.19	41,782	3,409	11,519	12,423,465	11,722,848	6,565,416	10,949,424	0.58
Greece	3,299	3,599	9	3	0	552	1,365	52	819,786	793,537	95,021	74,730	0.06
Hungary	1,768	1,840	4	7	0	3,412	2,438	325	305,098	688,261	168,013	393,457	0.72
Iceland	25	31	24	39	0	0	0	8	56,023	50,230	4,175	104	0.00
Ireland	489	659	35	90	0	2,493	46	102	557,030	691,690	155,178	267,667	0.25
Italy	9,708	10,003	3	1	0.11	3,273	5,132	5,116	6,696,180	7,015,680	1,829,274	2,146,059	0.19
Latvia	2,796	2,923	5	5	0	12,051	1,486	40	1,786	107,572	37,742	622,494	8.03
Lithuania	1,946	1,994	2	14	0	4,377	1,457	43	533	139,117	25,464	214,200	1.71
Macedonia, FYR	906	906	0	3	0	141	694	2	0	51,374	0	7,111	0.20
Moldova, Rep	318	325	2	0	0	28	30	0	4,460	29,253	1,470	3,748	0.25
Netherlands	365	375	3	27	18.40	770	144	2,389	4,572,907	4,337,028	2,471,901	2,667,312	0.68
Norway	8,558	8,868	4	3	63.15	7,608	993	417	697,023	951,064	1,525,322	1,604,587	0.91
Poland	8,872	9,047	2	0	30.32	24,301	1,769	814	106,283	1,452,267	342,214	1,112,667	0.61
Portugal	3,096	3,666	18	23	0	8,906	600	360	591,186	911,063	1,180,154	1,273,936	1.13
Romania	6,301	6,448	2	1	0	10,671	2,904	141	91,839	233,715	161,009	518,612	1.26
Russian Federation	850,399	851,392	0	2	0	116,333	49,333	1,650	71,881	534,111	1,714,609	3,988,435	1.31
Serbia and Montenegro	2,901	2,887	(0)	1	0	1,358	1,566	0	91,541	151,016	80,444	71,476	0.60
Slovakia	1,997	2,177	9	1	0	5,638	268	147	..	361,080	..	513,720	2.36
Slovenia	1,085	1,107	2	0	0	1,895	369	65	276,830	385,652	322,422	419,638	2.08
Spain	13,510	14,370	6	13	0	13,282	1,815	3,477	2,763,472	4,107,392	1,051,171	2,062,674	0.34
Sweden	27,128	27,134	0	2	41.16	58,767	5,900	1,465	1,111,606	1,608,079	9,331,885	9,510,943	4.08
Switzerland	1,156	1,199	4	0	4.09	5,217	1,233	1,161	2,222,600	1,614,213	1,357,191	1,525,887	0.61
Ukraine	9,274	9,584	3	46	2.12	5,961	4,170	323	1,972	354,097	6,411	294,062	0.79
United Kingdom	2,624	2,794	6	69	34.29	7,238	234	5,365	9,534,112	8,905,014	1,777,695	1,938,081	0.13
<b>MIDDLE EAST &amp; N. AFRICA</b>	<b>28,461</b>	<b>29,104</b>	<b>2</b>	<b>22</b>	<b>0</b>	<b>..</b>	<b>..</b>	<b>..</b>	<b>4,753,264</b>	<b>5,727,417</b>	<b>224,876</b>	<b>463,165</b>	<b>0.04</b>
Afghanistan	1,351	1,351	0	..	0	1,760	1,315	..	1,030	2,546	3	238	..
Algeria	1,879	2,145	14	33	0	193	7,189	34	376,877	323,315	938	0	0.00
Egypt	52	72	38	99	0	268	16,333	370	1,452,109	705,010	1,925	40,740	0.04
Iran, Islamic Rep	7,299	7,299	0	31	0	1,060	192	80	473,427	441,485	10,867	0	0.00
Iraq	799	799	0	1	0	59	52	..	80,218	14,865	12	16	..
Israel	82	132	61	69	0	41	4	113	472,452	719,773	27,824	61,891	0.06
Jordan	86	86	0	53	0	4	230	6	84,624	174,128	7,749	25,983	0.29
Kuwait	3	5	67	97	0	..	..	15	74,075	104,625	4,465	8,505	0.02
Lebanon	37	36	(3)	5	0	7	61	..	52,753	172,287	3,063	14,450	0.08
Libyan Arab Jamahiriya	311	358	15	47	0	1							

