



**ASIA-PACIFIC FORESTRY COMMISSION**

**Forests out of bounds:  
Impacts and effectiveness of  
logging bans in natural forests  
in Asia-Pacific**

**Executive summary**



Food and Agriculture Organization of the United Nations  
Regional Office for Asia and the Pacific  
Bangkok, Thailand  
2001



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**Chris Brown, Patrick B. Durst and Thomas Enters**

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## *Contents*

Foreword	v
Acknowledgements	vii

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## PART I

### THE LOGGING BANS IN CONTEXT

<b>Context and background</b>	<b>3</b>
Asia-Pacific Forestry Commission mandate	3
Objectives of the study	3
Scope of the study	3
<b>Regional overview</b>	<b>5</b>
Forestry in case study countries	5
Why logging bans?	7
Implementation of logging bans	9
<b>Key outcomes</b>	<b>13</b>
Impacts on timber production	13
Alternative sources of wood	15
Patterns of international trade	17
Socio-economic impacts	19
Comparative advantage	19
Achieving conservation objectives	20
<b>Strategies and solutions</b>	<b>23</b>
Defining appropriate goals	23
Alternatives to logging bans	23

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**PART II**

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**STUDY OUTCOMES AND RECOMMENDATIONS**

<b>Lessons learned</b>	<b>27</b>
Changing expectations and demands	27
Logging bans as a policy response	28
Does banning harvesting result in forest conservation?	28
Tenure, use rights and access to forests	29
Monitoring and assessing outcomes	30
Mitigating social and economic impacts	30
Incremental versus comprehensive policy implementation	31
<b>Ten necessary conditions for achieving conservation</b>	<b>33</b>
<b>Recommendations</b>	<b>37</b>
<b>Conclusions</b>	<b>39</b>

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## **Foreword**

No issue in forestry evokes such strong emotions as logging — and for good reasons. Logging provides the timber and fiber needed to satisfy the rapidly increasing demands of today's societies. It generates billions of dollars in revenues, supports national economic and industrial development, and provides income and employment for millions of individuals. It conveys immense power and prestige to officials responsible for allocating harvesting rights and monitoring logging practices.

But logging — especially as conventionally conducted in many countries — also can cause significant damage to forests, or even facilitate the conversion of forests to other land uses. Logging is viewed by many people as a key factor in the loss of biological diversity and species' habitats, deterioration of watersheds and water quality, expansion of deserts and the demise of forest-dependent people. Moreover, timber harvesting is frequently seen as benefiting only a small segment of society, leaving poor people to shoulder its costs. Arguments become even more emotional when logging is blamed for causing or exacerbating floods, landslides or other natural disasters that result in loss of human life.

In response to rapid deforestation and forest degradation, a number of countries in Asia and the Pacific have imposed partial or total bans on harvesting timber from natural forests. Several other countries are contemplating similar measures. The study of the *Impacts and effectiveness of logging bans in natural forests* arose from the need to assess the successes and failures of such strategies and approaches in the Asia-Pacific region. While logging bans and other harvesting restrictions are intuitively attractive measures to support forest protection, more rigorous analysis reveals that conserving forests is not so easy as simply banning logging.

There are a number of questions regarding the effectiveness and impacts of logging bans. For example, will logging bans actually help maintain or expand the natural forest estate, or will logging continue "illegally" and perhaps even more destructively than in the past? Will countries that restrict domestic timber production simply import more wood from exporting countries, which may not have adequate capacities for ensuring sustainable forest harvesting? What will be the effects on income and employment for forest-dependent workers, communities and governments? Is it reasonable to expect timber plantations to substitute for natural forests in supplying wood needs? What are the necessary supporting conditions needed to enhance the success of logging bans and measures to conserve natural forests? The answers to these questions are crucial in guiding government policies related to logging restrictions and ensuring a policy framework that effectively supports forest conservation.

**Logging lies at  
the crux of  
conflicts  
between  
economic and  
environmental  
aspirations in  
forestry**

**A key question is  
“can logging  
bans help?”**

This study, requested by the Asia-Pacific Forestry Commission (APFC), highlights the increasing relevance of regional cooperation in developing forestry policy in Asia and the Pacific. The sharing of national experiences within the regional forum supports more efficient assessment and policy development, while ensuring that analyses retain a high degree of social, geographic and ecological relevance. This study continues a growing tradition of timely, high-quality APFC studies, which FAO is pleased to support as part of its efforts to promote sustainable forest management in the region.

R.B. Singh  
Assistant Director-General and  
Regional Representative for Asia and the Pacific  
Food and Agriculture Organization of the United Nations

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# **PART I**

## **THE LOGGING BANS**

### **IN CONTEXT**

## Context and background

### Asia-Pacific Forestry Commission mandate

During the 17<sup>th</sup> session of the Asia-Pacific Forestry Commission (APFC), held in Yogyakarta, Indonesia in February 1998, the commission requested that FAO conduct a study on the efficacy of removing natural forests from timber production as a strategy for conserving forests. The Commission recognised that a number of countries in the Asia-Pacific region have imposed partial or total logging bans (or similar restrictions on timber harvesting) in response to rapid deforestation and degradation of natural forests. Several other countries in the region are also considering harvesting restrictions, along with other strategies, to promote forest conservation. The commission noted the importance of better understanding of the impacts and effectiveness of such bans. The various experiences of countries that have implemented such restrictions provide useful indicators of the efficacy of these measures, and suggested that an approach based on multi-country case studies would provide an effective means of analysis.

***The study was recommended by the Asia-Pacific Forestry Commission***

### Objectives of the study

The principal objectives of the study were to:

- ◆ investigate past and current experiences of Asia-Pacific countries in removing natural forests from timber production as a strategy for conserving forests;
- ◆ assess the policy, economic, environmental, and social implications of logging bans and timber harvesting restrictions; and
- ◆ identify conditions necessary for the successful implementation of logging bans or likely to enhance successful implementation.

In examining the history and experience of timber harvesting bans in natural forests, the study sought to understand the impacts on both conservation and production from the natural forests, including the implications and strategies for timber supply.

### Scope of the study

The study was carried out through six country case studies in New Zealand, People's Republic of China, Philippines, Sri Lanka, Thailand, and Viet Nam. The case studies were selected to represent examples of major efforts to apply logging bans comprehensively to natural forests outside established protected areas under diverse circumstances. In addition, situations where countries are considering further banning of harvest, or where bans have been recently announced but not yet fully implemented, were reviewed to gain further insights into background, policy issues, and implementation strategies.

***The study is mainly based on six country case studies***

## **Regional overview**

### **Forestry in the case study countries**

Countries have different motivations for withdrawing forests from production. In each country in this study, there was a strong conservation ethic underlying decisions to withdraw forests from production, but the purposes and motives for wanting to conserve forests often differed markedly. While a number of commonalities can be observed among the countries reviewed, no two are exactly alike in costs borne, benefits accrued, culture, economic development, status and threats to forests, objectives or approaches used in removing natural forests from timber production.

In most countries reviewed, the 20 years preceding a decision to restrict or ban logging saw extensive deforestation and forest degradation. In several countries this drew forest stocks down to precariously low levels, but in others overall forest cover has remained satisfactory by international standards (Table 1).

**Table 1: Forest cover in the six countries reviewed**

Country	Ban imposed (year)	Forest cover			% land area protected*
		1980 (%)	2000 (%)	Change in area, 1980-2000 (%)	
New Zealand	1987	27.0	29.7	9.9	23.19
P.R. China	1998	13.5	17.5	30.1	6.05
Philippines	1991	38.4	19.4	-49.5	2.02
Sri Lanka	1990	32.7	30.0	-8.3	12.13
Thailand	1989	36.4	28.9	-20.7	13.66
Viet Nam	1997	33.0	30.2	-8.7	4.03

\*World Conservation Monitoring Centre, 1996 (<http://www.wcmc.org.uk/>)

In 1980, only China's forest cover was below the global average of 27 percent, and to some extent this is due to natural geographic factors. Nonetheless, all the countries have undergone significant deforestation in their recent past. For example, Viet Nam is reported to have had 14.3 million ha of forests in 1943, compared with 9.8 million ha in 2000. In China, the merchantable forest stock is estimated to have declined by 77 percent between 1950 and 1995,<sup>1</sup> while New Zealand's forest cover declined from around 50 percent (pre-European colonization in 1840) to 27 percent today.

More recently, trends in forest cover have been more variable. Until the 1950s, forests were abundant in the Philippines and provided a major source of export revenue in the 1960s and 1970s. The Philippines' forests were largely converted to agricultural use in the late 1970s and 1980s. At its peak, deforestation was totalling more than 300 000 ha per annum. In 1991, the Department of Environment and Natural Resources (DENR) issued an administrative order, which banned timber harvests in all virgin forests as well as steep land and mountain forests. This slowed the rate of deforestation in the Philippines, although forest loss continued at a rapid

**A strong conservation ethic underlies logging bans in case study countries**

**The case study countries have all undergone significant deforestation in their recent pasts...**

<sup>1</sup> Li Yucai (ed.) (1996). *Development Strategies for Forestry Toward the 21 Century*. China Forestry Publishing House, Beijing.

*....Thailand, for example, has lost an annual average of 330 000 hectares of natural forests since 1960*

pace after 1980 (Table 1) despite implementation of the logging restrictions. Policies allowed a continuation of harvesting in residual forests outside protected areas and watershed reservations, and areas below 1,000 m in altitude and with slopes less than 50 percent. Old-growth and valuable residual forests located in areas where Timber License Agreements (TLA) were cancelled or allowed to expire without renewal, have remained vulnerable to poachers, illegal cutters and slash-and-burn farming.

Similar trends are evident in Thailand. During the last three decades, Thailand experienced ongoing deforestation, often at rates exceeding 3 percent per annum. Since 1960, Thailand has lost an annual average of around 330,000 ha of natural forest. Both Thailand and Philippines, had similar rates of deforestation throughout the 1980s, and both countries had reduced their forest covers to a similar percentage by 1990. Logging bans were implemented in both countries at about the same time. An important difference is that, in the post-ban period, deforestation has been significantly lower in Thailand than in the Philippines, despite continuing problems with encroachment and illegal logging in Thailand.

