

by Christopher Barr



Banking on Sustainability: Structural Adjustment and Forestry Reform in Post-Suharto Indonesia.

MACROECONOMICS FOR SUSTAINABLE DEVELOPMENT PROGRAM OFFICE

CENTER FOR INTERNATIONAL FORESTRY RESEARCH



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C.B.
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Foreword

In 1997, a major financial crisis struck Asia. In the wake of that crisis, the International Monetary Fund and the World Bank provided large loans to the Indonesian government in return for their commitment to implement policy reforms intended to stabilize the economy and rekindle growth. Those reforms included various measures explicitly designed to improve forest management, most of which focused on forest concessions run by large Indonesian conglomerates.

The strategy those two agencies adopted had three major flaws regarding forests. First, at the same time that the two agencies were supporting forest policies intended to limit unsustainable logging, they also encouraged several non-forest policies that actually stimulated deforestation and more widespread logging. Second, by the late 1990s large forest concessions were responsible for an increasingly small portion of forest clearing and unsustainable logging. Logging outside concessions and land clearing for agriculture had become the main sources of forest destruction. Hence, focusing on concessions dealt with only a limited piece of the problem. Third, a number of the specific forest concession reforms endorsed by the IMF and the World Bank may have actually increased pressure on Indonesia's forests.

The Center for International Forestry Research (CIFOR) and WWF's Macroeconomics Program Office (MPO) commissioned this book by Chris Barr to tell that story. Our intention was not—and is not—to attack either the IMF or the World Bank. Rather we hope this book will encourage those institutions, as well as others, to re-think their policies in specific ways. For example, we want them to pay more attention to how non-forest policies such as monetary, financial, investment and tax policies affect forests and the rural poor. We also want to raise doubts about whether forest policy reforms designed to increase forest industries' efficiency would necessarily lead to companies managing the forests more sustainably. Finally, we want to highlight some specific issues, such as the rapid growth of Indonesia's pulp and paper sector and the write-off of large amounts of bad debts held by Indonesian forestry conglomerates, which previously had not received sufficient attention.

One can read this book on two complementary levels. First, it tells the story of concrete events in a specific country involving particular international agencies. This story is directly relevant for any one interested in Indonesian forest problems, the recent dramatic economic and political changes that have taken place in Indonesia, or the social and environmental impacts of World Bank and IMF policies.

At the same time, this book presents much broader lessons that have strong relevance for anyone concerned about forests and the environment in other parts of the world. These lessons are not necessarily rooted in any one particular time, location, or set of actors. One such message is that forests and natural resources more generally, are not simply economic sectors and they cannot be addressed solely through sectoral policies. What happens to these resources mirrors the broader economic, social, and political priorities and trends in society. Unless one addresses these broader trends, the underlying causes of the problems, such as market and



institutional failures, it is virtually impossible to control the symptoms such as deforestation and resource degradation. Second, we also want to highlight that societies and policy makers face many difficult trade-offs. Not everything in life is 'win-win'. It would be nice if pro-market reforms that encourage greater productive efficiency would also lead to better environmental conditions and greater social equity, but many times they do not. Society has to acknowledge those trade-offs and make difficult decisions among competing priorities and desired outcomes.

CIFOR and WWF share a common objective of making policymakers, opinion leaders, and the general public more aware of how the broad patterns of development affect tropical forests and the people whose lives depend on them. Our message to the macroeconomists and bankers of the world is pay attention to how your actions affect tropical forests and forest dwellers. Our message to the conservationists and the foresters is pay attention to the banks, both public and private. If this book leads its readers in those directions it will have served its purpose.

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Introduction: Financial Crisis and Forestry Sector Adjustment

Chapter 1

In January 1998, the International Monetary Fund (IMF) signed a letter of intent with the Government of Indonesia (GOI) to provide US\$43 billion in emergency loans to bail out that nation's collapsing economy (IMF 1998). At that point, Indonesia had been caught in its current financial crisis for six months, and the Suharto government was moving rapidly towards defaulting on its balance-of-payments. Indonesia's external debt then stood at US\$140 billion, or approximately two-thirds of the nation's pre-crisis GDP (IMF 1998). The *rupiah* had lost 70 percent of its value since mid-July 1997, when the Asian monetary crisis first spread to the world's fourth most populous country, and inflation was soaring. The nation's financial institutions were facing systemic insolvency, and new bank lending from both domestic and offshore sources had virtually ceased.

