GLOBALISATION AND DEFORESTATION IN THE ASIA–PACIFIC

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ABSTRACT

Over the last thirty years, global environmental agreements and nongovernmental organisations have proliferated, and international organisations, states, societies, corporations, and communities have to some extent been influenced by environmental values. Yet the global spread of environmental ideas has been uneven, contributing to important changes in some areas and minimal changes in others. This paper examines the impact of the globalisation of environmentalism—including the globalisation of environmental ideas and attitudes, international agreements and institutions, international and local nongovernmental organisations, and environmental sections within states—on commercial tropical timber management in the Asia-Pacific. It argues that the environmental rhetoric surrounding forest management has shifted. This has contributed to some policy reforms. However, few concrete changes to logging practices have occurred in areas that still have large commercial forests, and loggers continue to trigger widespread deforestation. Global environmental norms and pressures for environmental reforms from nongovernmental organisations, state agencies, and communities have had little impact on three key factors that drive unsustainable tropical logging: multinational and domestic corporations, global markets and corporate traders, and state capacity and willingness to manage forest resources. This has occurred partially because of direct opposition from these forces, partially because of the inherent weaknesses of environmental reformers in the Asia-Pacific, and partially because of the complexity of how these forces undermine sustainable commercial timber management. This suggests that even if current efforts to develop a global forest convention are successful, even as governments embrace new environmental institutions and laws, and even as international activist groups and local nongovernmental groups gain influence, genuine reforms will still occur slowly, perhaps too slowly to save the remaining old-growth tropical forests of the Asia-Pacific.
Over the last three decades, environmental ideas have increasingly gained worldwide legitimacy. Ideas like sustainable development, sustainable forestry, and biodiversity conservation are now part of mainstream international, state, and local discourses. The concept of sustainable development has virtually replaced the concept of development in national and international policies. Most states now have departments that handle environmental issues. To some extent, domestic and multinational corporations have also moved to address environmental problems. In addition, numerous international and regional organisations have integrated environmental concerns, and a wave of global environmental agreements have been signed. There are even calls for a global environmental organisation (Esty, 1994; Stevens, 1993) and a world forest organisation (Myers, 1992). The number of transnational, national, and local environmental activist groups has also exploded. Over this time, societal and community attitudes have shifted toward environmental protection. Yet the globalisation of environmentalism has not been consistent, varying across sectors, countries, and regions as the matrix of dominant interests that filter environmental ideas—including international organisations, states, non-governmental organisations (NGOs), corporations, media, and communities—shifts. As a result, in some states and for some issues, significant practical changes have occurred. In other cases, little has changed.
This essay evaluates the impact of the globalisation of environmentalism on commercial tropical logging in the Asia–Pacific. It argues that the spread of environmental ideas and the increasing pressures for stronger environmental controls have contributed to stronger environmental rhetoric, new environmental agencies within the state, and some reforms to environmental policies. It has also contributed to an increasing number of international activist groups and local NGOs concerned with environmental degradation. In this context, governments in the Asia–Pacific have revised policies to improve harvesting techniques, increase timber revenues, crack down on illegal loggers and tax evaders, expand reforestation, and lower log production to sustainable levels. Timber buyers and consumers have announced policies to reduce wasteful consumption. Multinational and domestic loggers have declared that logging operations are now sustainable. And the International Tropical Timber Organisation has set the year 2000 as the target for sustainable international trade in tropical timber. These new policies and proclamations, however, have had only minor effects on large-scale corporate timber practices in the major timber producing countries, and unsustainable logging continues to trigger widespread deforestation (defined as the complete loss of forest cover). Three critical elements that drive destructive logging and undermine sustainable management in these countries have been especially immune to the globalisation of environmentalism: multinational and domestic corporations, international traders and markets, and state capacity and willingness to enforce environmental regulations. Only in heavily deforested countries like the Philippines—where the commercial timber industry has self-destructed, and where ties between senior state officials and timber operators are now largely broken—have environmental reforms started to have meaningful effects.

The first part of this paper defines globalisation and then sketches the major actors involved in the struggle over the content, speed, and direction of environmental ideas, especially those related to the management of tropical forests. The second part assesses the impact of global environmental ideas, international agreements, international organisations, environmental agencies within particular states, and local and international nongovernmental groups on current tropical logging practices in the Asia–Pacific, especially the Philippines, East Malaysia, Indonesia, and the Solomon Islands. It also examines the practices of Japan, the dominant consumer of tropical timber. Throughout, this part highlights the major forces that are impeding and diluting efforts to change forest management in this region. The conclusion then reflects on the likely future of tropical forests in the Asia–Pacific.
Globalisation

Globalisation is a process that is increasing the links among—and changing the internal structures of—international organisations, states, economies, societies, local communities, NGOs, and corporations. Faster and more accessible transportation and communication technologies are driving this macro process—a process of change that is reducing the significance of state borders and long distances. There are a variety of specific signs and consequences of globalisation. Corporate structures, strategies, and places of production are changing. There is greater integration of financial systems, faster and larger financial flows, and larger amounts of foreign direct investment. Similar consumer products are spreading worldwide. The number of transnational NGOs and global agreements is increasing. And ideas, images, and discourses are gradually converging—such as support for democracy and free trade.

This definition does not assume that globalisation is inevitable. States, societies, and corporations can oppose globalisation, perhaps reversing the process of globalisation. It also does not assume that the effects are even. Rather, it accepts just the opposite: that the effects will vary across sectors, issues, societies, and regimes depending on the nature of the state, society, and level of development. For the spread of an idea, states and societies define and interpret ideas differently, leading in some cases more to the globalisation of a word or image than to the globalisation of meaning.¹

It is difficult to identify the components of the process that have shaped the globalisation of environmental ideas. The spread of these ideas is partially due to the increasing pressure on environmental resources. As the world’s population and per capita consumption continue to rise, new global problems are emerging, such as the depletion of the ozone layer and global warming. Widely publicised environmental disasters, such as the Union Carbide cyanide gas leak in Bhopal (1984), the Chernobyl nuclear accident (1986), and the Exxon Valdez oil spill (1989) have also contributed to greater environmental awareness. But environmental concern has not spread automatically. It has involved a contest over fundamental assumptions and values—such as between

¹ A surprising number of writers who analyse the effects of globalisation do not provide an explicit definition. Definitions vary widely among those who do attempt to pin down this elusive concept. For a range of explicit definitions, see Anthony Giddens (1990); James H. Mittelman (1994); Hans-Henrik Holm and Goerg Sørensen (1995); Philip G. Cerny (1995); R.J. Barry Jones (1995); and Paul Hirst and Grahame Thompson (1996).
beliefs in neoclassical economics and the benefits of technology, and beliefs in limits to growth and a responsibility to preserve nature. The major actors involved in shaping and controlling the content, speed, and direction of environmental ideas are: states, regional groups of states, and functional groups of states (for example, the Small Island Developing States); international organisations; epistemic communities, defined as groups of like-minded experts, often scientists, with relevant policy advice on a particular issue; environmental writers; transnational and national NGOs and the media; provincial governments; local communities; business organisations; and national and multinational corporations. These actors influence the attitudes and values of societies, which in turn contribute to the nature and extent of the spread of environmental ideas.