The New Zealand situation is markedly different from those of Thailand and the Philippines. Most forest clearing took place during the 19<sup>th</sup> century. The last 100 years have seen New Zealand develop a substantial plantation forest estate that complements an economy with a considerable agricultural emphasis. The country's low population in tandem with large surpluses of plantation-grown timber and agricultural products have removed most pressures on natural forests for supplying wood or agricultural land. Subsequently, New Zealand has chosen to heavily restrict logging in natural forests to help conserve these areas. The restrictions have not been driven by any acute sense of ecological crisis as in many other countries, but rather reflect widespread societal support for preserving remaining natural forests.

Forests in China are under much greater pressures than New Zealand's forests. A strong emphasis on reforestation in China during the past 25 years does, however, bear some similarity with forestry development in New Zealand. The establishment of around 34 million ha of plantations during the past 20 years gives China the world's largest plantation estate, and provides an opportunity for future large-scale substitution for wood from natural forests. In 1980, China's forest cover was 13.5 percent – the lowest of any of the case study countries. By 2000, however, forest cover had been increased to 17.5 percent – helping to enable the Government to implement a ban on logging of natural forests in the upper reaches of the Yangtze River and the middle and upper reaches of the Yellow River.

*Plantation forests play a significant role in supplementing wood supplies*

Plantation forests are also expected to play a supporting role in the implementation of a logging ban in Viet Nam. The net loss in forest cover in Viet Nam, since 1980, has been modest relative to the Philippines and Thailand. However, the net forest loss figures incorporate the establishment of more than 1 million ha of plantations. Between 1943 and 1995, 5.7 million ha of natural forests were deforested, an average of about 110 000 ha annually. Similar to China, there are heavy population pressures on Viet Nam's forests, and large areas of natural forest have been cleared or heavily degraded. Only 5.5 percent of Viet Nam's remaining natural forests are considered "rich forests" (i.e. with over 120 m<sup>3</sup> per ha of growing stock). Another 16.8 percent are categorized as "medium-quality forests" (with between 80 and 120 m<sup>3</sup> per ha of growing stock). The

remaining natural forests are considered poorly stocked (less than 80 m<sup>3</sup> per ha) or recently rehabilitated.

The forestry situation in Sri Lanka reflects elements of the situations in all the other case study countries. Sri Lanka's closed canopy forest cover has dwindled rapidly from about 84 percent in 1881, to 44 percent in 1956 and subsequently to 27 percent in 1983. In common with the other Asian case study countries, the decline in forest cover is primarily due to rapid population growth, resulting land shortages and poverty. A ban on logging in all the natural forests was imposed in 1990. The logging ban, in association with other measures, has been relatively successful in curbing deforestation. At the same time, non-forest sources of wood have become more important. Homegardens, rubber and coconut plantations are estimated to have supplied over 70 percent of industrial roundwood in 1993. Only about 4 percent came from forest plantations. Forest plantations are expected, however, to play a more important role in supplying wood in the future.

**Non-forest  
sources of wood  
have become  
more important**

## Why logging bans?

The country case studies reveal a complex and variable mix of reasons for imposing logging bans and restrictions on harvesting in natural forests. The dominant issue is deforestation, with the primary objective of harvesting bans in most case study countries being to halt deforestation and degradation of natural forests. A choice to ban logging as a means of merely halting deforestation, however, reveals only an "option value" of forests. A more revealing question relates to the motivations behind choices to halt deforestation.

**Deforestation is  
the dominant  
issue  
motivating  
logging bans**

In spite of the crisis nature of political decisions to ban timber harvesting, desired conservation and protection policy goals are seldom clearly defined in operational terms. If a country and its people *want* more "conservation," what is it they specifically want? What are the weaknesses of existing policies, management and outputs? What are the trade-offs among different uses and different forest values? How much will be given up to achieve conservation, and what are the costs? Difficult questions must be based on clear goals and objectives, and the evaluation of alternatives.

In New Zealand, it can be argued that decisions to restrict harvesting in natural forests attributed greater weight to pure environmental values of forests than in the other case study countries. Forest policy changes in New Zealand through the late 1970s and 1980s reflected the changing and turbulent political climate and popular support for forest conservation. By the time a number of multiple-use, sustainability, and other policies for state-owned natural forests gained official acceptance in the 1970s, public concerns about forest conservation had also gained momentum. Well-organized and informed environmental groups argued the case for forest conservation on ecological, aesthetic, and recreational-use grounds. In New Zealand, there was no overriding forestry crisis that motivated a ban; rather, the harvest restrictions reflected a public perception that the natural forests should be conserved.

**Popular  
support for  
conservation  
was an  
important  
factor in New  
Zealand**

The implementation of logging bans in the Philippines, Sri Lanka and Viet Nam recognise environmental values of forests, but also reflect more extreme situations in terms of rapid deforestation and forest degradation. In

***Extremely high rates of deforestation motivated the ban in the Philippines***

the Philippines, for example, a fear of losing the diverse dipterocarp forest altogether was raised as an argument for a logging ban in natural forests.

More specifically, however, the Philippines' logging ban was implemented as a means of conserving biological diversity; to protect watersheds and safeguard coastal and marine resources; because of concerns over corruption and abuse of the TLA system; and as a means of slowing migration into forest areas and limiting the displacement of indigenous people.

**Motivations for restricting timber harvesting**

There are a number of reasons for countries to restrict timber harvesting that are complementary or subsidiary to an overall objective of controlling deforestation. These include:

- ◆ efforts to conserve biodiversity, critical habitats and representative forest ecosystems;
- ◆ a means of preventing deterioration of watersheds and water quality;
- ◆ prevention of soil erosion, sedimentation and flooding;
- ◆ stopping forest damage from inappropriate logging and abuse of contractual obligations;
- ◆ inability to effectively monitor and regulate logging operations, including inability to detect and prevent illegal logging;
- ◆ inadequate reforestation and afforestation;
- ◆ lack of management of cut-over forestlands;
- ◆ uncontrolled human migration and habitation of forested areas through logging access and opening of forest stands;
- ◆ inappropriate land clearing and conversion to agriculture;
- ◆ conflicts with rights and cultural traditions of indigenous peoples and local communities;
- ◆ loss of scenic, cultural and aesthetic resources;
- ◆ climate change and carbon storage; and
- ◆ conflicts with management of important non-timber forest products, including medicinal plants and forest genetic resources.

***Maintaining forest dependent livelihoods was a major concern in Viet Nam***

In Sri Lanka, the harvesting ban similarly acknowledged that natural forests were heavily depleted and in need of protection to support their rehabilitation. At the same time, the ban was a response to concerns for safeguarding biodiversity, protecting soil and water resources, and preserving recreational, aesthetic and cultural values.

In Viet Nam, the area and quality of forests have declined unabated, directly threatening the lives of people in mountainous areas and causing an array of other impacts. The Government recognized a need for stronger measures to protect and develop the natural forests, stabilize forest ecosystems, and ensure sustainable development. The logging ban specifically aims to improve Viet Nam's wood production capacity by

protecting and improving more than 9 million ha of existing forests. Supplementary policies aim to reforest an additional 5 million ha.

In several of the case study countries, natural disasters provided an initial catalyst for imposing logging bans. In Thailand, the logging ban was a direct response to devastating floods and landslides, which took the lives of 400 people in Nakorn Srithammarat Province in the southern part of the country in late 1988 (the logging ban was subsequently imposed in January 1989). Similarly, in China during 1998, flooding in the Yangtze River valley affected hundreds of millions of people and caused extensive damage to riverine areas amounting to a direct economic loss of 167 billion yuan.<sup>2</sup> Following the floods, logging of natural forests was banned along stretches of the Yangtze and Yellow Rivers, and in several other critical provinces. In the Philippines, catastrophic flooding killed 7 000 people in Ormoc City, Leyte, in 1992. These floods were seen as a direct consequence of deforestation and reinforced commitment to maintain previously imposed logging bans. In each of these countries, while natural disasters provided catalysts for the bans, the objectives of timber harvesting restrictions extended far broader to encompass many of the objectives listed above.

**Natural disasters provided an initial catalyst for imposing logging bans**

## Implementation of logging bans

Timber harvesting restrictions, and related implementation measures, vary considerably among the case study countries. While several countries, notably Thailand and Sri Lanka, have imposed blanket national bans on logging in natural forests, the supporting policy and regulatory measures in each country differ markedly. Other case study countries have imposed only partial logging bans, covering certain types of natural forests or specific geographic areas (as in China) or a combination of both (Philippines and Viet Nam).

**Structures of bans and restrictions vary considerably across countries**

Thailand has implemented a complete ban on logging in natural forests. This was achieved by cancelling all natural forest logging contracts and concessions, and ceasing to issue approvals for new concessions. Logging is still allowed in plantation forests, and the development of large-scale commercial plantations is being actively promoted through the Forest Plantation Act 1992. Illegal logging in natural forests has remained widespread in Thailand, while significant areas of forest are still cleared for shifting cultivation or conversion to permanent agriculture. Consequently, Thailand has continued to experience net deforestation subsequent to the ban, but at lower rates than previously.

**Total bans on logging have been imposed in natural forests of Thailand and Sri Lanka**

Sri Lanka also maintains a total ban on logging in natural forests. The Sri Lankan logging ban arose from extensive deforestation in the 1970s and 1980s, exacerbated by inappropriate policies that emphasized the use of natural forests for timber production while paying little attention to forest conservation. Assessments reveal that commercial and political pressures had determined logging practices in Sri Lanka, resulting in severe degradation and depletion of the growing stock in many areas. In 1988, selective felling in the dry zone forests was suspended pending the compilation of forest inventories and forest management plans. This suspension became a complete ban in 1990 at the time of the overall ban on logging in all natural forests. The principal thrusts of forest policies

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<sup>2</sup> US\$1 = 8.27 yuan (January 2001).

supporting the ban are encapsulated in Sri Lanka's National Forest Policy, adopted in 1995. The Policy has forest conservation as its primary emphasis, and stipulates that a large proportion of the country's forests be completely protected. It also advocates widespread implementation of collaborative forest management.