In signing the IMF's bail-out loan agreement, the Indonesian government committed itself to adopting a far-reaching set of policy reforms aimed at refloating the nation's failing monetary system and restoring long-term economic growth. Drafted by the IMF with input from the World Bank, this structural adjustment program was designed to reorient vast segments of Indonesia's economy. Key components of the adjustment program included:

■ fiscal austerity measures;

■ a tight monetary policy;

■ deregulation of major trade and investment restrictions;

■ privatization of state-owned enterprises;

■ reform and recapitalization of the nation's collapsed banking system.

The IMF's 50-point structural adjustment packet also included a number of policy reforms aimed specifically at restructuring Indonesia's forestry sector (IMF 1998). The text of the loan agreement explains that these forestry sector conditionalities were designed to raise efficiency levels in Indonesia's timber and wood processing industries and, in doing so, to promote the sustainable management of the nation's remaining natural forests.

The prominent insertion of forestry conditionalities in the 1998 IMF bail-out loan agreement marked the start of an extended reform process in Indonesia's forestry sector. Initially coordinated by the World Bank, this process soon came to involve other members of the international donor community through the Consultative Group on Indonesia (CGI). The reform agenda has been super-imposed on a process of deep structural change in the forestry sector, the origins of which pre-date the economic crisis. These changes, all of which are inter-linked, include:

■ decline in the volumes and quality of commercial timber in areas allocated to forest concession-holders;

■ growing reliance by Indonesia's wood processing industries on timber harvested through forest conversion;

■ decline in the productivity of Indonesia's plywood sector;

■ meteoric expansion of the country's pulp and paper industry;

■ decentralization and devolution of administrative authority in the forestry sector from the national government to the provincial and district governments.

This book analyzes the prospects for effective policy reform in Indonesia's forestry sector industries during the post-Suharto era. A central theme is that policy interventions aimed at promoting environmental sustainability will only succeed if policymakers address the profound structural changes that have reshaped Indonesia's forestry sector over the past several years. The chapters in this study, moreover, demonstrate that the forestry reform process must take into account economy-wide constraints, many of which fall outside of the forestry sector per se. To a very significant degree, the prospects for sustainable forest management in Indonesia will depend on the manner in which financial institutions evaluate the risks associated with forestry sector investments and how the colossal debts held by Indonesian forestry conglomerates are resolved. As importantly, the scale of these groups' forestry-related debts underscores the degree to which Indonesia's macroeconomic recovery will be shaped by the success or failure of the ongoing forestry adjustment process.

SUSTAINABILITY AS A POLICY GOAL

Of the two Bretton Woods institutions, the World Bank was largely responsible for inserting conditionalities aimed at promoting sustainable forest management into the structural adjustment program for Indonesia. The Bank had pursued environmental sustainability as a policy objective in the forestry sector during the late 1980s and early 1990s through a series of three Forest Institutions and Conservation Program loans (World Bank 2001). When it initiated this process, Indonesia's forestry sector had been open to commercial timber extraction for two decades, and the nation's HPH (*hak pengusaha hutan*) timber concession system was harvesting up to 28 million cubic meters (m³) of logs per year. Informal timber removals during this period, both by licensed concessionaires and other parties, were

believed to raise the country's total log harvest well above officially recorded levels. Since 1985 when the Indonesian government banned the export of unprocessed logs, much of the timber extracted was directed to the nation's plywood industry at prices well below world market rates.

To sustain Indonesia's rapidly diminishing forest resource base, the World Bank sought to reduce Indonesia's timber harvest to 25 million m³ per year (World Bank 1995). The Bank's strategy for accomplishing this involved three specific policy objectives, which form the core of what may be called the "sustainable logging paradigm." First, it sought to improve the government's enforcement of the selective cutting practices stipulated under the HPH timber concession contract. To this end, it tried to persuade the Indonesian government to introduce a system of performance bonds for concession-holders and to establish an independent system of monitoring concessionaire activity. Second, the Bank sought to increase the government's capture of timber rents by raising log royalties. Third, the Bank sought to raise efficiency levels in all segments of log harvesting, processing, and marketing. To achieve this, the Bank encouraged the Indonesian government to rescind the log export ban and to allow the nation's timber producers to obtain world market prices for their logs.