Although struggles among these actors have certainly stalled and diluted many environmental ideas, the environment has emerged as a major issue in the 1990s. Before the 1960s, advocates of environmental protection were peripheral voices among international and domestic policy makers. A series of popular books in the 1960s and 1970s challenged the dominant assumptions of neoclassical economics, and generated significant public and media attention (Carson, 1962; Ehrlich, 1968; Meadows, Meadows, Randers, and Behrens, 1972; Schumacher, 1975). International gatherings, such as the 1972 United Nations (UN) Conference on the Human Environment in Stockholm, the 1987 World Commission on Environment and Development (Brundtland Commission), and the 1992 UN Conference on Environment and Development moved environmental issues into mainstream international discussions. Over this time, states signed numerous international agreements that deal with some aspect of the environment. In 1972, ‘only a few dozen multilateral treaties’ addressed environmental problems. Twenty years later over nine hundred ‘international legal instruments’ dealt fully or partly with ‘environmental protection’ (Jacobsen and Weiss, 1995: 121).

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More precisely, epistemic communities are, according to Peter Haas (1992a: 3), networks ‘of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue area’. The members have ‘a shared set of normative and principled beliefs’, ‘shared causal beliefs’, ‘shared notions of validity’, and ‘a common policy enterprise’. These communities have, for example, influenced the formation of international agreements to protect the ozone layer and address climate change.
The globalisation of environmental ideas and the increase in environmental problems have altered state policies and structures. Most states over the last three decades, including the Philippines, Malaysia, Indonesia, and the Solomon Islands have developed or revised policies and created new bureaucratic agencies to address environmental concerns. In 1972, ‘only twenty-six countries had national agencies that dealt, in some way, with environmental issues’. By the early 1980s, ‘144 countries had established such institutions’ (Gladwin, 1987: 8). Like states, international organisations have also started to pay much more attention to environmental problems. The World Bank, for example, now has an environment department and has developed and strengthened policies to integrate environmental concerns (Haas and Haas, 1995: 266), including a 1991 decision to stop lending money to support commercial logging in primary tropical forests. In addition, more Bank funds now support environmental projects. From 1993 to 1996, the Bank targeted US$660 million a year ‘to conservation and management of forests, soil, and

Along with more global environmental agreements, and changes to the structure of international organisations and states, surveys also show a significant increase in worldwide societal concern for the environment over the last three decades (Wapner, 1995: 323–4). These societal shifts in attitudes have contributed to some important changes to practices, such as consumer boycotts and voluntary recycling programs. Sometimes directly and sometimes by influencing state actions, international negotiations, global organisations, and media reports, international and local NGOs and environmental research institutes have been particularly important in changing the attitudes, values, images, and discourses of societies. Transnational environmental activist groups, such as Greenpeace (which became a formal transnational organisation in 1972), Friends of the Earth International (founded in 1971), and the World Wildlife Fund/World Wide Fund For Nature (1961) have large memberships,

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3 I assume that states are not unitary actors, and that state actions are shaped by domestic political factors, including green political parties, ideologies, provincial and local dynamics, and internal socio-economic pressures. See Porter and Brown (1996: 32–40) and Kamieniecki, ed. (1993). For a discussion of the inherent obstacles to a state, or group of states, managing global environmental problems effectively, see Ronnie D. Lipschutz and Ken Conca, eds (1993).
substantial budgets, and impressive publicity campaigns. Environmental think tanks—such as the Worldwatch Institute (formed in 1975), World Resources Institute (1982), and the International Institute for Sustainable Development (1990) provide alternative data, monitor and publicise environmental violations, act as observers during environmental negotiations, and influence the policies and structures of international institutions, such as the World Bank, the World Trade Organisation, and the Global Environment Facility. Both NGOs and research institutes have shaped how governments, individuals, voluntary organisations, and local communities perceive the environment. They have contributed to defining what is acceptable—what is ‘good conduct’ (Wapner, 1995: 311).

International activist groups, environmental agencies within states, international agreements, and new societal attitudes have pushed some corporations to respond to environmental concerns, such as limiting purchases to ‘dolphin-safe’ tuna. Corporations have, however, generally played a central role in resisting environmental reforms. Currently, no binding or nonbinding global agreement exists to control the environmental effects of corporations (Tarasofsky, 1995: 22). Often, by capturing or influencing sympathetic wings of the state, corporations have opposed, diluted, or distorted environmental concepts and policies—especially more controversial notions such as internalising environmental and social costs into production, export, and consumer prices. They have also blocked some global environmental agreements—such as one to control the use of pesticides in the South—and weakened others—such as ones to protect the ozone layer, restrict whaling, and control climate change (Porter and Brown, 1996: 59, 63). And they have created corporate environmental sections to deflect critics. Yet despite strong corporate resistance, the environment has emerged as a major global issue in the 1990s, perhaps even, as Gareth Porter and Janet Welsh Brown argue, ‘the third major

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5 Some corporations have supported the creation of environmental regimes that they believe may provide commercial benefits. See Porter and Brown (1996: 60–3). In a few cases, they have contributed to higher environmental standards, especially for issues like energy efficiency.
issue area in world politics, along with international security and global economics’ (1996: 1).\(^6\)

**Globalisation of sustainable forest management in the Asia–Pacific**

No international forest convention exists to manage commercial timber on a sustainable basis. Attempts to create a binding global forest agreement at the 1992 Earth Summit failed. Instead, the summit produced two soft law instruments related to forests: the Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests, the so-called Forest Principles; and Agenda 21 (particularly chapter 11, titled Combating Deforestation). After the 1992 summit, the UN Commission on Sustainable Development established an Intergovernmental Panel on Forests in April 1995 to discuss establishing a global forest convention. This panel reported to the UN Commission on Sustainable Development in 1997 but was unable to reach an agreement. The UN General Assembly Special Session then created a new Intergovernmental Forum on Forests to continue to examine the possibility of developing a global forest convention.\(^7\) Since the 1992 summit there have also been numerous other less important international meetings and processes on forest management (Humphreys, 1996a; 1996b). So far, however, international forest agreements and negotiations have had few concrete effects on tropical forest management, although the debates that surround the various processes are certainly contributing to a general review of environmental management in the Asia–Pacific.

