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TREE TRADE

Liberalization of International Commerce in Forest Products: Risks and Opportunities

BY NIGEL SIZER,* DAVID DOWNES,† AND DAVID KAIMOWITZ ‡

Introduction

The United States, Canada, New Zealand, Indonesia, and others are vigorously promoting the elimination of import taxes (tariffs) for all forest products through a proposed accord among members of the World Trade Organization (WTO). At the same time, in meetings of the Asia-Pacific Economic Cooperation (APEC) forum, these countries are advancing discussions on other laws and practices that could be tagged as trade barriers (referred to as "non-tariff" measures) and also targeted for removal.[1] Their proposals will be considered in ongoing WTO negotiations. *(See Box 1.)*

Many large and influential forest products companies in the countries championing the proposals are strong supporters of these forest product trade liberalization initiatives because they would increase their access to European, Japanese, and many developing country markets. This could lead to an increase in global trade in products such as construction lumber, plywood, particleboard, and furniture. It could also lead to shifts in where timber cutting takes place because it favors those producers best able to cut costs.

Major Findings and Recommendations

Unless countries that export forest products improve forest protection policies, laws, and practices, further trade liberalization poses a significant threat to efforts to conserve and sustainably manage forests. The acceleration of tariff elimination—the current proposal under discussion for forest products in preparation for the World Trade Organization (WTO) Summit—is unlikely to have a large impact on net *global* trade because most tariffs are already quite low. But eliminating tariffs could have a significant impact on some products and some markets.

Removal of some *non-tariff* barriers could have far greater negative consequences. There are major concerns about weakening phytosanitary standards, threats to efforts to label forest products, and proposals to outlaw measures that some local and national governments have taken to reduce the negative environmental and social impacts on forests of consumption of forest products within their territories.

Trade liberalization that could threaten forests or interfere with their protection should not go forward until mechanisms are put into place to ensure parallel progress on forest protection.

We highlight five recommendations, many of which should be implemented independently of the trade policy debate because they make economic and environmental sense in their own right. (For further details, see page 19.)

Recommendation 1. Eliminate subsidies that encourage inefficiency and harm the environment.

Recommendation 2. Encourage the free flow of information about forest products to help ensure consumers are well informed and markets can function efficiently.

Recommendation 3. Clarify WTO's Agreement on the Application of Sanitary and Phytosanitary Measures.

Recommendation 4. Reform trade policies, institutions, and processes to provide for assessment of potential environmental and social impacts.

Recommendation 5. Governments should cooperate to strengthen the international and national frameworks for forest protection.

* World Resources Institute. † Center for International Environmental Law. ‡ Center for International Forestry Research.

10 G Street, NE
Washington, DC 20002

202.729.7625 Telephone
202.729.7620 Fax

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Box 1

The State of Play

In 1997, the members of the Asia-Pacific Economic Cooperation (APEC) forum included forest products among eight product categories nominated for early trade liberalization. At the APEC meeting in Malaysia in 1998, leaders agreed to move the forest product tariff reduction proposals into the forum of the World Trade Organization.[1]

The APEC members continue to explore ways to reduce or remove non-tariff measures that may affect trade in forest products.[2] They are currently reviewing a comprehensive study of non-tariff measures "and other policies impeding or distorting the trade of forest products," a term so broadly defined that it includes environmental regulations for domestic timber production, apparently on the grounds that they restrict trade by making domestic producers less competitive.[3]

Meanwhile, at the WTO, the United States is leading the effort to persuade WTO members to accelerate tariff reduction for forest products. In this proposal, the governments that agreed to full, "zero-for-zero" elimination of pulp and paper product tariffs in the Uruguay Round of Multilateral Trade Negotiations of the General Agreement on Tariffs and Trade (GATT) would move up the deadline for tariff elimination from the beginning of 2004 to the beginning of 2000. Other governments would be expected to meet the same deadline, with limited exceptions. For other wood products, all WTO members would agree to phase out tariffs by the beginning of 2002, with delays permitted in exceptional cases until the beginning of 2004. The proponents' goal is to achieve an agreement during the WTO Summit meeting in Seattle in November 1999. The proposal has faced significant opposition, however, from other WTO members, including Japan and the European Union.

Notes

1. The World Trade Organization was established in 1995 as a result of the 1986–94 Uruguay Round of Multilateral Trade Negotiations of the GATT. It has a membership of 134 countries and is headquartered in Geneva, Switzerland.
2. Office of the United States Trade Representative and the Council on Environmental Quality, "Request for Public Comment Regarding the Economic and Environmental Effects of Tariff Elimination in the Forest Products Sector," Vol. 64 (June 25, 1999), p. 122.
3. Forest Research, *Draft Study of Non-Tariff Measures in the Forest Products Sector in the APEC Economies, Part 2 Inventory* (New Zealand: Forest Research, 1999).

These proposed policy initiatives have benefited very little from analysis of the possible economic impacts and potential environmental and social side effects. These could be very significant because forests harbor a variety of values beyond being sources of timber. Forests are home to the majority of the world's terrestrial biological diversity. They also serve as vast storehouses of carbon, much of which is released into the atmosphere when they are cleared, contributing to greenhouse gas buildup. In addition, they are a critical resource for tens of millions of indigenous people and numerous unique human cultures. The loss of biological, cultural, and linguistic diversity that accompanies forest loss and degradation is irreversible. It is these other values that mandate a different approach to trade policy for forest products as compared to trade in many other products, such as toys, electronics, or automobiles.

Governments are also discussing other trade policy initiatives that could affect forests. Some proposed applications of trade policies could limit consumer access to information about the products they are buying, including whether they were produced in an environmentally friendly way. Additional proposals might further impede a country's ability to sanitize or control imports of materials that are harmful to ecology and human health. On the other hand, trade policies that prohibit governments from subsidizing domestic industries could benefit forests if applied to the widespread subsidies that encourage the unsustainable harvesting of timber.

Removing trade barriers in countries where there are already few forest protection safeguards, coupled with weak regulation and monitoring and poor enforcement of environmental and social codes, could result in serious negative impacts and ultimately reduce rather than stimulate economic growth. In addition, over-inclusive definitions of trade barriers that would involve removing domestic environmental measures could undercut or hinder the adoption of needed safeguards. Conversely, some measures that seek to protect the environment through trade restrictions are not ideal either. In fact, improved access to global markets could serve as an incentive to some countries to improve forest management, for instance, by forcing greater efficiencies in wood processing. However, without other options, trade restrictions may be the only way to ensure that forests in some countries are not further threatened.

In the present *Forest Note,* we provide a preliminary assessment of the possible impacts of the new trade policy proposals and suggest ways in which social and environmental risks could be reduced if not entirely eliminated, while at the same time promoting long-term economic development. We focus on three

countries important both for their forests and their forest products trade, and we explore whether the current economic and legal system is ensuring sustainable management and conservation of forests. On a more general level, we identify policies needed to enhance sustainability of forest use. Along with this, we outline the possible implications for forests of market liberalization measures if implemented alone—without protective measures—as is currently proposed. *We seek a balance between removal of trade-inhibiting policies and the maintenance of measures that protect other economic, social, and environmental values.*

Forests and Trade

Increasing demand for timber, combined with poor management of remaining forest stands, is a major threat to forests worldwide. In temperate and boreal forests of North America, Russia, and the Southern Cone of South America, where trees reach ages of more than 1,000 years, clear cutting continues to erode some of the last old-growth forests. In biodiversity-rich tropical forests, the most valuable timber species are being cut at ever higher rates, many in unlicensed, illegal operations, with growing investment increasingly coming from Southeast Asian entrepreneurs, especially from Malaysia and Indonesia, as well as from North America and Europe, where forests are already heavily depleted.[2]

A World Resources Institute study showed that 72 percent of the world's remaining relatively intact forest (which we termed "frontier forest") that is considered under near-term threat is most highly threatened by logging operations and their associated impacts.[3] Changes that follow logging often include infrastructure development, hunting for bushmeat to feed logging crews (common in Central Africa), and migration of farmers along logging roads.[4] *(See Figure 1.)*

Recent data from the Brazilian Amazon and Indonesia show that the environmental impacts of logging can reach far beyond the direct physical damage resulting from timber extraction. Logging in the Amazon has led to an increased risk of fires, which in turn can have long-term impacts on forest cover and biodiversity. In Indonesia, widespread wildfires were also seen this year and last, blanketing the region in haze.[5]

Demand for forest products continues to grow. United Nations data show that total global roundwood consumption (including fuelwood and charcoal) increased by 40 percent between 1970 and 1996, reaching 3,354 million cubic meters (m^3).[6] Inhabitants of the United States, Japan, and Western Europe consume on average about ten times as much wood per person as the average developing country citizen. Per capita consumption in rich countries is now growing slowly, or even declining in some places. The most rapid growth is in the poorer countries, such as China, India, Indonesia, and Brazil, where growing affluence, literacy, and populations are projected to lead to a doubling or tripling of demand in the next few decades. Much of that expanded demand will be met by production in other parts of the world. *(See Figures 2 and 3.)*