In 1994, the Bank's forest sector reform initiative came to an abrupt halt when the Indonesian government rejected the third Forest Institutions loan and suspended the second one midstream (Gautam, et al. 2000). At the time, the official reason given for the government's action was that the Ministry of Forestry was seeking to reduce its outstanding obligations by scaling back on non-essential loans. World Bank and government officials involved in the negotiations related to the Forest Institutions loans have since indicated that the reform

process was derailed because the policies proposed by the Bank threatened powerful interests in the sector. In particular, they are said to have met strong resistance from President Suharto's close business associate, Mohamad "Bob" Hasan, who exerted wide-ranging influence over the forestry sector through his position as Chair of the Apkindo plywood cartel.

RESTARTING THE FOREST SECTOR ADJUSTMENT

With the onset of Indonesia's financial crisis in 1997, the World Bank saw an opportunity to leverage some of the reforms that it had been unable to accomplish in its earlier efforts. Bank officials apparently believed that following the nation's monetary collapse, the Indonesian government was no longer strong enough to resist far-reaching policy changes in the forestry sector. At the IMF's invitation, the World Bank submitted several of the same concession-oriented reforms that it had pursued in the early 1990s to be included in the January 1998 Letter of Intent (Gautam, et al. 2000). The Bank and the IMF also inserted two policy interventions that were aimed more directly at dismantling Suharto and Hasan's discretionary control over the timber sector—namely, conditionalities requiring that the government's Reforestation Fund be publicly audited and that Apkindo's monopolistic control over plywood marketing be dismantled.

The forestry-related conditionalities included in the 50-point structural adjustment packet put forth by the IMF and World Bank included (IMF 1998):

- Incorporation of the government's Reforestation Fund into the central government budget, and steps to ensure that the funds are used exclusively for their intended purpose of financing reforestation programs (point 12);

- Reduction of export taxes on logs, sawnwood, and rattan to 10 percent ad valorem, and replacement of export levies with a resource rent tax (point 37);

- Dissolution of the monopoly on plywood marketing maintained by the Indonesian Wood Panel Association (Apkindo) (point 40);

- Review and increase of timber stumpage fees (point 50);

- Extension of the timber concession period and establishment of a system for auctioning concessions (point 50);

- Introduction of performance bonds for timber concession-holders (point 50);

- Reduction of land conversion targets to environmentally sustainable levels (point 50).

In the months that followed the signing of the January 1998 loan agreement, the World Bank took steps to build on the forest sector reforms included in the initial structural adjustment package (World Bank 2001). It did so by inserting forestry-related conditionalities into two Policy Reform Support Loans, which were extended to the Indonesian government in April 1998 and April 1999, respectively. Many of the conditionalities in these two loans were aimed at operationalizing the timber concession reforms

articulated in the 1998 agreement. In addition, the Bank secured a commitment from the government to map Indonesia's forest estate and to implement a mechanism for rationalizing state forest boundaries.

Through 1998 and 1999, the Ministry of Forestry and Estate Crops (MoFEC) showed little 'ownership' over the forest policy reforms put forth by the World Bank, and implementation was slow (World Bank 2001). To a significant degree, this appears to have stemmed from MoFEC's lingering resentment over the Bank's forestry intervention efforts in the mid-1990s (Seymour and Dubash 2000). In addition, the Bank faced heavy criticism from Indonesian civil society organizations over the possibility that loans would be extended to a Ministry that had enjoyed lucrative benefits through its control over the country's forest resources during the Suharto period.

BROADENING THE REFORM AGENDA

In their efforts to reform Indonesia's forestry sector, the World Bank and the IMF have worked closely with the international donor countries through the CGI. The CGI addressed forestry issues for the first time at its July 1999 meeting, and secured an agreement from the Indonesian government to host a high-level forestry seminar before the CGI convened again the following February. Entitled "Removing the Constraints: Post-CGI Seminar on the Forestry Sector," this meeting was held on January 26, 2000, one week before the full gathering of the CGI (Keating 2000).

The post-CGI seminar proved to be an important milestone for Indonesia's forestry adjustment process. It brought together a broad range of stakeholder groups, among which coordinated action will be necessary if forestry sector reform is to succeed. Participants included senior officials from the

MoFEC; the Coordinating Ministry for the Economy, Finance, and Industry (Menko Ekuin); the National Planning Agency (Bappenas); the major forestry sector industry associations; Indonesian civil society organizations; universities and research institutions; the European Union and several major donor countries; the Asian and Islamic Development Banks; and the World Bank.