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\(^6\) For overviews of the emergence of environmental issues on the international agenda, see Porter and Brown (1996); Caroline Thomas (1992); Sheldon Kamieniecki, ed. (1993); Tony Brenton (1994); Marian A.L. Miller (1995); Ken Conca, Michael Alberty, and Geoffrey D. Dabelko, eds (1995).

\(^7\) The *Earth Negotiations Bulletin*, published by the International Institute for Sustainable Development, is providing comprehensive coverage of the negotiations surrounding a global forest convention (see http://www.iisd.ca/linkages). In addition to, or instead of, a global forest convention, some analysts support adding a forest protocol to the Convention on Biological Diversity or amending and strengthening current organisations responsible for forest issues. For details on international forest politics, see David Humphreys (1996a, b, c, d).
Compared to international agreements, international organisations have had greater direct effects on forest management in the Asia–Pacific. The International Tropical Timber Organisation has been particularly important. The 1983 International Tropical Timber Agreement initially governed this organisation. This agreement was replaced by a 1994 one, which entered into effect on 1 January 1997. It is a binding commodity agreement that represents the major tropical timber consumers and producers. Members have agreed to the year 2000 as a nonbinding target for international trade in sustainable tropical timber and tropical timber products. The International Tropical Timber Organisation has also developed guidelines for sustainable tropical timber management (Tarasofsky, 1995: 6–7). Despite these apparently progressive environmental policies, however, it has had great difficulty implementing policies and enforcing recommendations and has been strongly criticised for promoting traditional forest management. The Tropical Forest Action Plan—established in the mid-1980s by the Food and Agriculture Organisation (the lead administrative agency), the UN Development Program, the World Bank, and the World Resources Institute—has also played a particularly important role in influencing tropical logging practices in the Asia–Pacific. It was designed to channel aid to manage, rehabilitate, and protect tropical forests, and establish plantations. After serious problems and extensive criticism, however, the World Resources Institute withdrew from the Plan in 1991. It was then renamed the National Forestry Action Program and expanded to include nontropical countries (Humphreys, 1996a: chapter 2). Despite some changes, however, it is still widely criticised for promoting traditional forest management practices in the Asia–Pacific (Marchak, 1995: chapter 8).

Transnational NGOs and international environmental research centres have presented some of the greatest challenges to conventional forest management in the Asia–Pacific, vigorously campaigning to improve, or sometimes halt, logging. Among the major transnational NGOs, the Rainforest Action Network, with 30 000 members, uses some of the most aggressive tactics. To generate media attention, members have scaled buildings to hang banners and

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There are 52 members (25 producers and 27 consumers) of the International Tropical Timber Organisation. For consumer countries, the share of votes on the governing council depends on the amount of imports. For producers, it depends on the amount of exports. Japan is the largest funder. The Solomon Islands is not a member. For details, see G. Kristin Rosendal (1995: 99–101).
picketed car and electronic dealerships. Since 1990 they have been campaigning against companies in the Mitsubishi group to persuade Mitsubishi Corporation to withdraw support for tropical and temperate logging. A more moderate group is the Forest Stewardship Council. Founded in 1993, this is a non-profit, international NGO involving activists, corporations, indigenous peoples, and scientists which accredits national organisations that certify timber is from ‘well-managed forests’ (Humphreys, 1996b: 246). It will eventually play an important role in accrediting national certifiers in the Asia–Pacific. Environmental research centres have also contributed to shifts in the questions and ‘scientific’ answers that surround tropical forest management in the Asia–Pacific, by conducting, for example, high-quality research on the causes and consequences of deforestation. International activist groups and research centres, however, have had only limited effects on actual forest practices in this region.

Sometimes in conjunction with international groups, local NGOs have also pushed for stricter environmental controls on tropical loggers in the Asia–Pacific. Compared to places like Western Europe and North America, however, local NGOs in the Asia–Pacific have small budgets and scattered support. To varying extents, weak political oppositions, censorship, and laws restricting nongovernmental activities further limit their influence in the semi-authoritarian and authoritarian states in the region, such as in Malaysia, Indonesia, Burma, Cambodia, Laos, and Vietnam (Eccleston and Potter, 1996, 49–66). The Indonesian Forum for the Environment (WALHI), for example, is the umbrella group for about 300 Indonesian NGOs. Members conduct research and run environmental campaigns, including ones on deforestation, although it has recently scaled back its work on forests. WALHI has relatively little influence on policy formulation or implementation, however, although occasionally, usually with support from villagers and international activists, it has scored an important victory.

NGOs tend to have greater effects in the vibrant democracies of the Asia–Pacific. Even here, however, local NGOs are often considerably weaker than in Europe or North America. Environmental NGOs in Japan, for example, are

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9 NGOs often focus on generating media attention. The media, however, can also have independent influence.

10 See http://antequera.antequera.com/FSC.

small and often inconsequential actors. The Japan Tropical Forest Action Network and the Sarawak Campaign Committee have lobbied Japanese companies, government agencies, and consumers to reduce Japan’s negative impacts on tropical forests but so far their activities have contributed to few practical changes. In the Solomon Islands, the main local NGO, the Solomon Islands Development Trust, is also a relatively minor player, even though it has become more influential in recent years, especially over environmental and forest management (Roughan, 1994; Roughan 1997). A brighter spot for NGOs in the Asia–Pacific is in the Philippines. Since the fall of Ferdinand Marcos in 1986, local environmental NGOs have proliferated and gained increasing influence through the media, vocal opposition groups, and alliances with communities (Coronel, ed., 1996). Some of these groups have also aligned themselves with environmental reformers within the state, especially officials in the Department of Environment and Natural Resources.12

States are complex entities that simultaneously resist and promote stronger environmental controls. In the tropical timber producers of the Asia–Pacific, environmental agencies of the state are relatively weak compared to other sections of the state, especially ones aligned to business. For example, the Indonesian Ministry of the Environment, and the environmental sections of the Indonesian, Sarawak, Sabah, and Solomon Islands departments of forestry all have small budgets, limited technical and human resources, and relatively little support from within and outside the bureaucracy. Poorly paid officials in these departments are highly susceptible to bribes. Even in the Philippines, the Department of Environment and Natural Resources has relatively little financial, technical, and human capabilities, although over the last decade its influence has increased within the bureaucratic hierarchy.13