**A partial ban in the Philippines applies mainly to old-growth and steep land forests**

Logging bans that apply nationwide in the Philippines are partial bans, in that they affect only timber harvesting in old growth forests, and to forests on steep slopes, areas located more than 1 000 m above sea level, and areas covered by the National Integrated Protected Areas System (NIPAS). Additionally, however, there are total bans on all timber harvesting in natural forests in many provinces of the country. A central aspect of forest policy accompanying the bans is the widespread implementation of community-based forest management (CBFM). This paradigm shift recognizes that forest management can only succeed if communities actively participate in planning and decision-making. Despite shifts in management orientation and the various logging bans, the Philippines has been less successful in halting deforestation than most other countries. In part, this is due to the continuation of logging in some areas of the country, but more importantly to an inability to adequately control extensive slash-and-burn farming and agricultural expansion in logged-over areas and brushlands. Clearly, if the primary cause of deforestation and forest degradation is agriculture, rather than industrial forestry, a logging ban can be of only limited use in controlling degradation.

China's logging bans apply only to natural forests in specified regions. The bans, imposed in 1998, cover natural forests in the upper reaches of the Yangtze River, the middle and upper reaches of the Yellow River and the upper reaches of the Songhuajiang River, Sichuan, Yunnan, Chongqing, Gansu, Shaanxi and Qinghai Provinces. The logging bans constitute an integral part of the new Natural Forest Conservation Program (NFCP). The specific objectives of the NFCP are to reduce timber harvest volumes from natural forests from 32 million m<sup>3</sup> (in 1997) to only 12 million m<sup>3</sup> by 2003; conserve 41.8 million ha of natural forests in the upper reaches of the Yangtze River, upper and middle reaches of the Yellow River, and in Inner Mongolia, Northeast China, Xinjiang Uygur Autonomous Region and Hainan Province; and establish 21.3 million ha of timber plantations from 2000 to 2005 in the upper reaches of the Yangtze River and the upper and middle reaches of the Yellow River.

Logging bans in Viet Nam cover some specific categories of forests, as well as all natural forests in some regions. The current bans are an accumulation of transitional bans, which began in 1992 when logging in watershed protection and special-use forests was banned, and forest exploitation in seven provinces in the north was also halted. Five years later, the Government imposed a logging ban to further strengthen forest protection and reforestation of barren hills. A permanent logging ban was imposed in special-use forests, and a 30-year logging ban was instituted in critical watersheds. All commercial logging was prohibited in remaining natural forests in the northern highlands and midlands, the southeast, and in the Mekong River and Red River Delta Provinces. Logging bans presently cover 4.8 million ha of forestlands, accounting for 58 percent of the country's natural forests. Viet Nam's national land-use plan envisages extensive reforestation and regeneration efforts. These include targets to reforest (through planting and natural regeneration) more than 5 million ha of bare lands and highly degraded forestlands by 2010.

**China's ban is region-based**

**Viet Nam's ban covers a mix of designated forest types and regions**

### Measures assisting the implementation of China's logging bans

A range of measures that support effective implementation of China's logging bans are being instituted. They include:

- ◆ employment of a special team of forestry police and full-time guards to enforce forest protection and suppress illegal cutting;
- ◆ redeployment and resettlement of displaced forest workers;
- ◆ introduction of small-scale pilot investment projects to demonstrate the potential for profitable new State and private sector activities;
- ◆ Central Government funding to provinces to assist workers losing employment as a result of the logging bans; and
- ◆ tax and credit breaks to encourage commitment to development projects.

In New Zealand, the ban is largely *de facto*, in that it is based around an extensive transfer of natural forests to the protected area network, allied with stringent restrictions relating to sustainable harvesting in other natural forests. The sequence of logging restrictions has its roots in the early 1970s, when heightened public concern over forest conservation led to a gradual shift in forest policy goals. For natural forests, these largely culminated in a restructuring of Government forest administration, which saw management responsibilities for most of New Zealand's State-owned natural forests pass from the Forest Service to the Department of Conservation. This process hastened protected-area status to most of the State-owned natural forests. Natural forests that remained outside the protected area network were subject to rigorous sustainability criteria, which largely restricted harvesting.

The New Zealand case study illustrates the benefits of a gradual policy transition whereby over a considerable period of time alternative timber supplies (plantations, in the case of New Zealand) were established in anticipation of a decline in natural forest production. While the official removal of natural forests from harvesting was somewhat abrupt under national policy shifts in New Zealand, the transition had essentially been accomplished over prior decades. The establishment of a separate national Department of Conservation, with distinct goals, funding and human resources assured follow-up management and planning targeting the conservation objectives. It was perhaps incidental that the Government also chose to privatize State-owned plantations and withdraw from commercial timber production.

**Restrictions in  
New Zealand are  
based on  
sustainability  
criteria and large-  
scale transfers to  
the conservation  
estate**

**Provisions of New Zealand's Forests Act designed to protect indigenous forests**

New Zealand's Forests Act of 1949 was amended in 1993 to include stringent restrictions on harvesting in natural forests. The new indigenous forest provisions apply to about 1.3 million ha of private natural forests and about 12 000 ha of State lands that remain available for timber production. The Act also included export restrictions for wood products from natural forests, which largely replaced a previous export ban imposed in 1990.

The new provisions required mills to register with the Government and imposed restrictions on milling and exports. A transitional four-year period of harvesting (from 1992 to 1996) was also provided for, based on the mills' pre-legislation cutting levels. The intention was to allow the industry to adjust more smoothly to the change in supply. The amendments still offered limited opportunities for landowners to benefit from natural forest timber production and provided for a continuing role for specialist timber species. However, they also imposed specific restrictions, including explicit prescriptions to cover the management of natural forest species. The amended Act also required the preparation and approval of sustainable forest management plans consistent with specified management prescriptions.

## **Key outcomes**

A decision to impose logging restrictions involves clear trade-offs between economic and environmental benefits. Impacts on the social dimensions of forestry are likely to be mixed. On the one hand, employment and incomes are likely to be seriously affected. On the other, improved environmental quality is likely to accrue benefits relating to health, aesthetics and recreation. Consequently, the relative success of logging bans, depends on the extent to which environmental and social benefits exceed economic and social costs.

While the case studies reveal that some forest conservation objectives have been achieved, failures in providing effective forest protection and lack of progress towards halting deforestation appear to be more common results. The adverse economic and social impacts can be measurably discerned, undermining the incentives for sustainable management, conservation and protection of non-timber values. Removal of natural forests from timber production has had significant impacts on the forest products sectors (production, trade and consumption) in several countries and important and sometimes disruptive effects on neighboring countries through both legal and illegal trade, timber smuggling, and market disruptions.

The following sections discuss the effects of the various logging restrictions according to key indicators such as:

- ◆ Timber production
- ◆ Alternative sources of wood
- ◆ Patterns of international trade
- ◆ Socio-economic impacts
- ◆ Competitive and comparative advantages
- ◆ Achieving conservation objectives

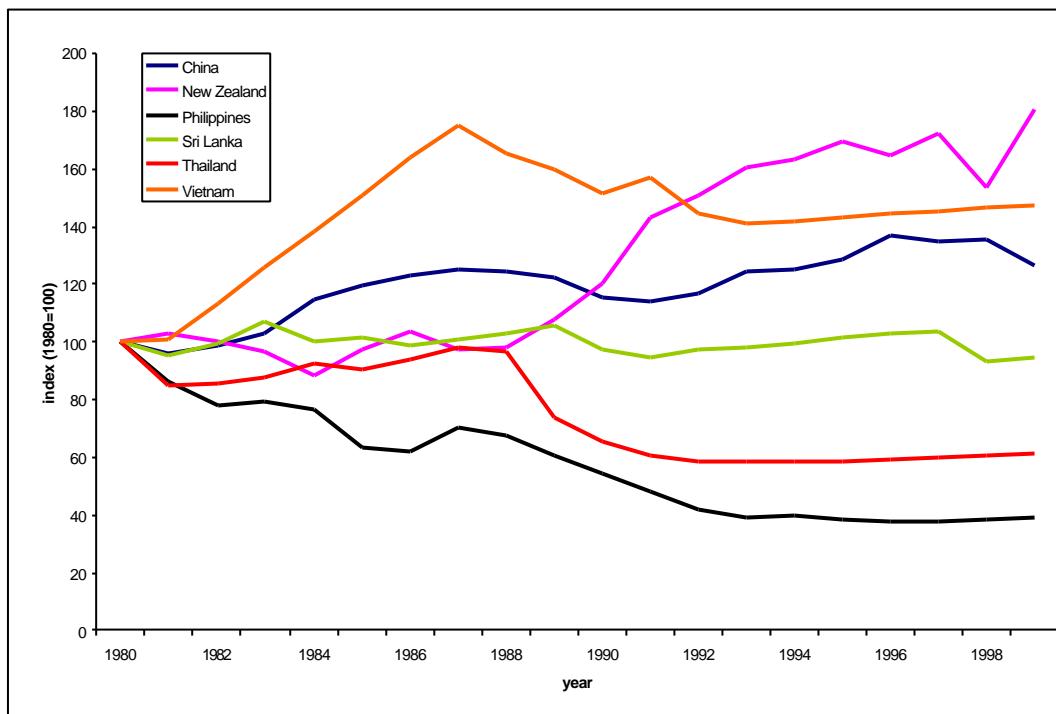
## **Impacts on timber production**

The most immediate impact of logging restrictions would expectedly be a decline in the production of industrial roundwood. Depending on the extent of restrictions, the availability of alternative wood supplies, and the extent to which the restrictions are effectively enforced, significant declines in wood production may be observed. Figure 1 shows indices of industrial roundwood production since 1980 in the six countries reviewed in the case studies.