The post-CGI seminar provided an unprecedented forum for the presentation and discussion of the many problems facing Indonesia's forestry sector after three decades of Suharto's New Order regime. Based on the most accurate data available, these presentations highlighted the fact that deforestation in Indonesia is proceeding at a pace of 1.6 million hectares (ha) per year - or roughly twice the rate that had theretofore been officially acknowledged (Toha 2000). They also initiated high-level discussion on a range of issues that had generally been declared off-limits by the Suharto administration, including the damaging effects of the HPH timber concession system on Indonesia's natural forests; the importance of recognizing customary (or *adat*) rights of forest-dependent communities; and the role of large-scale plantation development in Indonesia's catastrophic forest fires of 1997-1998 (Witoelar 2000).

A recent World Bank report notes that the seminar catalyzed a dramatic shift in the Indonesian government's recognition of the urgent need for forest policy reform:

In an address to the CGI on February 1, 2000, MoFEC acknowledged that management of Indonesia's forests has for the past 32 years emphasized timber extraction and that the 'alarming rate of deforestation' that has been one of the results is a matter of national and international concern.

The Ministry highlighted illegal logging, overcapacity in wood-processing industries, conversion for non-forest uses, conflict in forest areas between government control and adat rights, and forest fire as critical problems that cannot be resolved without interdepartmental cooperation within the government and participation from all forest stakeholders. Stating that sustainable development in Indonesia cannot be achieved without sustainable forest management, the Ministry issued a 'long-term commitment to put our forests back to their functions....' (World Bank 2001).

The post-CGI seminar led to three formal commitments on the part of the Indonesian government related to forestry sector reform (Keating 2000; World Bank 2001):

First, the government agreed to create an Inter-Departmental Committee on Forests (IDCF). The purpose of the IDCF was to formulate a National Forestry Program (see below) and address key policy reforms identified at the post-CGI forestry seminar. Members of the CGI have argued that the formation of an inter-departmental committee was an important step in dealing with the cross-sectoral nature of the major pressures on Indonesia's remaining natural forests. Some have also quietly noted that the IDCF played an important function in pulling the forestry reform process out of the Ministry of Forestry and Estate Crops, which was often reluctant to accept the interventions proposed by the international donor community.

Second, the government agreed to formulate a National Forestry Program (NFP). The purpose of the NFP was to set forth a comprehensive strategy for ensuring the sustainable management of Indonesia's remaining forest resources. The government agreed that the NFP process would be

set forth by a Presidential Decree to ensure high-level participation across ministries; would involve government agencies at the district, provincial and national levels; and would be carried out in a transparent manner to secure input and support from Indonesian civil society.

Third, the government agreed to take immediate action to address eight urgent issues facing Indonesia's forestry sector (Keating 2000).

These actions include:

-
- coordinated action against illegal loggers, especially within national parks, and the closure of illegal sawmills;
-
- accelerated forest resource assessment as a basis for NFP formulation;
-
- re-evaluation of conversion forest policy and a moratorium on all natural forest conversion until NFP agreed;
-
- downsizing and restructuring of the wood-based industry to balance between supply and demand for raw material and to increase the competitiveness of the industry;
-
- closure of heavily indebted wood industries under the control of the Indonesian Bank Restructuring Agency (IBRA) and linking proposed debt write-off to capacity reduction;
-
- connecting the reforestation program with the needs of forest industries;
-
- recalculation of the real value of timber;
-
- using the decentralization process as a tool to enhance sustainable forest management.
-

CONSTRAINTS ON FORESTRY SECTOR ADJUSTMENT

Despite the Indonesian government's high-level commitment to forestry reform, few positive changes have occurred in the sector since the February 2000 CGI meeting. To be sure, the government followed through on its agreement to convene an Inter-Departmental Committee on Forests, and since July 2000, the IDCF has held several working group meetings on the eight specific policy reforms it is charged with implementing. The Committee, however, has been slow to act and its member agencies have shown little effective coordination on any of these eight issues, with the partial exception of illegal logging (World Bank 2001). At the April 2001 meeting of the CGI, the government was likewise able to report little discernible progress in formulating the National Forestry Program.

By mid-2001, forestry sector adjustment in Indonesia had, for all practical purposes, stalled. This has led many participants in the reform process to reflect critically on the policy interventions put forth by the World Bank and the IMF, and more generally the CGI, in the four years since the 1997 financial crisis. It has raised important questions, on the one hand, about why the policy changes implemented by the government have had little impact in slowing forest degradation and loss; and on the other hand, why the government has failed to carry out many of the reforms it has agreed to. As significantly, it has encouraged policymakers to reconsider the types of policy interventions most likely to promote sustainable forest management under the conditions that currently exist in Indonesia.