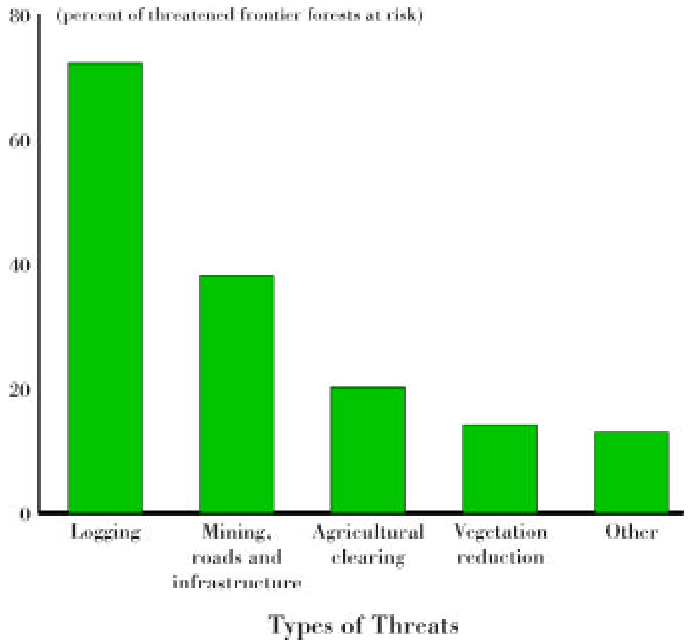
International trade now accounts for about 25 percent of global production of wood-based panels and paper, about 20 percent of sawnwood and wood pulp, and 6 to 7 percent of industrial roundwood.[7] Roundwood export volumes have increased by 22 percent since 1970. Sawnwood and wood pulp trade has almost doubled in that period, paper and paperboard trade has tripled, and wood-based panel trade quad-rupled.[8] Total global trade in forest products has grown steadily. *(See Figure 4.)* Some key forest products trade facts are shown in Box 2.

A small number of countries account for the bulk of forest product imports and exports. In 1996, 5 countries were responsible for 54 percent of exports and 10 countries for 70 percent of exports. Five countries accounted for 49 percent of imports, and 10 for 65 percent. *(See Table 1.)* For some countries, including Cameroon, Canada, Gabon, Guyana, Indonesia, Malaysia, and Papua New Guinea, more wood is exported than is sold domestically. Many of these are countries still rich in frontier forests.[9]

Trade liberalization can be beneficial for forest conservation and sustainable management if domestic forest conservation policies are well developed and implemented, because, all else being equal, it enhances the competitiveness of producers that are more efficient, better managed, less wasteful, and better informed. Thus, a company with mills that convert logs into plywood with less loss of raw material in Malaysia might gain market share from a company in Cameroon that has older and poorly managed equipment, thereby sending more plywood to the market with lower raw log inputs.

The problem is that all else is *not* equal. In many countries, governments subsi-

Figure 1 **Threats to Frontier Forests**



Source: D. Bryant et al. 1997. *The Last Frontier Forests: Ecosystems and Economies on the Edge*. Washington DC: World Resources Institute.

dize production by offering tax breaks, paying for road construction in logging operations, and helping with marketing, forest inventories, and so on. Weak environmental laws, or poor enforcement of laws, also reduce logging costs. And even illegal logging is tolerated in many places, with zero costs to the producer in taxes and forest management, let alone proper care of employees and local communities. These factors create undesirable comparative advantages for producers, increasing their competitiveness, and positioning them to benefit from greater access to foreign markets at the expense of more responsible producers elsewhere.

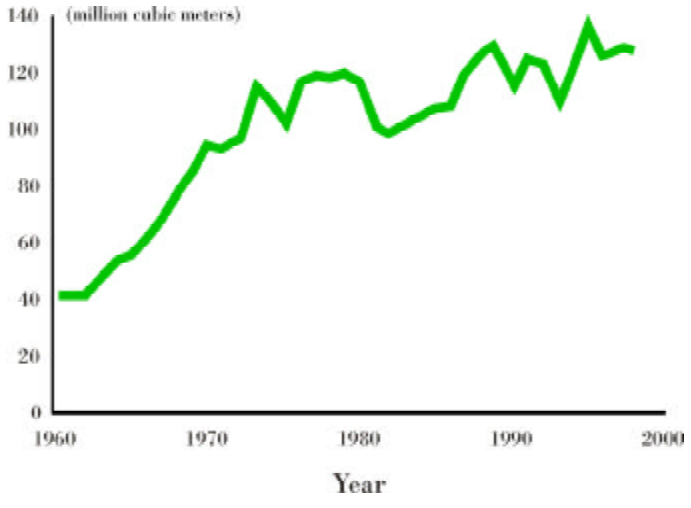
International trade, in itself, is not directly a threat to forests and can even provide incentives for responsible forest management. But where improved forest management and environmental and social safeguards do *not* accompany expanding trade, trade-related deforestation and forest degradation can occur. Trade policy also poses risks to implementation of those safeguards themselves.

Dimensions of Trade Liberalization

Tariff and Non-Tariff Measures

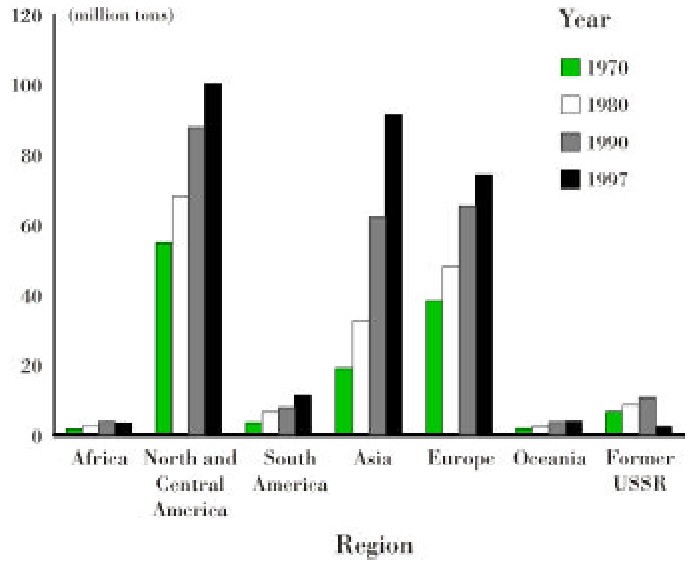
Governments and industry regard many factors as barriers to trade, but most can be classified as either tariff or non-tariff measures. Tariffs, which have historically received the most attention, are taxes on imported products collected at the importing country's border. Over time, tariffs between many countries have been reduced on a number of products.

Figure 2 **Growth in Global Export of Roundwood, 1961–98**



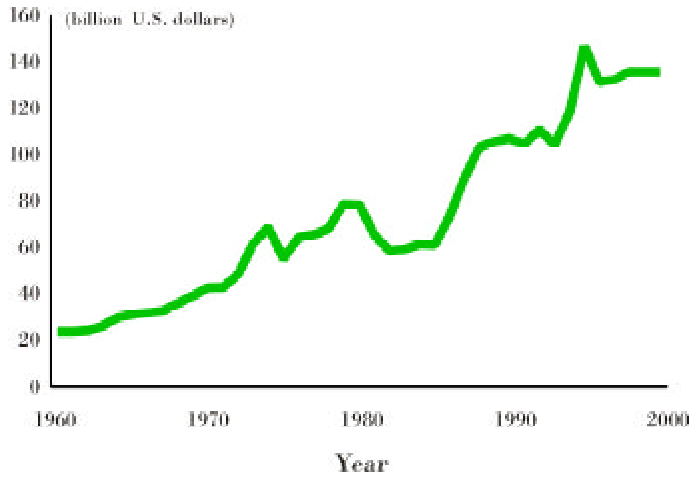
Source: Food and Agriculture Organization of the United Nations (FAO), *FAOSTAT Database.* Available online at http://www.fao.org.
Note: Roundwood refers to all wood in the rough, whether destined for industrial or fuelwood uses.

Figure 3 **Growth in Global Consumption of Paper and Paperboard, 1970–97**



Source: E. Matthews and A. Hammond. 1999. *Critical Consumption Trends and Implications: Degrading Earth's Ecosystems.* Washington, DC: World Resources Institute.

Figure 4 **Value of Global Forest Products Exports, 1961–98**



Source: Food and Agriculture Organization of the United Nations. *FAOSTAT Database.* Available online at: http://www.fao.org.
Note: Values corrected to 1998 equivalent dollars using the Producer Price Index, which is available online at http://www.frbchi.org/econinfo/econ-ind/production/welcome.html.

More complex are non-tariff measures. As defined by some trade analysts, these include any governmental laws, regulations, policies, or practices that could be argued to impact trade. Some of these measures can be used to protect domestic industries from the full weight of foreign competition. Yet, many measures have legitimate objectives in the broad public interest. The overzealous application of trade liberalization rules to remove perceived trade barriers can interfere with efforts to protect forests.