# Forest Production and Trade 2005

	Forest Area (FAO Estimate)					Forest Production			Trade in Forest Products (a)				Exports as a percent of GDP
	Total (1000 ha)		Percent Change	Percent of Forest Area		Industrial Roundwood 1000m <sup>3</sup>	Wood Fuel 1000m <sup>3</sup>	Recovered Paper 1000mt	Imports (1000 US\$)		Exports (1000 US\$)		
	1990	2000		Plantation 2000	Certified 2000				1990-2000	2000-2002	1990-1992	2000-2002	
	1990	2000	2000	2000	2002	2002	2002	1992	2002	1992	2002		
<b>SUB-SAHARAN AFRICA</b>	<b>534,114</b>	<b>486,571</b>	<b>(9)</b>	<b>1</b>	<b>0.20</b>	<b>65,997</b>	<b>509,397</b>	<b>..</b>	<b>767,692</b>	<b>1,051,303</b>	<b>1,903,555</b>	<b>2,714,414</b>	<b>0.85</b>
Angola	70,998	69,756	(2)	0	0	1,116	3,241	..	8,512	2,396	241	1,443	0.01
Benin	3,349	2,650	(21)	4	0	332	5,938	..	2,432	13,096	162	1,361	0.06
Botswana	13,611	12,427	(9)	0	0	105	640	..	0	15,410	..	..	0.00
Burkina Faso	7,241	7,089	(2)	1	0	594	10,015	..	4,502	7,260	6	458	0.02
Burundi	241	94	(61)	78	0	333	7,156	..	2,929	1,469	40	47	0.01
Cameroon	26,076	23,858	(9)	0	0	1,478	9,183	..	44,736	22,642	265,196	370,073	4.06
Central African Rep	23,207	22,907	(1)	0	0	1,042	2,000	..	198	149	19,096	68,369	6.91
Chad	13,509	12,692	(6)	0	0	761	6,002	..	1,994	1,917	24	731	0.04
Congo	22,235	22,060	(1)	0	0	1,251	1,169	..	2,319	1,953	161,208	182,194	6.05
Congo, Dem Rep	140,531	135,207	(4)	0	0	3,653	66,090	..	6,150	3,021	49,679	6,417	0.13
Côte d'Ivoire	9,766	7,117	(27)	3	0	3,316	8,554	6	22,799	45,705	358,770	198,513	1.80
Equatorial Guinea	1,858	1,752	(6)	..	0	364	447	..	169	0	28,859	96,728	5.62
Eritrea	1,639	1,585	(3)	1	0	2	2,284	..	..	5,393	..	13	0.00
Ethiopia (d)	4,996	4,593	(8)	5	0	2,458	88,832	3	3,285	29,268	185	0	0.00
Gabon	21,927	21,826	(0)	0	..	2,584	518	..	6,153	4,238	223,952	349,157	7.36
Gambia	436	481	10	0	0	113	611	..	731	1,317	26	237	0.06
Ghana	7,535	6,335	(16)	1	0	1,105	20,678	..	12,713	19,752	121,483	141,834	2.59
Guinea	7,276	6,929	(5)	0	0	651	11,490	..	1,672	4,542	3,381	6,024	0.19
Guinea-Bissau	2,403	2,187	(9)	0	0	170	422	..	268	145	2,038	986	0.48
Kenya	18,027	17,096	(5)	1	0	1,977	19,829	38	21,375	25,021	4,670	9,396	0.08
Lesotho	14	14	0	100	0	..	2,028	..	2,508	0	..	..	0.00
Liberia	4,241	3,481	(18)	3	0	337	4,928	..	2,066	394	91,876	243,892	44.67
Madaqascar	12,901	11,727	(9)	3	0	94	9,920	2	5,130	7,019	2,698	15,973	0.37
Malawi	3,269	2,562	(22)	4	0	520	4,996	..	6,107	4,273	2,266	552	0.03