Five factors have undermined the effectiveness of the forestry adjustment process in Indonesia over the past four years. The relative importance of these factors has varied over time and in relation to the

specific policy interventions proposed. It is important to note, moreover, that while some of these constraints could have been anticipated and addressed by the World Bank, IMF, and CGI, others decidedly could not have been. Briefly, these five factors include:

Poor preparation: The World Bank's general lack of preparedness for reentering Indonesia's forestry sector in 1998 meant that valuable time and political capital were lost during the initial phase of the adjustment process. A study by the World Resources Institute (WRI) identifies three key areas in which poor preparation undermined the Bank's performance (Seymour and Dubash 2000). First, the forest sector conditionalities attached to the January 1998 agreement were inconsistent and incomplete. To a large extent, this stemmed from the World Bank's lack of engagement in the forestry sector for the four years preceding the crisis, which left Bank staff without "the benefit of updated analysis or stakeholder consultation to support the design of those conditions." Second, the forestry conditionalities attached to the IMF's original Letter of Intent were poorly articulated in that they failed to specify desired outcomes and in some cases, were attached to unreasonable deadlines. Third, the World Bank failed to cultivate 'ownership' of the forestry reforms among key constituent groups, particularly among domestic and international NGOs.

Institutional constraints: The pace and effectiveness of the forestry adjustment process has often been constrained by the Indonesian government's own institutional limitations. In particular, lack of coordination between the Ministry of Finance, which has negotiated and overseen the structural adjustment loans, and the Ministry of Forestry has frequently meant that the latter has little sense of ownership or

accountability for implementing the World Bank and IMF conditionalities (Seymour and Dubash 2000). More generally, the Indonesian presidency has changed hands four times since the onset of the financial crisis in mid-1997, and each of these transitions has been accompanied by extensive changes in the government's senior policymaking staff. Moreover, the process of *reformasi* following the collapse of Suharto's New Order regime has involved frequent reshuffling of administrative responsibilities among government departments. The Ministry of Forestry, for instance, was combined with Estate Crops in 1998; separated again in 1999; relegated to directorate status under the Ministry of Agriculture in 2000; and restored to ministerial level in 2001.

Decentralization: A process of decentralization that was begun during the New Order period has dominated Indonesia's political economic transition since the fall of Suharto. In the forestry sector, provincial and district governments have assumed considerable portions of the administrative authority theretofore held by the national government. In practical terms, this has meant that the Ministry of Forestry no longer holds primary responsibility for land-use planning, allocation of timber concession permits, or enforcement of logging regulations in large portions of the nation's forest estate. The World Bank and international donor agencies certainly cannot be faulted for failing to anticipate the very rapid pace that decentralization has taken in post-New Order Indonesia. Nonetheless, the effectiveness of the forestry adjustment process has been limited by the fact that most of their policy interventions were negotiated with and designed to be implemented by the national government.

Misguided policies: During the initial phase of forestry adjustment, the policy interventions put forth by the World Bank and the IMF focused almost exclusively on reforming Indonesia's HPH timber concession system. To a significant degree, the proposed reforms were based on an outdated understanding of the major dynamics at work in Indonesia's forestry sector. Analysis of these interventions suggests that even if they were fully implemented, these policies would be highly unlikely to reduce log removals to a sustainable level. On the contrary, the reforms pose new threats to the nation's forests in that several of the policies encourage increased rates of timber harvesting.

Sectoral focus: The forest sector conditionalities put forth by the international donor community have largely been sectoral in nature, generally ignoring extra-sectoral pressures on Indonesia's forests. This was particularly the case during the first two years following the 1997 crisis, as the World Bank and IMF interventions were aimed at raising efficiency levels in the timber and wood processing industries. Some extra-sectoral pressures were addressed in the policy commitments adopted by the government at the February 2000 CGI meeting - most notably, the role of Indonesia's Bank Restructuring Agency in writing off corporate debts held by forestry conglomerates. However, implementation of the commitment on debt apparently has been delayed by Indonesian policy-makers' difficulties in working cross-sectorally, in spite of the CGI's efforts to facilitate inter-ministerial collaboration.

SCOPE OF THIS BOOK

The objective of this study is to analyze the prospects for policy interventions aimed at promoting sustainable forest management in three important arenas:

-
- HPH concession management and timber trade;

 - Pulp and paper expansion and financial risk assessment; and

 - Corporate debt resolution.