Current Tariff Levels and Their Impact on Trade

Tariffs vary greatly by country and product. Tariffs are now quite low at less than 5 percent for most products entering the major importing countries.[10] Therefore, for the bulk of trade, further tariff elimination would have relatively small effects at the global level, although even elimination of small tariffs might have a larger than expected impact for highly competitive markets with low profit margins, as is the case for basic commodity products. For wood panels (especially plywood), builders' woodwork materials, and furniture, rates are higher—in the 10 to 15 percent range. Rates are far higher in some non-OECD countries, with tariffs commonly reaching 20 to 40 percent.

Tariff escalation, where import levies are higher for more heavily processed products, is a common feature in many importing countries. Rates increase from logs (generally no tariffs), through sawnwood, panels, joinery, and laminates, to furniture. Such measures have been introduced to protect domestic processing industries from foreign competition. The Uruguay

Box 2 **Forest Trade Facts**

- Global trade in forest products grew from US$80 billion in 1985 to US$152 billion in 1995.
- The volume of plywood exports increased by 73 percent between 1987 and 1997. Malaysia increased its share of plywood exports over this period from 6 percent to 18 percent.
- Wood pulp exports from Brazil, Chile, and Indonesia rose sharply in the past decade, while Scandinavian exports declined.
- South Africa exports more forest products than any other African country.
- Between 1990 and 1997, U.S. pulp and paper exports grew by an average of 10 percent per year and accounted for 46 percent of the industry's expansion.
- Pulp exports from Latin America are expected to grow by more than 70 percent between 1997 and 2007.

Sources: R. Flynn. 1999. *Global Forest Products Trade Trends and Their Impact on Asia.* Washington DC: Flynn & Associates; J. Abramovitz and A. Mattoon.1999. *Paper Cuts: Recovering the Paper Landscape.* Paper No. 149. Washington DC: Worldwatch.

Round of Multilateral Trade Negotiations (signed in 1994) made a substantial dent in tariff escalation for forest products. Escalation for wood-based panels was cut by 30 percent from average pre-Uruguay Round levels; for semi-manufactured wood products, it dropped by 50 percent; and for wood articles, by 67 percent.

Countries whose timber industries would benefit most from tariff reduction include those that currently dominate world wood export markets—namely, Canada, the United States, and Indonesia. These countries are also considered the most competitive in most product classes. Reducing tariffs on plywood, for example, would greatly favor Indonesia's exports. Malaysia might also be a major beneficiary for the same reason. Brazilian exports could be a mid-term beneficiary as investment grows in value-added production. These are also countries where, therefore, increased pressure on forests from logging might be seen following further liberalization. Other forest-rich regions where wood exports are significant, such as the Congo Basin, Papua New Guinea, the Guianas, and Bolivia, could respond to tariff reductions by developing processing industries because they currently ship mostly logs and sawnwood. The net social and environmental impacts on those countries could, however, be negative if trade expands without adequate forest protection frameworks in place. These countries are also home to some of the world's most threatened and important forests, from the perspective of biodiversity, cultural and linguistic heritage, carbon values, and local dependence on natural forests. There could also be environmental benefits from shifts in trade if production were to decline in countries that are forest-rich but less competitive.

Non-Tariff Measures

Many restrictions, regulations, and standards can be grouped under the heading of non-tariff measures. Proponents of free trade often call all such measures "barriers to trade" or "trade restrictions."[11] Some are deliberately designed to protect domestic industries from foreign competition. However, many measures have specific and important non-trade-related objectives such as environmental protection. Non-tariff measures that have been included as trade barriers in the context of trade negotiations include:

- Quantitative restrictions on imports including limits on total imports of certain products and above-quota duties. An example is the Softwood Lumber Agreement between the United States and Canada, first signed in 1987, which sets company-by-company quotas for Canadian exporters to the United States. *(See Box 3.)*
- Phytosanitary standards to prevent importation of exotic pests and diseases, which hitchhike on raw logs and some other products such as wood pallets.
- Technical regulations designed to protect human health and safety such as those based on strength characteristics of solid wood products and others related to toxic chemicals such as formaldehyde glues used in wood panels, some timber preservatives, and chlorine-based chemicals that have toxic byproducts.

Table 1 **Largest Global Importers and Exporters of Forest Products by Value, 1996**

Importers	000 U.S. Dollars	Exporters	000 U.S. Dollars
United States	22,558,540	Canada	25,333,160
Japan	18,890,400	United States	16,939,900
Germany	11,926,820	Sweden	10,996,200
United Kingdom	8,476,689	Finland	10,301,020
Italy	6,148,593	Germany	9,438,751
France	5,356,351	Indonesia	5,206,522
Netherlands	4,489,773	France	4,193,914
Republic of Korea	4,425,527	Malaysia	4,161,279
Mainland China	3,858,254	Austria	4,149,678
Spain	3,552,249	Brazil	3,233,476
Belgium-Luxembourg	3,544,574	Russian Federation	2,995,568
Hong Kong Province of China	3,488,083	Italy	2,486,782
Taiwan	3,040,661	Netherlands	2,406,430
Canada	2,622,203	Belgium-Luxembourg	2,180,694
Switzerland	2,501,957	Norway	2,059,960

Source: I.J. Bourke and J. Leitch. 1998. *Trade Restrictions and Their Impact on International Trade in Forest Products.* Rome: Food and Agriculture Organization of the United Nations.

- Labeling requirements, such as government-supported quality standard labeling in the European Union countries or voluntary ecolabeling such as the schemes accredited by the Forest Stewardship Council.

- Requirements for recycling and waste recovery now common in Europe, which require minimal recycled-fiber content or take-back of packaging materials and reuse.

- Subsidies, tax breaks, export promotion, and other financial support measures, which are very common in many countries, including Canada, Japan, and the European Union. These reduce costs for domestic producers making it harder for foreign producers to compete.

- Export restrictions and levies that limit, for example, export of raw logs and prevent export of certain species. These measures have been imposed often to encourage domestic processing including in Indonesia, Malaysia, and Papua New Guinea.

Some trade institutions and experts have begun to describe non-tariff measures that "impede or distort" trade in very broad terms that encompass environmental regulation of *domestic* forest use. For instance, a United Nations paper prepared with input from the International Tropical Timber Organization claims that U.S. restrictions on logging on its own public lands intended to protect endangered species cause "trade distortions and discrimination."[12] The recent APEC draft study on non-tariff measures in the forest product sector states that "[e]conomists generally believe that trade measures should not be used to resolve environmental problems."[13] It then argues that domestic conservation measures such as restrictions on logging are "a threat to the global trading system."[14] The study's inventory of non-tariff measures includes recent revisions to the British Columbia Forest Practices Code, "which have substantially raised the cost of harvesting," China's ban on logging in the Up-

Box 3

Hard Fighting Over Soft Wood

While the United States and Canada seek to remove barriers to forest product trade in other markets *(see Box 1)*, they have maintained a side deal keeping trade restrictions in place between the two of them.[1] The two countries forged the Softwood Lumber Agreement in 1996 after nearly 15 years of disputes triggered by U.S. claims that Canada subsidizes its forestry industry.

In 1986, in response to a complaint from U.S. lumber companies, the U.S. government concluded that the federal and provincial governments of Canada provided a 15 percent subsidy to the softwood lumber industry by pricing timber on public lands below market value.[2] After the United States threatened to impose a 15 percent countervailing duty (CVD), the two countries entered into negotiations.

Under the resulting Memorandum of Understanding (MOU), Canada agreed in 1986 to impose its own 15 percent tax to be removed only after provincial stumpage fees were set at market rates. In 1991, however, Canada terminated the MOU, arguing that stumpage fees were adequate because they exceeded provincial management costs. The United States disagreed and countered with a 6.5 percent CVD on certain softwood timber exports from Canada.[3] The 1996 Softwood Lumber Agreement lifted tariffs from Canadian timber up to a certain quota.

In 1998, environmental groups entered the fray with a lawsuit against the U.S. government.[4] They argued that U.S. law required the government to consider the impacts on streams and endangered species shared by the two countries that could result from increased harvests that would result from the decision to allow imports without CVDs. In addition, an arbitration panel was convened to investigate a U.S. complaint that British Colombia illegally lowered its stumpage fee in 1998.[5]

One lesson of the softwood lumber controversy is that the reduction of tariffs could intensify the negative impacts of trade distorting subsidies on forests by expanding the market available to subsidized producers and placing pressure on unsubsidized foreign competitors to seek equivalent government support. Will WTO members avoid this problem by tackling tariffs and subsidies together rather than separately?