Mali	14,179	13,186	(7)	0	0	413	4,788	..	2,028	7,511	215	1,692	0.06
Mauritania	415	317	(24)	8	0	6	1,465	..	975	1,954	29	519	0.05
Mozambique	31,238	30,601	(2)	0	0	1,319	16,724	5	3,699	1,500	2,412	19,127	0.54
Namibia (e)	8,774	8,040	(8)	0	0.67	..	..	..	..	..	..	..	0.00
Niger	1,945	1,328	(32)	5	0	411	6,284	..	3,806	4,288	17	459	0.02
Nigeria	17,501	13,517	(23)	5	0	9,418	59,704	8	93,562	131,744	20,783	23,249	0.06
Rwanda	457	307	(33)	85	0	336	7,500	..	7,104	1,652	63	315	0.02
Senegal	6,655	6,205	(7)	4	0	794	5,146	0	25,929	46,836	1,963	1,407	0.03
Sierra Leone	1,416	1,055	(25)	1	0	124	5,365	..	1,816	3,893	104	1,360	0.19
Somalia	8,284	7,515	(9)	0	0	110	9,526	..	597	1,308	2	6,296	..
South Africa (e)	8,997	8,917	(1)	17	9.29	18,616	12,000	590	308,475	394,993	451,901	875,268	0.75
Sudan	71,216	61,627	(13)	1	0	2,173	16,873	6	10,925	16,421	312	483	0.00
Tanzania, United Rep	39,724	38,811	(2)	0	0	2,314	20,954	..	9,869	8,465	7,570	4,503	0.05
Togo	719	510	(29)	7	0	250	5,550	..	3,035	3,801	139	1,369	0.11
Uganda	5,103	4,190	(18)	1	0	3,175	34,614	..	1,809	12,507	293	62	0.00
Zambia	39,755	31,246	(21)	0	0	834	7,219	..	8,905	3,394	586	823	0.02
Zimbabwe	22,239	19,040	(14)	1	0.48	988	8,115	73	26,211	33,045	10,724	17,027	0.21
<b>NORTH AMERICA</b>	<b>466,684</b>	<b>470,564</b>	<b>1</b>	<b>..</b>	<b>6.48</b>	<b>607,578</b>	<b>75,756</b>	<b>43,538</b>	<b>16,265,104</b>	<b>28,473,127</b>	<b>31,289,341</b>	<b>39,669,490</b>	<b>0.37</b>
Canada	244,571	244,571	0	..	1.78	197,373	2,953	1,478	2,103,155	4,039,071	17,636,559	24,854,101	3.53
United States	222,113	225,993	2	7	11.56	410,205	72,803	42,060	14,157,948	24,426,362	13,652,360	14,815,290	0.15
<b>C. AMERICA &amp; CARIBBEAN</b>	<b>88,315</b>	<b>78,737</b>	<b>(11)</b>	<b>2</b>	<b>0.54</b>	<b>13,083</b>	<b>81,237</b>	<b>1,097</b>	<b>1,752,315</b>	<b>3,697,200</b>	<b>245,385</b>	<b>354,818</b>	<b>0.05</b>
Belize	1,704	1,348	(21)	0	7.12	62	126	..	3,782	6,844	2,396	3,869	0.44
Costa Rica	2,126	1,968	(7)	9	2.08	1,687	3,475	11	112,806	245,399	12,306	21,668	0.13
Cuba	2,071	2,348	13	21	0	824	1,554	59	129,616	54,587	2,408	285	..
Dominican Rep	1,376	1,376	0	2	0	6	556	15	81,041	193,575	407	578	0.00
El Salvador	193	121	(37)	11	0	682	4,518	5	43,884	150,737	3,725	10,320	0.08
Guatemala	3,387	2,850	(16)	5	3.51	476	14,872	18	72,396	171,807	17,737	23,323	0.11
Haiti	158	88	(44)	23	0	239	1,971	..	7,504	12,814	3	19	0.00
Honduras	5,972	5,383	(10)	1	0.37	853	8,721	51	60,967	67,051	21,728	44,444	0.70