Despite the failure to develop an international forest convention, the mixed effects of international organisations, strong resistance from corporations and powerful state agencies, and the relatively weak position of NGOs, environmental agencies within states, grassroots movements, opposition political parties, and the media, there has been a significant increase in community,

13 Based on interviews at the Philippine Department of Environment and Natural Resources, Quezon City, 28 July 1997.
corporate, national and international *policies* and *statements* in support of sustainable forest management in the Asia-Pacific. The remainder of this paper evaluates the impact of this rhetorical shift on tropical logging practices in this region. I begin with a sketch of loggers and forest degradation, focusing especially on four cases: the Philippines, East Malaysia, Indonesia, and the Solomon Islands. I then examine three of the most contentious and important underlying and proximate causes of unsustainable logging: multinational and domestic corporations, international traders, and state capacity. It is especially important to highlight these factors because environmental organisations and agreements, transnational and local NGOs, local communities, and even states, have had, and will likely continue to have, particular difficulty influencing these elements.

**A snapshot of loggers and forest degradation in the Asia–Pacific**

Humid tropical forests contain over half of the world’s species. These forests are disappearing at an alarming rate. Half are already gone, and they now cover only about 6 per cent of the earth’s land surface. Many countries which once had extensive humid tropical forests—including Bangladesh, El Salvador, Benin, Togo, Sierra Leone, Haiti, and Sri Lanka—now contain almost no primary forests.¹⁴ According to a 1991 Food and Agriculture Organisation study, annual tropical deforestation is around 17 million hectares, 50 per cent higher than the estimate of deforestation in the late 1970s (National Science Teachers Association, 1992: 118).¹⁵ Forest degradation—defined as irreparable damage to the economic, biological, or environmental value of the forest ecosystem—is even greater. Commercial loggers are largely responsible for tropical forest degradation in the Asia–Pacific. In the late 1980s, a study for the International Tropical Timber Organisation estimated that less than one per cent of tropical forests were managed on a sustainable basis (Poore, ed., 1989). Little has apparently changed since then—at least in the Asia–Pacific. Although loggers rarely clear cut forests, they are the most important factor triggering the process of deforestation. They selectively cut the largest and

¹⁴ Humid tropical forests (which include moist forests, wet forests, and rain forests) account for just under half of all tropical forests. Tropical forests comprise about one-third of the world’s forests. See Nels Johnson and Bruce Cabarle (1993: 1, 5, 7, 9).

¹⁵ More accurate and comprehensive measurements may partially account for the apparent increase in deforestation rates in the 1980s.
most valuable trees from primary forests (creating secondary forests). They leave debris and open spaces that leave secondary forests more susceptible to devastating fires. Logging roads provide migration routes for the poor and the removal of the largest trees also leave forests more accessible to slash and burn farmers. In addition, governments and corporations are more likely to convert less valuable secondary forests to agriculture or plantations, as is now occurring on the Indonesian provinces of Sumatra and Kalimantan.

The Philippines is one of the most deforested countries in the Asia–Pacific region, much of which was triggered by decades of reckless and destructive logging (especially after the 1950s). Philippine forest cover has declined sharply, from about 70 to 80 per cent of total land area in 1900, to around 20 per cent today (Wernstedt and Spencer, 1967: 45; Poffenberger and Stone, 1996: 204). In the 1970s and 1980s, 80 per cent of the remaining old-growth forests disappeared (Rush, 1991: 42). Primary dipterocarp forests, which contain the most valuable commercial timber, now cover only about 800 000 hectares, less than 3 per cent of total land area. As a result, the commercial timber industry has collapsed. At its peak in 1968, Philippine log production was 11.6 million cubic metres. Over the next five years, log production remained over 10 million cubic metres. In the 1970s and 1980s, as valuable and accessible primary forests became increasingly scarce, log production fell, dropping below eight million cubic metres in 1977, below five million cubic metres in 1982, and below three million cubic metres in 1989. In 1994, production dropped below one million cubic metres. In 1995, log production fell to around 600 000 cubic metres. In that year, the Philippines imported 540 000 cubic metres of tropical logs and 350 000 cubic metres of tropical sawn timber (ITTO, 1997: 60–1; Dauvergne, 1997a: chapter 5, and appendix).

The Philippines, once virtually blanketed in forests, now imports more tropical timber than it produces.

East Malaysia’s timber industries are heading in the same direction as the Philippine one. At the end of the 1950s, log production in the East Malaysian state of Sabah was just over 1.5 million cubic metres. Production steadily increased throughout the 1960s and early 1970s, climbing to over 3.5 million cubic metres in 1964, over six million cubic metres in 1969, and reaching 11.1 million cubic metres in 1973. Since then legal log production has remained high, averaging over eleven million cubic metres from 1973 to 1987, and about

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16 Interview, College of Forestry, University of the Philippines at Los Banos, 1 February 1994.
9.4 million cubic metres from 1989 to 1993. After the log export ban in 1993, legal log production decreased to eight million cubic metres in 1994 (Sabah Forestry Department, 1989: 139; Malaysian Timber Council, 1994). This rapid rate of destructive logging contributed to a sharp decrease in Sabah’s primary forest cover, from over half of total land area in 1973 to only one-quarter in 1983 (Repetto, 1988: 56; Gillis, 1988: 141). Today, loggers have harvested more than 80 per cent of Sabah’s dipterocarp forests set aside for commercial production (Sulaiman, 1993: 14). In the East Malaysian state of Sarawak, logging rates and log exports accelerated from the mid-1970s to the mid-1980s. In 1977, Sarawak exported 3.5 million cubic metres of logs; by 1985, log exports had tripled, reaching 10.5 million cubic metres (Higuchi and Umahashi, 1987: 376). Log production and log exports continued to increase in the 1980s. In 1990, the International Tropical Timber Organisation estimated that without major changes Sarawak would log its primary forests in eleven years (ITTO, 1990). In the first half of the 1990s, log production did fall slightly, from almost 19 million cubic metres in 1990 to around sixteen million cubic metres in 1995. But despite marginal decreases in log production in Sabah and Sarawak in the 1990s, little evidence suggests that logs are now harvested in a sustainable way or that production has fallen to sustainable levels (defined as levels that will regenerate over the cutting cycle). Although it is difficult to predict accurately, at the recent rates of illegal and legal harvests, loggers could degrade East Malaysia’s remaining old-growth forests in about a decade (Dauvergne, 1997a: chapter 4).