NOTES

1. The Softwood Lumber Agreement, negotiated in 1996, limits the amount of timber Canada can export duty-free to the United States. Canada's five lumber producing provinces are allowed to import 14.7 billion board feet (bbf) without penalty. The next 650 million board feet are charged US$50 per thousand board feet, after which the tax increases to US$100 per thousand board feet. The Agreement also requires Canada to issue permits that limit the amount of lumber exported to the United States every calendar quarter. *Canada-United States: Softwood Lumber Agreement*, May 29, 1996, art. II, 35 I.L.M. 1195 (Washington, D.C.) Available online at: www.dbtrade.com/casework/softwood/summary.htm

2. The U.S. Coalition for Fair Canadian Lumber Imports submitted countervailing duty petitions to the Department of Commerce on October 7, 1982 and on May 19, 1986. For the Department of Commerce determinations see, Certain Softwood Lumber Products from Canada (*Lumber I*), 48 Fed. Reg. 24,159 (1983) and Certain Softwood Lumber Products from Canada (*Lumber II*), 51 Fed. Reg. 37,453 (1986).

3. Final Affirmative Countervailing Duty Determination: Certain Softwood Lumber Products from Canada (*Lumber III*), 57 Fed. Reg. 22,570 (1992). For a review of the sequence of events surrounding the softwood lumber dispute, see M. Pierson, *Recent Developments in the U.S./Canada Softwood Lumber Dispute*, 25 Law & Pol'y Int'l Bus. 1187 (1994).

4. The lawsuit is still pending. *Defenders of Wildlife*, et al. *v. United States Department of Commerce*, et al., 98-3003SSH (U.S.D.C. 1998).

5. Earthjustice Legal Defense Fund, *Conservationists Sue Over U.S./Canada Softwood Lumber Agreement*, (December 1998). Available online at: www.earthjustice.org/news/pr120898.htm.

per Yangtze, and U.S. regulations of harvesting aimed at protecting the environment, which "drastically reduc[e] timber supply."[15] Such expansive definitions of "trade distorting" non-tariff measures, based on extreme applications of standard trade policy principles and terms of analysis, suggest that the current framework of trade rules and policies may pose a risk to forest conservation laws.

Environmental and Social Impacts of Liberalizing Forest Products Trade

Increased Consumption of Wood Products from Poorly Managed Forests

Under a global free trade regime, so the theory goes, those who produce the best products at the lowest relative cost will benefit from expanding markets.[16] There are many factors that serve to differentiate costs from place to place, including how well companies are run, the cost of borrowing money, infrastructure quality, local wages, and how quickly trees grow.[17] In some countries, however, costs of production are lower because companies do not have to comply with the strict forest protection regulations, or regulations are simply not enforced. Policies designed to expand trade can therefore stimulate production in parts of the world with the weakest social standards and safeguards for environmental protection, or even where

substantial illegal logging takes place, as in Brazil and Indonesia.[18] This could have a number of serious economic, environmental, and social consequences. While different countries may choose different levels of protection and indeed have the right to do so, trade and trade rules are problematic if they exacerbate weaknesses in national policies, undercut national laws protecting forests, or stimulate activity inconsistent with international norms. *(See Box 4.)*

Tariff elimination and other changes that reduce the cost of trade will increase consumption of forest products. The increase in consumption will, however, probably be small at the global level. This is because tariffs are already generally low (with the important exception of China) and demand for forest products is mostly local and driven primarily by income, population growth, new technology, and interest rates (the latter particularly affecting home building and the construction industry).[19]

The impact of price tends to be higher on total supply than on demand, especially for softwood, but it is still not large. This means that, even if exporters are able to charge more for their products following liberalization, only moderate growth in timber supply will be seen worldwide. There could, however, be significant impacts in specific countries or regions. Areas with a greater response to increased prices (i.e., a higher price elasticity) would expect to see their market share increase.[20] As discussed above, tariff reductions would likely enhance incentives for timber production in certain countries, such as Indonesia, Malaysia, and Canada.

Trade liberalization tends to stimulate increased efficiency of production in response to higher demand and rising prices for producers. Ultimately, this works its way back into the forest and the price of standing timber rises, serving as an incentive to reduce waste, increase recycling, and shift to plantation production. It can also make previously noncommercial species and smaller trees that were of lower value more commercially attractive. Areas of forest that were not previously logged might come into production. There is now rapid global expansion of industrial plants that convert smaller trees and previously less economically attractive species into wood panels, including oriented strand board (OSB), laminated veneer lumber (LVL), medium-density fiberboard (MDF), and particle board. More species and more forested regions are becoming attractive for logging, a trend that increased trade will likely accelerate. Overall, the efficiency improvements that result from trade liberalization may have either negative or positive consequences for the environment depending on specific circumstances.

In Sweden and Finland, it costs about twice as much to produce wood pulp as in Canada and the United States, and almost three times as much as in Indonesia.[21] Sweden and Indonesia both have large state-of-the-art pulp mills. Those in Sweden are consuming logs from managed secondary forests and plantations that have been tightly regulated and now are third-party-certified according to the demanding criteria of the Forest Stewardship Council. In Indonesia, old-growth tropical forests are being cleared and converted directly into pulp (often illegally), with subsidies and no long-term sustainability. It is not surprising that production costs are much lower in the latter. Open competition between the Scandinavians and the Indonesians would be beneficial to the Indonesian economy in the short-term, but would lead to further liquidation of that country's forest resources. In an ideal world, Indonesia would embark on a process of rapid policy reform, crack down on illegal activities, and win substantial foreign aid to improve forest management practices. Sadly, the real world is far from ideal and tariff barriers may, in such an extreme case, be one of the few tools available to prevent expansion of unregulated logging. In the longer term, trade liberalization might lead to expansion of plantation forestry in Indonesia and less harvesting of secondary forests in Scandinavia (which would gradually revert to old growth).

A country where tariff reduction could have unusually large impacts on supply and demand is China, which has import tariffs of more than 20 percent for most categories. Furthermore, last year the government of China banned logging in many of its natural forests and has substantially increased imports, particularly from Indonesia, Laos, Cambodia, Vietnam, Russia and other countries, some of which have very poor records of forest management. With a fast-growing economy and an increasingly literate population, this country could soon become one of the largest importers of forest products. China is not yet a member of the WTO, but has applied to join and may soon be admitted. A precondition for China's membership is a reduction of trade barriers.

Overexploitation of Tree Species

Where logging for export poses a threat to the continued existence of the harvested species, another trade treaty, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), has been used as a mechanism to promote conservation. The Convention is a multilateral agreement that calls for restrictions on trade where necessary to protect endangered species. There have been a number of proposals to list key timber species under CITES, including big-leaf mahogany, a major export timber for some Latin American countries. Commercial trade is banned in species threatened with extinction. Trade is strictly regulated, but not banned, if a species not currently at risk may become threatened in the absence of regulation. Horse-trading of votes has led to rejection of most proposals to list major timber species following industry opposition. Parties to CITES have restricted themselves to initiating the collection of information about trade in certain species and about the characteristics of the timber trade generally to better monitor the threat.[22] As scientific evidence about the threat to some timber species mounts, it is possible that CITES could have a greater impact. *(See Box 5.)*

Trade Pressure on Less-Protected Forests

In a world of free trade, countries that reduce logging in their own old-growth forests can unintentionally put pressure on forests elsewhere where protection is weaker. Logging has recently been restricted in old-growth forests of China, the United States (especially in the Pacific Northwest), Australia (Queensland), Thailand, the Philippines, and New Zealand. While causation is difficult to prove, it has been suggested that the reduced timber supply from the northwestern United States and the Canadian province of British Columbia may be made up by supplies from Siberia, Finland, Chile, New Zealand, other parts of Canada, and elsewhere in Europe.[23] Some of this replacement would be from plantations (in the case of New Zealand's growing exports), but some would be from old-growth forests.

Shifts to Plantations

Environmental restrictions in some parts of the world that reduce production from old-growth forests in those areas may contribute to the shift to plantation forestry. Countries where plantations are expanding most rapidly include Brazil, Chile, Indonesia, New Zealand, Uruguay, and South Africa. Plantations bring with them a range of challenges and issues, including possible pollution of runoff through the use of herbicides and fertilizers and eviction of people who are usually poor and often viewed as squatters.[24] In some places, including Indonesia, there is substantial ongoing clearing of natural forests for plantation establishment. This has

Box 4

Possible Harmful Consequences of Forest Products Trade Liberalization

Countries that do not have sound forest management practices or environmental and social safeguards in place to protect forests could experience a host of potentially serious problems if restrictions on the trade of forest products were loosened. These might include the following:

Environmental impacts

- Loss of biological diversity due to habitat degradation, overhunting in previously inaccessible areas, and general forest disturbance.
- Damage to rivers and streams with impairment of water quality and loss of fish stock.
- Increased emissions of carbon dioxide contributing to global climate change.
- Increased soil erosion following loss of tree cover leading to silting up of watercourses and loss of agricultural productivity.

Social impacts

- Loss of cultural diversity as indigenous peoples are forced from their traditional lands.
- Harm to traditional communities through damage to hunting and fishing grounds.
- Harm to workers through lax health and safety standards.
- Boom-bust frontier "development" patterns.

Economic impacts

- Siltation of downstream hydroelectric generators and waterways that then require greater dredging.
- Costs associated with providing infrastructure and other subsidies to logging companies, or through noncollection of appropriate rates of tax on logging profits, where the industry is subsidized.
- Decline of local fisheries.

also been historically common in many other places such as New Zealand and Brazil. Well-managed plantations can, however, avoid many of these problems.