Jamaica	379	325	(14)	3	0	282	591	0	65,253	94,420	1,253	8	0.00
Mexico	61,511	55,205	(10)	0	0.31	7,648	37,737	920	882,216	2,336,138	174,854	217,173	0.04
Nicaragua	4,450	3,278	(26)	1	0	148	5,791	..	8,930	20,293	2,570	17,326	0.43
Panama	3,395	2,876	(15)	1	0.03	91	1,264	13	70,939	66,421	3,953	8,847	0.07
Trinidad and Tobago	281	259	(8)	6	0	60	36	0	52,287	92,765	1,362	2,157	0.02
<b>SOUTH AMERICA</b>	<b>922,731</b>	<b>885,618</b>	<b>(4)</b>	<b>3</b>	<b>0.18</b>	<b>150,837</b>	<b>189,127</b>	<b>4,473</b>	<b>1,435,351</b>	<b>2,724,745</b>	<b>2,905,479</b>	<b>5,223,020</b>	<b>0.47</b>
Argentina	37,499	34,648	(8)	3	0	5,558	3,970	927	188,055	548,404	145,642	269,129	0.12
Bolivia	54,679	53,068	(3)	0	1.67	5,803	2,163	..	8,807	39,542	44,876	24,410	0.30
Brazil	566,998	543,905	(4)	1	0.12	102,994	133,436	2,612	290,902	828,854	1,662,100	2,764,830	0.53
Chile	15,739	15,536	(1)	13	0	25,203	12,188	136	102,296	223,233	906,546	1,700,019	2.44
Colombia	51,506	49,601	(4)	0	0	1,972	10,417	378	202,319	344,756	26,880	99,900	0.12
Ecuador	11,929	10,557	(12)	2	0	772	5,201	68	163,464	111,442	25,401	55,732	0.27
Guyana	17,365	16,879	(3)	0	0	290	876	..	1,655	2,478	3,479	31,278	4.37
Paraguay	24,602	23,372	(5)	0	0	4,044	5,647	30	20,905	39,273	35,408	39,127	0.58
Peru	67,903	65,215	(4)	1	0	1,228	7,470	72	106,098	198,377	5,392	87,827	0.16
Suriname	14,113	14,113	0	0	0	165	43	..	2,562	3,035	934	4,214	0.49
Uruguay	791	1,292	63	48	0	1,647	3,984	24	36,877	83,147	22,157	92,671	0.55
Venezuela	51,681	49,506	(4)	2	0	1,100	3,651	226	308,144	299,428	23,697	51,399	0.05
<b>OCEANIA</b>	<b>201,233</b>	<b>201,271</b>	<b>0</b>	<b>1</b>	<b>0.20</b>	<b>48,104</b>	<b>12,584</b>	<b>..</b>	<b>1,569,081</b>	<b>1,811,769</b>	<b>1,627,931</b>	<b>2,699,404</b>	<b>0.60</b>
Australia	157,359	154,539	(2)	1	0	24,239	6,715	1,603	1,290,443	1,470,221	461,231	941,914	0.24
Fiji	832	815	(2)	12	0	425	37	..	10,275	14,592	32,232	20,856	1.22
New Zealand	7,556	7,946	5	19	4.57	20,855	0	194	231,167	275,736	906,161	1,466,211	2.72
Papua New Guinea	31,730	30,601	(4)	0	0.01	1,867	5,533	..	4,956	9,182	182,851	219,589	7.14
Solomon Islands	2,580	2,536	(2)	2	1.70	614	138	..	606	284	44,312	46,824	16.84
<b>DEVELOPED</b>	<b>1,712,132</b>	<b>1,725,231</b>	<b>1</b>	<b>4</b>	<b>4.54</b>	<b>1,162,671</b>	<b>200,654</b>	<b>105,886</b>	<b>88,671,842</b>	<b>108,489,162</b>	<b>86,344,313</b>	<b>112,957,901</b>	<b>0.45</b>