Unlike the Philippines and East Malaysia, Indonesia still has huge tracts of commercially viable old-growth forests. But this is a result of vast stocks, not better environmental management. Large-scale logging began in the late 1960s. In 1967, log production was less than five million cubic metres. By 1970, log production had doubled. By 1973, it was more than five times greater than in 1967, reaching 26.2 million cubic metres. For the next decade, log production remained high, averaging around 24 million cubic metres per year from 1973 to 1984. From 1980 to 1985, Indonesia implemented a log export ban. This temporarily reduced the rate of logging, but it quickly shot back up to even higher levels. To support the rapid expansion of Indonesian plywood exports, from 1987 to 1995 annual log production averaged about 35 million cubic metres. A recent World Bank study claimed that log production is now

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17 Calculated from Food and Agriculture Organisation data, International Economic Data Bank, the Australian National University, Canberra
over 40 million cubic metres (Della-Giacoma, 1996). Production may be even higher. NGOs in Indonesia claim that annual log production is more likely around 44 million cubic metres (Porter, 1994: 431). All of these figures are far higher than the World Bank study which estimated annual sustainable production at only 22 million cubic metres (Della Giacoma, 1996). Moreover, loggers generally ignore harvesting, silvicultural, and reforestation guidelines. This destructive logging has contributed to a sharp decrease in natural forest cover, from 152 million hectares in 1950 to 92 million hectares in 1989 (Poffenberger and Stone, 1996: 205).

In search of more tropical logs, as well as governments that allow log exports, timber companies involved in Southeast Asia’s tropical log trade have recently turned to Melanesia, especially Papua New Guinea and the Solomon Islands. Compared to the Philippines, East Malaysia, and Indonesia, the Solomon Islands has far less forest area. Yet logging has increased at a remarkable rate since the early 1990s. From 1991 to 1995, log production from the natural forests more than doubled, increasing from 381 000 cubic metres to about 826 000 cubic metres. Log production in 1996 remained at about the same level. This put production around three times higher than sustainable levels, estimated at between 253 000 and 276 000 cubic metres. At this rate, the Solomon Islands—which depends on logging revenue for about half of its total export earnings—will deplete its commercial timber in about a decade. If logging rates continue to escalate, commercial timber stocks could disappear in five to seven years. All scenarios indicate a looming environmental and financial crisis for the Solomon Islands (Forestry Review Update, 1996).

This snapshot of the tropical forests of the Asia–Pacific shows the widespread environmental degradation left behind by loggers. It also shows that the greatest change has been to the size of remaining commercial forests, not to the practice of loggers. Corporations, trade, and states have been especially important for driving unsustainable logging and maintaining a wall against environmental reforms. As the next three sections demonstrate, this is not just

(Product # 1604, Saw logs + Veneer Logs, non-coniferous); 1994 and 1995 figures are from ITTO (1997: 60).

Interviews, Jakarta and Bogor, February–March 1994; and interviews, Jakarta, July–August 1997.

Much of the information on the Solomon Islands is based on confidential and unpublished information collected by the author during a research trip to the Solomon Islands, 4–14 July 1996.
a result of direct opposition, but also a result of the inherent difficulties of tackling the environmental effects of corporations and trade.

**Corporations**

Multinational corporate funds and technology have triggered logging booms throughout the Asia–Pacific. For example, in Indonesia, encouraged by the 1967 Indonesian Foreign Investment Law, multinational investors from the Philippines, Hong Kong, Malaysia, the United States, Japan, South Korea, and Singapore provided crucial funds, advice, and equipment for large-scale logging, especially in Kalimantan (Gillis, 1987). More recently, Malaysian companies, and to a lesser extent Korean companies, have invested in large-scale logging operations in Papua New Guinea and the Solomon Islands. In Papua New Guinea, Malaysian investors—especially from the Rimbunan Hijau Group—have more than doubled log production, from 1.45 million cubic metres in 1990 to around three million cubic metres per year from 1993 to 1997 (ITTO, 1995: 57; ITTO, 1997: 60; Filer, 1997). In the Solomon Islands, foreign loggers—besides pushing log production well over sustainable levels—also appear to ignore cutting regulations. The 1995 Forestry Review, a report prepared in collaboration with some disgruntled Solomon Islands government officials, claims that although no comprehensive survey exists, ‘the general consensus appears to be that forest practices in many locations are amongst the worst in the world’ (1996: 3). Despite generous tax breaks, these companies also evade taxes by under-declaring the export price of logs. They mix high and low log grades and forge species names to further decrease export taxes. Price Waterhouse estimates that log exporters in the Solomon Islands (especially Malaysian ones) under-recorded the free-on-board value (which excludes carriage, insurance, and freight costs) in 1995 by 25 to 30 percent (1995, ii). In addition, instead of selling logs on the open market, companies appear to have informal purchasing agreements with Japanese and Korean log buyers, to maintain stable markets, and in some cases, obtain credit. This further lowers export prices.

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20 The General manager of one foreign timber company in the Solomon Islands confirmed that informal purchasing agreements are standard corporate practice. Interview, Honiara, 11 July 1996. It is, of course, exceptionally difficult to prove that companies make informal arrangements. There is, however, strong circumstantial evidence. For example, from July 1993 to the end of May 1996, the Australian company, Allardyce Lumber
Complex corporate deals and opaque structures decrease environmental accountability and transparency, facilitate transfer pricing, and make it more difficult for state agencies and nongovernmental organisations to pressure these firms. Through nominee ownership many timber investors register legal ownership in tax havens, such as the Bahamas and the British Virgin Islands. Many of these havens, including the British Virgin Islands, do not require companies to file annual accounts or hold annual meetings. Timber investors also sometimes make deals with home companies to lower profits and thus lower taxes (such as over-declaring the costs of buying equipment or perhaps simply buying ghost services). They sometimes sell products to their home company at a significant discount, thereby lowering export and corporate taxes. And sometimes investors simply record low profits. Because of the complexity of corporate bookkeeping it is often difficult, if not impossible, for tax officials in places like the Solomon Islands and Papua New Guinea to uncover ‘true’ profits (Price Waterhouse, 1995; Dauvergne, 1997b).