Expanding Trade with Countries That Subsidize Logging

Many countries provide large direct and indirect subsidies to the forest products industry. Some specific examples are provided below in the sections discussing forest policy in Canada, the United States, and Indonesia. Direct subsidies come in the form of government finance for construction of logging roads, timber surveys, soft loans to the industry, and other assistance. The largest indirect subsidy comes from foregone revenue to the government due to the relatively low fees that an industry pays to access and exploit publicly held forests. *(See Box 6.)* Trade liberalization may direct more attention to the issue of subsidies because such public financial support for competing industries can, in principle, be opposed under WTO trade accords. There is, for example, a long history of discord between the United States and Canada over Canadian subsidies. *(See Box 3.)* Eliminating subsidies would reduce logging in more inaccessible areas. It is these sites that are often the most pristine and valuable for conservation and cultural heritage.

Restricting Consumer Access to Information

Some of the potentially negative impacts of trade expansion can be offset through well-informed purchasers choosing products with higher recycled content and those from well-managed forests or from countries with stronger environmental and social safeguards in place. Consumers increasingly are concerned about the environmental impacts of their own consumption and are eager to select products that minimize those impacts. At the same time, many producers are interested in gaining market advantage by appealing to these consumers. In response to both trends, voluntary independent certification efforts, such as those of the Forest Stewardship Council, are beginning to make a significant mark on the forest products trade. The percentage of total trade likely to be covered through such schemes will probably be small (less than 10 percent) for at least the next 5 to 10 years. The long-term potential, however, is significant, and there has already been substantial impact in some markets. In the United Kingdom, 25 percent of total wood imports could be from independently certified producers by 2000.[25]

Some governments, such as Austria, have also called for mandatory labeling of forest products imported into their countries. Austria's proposal covered only tropical timber, however, and did not require labeling of temperate timber regardless of the status of the forests from which it came. Austria withdrew its proposal following protest from tropical timber exporters.

Forest product labeling could be as simple as showing country-of-origin, or could be more complex, like the Forest Stewardship Council's, which attests to the quality of forest management at the specific site where the wood was cut.

Some governments and companies have complained that all such labeling (also known as ecolabeling) should be outlawed through application of the WTO Agreement on Technical Barriers to Trade which, they assert, forbids using production or processing methods as a basis for distinguishing between products. Some have also argued that labeling rules could be misused to discriminate against products from some parts of the world by governments intent on protecting their domestic industry.

The rules of the WTO are far from clear on labeling issues. The body's Committee on Trade and Environment has also failed to provide clear policy direction on this and related issues due to divergent positions among its members. Unless this changes, as tensions over labeling mount, it seems likely that they will be addressed only on a case-by-case basis as plaintiffs pursue complaints through the WTO's formal dispute resolution procedures. Should the WTO rule that these measures are unacceptable, then the incentive for companies to pursue voluntary ecolabeling schemes will probably also be reduced, in turn weakening efforts to inform the public about the impacts on forests of their purchasing decisions.[26] Consumers would be less able to enjoy their right to know about the products they buy, and less able to use market mechanisms to send a signal to producers that more responsible forest management is desirable.

Government Procurement

Local governments in the United States and Europe have banned some forest products from use in publicly funded projects, or restricted use to wood from well-managed sources. For example, local legislation in The Netherlands limits use of uncertified tropical timber in public construction projects. Such moves respond to the right and interest of citi-

Box 5 Mahogany: The Struggle to Shift to Sustainable Trade

Trade regulation is often necessary when trade itself affects the fate of a species. Indeed, 146 countries currently cooperate to regulate trade in species that are or may become endangered by trade, under the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Countries that are parties to CITES vote by a two-thirds majority to list a species on one of several CITES Appendices when biological and trade data warrant it. Commercial trade is banned in more than 800 threatened species listed in Appendix I. Trade in approximately 28,000 species listed in Appendix II is strictly regulated to prevent them from becoming endangered by trade.

Importing and exporting countries have successfully cooperated under CITES to reduce the impacts of consumption and harvesting on a number of species. As the global economy expands, however, international trade is likely to affect more and more species. Yet, in recent years, many CITES parties have resisted listing tree species such as mahogany that are both in decline and heavily traded.[1]

Mahogany wood has been highly prized, and widely traded, for centuries. Today's supplies come from the big-leaf mahogany tree, *Swietenia macrophylla*, which grows in the tropical forests of Central and South America. It is estimated that as much as half of mahogany harvested is destined for export.[2]

A recent review of the biological status of big-leaf mahogany concluded that populations in a number of range states clearly qualify for an Appendix II listing.[3] Scientists are concerned that current levels and methods of logging are unsustainable over the long term. Export volumes are maintained because loggers, rather than harvesting from regenerating populations, continually move to new habitat after depleting accessible stands. Mahogany logging is a major catalyst for tropical deforestation; loggers expand operations into frontier forests and road construction facilitates settlement by farmers and conversion of forests for ranching.[4] Proposals to list big-leaf mahogany on Appendix II, however, have faced strong resistance from industry and have been defeated by narrow margins at the last two conferences of CITES parties.

CITES, if implemented effectively, helps governments collect more information on trade and its impacts. CITES trade limits reduce the incentive for overharvesting. But current economic incentives encourage unsustainable logging[5] while inadequate law enforcement allows significant illegal trade.[6]

Exporting states cannot make the shift to sustainability alone. Importing countries—of which the United States is the largest—have a responsibility to address the impacts of their consumption. The science suggests that CITES Parties should move forward with a CITES Appendix II listing. At the same time, they should explore complementary measures (e.g., certification and labeling to facilitate sustainable harvesting[7]) and cooperate to reduce illegal trade.

NOTES

1. D. Downes, "Global Forest Policy and Selected International Instruments: A Preliminary Review" in *Assessing the International Forest Regime*, Richard G. Tarasofsky, ed. (Gland, Switzerland: IUCN, 1999), p. 83.
2. M. Bass, C. Wold, and D. Downes, *International Trade and* Swietenia macrophylla*: Biological status, trade patterns and options to ensure sustainable trade* (Washington, DC: Center for International Environmental Law, in press).
3. Center for International Environmental Law (CIEL), *Comments Supporting the Proposal of* Swietenia macrophylla *for Listing in Appendix II of CITES and Other Options for Encouraging Sustainable Trade*, submitted to the United States Fish and Wildlife Service September 7, 1999. (Washington, DC: CIEL, 1999).
4. Much frontier forest is threatened in the eight mahogany range states. Dirk Bryant et al., *The Last Frontier Forests: Ecosystems and Economies on the Edge* (Washington, DC: World Resources Institute, 1997).
5. Harvesting of mahogany in natural forests is sustainable only at levels of 1 to 3 cubic meters (m^3) per hectare, well below the profitable 5 m^3 per hectare characteristic of current logging methods. A. Verissimo et al., "Extraction of a high-value natural resource in Amazonia: The case of mahogany." *Forest Ecology and Management*, 72 (1995), pp. 39–60; F. Chapela, personal communication, 1999.
6. M. Bass, C. Wold, and D. Downes, *International Trade and* Swietenia macrophylla*: Biological status, trade patterns and options to ensure sustainable trade* (Washington, DC: Center for International Environmental Law, in press).
7. Already, Rainforest Alliance's Smartwood program (accredited by the Forest Stewardship Council) has certified 11 Central American operations totaling more than 200,000 hectares, including several community-based enterprises.

zens in managing the affairs of their government and determining how their taxes are spent. These efforts to encourage public procurement of responsibly produced wood products have been a driving force for voluntary certification schemes. However, there are questions about whether trade rules on government procurement that bind some WTO members (mainly OECD countries) allow for the power of elected governments to spend taxes according to criteria that distinguish between products according to how they were produced on ethical, environmental, or other grounds.

Trade Expansion and the Spread of Invasive Species

A major hidden cost of trade results from the accidental or deliberate introduction of alien species. Destructive species of insects and fungi can be introduced on imported forest products, particularly through the inadvertent inclusion of

pests in shipments of wood and other products. Insects no longer impeded by their natural predators then flourish in new habitats, disrupting ecosystems and destroying or displacing native species that have no resistance. The damage is both ecological and economic. *(See Box 7.)*

Expanding trade increases the risk of such damaging introductions. The WTO Agreement on Sanitary and Phytosanitary (SPS) Measures restricts the power of governments to impose SPS measures to protect the domestic environment. Designed to attack disguised protectionist measures that have abounded in this area, the rules have been read by the Appellate Body (the top WTO dispute settlement body) in ways that could pose serious problems for regulators. For instance, one decision ruled against a food safety regulation in part because regulators did not assess the risks of a specific substance but instead relied on studies of the effects of the general category to which it belonged.[27] Applied to SPS measures, this approach would place an impossible burden on regulators, because scientists have identified only a fraction of the thousands of species of fungi and insects in most Asian, African, and Latin American countries engaged in the timber trade.