### DEFINITIONS AND METHODOLOGY:

**Total Forest Area** includes both natural forests and plantations, which are determined by the presence of trees and the absence of other predominant land uses, such as agroforestry. Data are presented in thousands of hectares. **Total Forests** are areas where tree crowns cover over 10 percent of the ground larger than .5 hectares. Tree height at maturity should exceed 5 meters. **Plantations** are forest stands established artificially by afforestation and reforestation that contain even spacing, and/or even-age stands. Plantations can include either non-native or indigenous (native) trees. Reforestation does not include regeneration of old tree crops (through either natural regeneration or forest management), although some countries may report regeneration as reforestation.

**Percent of Forest Area Certified** includes forests certified as sustainably managed by any of the major forest certification schemes. Certification is a useful measure of whether certain predefined minimum standards of forest management in a given forest, at a given point of time, are being met. A number of international, regional, and national forest certification schemes now exist. These schemes focus primarily on forests managed for timber production purposes. The data enumerate the total area of forests certified by international, regional, and national forest certification schemes. Certifications by ISO 14001 are not included because they are not designed specifically to assess whether sustainable forest management is being applied.

Data on **Forest Area**, as well as **Percent of Forest Area Certified**, were obtained from the Food and Agriculture Organization (FAO)'s *Global Forest Resources Assessment 2000* (FRA 2000). The FRA 2000 was published in response to international interest in a global forest assessment with a single definition of forest cover. FAO compiles country information to create one internationally comparable database, harmonizing these national assessments with a 10-percent forest cover definition. Forest statistics are based primarily on forest inventory information provided by national governments. National data gathering methodologies can be found at <http://www.fao.org/forestry/fo/fra/index.jsp>. In tropical regions, national inventories are supplemented by a remote sensing survey. FAO analyzed high resolution Landsat satellite data from a number of sample sites covering a total of 10 percent of the tropical forest zone. Where only limited or outdated inventory data were available, FAO used linear projections and expert opinion to fill in data gaps. If no forest statistics existed for 1990 and 2000, FAO projected forward or backward in time to estimate forest area in the two reference years.

**Forest Production** data are obtained from the FAO and include all wood in its natural state as felled or harvested from forests and trees outside the forest, with or without bark, round, split, roughly squared, or in other forms such as roots and stumps. It also includes all wood recovered from natural, felling, and logging losses during the period. **Industrial Roundwood** includes sawlogs and veneer logs, pulpwood, and roundwood used for tanning, distillation, match blocks, piling, posts, pitprops, gazogens, etc. **Wood Fuel** refers to all roundwood used as fuel for purposes such as cooking, heating, or power production. It includes wood harvested from main stems, branches and other parts of trees. It also includes wood intended for charcoal production (e.g., pit kilns and portable ovens). FAO data include only wood from direct sources such as natural forests, plantations, and other wooded land, such as homesteads and roadsides. Wood fuel data do not currently include wood fuel from indirect sources such as industrial by-products derived from primary and secondary wood industries, recovered sources (wood waste from construction sites demolition, packaging etc.), and black liquor (derived from by-products of the pulp industry). **Recovered Paper** describes the amount of waste and scrap of paper or paperboard produced in a given country in a given year. This commodity includes paper and paperboard which has been used for its original purpose and residues from paper conversion, including waste and scrap collected for re-use as a raw material for the manufacture of paper and related products.

**Trade in Forest Products** refers to the imports and exports of the aggregate values of all forest products for a given country. Import and export value is expressed in thousand US dollars. Forest products include industrial roundwood (including sawlogs and veneer logs, pulpwood and particles, chips and particles, wood

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residues, and other industrial roundwood), fuelwood and charcoal, sawnwood, wood-based panels (including veneer sheets, plywood, particle board, and fibreboard), wood pulp (including mechanical, chemical, semi-chemical, dissolving, and recovered paper), and paper and paperboard (including newsprint, printing and writing paper, and other paper and paperboard). Both non-coniferous and coniferous species are included. **Imports** are expressed on a cost, insurance, and freight basis (c.f.i.) (i.e., insurance and freight costs added in). **Exports** are expressed on a free-on-board basis (f.o.b.) (i.e., not including insurance or freight costs). "In-transit" shipments are excluded wherever possible. **Exports as a % of GDP** was calculated by WRI using GDP data from the World Bank's *World Development Indicators Online*.

FAO compiles data on **Forest Production** and **Trade in Forest Products** from responses to annual questionnaires sent to national governments. These estimates are reviewed for accuracy; in cases where the data are questionable, estimates are supplemented with data from other sources such as national statistical yearbooks. In some cases, FAO prepares its own estimates. Data on wood fuel and roundwood production were not available for all countries. In cases where accurate, reported data is unavailable, FAO estimated total quantities of roundwood production. Industrial roundwood production has been estimated by FAO for some countries by converting the volume of finished forest products to roundwood equivalent. Wood fuel production has been estimated based on a combination of household surveys, per-capita consumption estimates, and population change data. WRI calculated the annual average quantity of forest product imports and exports over three year periods from 1990-1992 and 2000-2002. Where data was not available, WRI calculated the average based on available data.