Several discernable trends are evident in Figure 1. In Viet Nam, for example, the most significant trend is a very rapid acceleration in industrial roundwood production through to 1987. In real terms, production in 1987 peaked at 5.4 million m<sup>3</sup>. A 1992 ban on the export of roundwood, sawnwood and rough-sawn flooring planks is reflected in a modest decline in timber production. The impacts of the 1997 logging ban are less clear (Figure 1). Nonetheless, planned wood production in Viet Nam is expected to decline to 2 million m<sup>3</sup> (an index value of 65), with 85 percent of production to be harvested from plantation forests.

***Logging bans imply a trade-off between economic and environmental aspirations***

***Logging bans generally imply a decline in wood production...***



Source: FAOSTAT

**Figure 1: Indices of industrial roundwood production in case study countries (1980-1999)**

*...but, this is dependent on the availability of alternative wood sources...*

The impacts of logging bans on wood production are most obvious for Thailand and the Philippines. In both countries, the imposition of logging bans in the late 1980s resulted in marked declines in timber production. In Thailand, the implementation of the full natural forest logging ban in 1989, saw annual wood production decline from 4.6 million to 3.5 million m<sup>3</sup> in the span of one year. By the mid-1990s, wood production had reached a plateau of around 2.8 million m<sup>3</sup>. Thailand's natural forest harvest has declined from about 2 million m<sup>3</sup> prior to the logging ban, to about 55 000 m<sup>3</sup> (recorded harvest) in 1998.

In the Philippines, the logging bans accelerated a downward trend in timber production. Timber production in the Philippines reached a peak of around 12 million m<sup>3</sup> per annum in the early-1970s. By 1990, production had declined to 5 million m<sup>3</sup>, and to around 3.5 million m<sup>3</sup> by 1998.

In Sri Lanka, the logging ban imposed in 1990 has had little evident impact on wood production. This is mainly a result of a substantial shift to alternative wood supplies. Harvests from State-administered natural forests fell from 425 000 m<sup>3</sup> in 1990 to nearly zero, creating an almost total dependence on supplies from homegardens, rubber and coconut plantations and forest plantations.

*...for example, New Zealand's plantation forests*

In New Zealand, this substitution has been even more marked. Since the 1920s, New Zealand had been establishing an extensive plantation forest estate as an alternative to natural forest timber supplies. When large tracts of natural forests were transferred to the conservation estate, or otherwise subjected to logging restrictions, the country was already harvesting the

vast majority of its wood from plantation forests. The natural forest harvest experienced a further decline in production of around 200 000 m<sup>3</sup> in 1987. At the same time, the country's plantation forest harvest exceeded 9 million m<sup>3</sup> in 1987, and grew to more than 18 million m<sup>3</sup> by 2000. Less than 1 percent of New Zealand's annual wood production is currently harvested from natural forests.

The impacts of China's logging ban on domestic timber production are less evident. Industrial roundwood production grew steadily throughout most of the 1980s and 1990s. Despite this growth, prior to the imposition of the logging ban, Chinese wood supply projections estimated a deficit in supply for 2003 of 7.6 million m<sup>3</sup>. The logging ban has an ambitious goal of reducing harvests in State forests from the 1997 level of 32 million m<sup>3</sup> to a planned level of 12 million m<sup>3</sup> by 2003. The logging restrictions are, consequently, likely to exacerbate the estimated deficit to over 27.5 million m<sup>3</sup>.

For China, Philippines, Sri Lanka, Thailand and Viet Nam, the aggregate annual reduction in timber production following the implementation of comprehensive logging bans is estimated at 29.5 million m<sup>3</sup>.

### **Wood production in China, Philippines, Thailand and Viet Nam has declined since the advent of bans**

## **Alternative sources of wood**

The imposition of logging bans in natural forests involves significant assumptions about countries' abilities to access wood and fibre from other sources of supply. In general, primary alternative sources are:

- ◆ Natural forests not covered by bans
- ◆ Forest plantations
- ◆ Other non-timber plantations (e.g. rubberwood and coconut)
- ◆ Trees outside forests
- ◆ Imports

Each of the case study countries has planned or employed significantly different strategies for accessing alternative wood supplies.

In New Zealand, plantations have steadily replaced the natural forests as the mainstay of wood processing industries since the 1950s. The industry has emphasized the utilization of increasing volumes of relatively fast-growing radiata pine. In 2000, 18 million m<sup>3</sup> of roundwood (over 99 percent of the total) was harvested from forest plantations and less than 100 000 m<sup>3</sup> came from natural forests. Much of the radiata pine is in the "post-tending" age class (10 to 25 years). Maturing stands mean that the total production is likely to double within the next 10 years. New Zealand is currently producing large surpluses of wood beyond domestic requirements and is consequently in a very favorable position relative to the other case study countries.

Plantation forests are also at the heart of wood supply planning in Viet Nam and China. Viet Nam is at an early stage of further restricting timber harvests in the natural forests. Success of this effort will be largely determined by the implementation of the country's Five Million Hectare Reforestation Program, which is intended to gradually shift timber harvesting from natural forests to newly established plantations. This program envisages that plantations will provide up to 17.5 million m<sup>3</sup> of wood for domestic industrial consumption by 2010, with an additional

### **Plantations will be important sources of wood supply in China, Viet Nam, and New Zealand**

10 million m<sup>3</sup> for use as fuelwood. The ability of Viet Nam to adequately meet future demand, particularly after 2005, depends critically on the successful implementation of this program.

China has faced a growing “supply-demand gap” in timber as the quality of natural forests has continued to deteriorate, while most plantations remain several years from maturity. China has ongoing programs to expand plantations for timber production and ecological protection. For example, China presently has about 34 million ha of plantations, including “timber” plantations of almost 12 million ha. The NFPC anticipates the establishment of a further 21 million ha of timber plantations in the upper reaches of the Yangtze River and the upper and middle reaches of the Yellow River between 2000 and 2005.

## ***China's plantation programme is the world's largest...***

### **Timber plantations as an alternative source of supply in China**

The Chinese Government plans to gradually shift timber production from natural forests to plantations. The output from plantations is still well below expectations and requirements, however. Plantations are expected to supply 13.5 million m<sup>3</sup> in 2000 and 39.3 million m<sup>3</sup> by 2005. Chinese fir, Masson's pine, larch, Chinese pine and cypress account for 88.5 percent of coniferous plantations. Poplar, eucalyptus, soft broadleafs, hard broadleafs and mixed broadleafs account for 92.8 percent of broadleaf plantation species. Based on these projections, it may be possible for plantations to become the main source of industrial timber in China, provided plantation management practices are improved and the plantation areas and species structure are adapted to market demands.

**Table 2. Timber plantation production in China by species (thousand m<sup>3</sup>)**

<b>Species</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2005</b>
Chinese fir	2 780	2 780	5 280	5 280	17 850
Masson's pine	39	39	39	390	2 290
Larch	83	83	83	83	83
Chinese pine	0	0	0	0	60
Cypress	0	0	0	0	37
Others	263	263	263	263	1 580
<b>All Conifers</b>	<b>3 165</b>	<b>3 165</b>	<b>5 665</b>	<b>5 665</b>	<b>21 900</b>
Poplar	1 750	5 760	5 760	5 760	14 580
Eucalyptus	110	110	110	1 290	1 990
Soft broadleaf	490	490	490	490	620
Hard broadleaf	32	32	32	32	32
Mixed broadleaf	60	60	60	60	120
Others	150	150	150	150	100
<b>All Broadleaf</b>	<b>2 592</b>	<b>6 602</b>	<b>6 602</b>	<b>7 782</b>	<b>17 442</b>
<b>Total</b>	<b>5 757</b>	<b>9 767</b>	<b>12 267</b>	<b>13 447</b>	<b>39 342</b>

## ***...but, plantations in Thailand and the Philippines have not developed as planned***

The wood supply situations in Thailand and the Philippines illustrate economic downsides that may arise if assumed commercial plantations do not develop as planned. In Thailand, for example, the Reforestation Campaign of 1994-1996 specified a goal of establishing some 800 000 ha of plantations to offset the effects of the logging ban. New commercial plantation establishment has fallen far short of this goal, however, totalling only 164 000 ha by 1999. Large-scale industrial plantations have been opposed by rural communities. Efforts to promote small-scale plantations

had limited success. Lack of access to forestlands, weak incentives and tenure arrangements, and limited capital for investment have all constrained plantation development. At present, it is clear that plantation establishment has not met expectations, nor are plantations supplying a significant volume of industrial timber.

The wood supply situation in the Philippines is similar. Plantation establishment was expected to increase markedly, and plantation wood supplies were expected to contribute significantly as a substitute for natural timber supplies. Projections made in 1990 forecast plantation production in 2000 would total 2.8 million m<sup>3</sup>. At present, however, only a limited area of the plantations is available for harvest, with 1998 production totalling only 45 000 m<sup>3</sup>. The most recent estimates forecast annual plantation yields of only 300 000 m<sup>3</sup> during the next decade. At present, concession logging in secondary natural forests, coconut plantations, imports and "unaccounted sources" all constitute more important supply conduits than plantations (Table 3).

**Plantations provide only a minor source of wood supplies in the Philippines**

**Table 3. Sources of industrial roundwood in the Philippines, 1998**

Source	Estimated volume (thousand m <sup>3</sup> )	Percent of total
Annual allowable cut from natural forests (residual)	588	12
Forest plantations	45	1
Imports	796	16
Coconut lumber	721	14
Other (illegal cuts and other substitutes)	2 850	57
<b>Total</b>	<b>5 000</b>	<b>100</b>

Sri Lanka demonstrates the potential to restrict harvests in natural forests by shifting to alternative timber supplies. The reduction in natural forest wood supplies arising from the logging ban has been compensated mainly by increased harvests from homegardens and other non-forest wood sources, which doubled production between 1988 and 1993. Homegardens accounted for 40 percent of total wood production by 1996, while rubber and coconut plantations provided 15 percent of wood supplies and forest plantations provided 5 to 6 percent.