Box 6

Logging Subsidies

In many countries, including those leading efforts to promote trade liberalization, governments continues to provide substantial state support to the logging industry:

- The Canadian province of British Columbia is foregoing between US$1 billion and US$2.6 billion per year in potential revenues.
- In Indonesia, it is estimated that the government loses out on US$1 billion to US$3 billion per year.
- The Russian government collects only 3 to 20 percent of potential revenues from logging operations, possibly foregoing up to US$5 billion in income.
- Lost revenue from logging in Vietnam in 1992 was probably around 17 percent of all government revenue.
- In Cambodia, in the early 1990s, foregone logging revenue was a remarkable 63 percent of total government revenue from all sectors.
- In 1996, the United States spent nearly US$15 million more on logging operations than private timber companies paid to purchase the wood.

Sources: R. Gale, F. Gale, and T. Green. Forthcoming. *Accounting for the Forests: A Methodological Critique of Price Waterhouse's Report, 'The Forest Industry in British Columbia 1997'* (Victoria, British Columbia, Canada: Sierra Club of British Columbia). World Commission on Forests and Sustainable Development (WCFSD). 1999. *Our Forests, Our Future.* Final Report of the World Commission on Forests and Sustainable Development. Cambridge, UK: Cambridge University Press, 1999; Brett Day, 1997. *Economic Distortions and Their Influence on Forests,* Background Paper No. 9. World Commission on Forests and Sustainable Development.

Are Key Countries Ready For Liberalized Trade in Forest Products?

Assessing Readiness for Liberalization

The appropriate steps to establish readiness for liberalization of trade in forest products from an environmental and social perspective will vary somewhat from place to place, although international agreements and declarations help to define a basic, general framework. This framework can be used to perform a preliminary assessment of how countries compare and identify potentially serious gaps in regulations, institutions, enforcement capacity, and so on. *(See Box 8.)* In the next section we examine some of the countries that have been the most eager promoters of liberalization in forest products trade to see how their current policies, laws, and practices measure up.

How Do Some Key Countries Measure Up?

When we apply the basic criteria presented in Box 8 to some key countries, it is clear that even those that supposedly have strong regulatory and enforcement capacity, such as Canada and the United States, in fact have a number of policies and practices that are cause for concern. As we have argued, liberalization without addressing these problems could benefit companies that are engaged in destructive practices and have a negative effect on long-term economic growth. The countries profiled here represent a mix of north and south, OECD and non-OECD, tropical and nontropical. They are also all major forest product trading nations and proponents of liberalization.

Canada: British Columbia

Because Canadian forest law and policy are set primarily at the provincial rather than national level, we have chosen to

focus on British Columbia rather than Canada as a whole. Approximately two thirds of British Columbia's territory (59 million hectares) is forest land, of which about 95 percent is held by the province, while 4 percent is privately owned, and 1 percent federally owned. [28]

British Columbia is Canada's most biologically diverse province, containing 7,000 native plant species. More than one third of Canadian bird and mammal species are found only in the province.[29] A report issued by the provincial Ministry of the Environment in 1996 indicates that British Columbia is home to 68 species of animals and 224 plants that are threatened or endangered; another 451 species are listed as vulnerable. Many of these endangered species are threatened by logging practices, because they depend on old-growth forests for habitat.[30]

Canada leads the world in forest products exports with nearly 19 percent of total exports in 1996,[31] and British Columbia accounts for more than one third of exports by value.[32] In 1997, the province's forest product exports totaled C$14.6 billion[33] with 95 percent of the logging carried out in old-growth forests.[34] According to the government, clear-cutting remains the dominant harvesting method in British Columbia.[35]

The provincial government's own figures show that the sustainable annual rate of cut is approximately 51 million m^3, but the annual allowable cut has been set at about 70 million m^3 through 2001.[36] Even assuming the 51 million m^3 figure is sustainable, which environmentalists contest, the current rate of harvesting portends the disappearance of old-growth forests outside of protected areas.[37]

Stumpage fees for timber concessions on provincial lands fail to capture the full economic rent.[38] A 1997 study suggests that the government subsidies to the timber industry averaged nearly C$3 billion annually from the late 1980s to early 1990s with net benefits to the industry after payment of stumpage fees of some C$1 billion per year.[39] The United States has imposed duties on some forest products from Canada on the grounds that Canada unfairly subsidizes its forest industry. *(See Box 3.)*

The province's regulation of logging on public lands are embodied in the Forest Practices Code. Though the provincial government spent C$3.5 million from 1993 to 1997 to communicate to the public that "sustainable forest management" is being practiced,[40] environmental groups have stated that many measures, including mechanisms to protect endangered species, have yet to be implemented.[41] Critics charge that Code standards such as protection for streams have been poorly enforced.[42] On the other hand, according to the government, there has been a steady increase in levels of compliance with the Code since it came into force in 1995.[43]

No environmental assessments are required for logging under federal or provincial law. British Columbia's environmental assessment legislation adopted in 1994 does not address forest practices.[44] Provincial regulations permit corporations to receive approval for logging prior to environmental assessments being performed.[45] Companies are generally required to allow the public to review and comment on most proposed logging operations, but there is no minimum set on the period for comments, companies are not obliged to respond to or incorporate the comments, and no decision documentation is required at any level.[46] The Forest Practices Board, a government-appointed watchdog group for the Forest Practices Code has limited power to handle appeals.[47]

British Columbia lacks legal protection of endangered species. Not only did the province oppose a proposed Canada Endangered Species Protection Act, but it has not fulfilled its commitments under the 1996 National Accord for the Protection of Species at Risk,[48] nor has it implemented the Identified Wildlife Management Strategy (IWMS) which was promised in 1995 but delayed until 1999.[49] British Columbia has committed to protecting 12 percent of its entire landmass by the year 2000, including representative ecosystems. While the province has made progress in expanding protected areas, only 10.2 percent of the province's natural forest area is protected to date, and nearly two thirds of the area under protection is in alpine or sub-alpine (nonforested) ecosystems. Less than 7 percent of low-elevation old-growth forests are under protection, and intensive logging near protected areas threatens species within them.[50]

Without specific standards for water quality in the Forest Practices Code, and with stream buffers that are approximately one third the size of those required along streams in national forests in the U.S. Pacific Northwest,[51] logging in British Columbia threatens clean water supplies and riparian habitat. Clearcutting still occurs on high-risk slopes, causing landslides that may clog streams as well as harm fish habitat.[52]

While the Federal Fisheries Act prohibits the release into waters of substances harmful to fish, the federal government rarely enforces this against logging companies.[53] In addition, forest companies commonly misclassify streams because it is not required that the task be done by a professional biologist.[54] Many drinking water sources have yet to receive community watershed designation as a means to protect the water from logging practices.[55] In 1997 and 1998 new regulations were announced that weakened protection of streams and terrain.[56] The government, however, argues that these amendments to the Forest Act clarify operator responsibilities and increase governmental enforcement powers.[57]

British Columbia is one of the world's largest forest product exporters and contains some of the most extensive intact expanses of temperate rainforest in the world. Yet, it lacks key elements of a forest protection framework and is thereby vulnerable to negative impacts from trade liberalization. British Columbia harvests ancient forests at a rate that its own government concedes is unsustainable. It lacks legal protection for endangered species and fails to protect streams adequately from logging impacts. Studies suggest that the province provides major subsidies for logging and fails to collect the full economic rent due from loggers for timber taken from public lands. Tariff reduction in this context may intensify existing pressures to increase rates of logging even further above sustainable levels.

Indonesia

Indonesia's remaining area of frontier forests is estimated to be the world's fifth largest.[58] Most of these forests are tropical rainforests, and are among the world's richest in biodiversity. An estimated 18,000 plant species are found in Indonesia's frontier forests[59] and about 60 million people in Indonesia depend on forests for their livelihood.[60]

Recent deforestation in Indonesia has been significant, with average annual loss of natural forests of 1.1 percent in the 1980s and 1.0 percent from 1990 to 1995.[61] More than 70 percent of Indonesia's original frontier forests have been lost, and over half of those that remain are under threat.[62] Logging is a significant cause of deforestation, although other factors such as planned transmigration have also played a role. Indonesia was the world's sixth largest shipper of forest products in 1996 with exports of more than $5 billion. *(See Table 1.)*

In the mid-1990s government timber concessions to private companies priced timber below market values, with government fees and taxes capturing only 25 to 35 percent of potential economic rent.[63] The government recovered only 8 to 17 percent of economic rent in 1988–90.[64] These calculations do not take into account the loss of non-timber

Box 7 The Cost of Bioinvasions

The spread of invasive, exotic species is seen when a species is introduced into an ecosystem where it did not evolve. Usually, the introduced species is unable to survive for long, but sometimes it becomes a major pest. The financial cost in terms of agricultural losses, damage to timber stocks, and other impacts is huge:

- Estimates for agricultural losses worldwide from bioinvasions range from $55 billion to US$248 billion per year.
- One recent study suggested that bioinvasions might be costing the United States up to $123 billion per year.
- The introduction of pests into North America in the early 20th Century killed "as many as a billion" specimens of the American chestnut tree, which had been "the most economically important hardwood species in eastern [American] forests."
- The European gypsy moth caused an estimated US$764 million in damage to trees in the United States in 1981; the white pine is currently at risk from an introduced rust. Worst-case estimates by the U.S. government project as much as US$35 billion to US$58 billion in tree losses in the United States over a 50-year span from the Asian gypsy moth and the nun moth.