Domestic timber firms are no better at environmental management than multinational ones. They may even be worse. In Indonesia, for example, domestic control over timber concessions and the timber trade after 1985 further aggravated environmental mismanagement. Along with the 1985 log export ban, government incentives and subsidies contributed to the rapid expansion of Indonesia’s plywood industry in the 1980s. The government also supported the creation of Apkindo (Indonesian Wood Panel Association) to control and coordinate domestic plywood processors. Apkindo exemplifies some of the possible drawbacks for effective environmental controls of a domestic corporate monopoly. It is a nominally private organisation that issues plywood export licenses, regulates plywood prices, sets production and export quotas, and controls plywood shipments. If a member ignores price or production guidelines, Apkindo can revoke its export license. The head of

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Company Ltd, exported 28 shipments of logs. Twenty-seven shipments—over 98 per cent of total export volumes—were sold to Itochu Corporation. From December 1993 to March 1996, the mainland Chinese company, Dalsol Limited, sold all of its logs to Zhong Xing Investment Ltd. From February 1994 to June 1996, the Malaysian company Kalena Timber Co. Ltd sold all of its log shipments to Durley Holdings Limited in Singapore. These figures are calculated from Solomon Islands customs data, obtained by the author, 10 July 1996.

For an analysis of the political forces in Indonesia driving deforestation, see Dauvergne (1993-94).
Apkindo is Bob Hasan, a close ally of President Suharto, and one of Indonesia’s most powerful businessmen. He has invested in at least one million hectares of timber concessions and is connected to shipping and insurance companies involved in the plywood trade. The Chinese edition of *Forbes* magazine estimates Hasan’s assets at about US$1 billion (Pura, 1995).

In terms of market expansion, Apkindo has been remarkably successful. In the 1970s, Indonesia manufactured relatively little plywood. By 1984, Indonesia produced around four million cubic metres of plywood. From 1990 to 1996, annual plywood production averaged around 9.2 million cubic metres (ITTO, 1995: 57; ITTO, 1996: 51; ITTO, 1997: 63). By 1991, Apkindo controlled over three-quarters of world trade in tropical plywood, although this dropped to about two-thirds in the mid-1990s with the increase in Malaysian plywood exports. An important reason for Apkindo’s success has been its deliberate strategy to destroy the tropical plywood industries in South Korea, Taiwan, and Japan (Dauvergne, 1995: 15–16). In Japan, for example, Apkindo created Nippindo—a sales and marketing wing—to bypass the import and distribution services of Japanese general trading companies and increase Indonesia’s share of Japan’s plywood market. Every month, Nippindo establishes plywood import prices and volumes for the Japanese market. Nippindo has apparently lowered plywood prices in Japan to increase market share and undermine Japanese tropical plywood processors. As a result, Indonesia’s average plywood export price to Japan is lower than the average price of Indonesian plywood on the world market.\footnote{In 1993, the average price of Indonesian plywood exports to Japan was US$171.35 per cubic metre; the world market price for Indonesian plywood was US$259.97 per cubic metre. In 1994, the average price was US$370.92 per cubic metre while the average export price on the world market was US$407.07 per cubic metre.}

Using these tactics, Apkindo has pried open the Japanese plywood market and bankrupted large numbers of Japanese plywood processors. Japan imported little tropical plywood in the first half of the 1980s. By 1994, however, Japan imported 3.2 million cubic metres of Indonesian plywood, accounting for the bulk of Japan’s tropical plywood imports, and over one-third of total Japanese tropical plywood consumption (Sarawak Campaign Committee, n.d.; ITTO, 1996: 48). Although these tactics have enabled Indonesia to build a major plywood industry, log production is now even higher than at the peak of log exports and multinational investment in the 1970s, so high it could lead to the loss of the primary forests in about three decades (‘Timber’, 1994: 9).
International trade and corporate traders

Most of the old-growth logs from Southeast Asia and Melanesia have been exported overseas, mainly to Taiwan, Korea, and Japan. Japan has been, by far, the most important buyer and consumer. During the log export booms in the Philippines (1964–73) and Sabah (1972–87), Japan imported over 60 per cent of total log production. At the height of Indonesian log exports (1970–80), Japan imported more than 40 per cent of total Indonesian log production. Japan now accounts for around half of total log exports from Sarawak, Papua New Guinea, and the Solomon Islands (Dauvergne, 1997a). These log purchases have provided powerful indirect economic incentives for unsustainable and destructive loggers.

Japanese general trading companies (sogo shosha) have imported the bulk of tropical logs into Japan.23 The six largest—Mitsubishi Corporation, Mitsui & Company Ltd, Itochu & Company Ltd, Sumitomo Corporation, Marubeni Corporation, and Nissho Iwai Corporation—have been especially important. These companies are at the core of powerful corporate groups. They are primarily trade intermediaries, although in recent years they have become increasingly important investors. According to Fortune’s 1995 Global 500 list, in terms of sales, Mitsubishi is the world’s largest corporation, followed by Mitsui, Itochu, and Sumitomo. Marubeni is sixth and Nissho Iwai is ninth (Smith, 1995). These companies have aggressively sought out new sources of tropical logs. In the 1950s and 1960s, the Philippines was the main source of Japanese log imports. As these stocks dwindled and as Japanese demand soared in the late 1960s and 1970s, Japanese traders moved to Sabah and Indonesia. As Indonesia implemented a ban on log exports in the first half of the 1980s, Japanese companies responded by increasing imports from Sarawak and maintaining steady log imports from Sabah. In 1993, Sabah banned log exports, pushing traders to Papua New Guinea and the Solomon Islands. Over the last three decades, log export bans, fewer Japanese plywood processors, and less

23 These companies have accounted for about half of log imports from the South Seas (primarily from Indonesia, Malaysia, the Philippines, Papua New Guinea, and the Solomon Islands). Official import figures, however, do not include those by affiliated companies, such as Sumitomo Forestry. For data, see François Nectoux and Yoichi Kuroda (1989) and Dauvergne (1997a). For background on sogo shosha, see Alexander K. Young (1979), Yoshi Tsurumi (1980), Ken’ichi Yasumuro (1984), Kiyoshi Kojima and Terutomo Ozawa (1984), Michael Y. Yoshino and Thomas B. Lifson (1986), Max Eli (1990), Tsuneo Suzuki (1990), and Hafiz Mirza (1993).
Valuable log stocks have contributed to a sharp decrease in Japanese log imports from Southeast Asia and Melanesia, from a peak of 26.7 million cubic metres in 1973 to 5.9 million cubic metres in 1995 (Dauvergne, 1997a: Table 7). This decrease, however, is not a result of environmental concerns, and Japanese traders still play a key role in undermining sustainable forest management in Sarawak, Papua New Guinea, and the Solomon Islands.