**Trees outside forests are the most important wood source in Sri Lanka**

## Patterns of international trade

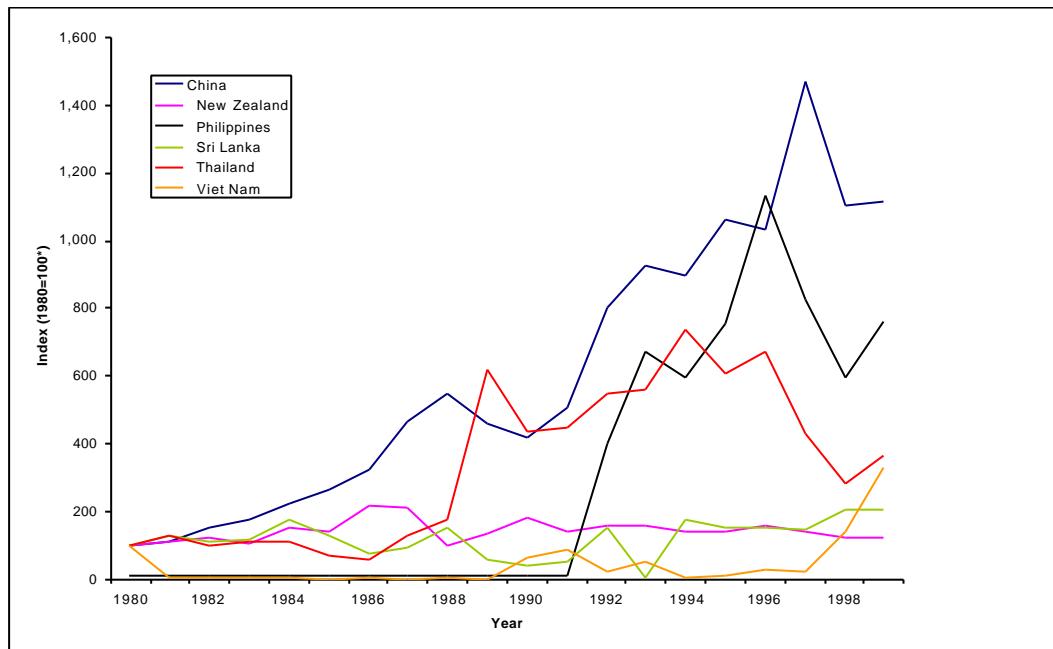
The Asia-Pacific region has long engaged in international trade of timber and wood products. In 1980, the region imported more than 70 million m<sup>3</sup> roundwood equivalent of timber while exporting 44 million m<sup>3</sup>. Importing wood is, consequently, a ready means of meeting shortfalls in domestic production. Several of the case study countries have turned to imports as a means of supplementing wood supplies constrained by logging bans and restrictions. Most notably, Thailand, the Philippines and Viet Nam have increased imports to offset timber shortages. China has also identified the need for greater imports, at least during the transitional period leading toward greater production capacity of plantations.

**Imports are a significant source of wood in several countries**

There has been little discernable change in import volumes into Sri Lanka and New Zealand in response to changes in harvesting regulations (Figure 2).

## **Changes in import volumes depend on availability of alternative supplies**

Increases in sawntimber imports as a result of the implementation of logging bans are, however, clearly evident in the Philippines, Thailand and Viet Nam. In the Philippines, sawntimber imports prior to 1992 were virtually non-existent. Following the implementation of various logging bans, however, imports of sawntimber skyrocketed to more than a 0.5 million m<sup>3</sup> in 1996. Similarly in Viet Nam, imports of sawntimber between 1981 and 1997 averaged only 5 000 m<sup>3</sup> per annum. The implementation of the logging ban coincided with sawntimber imports accelerating to 100 000 m<sup>3</sup> in 1999. In Thailand, the logging ban resulted in sawntimber imports increasing from 447 000 m<sup>3</sup> in 1987 to 2.1 million m<sup>3</sup> in 1989. Similar import trends occur across a range of other forest products.



Source: FAOSTAT

**Figure 2: Indices<sup>3</sup> of sawntimber imports in case study countries (1980-1999)**

## **Import policies may shift environmental degradation elsewhere**

International trade also opens the possibility of shifting environmental damage and deforestation to other countries or regions. One country taking actions to protect and conserve its natural forest resources can easily “export” harvesting problems to another supplier country. For example, Thailand’s logging ban has fuelled both illegal logging and greater imports along the border areas of Laos, Cambodia and Myanmar. Protection of natural forests in China has led to greater imports from the Russian Federation, Myanmar and developing countries further afield. These increases in imports may be contributing to unsustainable harvesting in some of these places. Viet Nam also imports timber from Cambodia and Laos, allegedly in part from illegal harvests. While difficult to document, these effects raise important issues regarding the environmental and protection policies of exporting countries.

<sup>3</sup> To assist scaling, the index value for the Philippines in 1980=10.

## Socio-economic impacts

Logging bans imposed in the Asia-Pacific region under conditions of crisis or as emergency responses to major natural disasters have seldom included supplementary strategies to effectively manage the withdrawn forests to achieve the desired environmental and protection goals. The typical response has been to focus on the immediate tasks of enforcing the logging bans or harvest restrictions.

When social, economic and environmental impacts are not identified, and mitigative strategies developed, the policy changes may have unexpected and unintended impacts. Government revenues decrease due to lower harvests, declining royalties and reduction of tax revenues. Government expenditures may increase due to necessary investments in reforestation activities, institutional restructuring, training of personnel and implementation of new management schemes. Previously employed workers may need retraining, and income supplements in the short run. Profitability of operations may decline, discouraging individual, household and private sector investments.

*A range of qualitative socio-economic impacts of logging bans can be identified*

## Comparative advantage

Comparative advantage is an elusive concept, largely based on market economics, prices and costs, and relative resource endowments. In broad terms, comparative advantage is held by a country that can produce a particular good more efficiently relative to other production opportunities in that country or other countries. In the context of logging bans, comparative advantage is crucial in determining patterns of change in wood production. The implementation of logging restrictions may shift comparative advantage to other areas within a country, or even between countries. For example, a country that has enjoyed a comparative advantage in harvesting natural forest timber may not enjoy a similar advantage in the production of alternatives such as plantation-grown timber. Thus, a change emphasising production in small-scale, community-based or individual household plantations may ultimately prove uneconomic in comparison to imports.

New Zealand provides a good example of comparative advantage in commercial plantations. The ready availability of land for afforestation, technical development of fast-growing radiata pine, market development efforts, efficient infrastructure, and a strong private industry willing to invest in plantations have combined to create a comparative advantage for plantation forestry. New Zealand has an increasingly large capacity to export plantation timber throughout the Asia-Pacific region, often more economically than other countries' ability to grow timber for themselves.

*Logging bans may alter national comparative advantages in forestry*

Sri Lanka also demonstrates the possibility of restricting harvests in natural forests by shifting output to economically viable alternative timber supplies derived from non-forest homegardens, plantations, and imports. The availability of suitable land, and incentives for non-State plantations and growing of timber have been instrumental in offsetting the reduction in natural forest timber production.

*New Zealand and Sri Lanka retain comparative advantage*

For China, a switch to predominantly plantation-based timber supplies will have substantial impacts intraregionally. Logging bans in China will pose a serious threat to established forest-based enterprises in the traditional

*Comparative advantage shifts between regions in China*

state-owned natural forest regions of the Northeast, Inner Mongolia and Southwest China. Plantations will result in new production capacity in the southern coastal provinces, which possess favourable conditions for growing high-yield, fast-growing species and are located close to major markets.

While biophysical conditions for growing trees are favorable in Thailand and the Philippines, institutional, policy and investment infrastructures in both countries have not effectively supported commercial plantation development. As a consequence, both Thailand and the Philippines have become major net importers of timber since imposing harvesting restrictions on natural forests. This failure to attract investments in plantations indicates that comparative advantage for increasing timber supplies may reside with countries that already have viable, maturing intensively managed plantations or those still allowing the export of timber from natural forests (for example, the Russian Far East).

Viet Nam, which has staked the success of its efforts to protect natural forests on the development of new plantation resources under the country's Five Million Hectare Reforestation Program, has yet to demonstrate the comparative advantage of this approach. To date, many technical, social and economic issues remain unresolved.

## Achieving conservation objectives

Considerable discussion has focused on the relative successes of countries in adjusting wood supply strategies to the withdrawal of natural forests from wood production. The corollary of this issue relates to the success of strategies of withdrawing natural forests from production in terms of meeting conservation objectives.

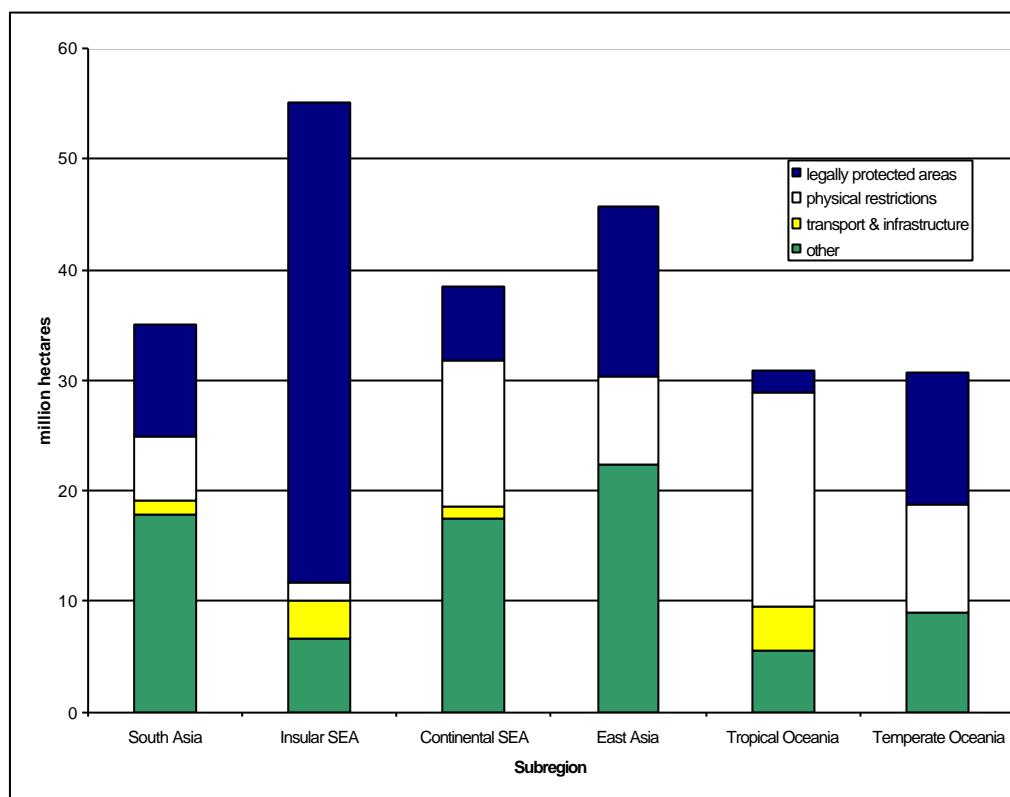
Substantial forest areas in the Asia-Pacific region are presently unavailable for harvesting for a variety of reasons. The FAO Global Fibre Supply Model<sup>4</sup> estimates that, in the Asia-Pacific region, a total of 90 million ha of forests are in legally designated protected areas (IUCN forest management categories I-II). A further 147 million ha are considered to be "unavailable for harvesting" due to physical or economic constraints, though these areas are not formally designated for conservation. These constraints include physical terrain which makes harvesting financially unprofitable using existing technologies and at current prices (58 million ha), forests where transport cost or lack of infrastructure precludes harvesting (10 million ha), or where forests are insufficient (due to degradation or an absence of commercially valuable species) to warrant harvesting (79 million ha). Figure 3 categorizes the distribution of these forests by subregion.