The United States Department of Agriculture has reported that wood imported into the United States from Chile, Mexico, and New Zealand carries dozens of moderate- and high-risk pests and pathogens. The WTO's Agreement on the Application of Sanitary and Phytosanitary Measures impedes preemptive measures to limit the import of such pests by requiring a risk assessment before the introduction of sanitation measures. With such limited knowledge about the ecology of many of the potential pests, it is difficult and costly to perform such assessments.

Sources: Christopher Bright, "Invasive Species: Pathogens of Globalization." *Foreign Policy*, Fall 1999, pp. 50–64; U.S. Congress, Office of Technology Assessment, *Harmful Non-Indigenous Species in the United States* (Washington, DC: U.S. Government Printing Office, 1993).

Box 8

Sample Indicators of a Country's Capacity to Manage the Potential Impacts on Forests of Forest Product Trade Expansion

The presence or absence of the following policies and regulations can serve as indicators of how well a particular country is likely to fare from an environmental and social perspective under liberalized trade in forest products. Countries that recognize the importance of these measures and have a strong regulatory and enforcement capacity in place are likely to ensure conservation and sustainable management of forest resources as trade liberalization proceeds. Countries that lack such measures are likely to experience further forest loss and degradation as liberalization proceeds and trade expands.

Selected Forest Protection Policies

- Full pricing of timber concessions on public lands (no indirect subsidies).
- Elimination of direct subsidies to the forest sector (e.g., financial payments, public funding of road construction).
- Legal recognition of indigenous peoples' rights to forest lands and resources.
- Conservation of biological diversity through an ecologically representative network of protected areas.

Selected Forest Protection Laws

- Environmental and social assessment procedures applied to logging operations.
- Measures to protect streamsides, water quality, and flow.
- Laws or regulations protecting endangered species.
- Laws ensuring sustainable rate of timber harvesting from old-growth forests.
- A representative network of protected areas.

Enforcement of Selected Laws and Policies

- Control or prevention of illegal harvesting and trade.
- Compliance with regulations on harvesting (e.g., streamside protection and limits on harvesting on steep slopes).
- Effective enforcement of indigenous rights over forest lands and resources.
- Overall control of corruption in government practices.

values such as watershed protection due to logging. Such underpricing, a major indirect subsidy, encourages overharvesting with consequent forest loss, and distorts trade.

Indonesia's Basic Forestry Law of 1967 does not recognize community-based rights to forest lands and forest resources, including traditional *adat* rights.[65] This has resulted in many clashes between loggers and local communities seeking to protect forests. Since the fall of President Suharto in May 1998, the problems and potential of forest-dependent communities in Indonesia have received increasing attention, both nationally and internationally. This attention includes a growing, albeit still fragile, recognition within the Ministry of Forestry and other Indonesian government institutions of the importance of involving rural people who are directly dependent on forest resources in efforts to manage and utilize these resources, including timber, in a sustainable manner.

In 1998, new regulations issued by the Indonesian Ministry of Forestry and Estate Crops authorized the granting of 35-year leases for forestland to local communities and the commercial harvesting of forest products, including timber, by those communities. Within the forestry ministry, a new regulation that would authorize the demarcation of indigenous territories within areas designated as state forestland is under review. The new Basic Forestry Law, passed by Parliament in September 1999, acknowledges that local people have a key role to play in sustainable forest management, but includes little in the way of legal mechanisms for protecting customary rights or empowering local communities to participate in forest management.[66]

The failure to enforce forestry laws is a very serious problem in Indonesia. A recent report by the Indonesian-UK Tropical Forest Management Program states that illegal logging in Indonesia produces more timber than does legitimate production. The report notes that while illegal logging was undoubtedly substantial before the fall of President Suharto in May 1998, "the breakdown of law and order and resurgence of poverty" since then has exacerbated the problem.[67] Investigations in two of Indonesia's major parks, claimed that the parks were being devastated by illegal commercial logging.[68] The parks contain prime habitat for the endangered orangutan. Contributing to difficulties in law enforcement is severe corruption. The country ranked among the most corrupt countries (80th of 85) in Transparency International's 1998 Corruption Perceptions Index.[69]

Despite some tentative steps toward improvement, the framework for forest

protection in Indonesia is seriously flawed, placing forests at significant risk from the intensified pressures for harvesting that could result from trade liberalization measures. Rates of deforestation are high and most of the remaining frontier forests are at risk, with logging a major threat. Government pricing for timber concessions has been well below market prices, encouraging overharvesting and distorting markets.[70] Weak legal protection for customary sustainable forest use allows loggers to override resistance from local communities. Illegal logging is rampant, even in national parks, and endemic corruption hampers law enforcement.

United States

About a third of the United States is forestland.[71] Timber harvesting is an economically significant activity in many parts of the country. Remaining frontier forests are almost entirely found in Alaska and the Pacific Northwest and comprise an estimated 6.3 percent of original forest cover.[72]

Of existing forests, the U.S. government reports that about 60 percent are privately owned, 35 percent held by the federal government, and 5 percent by state governments.[73] Federally owned forests are managed by several different agencies, with the National Forest Service responsible for the largest areas, comprising one third of all federally owned lands. Private forest lands and state-owned forests are regulated under state laws. The objectives of federal laws governing national forest management include conservation of forests and wildlife as well as protecting water quality and access to recreation. Assessment of environmental impacts and protection of endangered species are also required; however, critics charge that timber production dominates at the expense of other objectives.[74] The United States has designated 6.7 percent of its tropical forests and 10.4 percent of nontropical forests for protection.[75] The World Wildlife Fund reports that only 5 percent of U.S. land is found within protected areas such as national parks where logging and mining is prohibited. Most of these areas are too small to protect wildlife populations adequately.[76]

While the U.S. government has been a leading advocate of reducing tariffs on forest products, it continues to provide subsidies to domestic industry that distort trade as well as damage forests. The Forest Service provides financial assistance to the industry and encourages deforestation of public lands by building logging roads and offering timber concessions below cost. Road building not only facilitates logging but also threatens fish habitat through increased sediment load in streams and fragments habitats for grizzly bears and other wildlife. The General Accounting Office estimates that the Forest Service spent US$387.1 million building timber roads from fiscal year 1992 to fiscal year 1997.[77] The Forest Service's timber program incurs other costs on behalf of companies logging in national forests, including surveying, road surfacing, culvert construction and maintenance, reforestation, as well as landscape and watershed restoration.[78] According to an analysis of timber sales for fiscal year 1997 conducted by the Wilderness Society, the Forest Service loses $111 million per year because it omits these costs from the price charged for timber concessions.[79] The Forest Service admits that it lost $88 million in 1997 from its timber program.[80] But it is not alone in subsidizing logging operations. The Bureau of Land Management (BLM), which manages 12 million acres of public land collects less than 10 percent of the timber sale costs in many of its districts.[81]

In spite of a panoply of protective laws, U.S. old-growth forests remain at significant risk. Harvesting of timber continues from the mere 1 percent of frontier forests that remain in the contiguous 48 states. Illegal logging may also be a problem in the United States. It is reported that half of the timber taken from BLM lands is harvested illegally by timber companies.[82] As a result of unsustainable practices, forest ecosystems have been fragmented and stressed, and indicator species such as the Northern spotted owl and a number of salmon populations are threatened with extinction.

The United States was the world's second largest forest product exporter in 1996, with nearly $17 billion in exports. The country also has a major impact as a consumer, ranking as the largest importer (more than $22 billion) in the same year. *(See Table 1.)*

While U.S. laws include significant protections for endangered species and mandate environmental assessment of forestry activities that could affect the environment, gaps remain in the framework of forest protection. Logging continues in the small percentage of original forests that remain intact, and threatens the survival of some species. The government subsidizes logging on federal lands through road construction and other assistance, and illegal logging is reportedly significant in some areas. Reduction of tariffs and other liberalization measures without corrective mea-

sures could worsen the environmentally harmful impacts of these flawed policies.

Conclusions and Recommendations

Unless countries that export forest products improve forest protection policies, laws, and practices, further trade liberalization poses a significant threat to efforts to conserve and sustainably manage forests around the world. More specifically, we conclude the following from our analysis:

- Demand for forest products is expected to expand with continued human population growth and economic expansion. The upward trend in international trade in these products will also continue. Trade liberalization will accelerate this trend placing further pressure on forests, including those most rich in biological diversity, those inhabited by millions of indigenous and other forest-dependent people, and those critical for maintaining global ecosystem services.