The activities of *sogo shosha*, especially the structure of their tropical log trade chains, undermine effective forest management. These companies coordinate most of Japan’s tropical log trade. To secure log supplies, they sometimes hold minority shares in overseas timber operations. Generally, however, they avoid these risky investments and instead charge small commissions to facilitate links among log producers, shippers, processors, wholesalers, retailers, and consumers (often construction companies). They provide fast and accurate market information, a reliable supply of logs for processors, a buffer against exchange rate fluctuations and short-term losses, contacts between various firms, and equipment and credit to producers, often in exchange for informal purchasing agreements. They also function as intermediaries, selling logs to a manufacturer, then buying the processed wood, then reselling it to a retailer. In addition, they act as quasi banks, using funds borrowed from affiliated banks to provide low interest loans or credit to members in the trade chain, often small firms that would otherwise have trouble receiving a bank loan (Jaakko Poyry Oy, 1992: v/25, v/29). Although these firms often have strong obligations to one *sogo shosha*, they are not simply branches of the same company. Companies always have the option of performing the task themselves, doing without the service, or turning to another *sogo shosha*. Therefore, a *sogo shosha* must ensure that its services remain relatively inexpensive. As well, unlike most multinational companies, they are more concerned with sustaining the trade chain than with maximising short-term profits at a particular point in the trade chain. Partly for these reasons, they operate at remarkably low profit margins. For example, in 1994 Mitsubishi’s profit margin was a only 0.12 per cent (Smith, 1995).

To sustain the trade chain and remain viable at such low profits margins, *sogo shosha* handle large trade volumes. This focus on volumes is reinforced by fierce competition among *sogo shosha* to have the largest sales turnover. Quite naturally, they thrive on resources sold at prices that externalise environmental and social costs. To maintain large trade volumes and artificial trade chains, they also have an interest in keeping prices as low as possible. Along with international markets that ignore environmental and social costs, and poor producer state policies and environmental practices, this has contributed to low
tropical timber prices. Low tropical log prices have in turn stimulated ‘wasteful’ consumption. Japanese construction companies, for example, use large amounts of tropical plywood to mould concrete (kon-pane) which is generally thrown away after only a few uses. Low tropical wood prices have also undercut the market for domestic timber. As a result, Japanese forest cover is increasing, and Japan is now one of ‘the most heavily forested countries in the world’ (Japanese Forestry Agency, 1993: 2).

Since the early 1990s, Japanese corporations have strengthened environmental rhetoric and funded token forest conservation projects. The largest sogo shosha now have environmental departments and overseas environmental guidelines. New corporate brochures call for technology transfers to improve the efficiency of timber processors in developing countries, which would reduce waste and presumably lessen pressure on natural forests. A few sogo shosha, such as Marubeni, have also published plans to reduce wasteful consumption and purchase logs from sustainable sources. As well, in the early 1990s, the Japan Plywood Manufacturers’ Association, and the Japanese Building Contractors’ Society (comprising 81 companies) announced nonbinding targets to reduce tropical timber consumption, especially kon-pane (Government of Japan, 1991: 3–5; Daily Yomiuri, 5 December 1991; Japan Lumber Reports, 1994: 1). In addition, the Japanese Lumber Importers’ Association (containing 131 corporations, including the sogo shosha) announced new import guidelines. The Japanese government has supported these new policies. The Construction Ministry has adjusted building codes to encourage companies to use tropical timber substitutes (Jaakko Poyry Oy, 1992: v/5). Since 1991, the Forestry Agency has required tropical timber traders to report import volumes and provide five-year import plans (which remain confidential). Finally, several municipal governments have plans to decrease the amount of tropical timber used in civic construction projects.

Despite impressive rhetoric, these corporate and government policies have had little impact. Japanese tropical log imports have dropped, from 11.3 million cubic metres in 1990 to 6.5 million cubic metres in 1995, which in turn

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24 International markets do not account for the hundreds of years the trees took to grow, or the inevitable environmental and social change that accompanies logging. International trade reforms are necessary to promote sustainable forest management. For a model of optimal trade conditions, possible practical options to push trade toward these conditions, and a discussion of the formidable obstacles to effective trade reform, see Peter Dauvergne (1997c).
has contributed to a fall in domestic plywood production. But these decreases have been offset by drawing on log reserves and by a sharp increase in Indonesian plywood imports. As a result, even though tropical timber consumption fell from the mid-1970s to the end of the 1980s, since 1990, in roundwood equivalent (the log volume required to process the final timber product), Japanese tropical timber imports have only fallen slightly, while Japanese tropical plywood consumption has remained steady (Dauvergne, 1996; 1997a; 1997d).

**State management**

Timber firms, traders, consumers, and markets are only part of the complex process driving unsustainable logging. These factors must be understood in the context of the domestic political economies of timber in Southeast Asia and Melanesia. States have been unable or unwilling to control illegal and destructive loggers, smugglers, corporate tax evaders, and widespread violations of forest regulations. Close ties between state leaders—such as President Suharto of Indonesia and Chief Minister Taib Mahmud of Sarawak—and corporate executives have shielded destructive loggers. These ties have distorted state policies, including reforestation and conservation guidelines, sustainable management plans, tax and royalty rates, processing incentives, and foreign investment regulations. In this context, state implementors, in exchange for gifts, money, and security, often ignore or assist illegal loggers, smugglers, and tax evaders. Those who attempt to enforce environmental rules do not have sufficient funds, equipment, or training to monitor and control timber operators effectively. Quite naturally, poor policies and weak state control over forest and environmental resources have aggravated the detrimental environmental and economic effects of multinational investors, traders, and domestic firms (Dauvergne, 1997a, chapters 3, 4, 5; 1997e).

Since the early 1990s, Southeast Asian states have made some attempts to improve forest management. In 1992, the Philippine government banned logging in primary forests, although logging is still allowed in ‘adequately stocked residual forests’ (Philippine Department of Environment and Natural Resources, 1993: xi). The government has revoked numerous logging licenses, and no new licenses have been issued since 1987 (Manila Times, 31 January 1994, p.A6). With support from international donors, policies have been developed to expand reforestation and protect the remaining old-growth forests and vital watersheds (Ross, 1996). As well, the government has strengthened laws and tried to halt illegal logging. In Malaysia, the state governments of
Sabah and Sarawak have also introduced policies to curb illegal logging and smuggling. There are more enforcement officers, stronger laws, and stiffer penalties. Illegal loggers face longer jail terms and higher fines. In addition, the Malaysian federal government has cracked down on East Malaysian timber companies that evade federal corporate taxes. The Indonesian government has also developed policies to improve commercial timber management. The government has revoked some concession licenses, fined a few timber operators, launched a campaign against illegal loggers, and established a domestic program to label timber from sustainable sources.