## ***Thailand and the Philippines lose comparative advantage?***

## ***Large areas of forest in the Asia-Pacific region are unavailable for harvesting***

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<sup>4</sup> FAO 1999: The Global Fibre Supply Model



Source: Global Fibre Supply Model 1999

**Figure 3: Asia-Pacific natural forests unavailable for harvesting due to legal, technical and economic constraints**

In many countries where extensive areas of forests have been legally designated as protected areas, considerable concerns remain over the adequacy of protected area management. A simple change in legal status from “available for harvesting” to “unavailable” or “legally protected” does not in itself assure either protection or conservation. Much of the legally protected natural forest in Asia and the Pacific is at risk of further deforestation or degradation due to ineffective policies for protection, inadequate resources for management planning and implementation, presence of forest-dependent people, and other constraints.

The country case studies indicate that substantial areas of natural forests have been legally protected or *de-facto* protected through blanket logging bans. Around 64 million ha of forests in the case study countries have, as a result of logging bans, become subject to protection. The recent implementation of the NFCP in China will initially encompass some 42 million ha of natural forests most critically in need of protection and rehabilitation. About 5 million ha of natural forests in each of New Zealand and the Philippines were brought into protected status – under separate legal administration as conservation forests in New Zealand but as *de-facto* conservation areas in the Philippines. About 8 million ha in Thailand have been closed to logging and are either declared protected areas or are awaiting formal designation. Sri Lanka increased legally protected natural forests by about one million ha under the logging ban, placing these forests

**Logging bans  
create de-facto  
conservation areas**

under separate administration. Viet Nam has added some 4 million ha to its protected areas as a result of its logging bans. An important point is that where logging bans create de facto protection from industrial forestry, this protection does not necessarily extend across other activities such as agriculture. Thus, in countries such as the Philippines, where agriculture remains a significant contributor to forest degradation, logging bans are likely to be less effective.

***Difficult to measure conservation “success”***

Measures of conservation achievement attributable to logging bans or restrictions are largely lacking. Success is usually expressed in terms of area administratively or legally closed to logging. The extent to which protection of these areas will be effective in the long run remains unclear. Conservation and protection require much more than the simple elimination or reduction of timber harvesting. Protection is most successful where strong supportive policies and institutional capacity exist (or are created) to effectively carry out the desired conservation mandate. In New Zealand, for example, natural forests have been placed under the separate administration of a Department of Conservation with supporting policies, operational support and professional staffing. Even there, however, the elaboration of specific conservation and protection goals is still somewhat indirect, leading to difficulties in monitoring and measuring conservation success in either quantitative or qualitative terms.

In the other case study countries (China, Thailand, Philippines, Viet Nam) the separation of functions is not fully defined in organizational structures or practical operational management. This potentially creates confusion or conflicts within forestry and natural resources units. Often the “timber culture” of traditional foresters casts doubts about the commitment to protection and conservation, especially where professional staffing is limited or inadequate. Similarly, ineffective enforcement of bans, the failure to provide adequate resources for management and the failure to facilitate innovative participatory management in support of conservation and protection of closed areas make the realization of intended goals improbable. For example, experiences in many parts of Thailand and the Philippines show that lack of community participation in conservation and protection discourages consensus and support, and frequently leads to local resistance to forest management activities.

***Questions as to how well bans are being enforced***

## Strategies and solutions

### Defining appropriate goals

Terms such as *conservation*, *protection*, *biodiversity*, and *environmental values* invoke broad support but do not directly convey or identify the expected results or practical outcomes from policy changes, including logging bans. Images vary widely from simply practicing good forest management to absolute preservation of natural forest ecosystems. Thus, invoking a logging ban merely as *a means of achieving forest conservation* fails to specify a sufficiently clear objective and may consequently hinder the identification of effective and efficient policy choices. Without knowing what new outcomes are desired, and at what cost and level of achievement, it is difficult to assess effectiveness of actions. For example, a goal of reducing deforestation is substantively different from a goal of protecting habitat for endangered species of wildlife, or protecting biodiversity. Policy instruments appropriate for one of these possible goals may be ineffective or counter-productive for the others.

A failure to adequately regulate timber harvesting and to assure either sustainable forest management or environmental protection is a primary cause of calls for timber harvest bans. In the absence of more specific goals, however, the operational objective of logging bans is often that of halting logging rather than creating and implementing new and innovative forms of conservation management. Thus, as a policy instrument, the banning of timber harvesting may well provide only a first step in ameliorating the present symptoms of forest management failures. A fuller consideration of alternative policy instruments may provide more efficient and effective solutions.

**Effective policy decisions require that the purposes of bans be clearly defined**

### Alternatives to logging bans

A common assumption is that halting logging is an effective means of minimizing the negative consequences of inappropriate forest use and poor forest management. The country case studies illustrate that this is true only in part. A logging ban is only one of a number of possible strategies. Other strategies and solutions have seldom been evaluated for possible feasibility and efficacy.

In some instances, forests may need to be permanently closed to timber harvesting if such activity is deemed incompatible with preferred uses. In such cases, logging bans clearly constitute a central component of a desirable strategy. In many instances, a less stringent means of regulation could be implemented to address problems such as socio-economic pressures, lack of resources for monitoring and enforcement, or corruption. Forests could continue to be harvested, but perhaps under modified management techniques such as reduced impact logging (RIL). More effective guidelines for forest practices (e.g., codes of practice), and active monitoring of logging could assure compliance with established forestry regulations, use rights and sustainable harvest levels, and minimize illegal harvesting and encroachment on forests.

**Bans are the most stringent of policy tools to control logging**

Still other situations may require only temporary or partial closure to allow for forest rehabilitation. Such bans may buy time to assess long-term goals and objectives, develop appropriate criteria, and implement management plans. Temporary or short-term logging bans ("time-out" strategies) also allow degraded forests a respite from further damage.

## **PART II**

## **STUDY OUTCOMES**

## **AND RECOMMENDATIONS**

## **Lessons learned**

Experiences gained in Asia and the Pacific over the last ten years illustrate the complex and highly variable nature of the issues and concerns involved in adjusting and balancing forest uses. In particular, the case studies indicate that the commonality of imposing a logging ban or stringent harvesting restrictions is accompanied by widely divergent approaches to enforcement of the bans, development of supporting policy and institutional frameworks, provision of transitional assistance, and alleviation of the economic and timber supply impacts of the bans. The diverse outcomes and consequences enable some broad lessons to be drawn from the case studies.

**The outcomes  
arising from  
logging bans are  
variable**

### **Selected lessons from the country case studies**

- ◆ Public expectations and demands have shifted towards the provision of environmental and social values of forests.
- ◆ Logging bans provide an instant and highly visible political response to deforestation, but also create major transitional problems and challenges.
- ◆ Banning timber harvesting does not necessarily equate to halting deforestation or conserving forests.
- ◆ In some instances, issues of tenure, rights of use and access to forests have obstructed the implementation of adaptive measures to logging bans.
- ◆ Assessment of the success of logging bans requires that policy objectives be translated into measurable performance indicators.
- ◆ Principles of equity suggest that the negative social and economic impacts of logging bans should be borne by a broad cross-section of society, which in turn may point towards the need for compensation or adjustment assistance.
- ◆ Logging bans are neither generically meritorious or flawed; their success is dependent on the quality of formulation and implementation, and hinges on firm political commitment.

## **Changing expectations and demands**

The dynamics of policy adjustments in the Asia and the Pacific region during the past 20 years suggest that public perceptions and values associated with forests have shifted in response to changes in social and economic conditions and enhanced environmental awareness. While forest products and timber-based activities continue to play an important role in national economies, recognition of non-timber and environmental values have increased.

Demands for the expansion of conservation areas have become more vociferous in recent years. The case studies illustrate an outcry against lax forest administration, poor enforcement of regulations and guidelines, the

**Public aspirations  
for forests have  
changed**

external consequences of careless logging and over-cutting, and the implied disregard of environmental values. Persistent timber harvest abuses, associated with wanton disregard for the environment, ineffective regulation, inappropriate management practices, and wasteful utilization, have increasingly become politically and socially unacceptable in many countries.

**Bans constitute a highly visible political response...**

### Logging bans as a policy response

A number of Asia-Pacific countries have mandated stringent harvesting restrictions as the policy instrument of choice. In several countries, bans have been chosen as a means of circumventing skepticism and misunderstandings regarding the viability of less stringent means of minimizing forest degradation and clearance.