- Although acceleration of tariff elimination—the current proposal in relation to forest products being discussed in preparation for the WTO Summit—is unlikely to have a large impact on net *global* trade because most tariffs are already quite low, tariff elimination could significantly impact some products and some markets. These impacts could include increased plywood exports from Indonesia and growth in imports into China (if that country joins WTO). Firms in Canada, the United States, and Indonesia—all three of which have frontier forests of global significance—would probably reap large export gains from tariff elimination in Europe, Japan, and developing countries. As a result, there could be an increase in the rate of loss of frontier forests in these three countries given the current weaknesses in protective frameworks.

- Eliminating some *non-tariff* barriers could have far greater negative consequences. There are major concerns about pressure by some parties to the trade talks to weaken phytosanitary standards, block efforts to label forest products, and outlaw measures that some local and national governments have taken to reduce the negative environmental and social impacts of the domestic consumption of imported products. Some trade advocates have advanced an expansive definition of non-tariff barriers that would subject even domestic environmental regulation of logging to trade disciplines. Such applications of trade doctrine could undermine the effectiveness of laws and policies appropriate for conservation and sustainable management of forests.

- Many major timber-exporting countries do not have a legal and institutional framework in place that can ensure conservation and sustainable management of forest resources. A particular problem is very weak implementation of laws and policies in many non-OECD countries such as Indonesia, Brazil, and Russia.

- Liberalization could be particularly threatening to remaining frontier forests in countries with weak forest protection programs. When other countries move to protect their remaining stands of old-growth forest (as China has), production may partially shift to unprotected forests in other countries. Demand growth and new technology increase market acceptance of a wider range of species and smaller dimension trees, further threatening currently unexploited forests. On the other hand, introduction of new technology can also improve efficiency and reduce waste.

- Most imports and exports are between OECD countries. These have the resources and capacity to continue to improve forest management and ensure that adequate safeguards are in place to protect human health, the environment, and other social values. Non-OECD countries will require additional assistance from wealthier nations to meet this challenge.

- The forest products industry currently enjoys major subsidies in key producer countries. These should be viewed as trade distorting and therefore economically undesirable, as well as environmentally harmful.

The basis of trade's threat to forests lies in the imbalance between the progress that governments and international institutions have made on liberalization of trade compared to the poor showing

they have made on building a framework of laws and policies to protect forests. Crafting the response to this problem is a difficult task, but it must be done if the world's heritage of ancient forests is to survive. This will require major changes in the *status quo* for both trade policy and forest policy, at both national and international levels. Trade policy institutions must take into account the environmental and social impacts of their current and proposed policies and reform policies to minimize negative impacts. At the same time, the forest protection policy and legal frameworks in many countries need to be strengthened.

Below, we highlight recommendations that, if adopted, would help to ensure that liberalization of trade in forest products promotes long-term economic growth as well as forest conservation and sustainable management. *Many of these recommendations should be implemented independent of the trade policy debate because they make economic and environmental sense in their own right.*

Recommendation 1. Eliminate subsidies that encourage inefficiency and harm the environment.

In principle, there is already a basis under WTO, through the Agreement on Subsidies and Countervailing Measures, to challenge members' subsidies to domestic industries as trade distorting. Subsidies to the logging industry lead to increased production with resulting impacts on forests and lower prices at a cost borne by taxpayers. Such subsidies are found from Indonesia to Canada, the United States, and Cameroon.

We recommend that the WTO members commission a thorough and independent review of subsidies in the forest products sector, with special emphasis on those countries with substantial forest product exports. The study should be done in collaboration with other relevant international organizations and in a transparent manner that allows input by civil society and access to the best-available information and analysis. The controversial issue of noncollection of resource rents (undertaxing) of the sector must also be considered because this can be a very significant stimulus to timber harvesting. The WTO members should commit to subsidy elimination targets for the sector as an integral part of any trade liberalization package that may be agreed upon.

Recommendation 2. Encourage the free flow of information to help ensure consumers are well informed and markets can function efficiently.

The WTO should adopt a clear position that acknowledges the legitimacy of measures such as certification and ecolabeling that inform consumers about the environmental and social impacts of the products that they are buying, including information on production and processing methods. In this way, markets will be better able to incorporate currently unpriced social and environmental aspects of production and consumers will be better able to understand and take responsibility for the impacts of their consumption. In particular, WTO rules should not interfere with private voluntary certification and ecolabeling such as that performed under the aegis of the Forest Stewardship Council.

Recommendation 3. Clarify WTO's Agreement on the Application of Sanitary and Phytosanitary Measures.

Introduced alien species are one of the greatest threats to biological diversity and native forest health, and are a significant side effect of trade. WTO rules should be clarified to ensure that regulators have full discretion to apply the precautionary principle such that the burden of proof of risk of bioinvasions is not on the regulating agency, given the difficulty of reaching "certainty" in a field in which there are so many information gaps.

The WTO members could also commission a risk assessment by relevant international organizations with the purpose of identifying particular pathways as defined by product types and other factors that could be classified as high risk with respect to transport of invasive species. This could be followed by a revision of sanitary and phytosanitary rules, so that high-risk situations can be treated differently from low-risk situations, the former given the precaution that they warrant.

Recommendation 4. Reform trade policies, institutions, and processes to provide for assessment of potential environmental and social impacts.

Many governments have made little effort to integrate trade liberalization objectives with environmental and social development goals. There has been little opportunity for public comment on the potential impacts of trade liberalization and it is far from clear how such concerns have been addressed in preparation of government negotiating positions, including in the United States. In the Uruguay Round of trade negotia-

tions, for example, the U.S. government, one of those considered most open to public comment, sought input for a report on environmental impacts only *after* the parties had already concluded negotiations.

A key starting point is *to perform a global assessment of the potential environmental and social impacts of trade liberalization in the forest products sector.* This must be done far enough in advance to inform the next round of trade negotiations. The assessment should be transparent and should involve independent experts and be open to comment from civil society.[83] While global in scope, it should include consideration of regional and localized impacts on specific forested areas. The assessment should include consideration of the potential impact of trade rules on forest protection laws and policies. The study should begin by assessing whether the current economic and legal system is ensuring sustainable management and conservation of forests. The next step will be to identify the policy changes needed to enhance sustainability and to avoid or mitigate negative impacts of proposed liberalization measures.

Based on the results of such an assessment, specific safeguards should be designed to minimize the risk of unintended negative social and environmental impacts and to ensure that trade liberalization is accompanied by parallel progress on forest protection. At the same time, steps should be taken to ensure that trade policy does not supersede requirements agreed to in other fora and does not interfere with the pursuit of environmental and social goals through other policies of governments and international institutions, as well as through initiatives and practices in the private sector and civil society.

Recommendation 5. Governments should cooperate to strengthen international and national frameworks for forest protection.

Governments seeking to liberalize forest products trade should increase their political, financial, and legal commitment to protection of the forests that not only make this industry possible but are also critical for biodiversity habitat and ecosystem services, and support local communities and regional societies in many other ways. Governments need to identify the policies and laws that must be in place to support sustainable management and conservation before liberalization proceeds. *(See Box 8.)*

Elaboration and implementation of these commitments among trading partners is a difficult challenge. Trade institutions such as the WTO have neither the mandate nor the qualifications to elaborate standards, assess compliance, or provide assistance toward implementation. Yet forests have proven to be one of the most difficult subjects on which to forge multilateral agreement. The institutional framework merits further discussion. Intergovernmental institutions can only be a part of the answer. It is reasonably clear which functions must be performed, however. There must be an international understanding on the criteria and indicators for sustainable forest management and the basic framework of laws and policies needed to support it. There must be international mechanisms for monitoring and sharing information on progress in these indicators and compliance with the framework elements. There must be a linkage to trade policy so that open markets are balanced by needed protections. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) should be implemented when scientifically and legally mandated to protect tree species from trade. And there must be major financial and technical support for poorer countries from developed country governments, consistent with the bargain struck in Rio at the 1992 Earth Summit. This should also be reflected in the trade agreements themselves, addressing this need for support with concrete mechanisms.

Forests now cover about one fifth of the world's nonmarine surface area, a little less than that devoted to agriculture. They are shrinking fast, yet they are also one of only two major resources that industrial society continues to harvest from the wild (the other is marine fish stocks). Yet, demand for forest products continues to expand. Without a pronounced policy shift, most of the remaining frontier forests will not make it through the next half century. *Balancing the terms of trade with forest protection is critical to making this transition and to ensuring that a widespread and diverse forest estate is passed on to future generations.*

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About the Authors

Nigel Sizer *is Director of Forest Policy with the World Resources Institute, Washington DC;* **David Downes** *is Senior Attorney with the Center for International Environmental Law, Washington DC; and* **David Kaimowitz** *is Leader of the Program on Underlying Causes of Deforestation with the Center for International Forestry Research, Bogor, Indonesia.*

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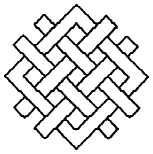

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Center for International Environmental Law (CIEL)
1367 Connecticut Avenue, NW, Suite 300
Washington, DC 20036 USA
Tel: +1 (202) 785-8700 Fax: +1 (202) 785-8701
E-Mail: info@ciel.org
http://www.ciel.org

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