### FREQUENCY OF UPDATE BY DATA PROVIDERS

**FAO forest cover data** is compiled each decade; data in this table are from the 2000 assessment. FRA 2000 uses different definitions for total forest area than FRA 1990; therefore, the 1990 data contained in the FRA 2000 is modified to maintain consistency between comparisons. While these data can be compared, data obtained separately from these two volumes cannot be directly compared. **Forest products production and trade data** are updated annually by the Food and Agriculture Organization. FAO posted the 2002 updates on-line in February 2004. **National GDP data** is published by the World Bank in the World Development Indicators each April.

### DATA RELIABILITY AND CAUTIONARY NOTES

**FAO's FRA 2000 Forest Extent and Change Data:** FAO acknowledges that the quality of primary data available on tropical forest resources remains very poor. The accuracy of national estimates provided to FAO is affected by two major sources of error. First, in most tropical countries, forests are not monitored comprehensively or frequently enough to map their extent accurately or to track their rate of change. In the absence of inventory data for specific dates (1990 and 2000), FAO's latest estimates of forest area and change over time are often based on projections and expert opinion and thus remain educated guesses. Just one or two satellite scenes appear to have been the prime source of new information for some countries with very poor inventory data. Second, estimates of open woodland areas are far less accurate than those of closed forest because it is difficult to monitor woodlands by remote sensing techniques, and government forestry agencies tend not to survey them as part of normal forest inventories. Differences in definitions used among countries further complicate this issue. The quality of data from developed countries is generally better than from developing countries, but problems still arise with estimates because of differences in national forestry definitions and systems of measurement, and the use of different reference periods. In Northern countries, the boundary between forest and tundra is vague, and the additional forest that should be counted under the new (globally harmonized) 10-percent crown cover threshold proved hard to quantify. Non-production forests are classified as "other wooded land" in FRA 2000, even though many of them appear to meet the FAO definition of forests. This results in significant underreporting in some countries. For a more complete discussion of some data reliability issues associated with the FRA 2000, please see: <http://pdf.wri.org/fra2000.pdf>.

**Certified forest area:** The certification schemes are either performance-based or systems-based. Performance-based certification requires that landowners meet performance criteria set by the certification body. Systems-based schemes require that landowners manage the forest within broad system components.

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While there is some disagreement about which scheme best guarantees sustainable forestry, many groups feel that those using performance-based criteria carry the most weight. More information on certification is available at: <http://eesc.orst.edu/agcomwebfile/edmat/EC1518.pdf>. While the numbers reported are reliable, it is worth noting that certified forests do not represent the total area of well-managed forests. Many uncertified forests are under sound management. Increasing trends in forest certification indicate the importance that consumers attach to forest management issues rather than the total area of well-managed forests.

**Forest products production and trade data:** The Forest Production and Trade data is based on data reported by national governments to FAO and from estimates made by FAO. For this reason, the quality of forest production and trade data varies between countries and should be viewed as broad estimates rather than as accurate representations of the total amount of forest products harvested. In particular, wood fuel production figures should be viewed as especially coarse representations of the actual production of wood fuel. This is because the actual total amount of fuelwood and charcoal harvested is very difficult to monitor. High rates of illegal harvesting of timber and forest products may also lead to significant under-reporting in some countries.

### SOURCES

**Forest area:** Food and Agriculture Organization of the United Nations (FAO). 2001. *Global Forest Resources Assessment 2000--main Report*. FAO Forestry Paper No. 140. Rome: FAO. Available online at: [www.fao.org/forestry/site/fra/en](http://www.fao.org/forestry/site/fra/en)

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**National GDP data:** Development Data Group, The World Bank. 2004. *World Development Indicators 2004 online*. Available at: [http://publications.worldbank.org/e-commerce/catalog/product?item\\_id=631625](http://publications.worldbank.org/e-commerce/catalog/product?item_id=631625)  
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