One of the principal commonalities in the implementation of logging bans in the case study countries is that they have regularly been a response to perceived crisis conditions or natural disasters. A dispassionate consideration of moderate and incremental management adjustments has often given way to highly visible top-down political actions. Moreover, adequate planning and lead-time for implementation of harvesting restrictions have largely been absent. This reactionary speed has often contributed to confusion, conflict, and adverse impacts on local communities, rural households and others dependent upon forest harvesting and utilization.

#### A logging ban in Laos

One of the clearest statements recognizing a loss of faith in forestry authorities to effectively regulate logging is reflected in a Presidential Decree in Laos, which banned logging for a short period in 1991. The decree noted:

*...numerous insufficiencies and shortcomings: the forestry sector, other sectors and the administrative authorities have not yet well assumed their roles, the anarchic issuance of logging, wood processing, trade permits and wood concessions in violation of the technics (sic) and regulations have appeared in several localities. Several companies and enterprises have undertaken indiscriminate logging and wood processing in several forms. Moreover, illicit logging, document falsification and corruption of cadres and people also appeared in the wood business circle. Such insufficiencies and shortcomings have caused the forest resources and the environment of our country to meet increasing damage.*

**...but, bans alone are insufficient**

### Does banning harvesting result in forest conservation?

Timber harvest restrictions alone have not corrected underlying problems of misuse and inappropriate natural forest management. The symptoms of poor forest management and utilization are widely evident in the Asia-

Pacific region. The actual conditions and issues that create and contribute to deforestation and forest degradation are, however, more difficult to evaluate and correct with practical policy alternatives. A host of poverty-driven social problems frequently result in forest degradation. Banning commercial harvesting of timber may, in some circumstances, exacerbate these pressures. Unless there is an adequate framework for subsequent support of conservation and protection activities, the closing of natural forests that have been open for both traditional uses and commercial harvesting imposes inequities and hardships. If policies fail to provide viable alternative livelihoods or if they create economic disincentives to community- or private sector participation in conservation and protection activities, then abuses and illegal forest activities will persist.

**Policies need to address inequities created by bans**

## Tenure, use rights and access to forests

Ill-defined tenure arrangements, inadequate financial planning, lack of institutional reform, weak conservation management planning, and insufficient public participation in decision-making all constrain more successful outcomes of logging bans. An important change in Asia and the Pacific forest policies during the past two decades has been a shift towards gaining cooperation and participation of local households and communities in forest management. Where participation is effective, local dependencies on forests can be better understood and recognized in strategic planning. Similarly, the active involvement of local people in development activities and conservation efforts can alleviate concerns about employment and income generation. Often, however, governments are perceived to exercise a monopoly on decision-making, while expecting local people to bear much of the burden of forest management and socio-economic impacts.

**Public participation in decision-making is a key to success**

In all of the case study countries, governments claim ownership over much of the natural forest as well as significant areas of deforested or degraded land that could potentially be made available for new plantation development. Such tenure structure conveys huge responsibilities and opportunities for governments with respect to forest management and development.

The long-term transferability of tenure and use rights is also important as a pre-condition for non-state forest development. Without such rights, and given the long-term nature of forestry investments, the willingness to provide capital and labor for growing trees is constrained.

Most case study countries have made efforts to issue use rights and management authorities to the private sector, or alternatively have privatized some aspects of use. Several difficulties have arisen, however, with respect to rights of ownership or tenure, with governmental regulation of forest management and production, investment, harvesting and marketing of outputs. These difficulties, allied with a shortage of functioning economic systems (credit, finance, transportation, etc.), have meant that in several countries there has been little incentive for private sector participation. As a result, efforts to establish alternative wood supplies or to supplement conservation activities have fallen well short of desired levels.

**Well-defined and equitable user rights form a basis for sound forest policy**

### **Obstacles to adaptive measures in Thailand and Viet Nam**

A decade of experience in Thailand illustrates the consequences of poor planning, slow institutional response, and the absence of comprehensive strategies for logging ban implementation, conservation management and impact amelioration. Similarly, a high incidence of poverty in Thailand and Viet Nam has resulted in social conflict between local people with traditional forest use rights and the desire for commercial development by the urban elite.

In Thailand, an emphasis on large-scale, industrial plantations has been strongly resisted by local communities and viewed as transferring resource control to powerful (often non-local) elites at the expense of local welfare. At the same time, very limited incentives have been made available to encourage the profitable development of small-scale plantations. The result has been that targets for post-ban plantation establishment have fallen well short of expectations.

In Viet Nam, there is a lack of land in sufficiently large parcels to make plantation operations financially attractive. Limitations on the size of smallholdings allocated to individual farmers restrict the viability of establishing private commercial plantations. In some cases only the poorest or most degraded forestland has been allocated, reserving better land with healthier forest stands for state administration.

### **Monitoring and assessing outcomes**

Effective monitoring and assessment is critical if progress toward meeting the conservation and protection goals of logging bans is to be evaluated. The country case studies show that, generally, only simple measures of land area removed from harvest, or the area legally placed in protected area systems are used as indicators of conservation success. Qualitative indicators of various conservation and protection goals, as well as standards for assessing forest health and stand restoration are largely absent. Improving policy prescriptions requires better monitoring, and this demands that conservation and protection policy goals be translated into measurable performance indicators.

### **Mitigating social and economic impacts**

#### ***Provisions for transitional assistance may be needed to support bans***

Provisions for compensation and other forms of transitional assistance for those most seriously impacted by logging bans are likely to be fundamental to successfully implement new restrictions. Logging bans often trigger a broad variety of potentially severe impacts that may adversely affect forest-dependent people and those employed by the forest industries. These may include loss of employment and income, and loss of traditional consumption and subsistence use rights. Adverse impacts may also spread to distant production centres and consumer markets, and are likely to affect tax revenues.

Ignoring the negative impacts of logging bans tends to lead to conflict and resentment of government policy, and can unwittingly stimulate illegal

activities. Facilitating greater participation by local rural residents in forest planning and operational activities, allied with measures to alleviate poverty can go far towards building consensus, cooperation and support for conservation endeavors. Policies have to be formulated to ensure that the costs of forest conservation are equitably borne by all segments of society.

## **Incremental versus comprehensive policy implementation**

There are important differences between incremental and partial policy changes, such as imposition of a logging ban, and a more systematic and comprehensive approaches. In some instances, crises triggered action after long periods of passive tolerance or neglect. Bans born from crises such as the massive flooding and landslides in Thailand, tend to be incremental, action-oriented steps to deal with immediate problems. Conversely, China's recent logging bans, although also advanced in response to serious flooding, reflect more deliberate planning under the NFCP to comprehensively address the multiple dimensions of change. Regardless of the circumstances and origins of their implementation, none of the logging bans reviewed in the country case studies are isolated actions that were suddenly imposed (perhaps with the exception of Thailand). The underlying problems and concerns were long-term and cumulative.

Timber bans are simply one policy instrument in the spectrum of options and strategies for assuring that forests will continue to contribute to human welfare in the Asia and the Pacific region. Their success or failure in contributing to long-term natural forest conservation and protection does not lie in any generic merit or flaw, but in the quality of formulation and implementation.

***The success of  
bans is largely  
dependent on  
procedural issues***

### **Conclusions from the case studies**

The experiences in Asia-Pacific countries point towards several conditions that are necessary for successful forest conservation. These requirements are not unique to logging ban policies alone, but rather reflect the broad principles needed for success in all aspects of policy development. They include:

- ◆ the necessity of careful strategic analysis;
- ◆ strong preparation for new policy implementation;
- ◆ recognition of all legitimate interests;
- ◆ provision for addressing adverse impacts; and
- ◆ adequate support and resources to follow through on clear goals and objectives.

The experiences of the countries of the region, including some that have imposed logging bans over a decade or more, provide valuable insight into the questions of “why, how and when” logging bans can be effective. A key conclusion is that logging bans are inherently neither good nor bad as natural forest conservation and protection policy instruments. Logging restrictions are simply one set of policy tools available to decision-makers within a spectrum of options and alternatives. If bans are adapted selectively and used in combination with other complementary policy instruments, they can help assure that natural forests will be sustained and will continue to contribute to enhancing the well-being of the people of Asia and the Pacific.

## ***Ten necessary conditions for achieving conservation***

Achieving natural forest protection and conservation goals is complex and difficult, unique to each country and its resource, social, and economic setting. This makes it difficult to define a single strategy or policy option applicable to all circumstances. From the country case studies, however, it is possible to briefly outline a set of necessary conditions that will contribute to the success of logging bans as a preferred strategy for enhancing natural forest conservation.

### ***1. Policy objectives and goals must be clearly identified, specific, measurable, and consistent with local forest conditions***

Government policies should reflect high-level national goals and objectives, as well as basic strategies or means for achieving those goals. Where natural forest conservation and protection goals are absent or unclear, meaningful implementation is seriously hampered, debate and disagreement regarding intent prevails. Also, the inability to determine the appropriateness of logging bans as a central policy instrument prevents a consensus on operational programs.

### ***2. Conservation policy goals should be consistent with other forest policies, legislation and operational guidelines***

Merely announcing a forest conservation policy is insufficient to achieve desired results. The policy needs to be embedded in legislation and the subject of clear and transparent guidelines and regulations. Existing laws, statutes, directives, and operational regulations and guidelines must be reviewed and amended as necessary to assure consistency and congruence in purpose and prioritization of programs.

**Forest  
conservation goals  
should be specific  
and consistent with  
other policies**

### ***3. Policies should promote stability and be consistent with national policies and guidelines regulating other sectors***

Forest policies are an important part of the broader policy framework. They support, among others, macroeconomic goals of economic growth and development, environmental protection, social stability, education, health and public welfare. Forest sector policies must be consistent, and supportive, of higher-level national aspirations and goals. While dynamic in nature, such national policies and goals should avoid as much as possible, abrupt, unpredictable, or continuous changes or re-interpretations. Forest production and conservation are both long-term goals, requiring stability and consistency. Uncertainty regarding public policy, and the associated risks of unanticipated changes, undercut long-term efforts for sustainable management, conservation, and environmental protection.