These policy reforms and shifts in government and corporate rhetoric have had, however, only peripheral effects on actual logging practices. Even the fairly extensive reforms in the Philippines were effectively too late to save the commercial forests. The decline in Philippine log production from 1987 to 1996 followed a trend established in the 1970s, and was primarily connected to the depletion of log stocks, not greater environmental awareness or better environmental management. Many of these reforms have also been watered down or ineffectively implemented, allowing logging to continue in the few scattered patches of old-growth forests that still remain. At the same time, however, the relative power of environmental NGOs, environmental sections of the state, and communities concerned with environmental protection has expanded. This is contributing to stronger environmental policies to deal with the aftermath of widespread deforestation and to some small-scale community forestry projects.

Compared to the Philippines, new government rhetoric and policies in Sabah, Sarawak, and Indonesia have had far fewer concrete effects. Many of the arrests and fines have hit small-scale illegal loggers with weak political or military connections; major timber operators have remained largely untouched. Log production is still well above sustainable levels and there is little evidence of significant changes to commercial logging techniques. Illegal logging also continues to be a serious problem throughout Southeast Asia (Dauvergne 1997a). And perhaps most revealing, despite apparent international concern, more sophisticated corporate environmental rhetoric, media coverage, and transnational and local NGO protests, logging in the Solomon Islands continues unabated, even though logging is now three times higher than sustainable yields. At this pace, loggers will deplete these forests faster than any other country in the region, surpassing even the worst years of Ferdinand Marcos (1965–86) in the Philippines.
Conclusion: webs of resistance to environmental reforms

The globalisation of environmental ideas, institutions, agreements, and activist groups has contributed to significant practical changes over the last three decades, including restrictions on whaling, a moratorium on drift-net fishing, and a reduction in chloro-fluorocarbon emissions (Peterson, 1992; Haas, 1992b). In the case of tropical forest management in the major producer states of the Asia-Pacific, few concrete changes have occurred, however, even though, according to Solon Barraclough and Krishna Ghimire (1995: 1): ‘In recent years, few if any environmental issues have received as much global attention as “tropical deforestation”’. This paper highlighted four critical factors that are stalemating the impact of environmental ideas on commercial forest management in the Asia-Pacific: the relatively weak position of international and domestic environmental reformers; the structures and activities of corporations; international markets, traders, and the structure of timber trade chains; and the inability and unwillingness of states to implement management guidelines.

No single factor drives unsustainable logging. Likewise, no single element can block the spread of stronger environmental controls. Instead, layers of interlocking factors absorb and deflect emerging environmental norms, allowing only minor or symbolic reforms to seep through. Webs of corporations, financiers, managers, state officials, and traders reduce corporate accountability and transparency, making it more difficult for environmental NGOs and environmental sections of the state to influence corporate practices. The complexity of how corporations, markets, and states undermine environmental management further increases the difficulties faced by environmental reformers. Compared to Europe and North America, environmental reformers in the Asia-Pacific have relatively little influence. Also, compared to Europe and North America, consumers in Northeast Asia are less interested in overseas environmental issues and in supporting environmental boycotts. In some ways, it may be more accurate to conceive of the globalisation of environmentalism as the globalisation of Western environmental pressures—pressures that are often angrily denounced by tropical timber producers like Indonesia, Malaysia, and the Solomon Islands, and often ignored by the states and societies of tropical timber consumers like Japan and South Korea.

Of course, resistance to stronger environmental controls is not uniform. Also, new circumstances alter the intensity and components over time. Where state and corporate leaders make substantial profits from the timber trade, such as in Indonesia, East Malaysia, and the Solomon Islands, resistance is, quite
naturally, especially strong. In places like the Philippines, where little valuable commercial timber remains, and where corporate and state ties are largely broken, the layers of resistance are now relatively weak, allowing much greater scope for environmental reforms. Even here, however, in the isolated patches of the country that still have valuable forests, resistance to environmental reforms remains high, and the forests continue to disappear.

Clearly, formidable factors are blocking the practical impact of environmental ideas on tropical forest management in the Asia–Pacific. This conclusion, however, still leaves the tough question: will the globalisation of environmental concepts—through international institutions, global agreements, state reformers, and NGOs—eventually contribute to fundamental changes to commercial logging in the Asia–Pacific? There is, of course, no definitive answer. It is possible that major changes will occur. But this seems unlikely. Reformers must first accept the complexity of the process driving unsustainable logging and deforestation, and then overcome the power of corporations, the environmental failures of markets and trade, the inherent weakness of states to manage natural resources, and societal and corporate opposition and indifference to many environmental ideas. Reformers must also closely examine the current scientific building blocks for tropical forest management. Considering the widespread acceptance of ideas like sustainable yield and sustainable timber management, surprisingly few examples exist of natural tropical forests managed on a sustainable basis. These may simply be unrealistic assumptions for large-scale operations.

Moreover, the process of developing a global forest agreement could well oversimplify discussions, pushing attention away from salient issues and toward general forces behind global deforestation. The underlying and direct causes of tropical timber mismanagement—which differ significantly across countries, regions, time, and ecosystems—may be too diverse, complicated, and contentious to allow practical and effective global agreements and mechanisms. Because unsustainable logging in the Asia–Pacific primarily involves regional economic actors, the development of global environmental agreements and organisations could even have the paradoxical effect of delaying, or perhaps hampering, genuine reforms. In short, even if current moves to develop an

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25 There are more examples of states setting aside forest area to conserve biodiversity or support tourism. In many ways, developing and enforcing international, national, and local mechanisms to preserve forests is much easier than promoting sustainable management of commercial forests.
international forest convention are successful, even as environmental NGOs and environmental advocates within the state gain strength, and even as government policies shift, genuine reforms will likely occur slowly, perhaps too slowly to prevent the commercial timber industries in East Malaysia, Indonesia, the Solomon Islands, and Papua New Guinea from following the Philippine path, steadily fading into history as loggers deplete the last accessible primary forests.

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