### ***4. Institutional reform of forestry organizations should be consistent with new roles and expectations***

Withdrawing natural forests from production necessarily changes the functions of forestry institutions. This requires that institutional structures change to encompass these new roles, the acquisition of new skills for staff

and the redirection of financial resources. Changing expectations call for greater public participation in both policy and operational matters. While state and cooperative forestry will continue to be widely practiced, joint management, contract agreements, and even privatization of some forestry functions will likely expand with government playing a facilitating role.

#### **5. *The real costs of forest conservation must be recognized and consensus built for sharing of costs***

Conserving and protecting natural forests can incur considerable opportunity costs. The imposition of a logging ban often incurs large transitional costs of implementing and enforcing new policies and changing institutional structures and directions. At the same time, logging bans remove a direct source of revenue for forest management. In many instances, local people are ‘encouraged’ to participate in joint forest management. This often results in the costs of forest management being borne by these people – often without adequate advice and support. Policies that ensure adequate resources for conservation and protection, and equitable sharing of costs (and benefits) are required if greater public participation and joint management schemes are to become successful.

Changes in natural forest use and management necessarily affect the *status quo*. Although there may be strong consensus regarding the purpose and objectives of logging bans, there will inevitably be negative impacts on some individuals, organizations, communities, and local government. Without provision of ‘safety nets’ that mitigate negative impacts and provide compensation, issues of equity and fairness may well stall necessary changes. Equitable sharing may require that governments provide retraining opportunities, compensatory payments or rebates, extension funding, or numerous other forms of transitional assistance.

#### ***Costs and impacts need to be clearly recognized***

#### **6. *Greater recognition and incentives should be provided to the private sector***

Governments have dominated forestry in the Asia and Pacific region, both as policy-makers and operational managers of forest resources. Until recently, only a handful of countries had developed market-based forestry systems with comprehensive private sector involvement. In most countries, governments have retained forest ownership. Broad government control ignores the potential that market-based systems offer to forest management. Markets reward efficiency, penalize inefficiency and provide clear indicators of the various types of forest goods and services that can be economically produced and distributed. Similarly, ensuring secure property rights, equitable participation in forest management, open markets for forest products and investment, and expanded private roles in policy and management decision-making can all make meaningful contributions to strategies for successful conservation, protection and sustainable management.

**7. Land use and forest monitoring, and resource assessments must be given higher priority**

The country case studies indicate significant weaknesses in the monitoring and evaluation of conservation and protection strategies, including the impacts of logging bans. Conservation success is largely gauged in terms of the size of area designated for protection, rather than quantitative changes in criteria and indicators for specific conservation objectives. The absence of objective performance measures seriously limits the analysis of policy implementation and weakens the ability to adapt and change policies and strategies as required.

**8. Strong political commitment to practical, long-term policy and institutional reforms and implementation of effective forest management must be demonstrated**

Logging bans are implemented generally in response to political pressures for action, following long-term deforestation and forest degradation and/or natural disasters. For bans to be effective, however, governments must demonstrate meaningful long-term commitment to support and sustain new initiatives. Without long-term political support, public consensus, and adequate resources, the efficacy of bans and restrictions is likely to be compromised. Garnering the necessary political support requires that technical concepts and underlying issues that determine appropriate goals and objectives for national forest policies be better communicated to decision makers and the public.

**Political  
commitment is  
important...**

**9. Forest planning and land-use planning should be integrated and conducted as a dynamic process**

Land-use planning is a dynamic process, constantly adjusting in response to population pressures and changing social values. The growth of environmental awareness and concern about sustainability are fundamental issues for land-use planning. These indicate a shift in social values away from timber production in favor of greater environmental values. A traditional separation between land-use and forest planning has often resulted in delayed or inappropriate decisions in regard to the scale and mix of forest allocations for protected areas, biodiversity, closed watersheds, and other non-timber values.

**10. Dependencies of local people on forests need to be recognized and people need to be involved in forest management decision-making**

Centralization of natural forest policy and management has often resulted in ‘top-down’ decision-making that can easily ignore or misrepresent interests and concerns of other stakeholders. Often, traditional and customary forest uses conflict sharply with prevailing national sentiments and demands. Reductions in timber harvesting may, in some instances, marginalize forest-dependent communities. Allowing for full community participation in forest planning, policy development, and implementation can provide new perspectives and understandings to both decision-makers and forest users for mutual benefit.

**...as is public  
participation**

## ***Recommendations***

It is recommended that the APFC work with FAO, the international forestry community and member countries to encourage further development of appropriate integrated policy frameworks for natural forests, recognizing the legitimate needs for both production and conservation. These frameworks should reflect the unique conditions of each member country, and should encompass the following key lessons from the experiences with logging bans in the region:

- ◆ Practical conservation and protection goals should be clearly defined and expressed in both qualitative and quantitative terms.
- ◆ Forestland use must be acknowledged as a dynamic process, and policies must recognize dominant (often incompatible) uses requiring zoning or exclusive classifications for management, as well as multiple (integrated) uses where outputs and forest values may change over time.
- ◆ Adaptive management regimes will be required for each management alternative consistent with intended goals and priorities.
- ◆ Rehabilitation for highly degraded natural forests may require temporary or short-term closures independent of long-term future use based on restored sustainability.
- ◆ Overall environmental quality and public values require recognized “safe minimum standards” of forest practices, regardless of specific uses; such standards are frequently embodied in codes of practice or forest practice regulations, representing a consensus of public and technical viewpoints on a broad spectrum of forest practices and uses.
- ◆ Public participation in policy formulation and land-use activities is essential to generate consensus and/or broad support on issues of land-use tenure, use rights, and other options to complement government control and management.
- ◆ Roles of government forestry agencies may need to be redefined to provide guidance and technical support, but not monopoly management, of both production and conservation forestry.
- ◆ Effective monitoring and evaluation of various forestry programs, using well-defined criteria and indicators, are required to measure progress and to guide modifications needed to achieve well-defined goals and objectives.

The APFC, working together with FAO and other regional and international organizations, should support and coordinate future efforts to build upon the lessons learned from the case studies. It should also direct efforts towards gaining a better understanding of the following issues impacting natural forest protection and conservation:

- ◆ Mechanisms and options for allocating forest use rights under government ownership and control.
- ◆ Impacts of expanded international trade in timber and other forest products on natural forest conservation and protection.
- ◆ Roles of forest plantations and alternative resources as substitutes for natural forest timber in meeting national and regional market demands.

- ◆ Mechanisms for improving the technical and economic performance and efficiency of forest management, logging, timber distribution and transport, wood processing, and marketing of forest products to enhance productivity and to reduce environmental impacts.
- ◆ Ongoing and effective monitoring and evaluation of natural forest conservation and protection based on operational-level criteria and indicators complementary to internationally developed criteria and indicators for sustainable forest management.

## Conclusions

The issues and concerns related to natural forests – their use, management and conservation – suggest that the forestry sector has often failed to meet the changing demands and expectations of society. Consequences of ineffective past forest policies have sometimes been direct and immediate, such as flooding and sedimentation, or indirect and cumulative such as the loss of endangered species, habitats, or whole forest ecosystems. As a result, public pressures and governmental concerns in several countries of the Asia-Pacific region have reached a point where swift and major policy changes are demanded without a detailed analysis of alternative ways to conserve forests and use them sustainably.

Over the last decade, several countries have resorted to banning any form of harvesting in natural forests – an extreme measure with sometimes unpredictable or unintended impacts. Other countries are contemplating similar actions, along with alternatives such as long-term multiple-use forestry, sustainable forest management, and improved timber practices. It is thus useful to assess the experiences of various countries in the Asia-Pacific region for indications of the effectiveness of removing natural forests from timber production in achieving conservation goals. As long as the impacts of logging bans are not better understood, it remains difficult to either promote or reject bans as a policy option.

The experiences of Asia-Pacific countries, including some that have imposed logging bans over a decade or more, provide valuable insight into the questions of “why, how, and when” logging bans can be effective policy instruments. Examination of individual cases reveals that even though logging bans have mainly been political reactions to crises, desired conservation and protection goals have seldom been clearly defined. In actual practice, the operational objective following imposition of logging bans has been to halt logging rather than create and implement new and innovative forms of sustainable management.

Destructive logging practices may be slowed or stopped by effective bans. But ineffective implementation has often contributed to further deforestation and degradation through the lack of enforcement and control, and through the inadvertent creation of perverse incentives and impacts. Frequently, unanticipated impacts have risen both within the country imposing harvesting restrictions, as well as in neighboring countries or new emerging timber exporters as far away as Africa or South America.

The complexity and number of issues and concerns surrounding natural forests in the Asia-Pacific region suggest that solutions must be specific and based on a comprehensive understanding of the causes of the symptoms of failure observed. Furthermore, the diversity of issues and concerns imply that the desired outcomes from policy changes are also diverse and can be conflicting.

A key conclusion to be drawn from the Asia-Pacific experience is that logging bans are neither inherently good nor bad as natural forest conservation and protection policy instruments. Logging restrictions are simply one set of policy tools available to decision-makers within a spectrum of options and alternatives. If bans are adapted selectively and used in combination with other complementary policy instruments, they can help assure that natural forests will be sustained and will continue to contribute to enhancing the well-being of the peoples of the Asia-Pacific.

**Forestry sector  
needs to be  
reactive to  
societies' changing  
expectations**

**Behavioural  
incentives created  
by bans must align  
with objectives**

**Bans can be both  
good and bad  
policy...**

***...but, there are  
some necessary  
conditions for  
success***

The experiences of Asia-Pacific countries point towards several conditions necessary for successful natural forest conservation. These requirements are not unique to logging ban policies alone, but rather reflect the broad principles needed for success in all aspects of forest policy development and implementation. These include the need for careful strategic analysis and solid preparation prior to policy implementation. Also necessary is recognition and balanced consideration of all stakeholder interests, and provisions for addressing adverse impacts. Underlying all efforts, there must be adequate support and resources – including political will – to follow through on clearly established goals and objectives.