To be clear, this study does not aim to provide a detailed analysis of the forestry sector reform process that has occurred in Indonesia since the onset of the 1997 crisis. Nor does it offer a comprehensive policy agenda for addressing the multitude of pressures under which Indonesia's remaining natural forests currently exist. The study aims, rather, to identify a handful of strategic policy levers—both within and outside of the forestry sector—that can be used to promote more sustainable forest management practices on the part of Indonesia's forest-based industries.

Of the three policy arenas examined, the first—HPH concession management and timber trade—is, by far, the most closely related to the forestry adjustment process that has occurred in Indonesia. Indeed, the World Bank focused its initial reform efforts almost exclusively on improving concession management practices and raising efficiency levels throughout the timber sector. As such, the analysis offered in this study closely examines the specific policy interventions put forth by the World Bank, and reviews the assumptions underlying each.

By contrast, expansion of Indonesia's pulp and paper industries, and associated plantation development efforts, is an arena that has been largely

overlooked by policymakers involved in the forestry adjustment process. This lack of attention is paradoxical given that over US\$12 billion has been invested in these industries since the late 1980s and Indonesian pulp mills consumed over 100 million m³ of wood from natural forests between 1988 and 1999. Moreover, the failure of major producers to bring adequate areas of pulpwood plantations into production has meant that the country's largest mills are now facing fiber supply deficits, which carry significant financial risks. Indonesian pulp and paper producers have made large-scale investments in high-risk projects both because these enterprises have been heavily subsidized and because financial institutions have failed to adequately assess the risks involved.

The issue of corporate debt held by forestry conglomerates was incorporated into the eight commitments adopted by the Indonesian government at the February 2000 meeting of the CGI. At that time, it was estimated that Indonesian forestry and estate crop conglomerates were carrying US\$4.1 billion in outstanding domestic debt and that US\$2.7 billion of this sum represented non-performing loans managed by IBRA. These conglomerates also held over US\$15 billion in outstanding debts to offshore creditors. At the CGI meeting, the government agreed to close heavily indebted wood processing industries under IBRA in order to ensure that these groups did not receive a capital subsidy through debt write-off. To date, however, the government has done little to address this commitment.

This lack of action can be attributed largely to sectoral thinking: Ministry of Forestry officials have shown little interest in or capacity to formulate a strategy to ensure that indebted forestry conglomerates repay their financial obligations. Finance sector officials, likewise, have shown little

inclination to incorporate technical forestry data into the process of corporate debt restructuring. The recent financial collapse of Asia Pulp & Paper, Indonesia's largest pulp and paper conglomerate, highlights the considerable degree of moral hazard associated with Indonesia's forestry sector debts.

ORGANIZATION OF THE BOOK

The book is organized into six chapters:

Following this one, **Chapter Two** traces the development of Indonesia's forest sector industries under the New Order regime (1966-1998).

Chapter Three analyzes the likely effectiveness of the World Bank's efforts to achieve environmental sustainability in the forestry sector by reforming the HPH timber concession system and improving efficiency in wood-based industries.

Chapter Four analyzes the factors encouraging large-scale investments in Indonesia's pulp and paper sector at a pace that far exceeds efforts to secure a sustainable fiber supply through plantation development. In particular, it examines the failure of both domestic and global financial institutions to fully assess the financial risks involved with pulp and paper projects.

Chapter Five examines the process through which forestry conglomerates are securing capital subsidies through corporate debt write-off under IBRA and through restructuring arrangements with offshore creditors. Particular attention is given to the moral hazard issues associated with poor due diligence practices and the refinancing of high-risk enterprises.

Chapter Six offers conclusions and recommendations for strengthening the forestry reform efforts currently underway in Indonesia.

It should be noted that the chapters of this book were written over a two-year period from mid-1999 to mid-2001. As such, they are in many respects not entirely up-to-date with current developments in Indonesia's forestry sector. In particular, the far-reaching effects of the decentralization process in the forestry sector do not receive adequate attention. However, it is hoped that readers will recognize that the value of these chapters lie less in their details than in their overarching conclusions.

Perhaps the most important theme presented in the following chapters is that if Indonesia's remaining natural forests are to be managed sustainably, the institutional actors involved in the forestry adjustment process will need to recognize the structural changes now occurring in the sector. For the policy process, this implies a need to shift emphasis away from improving the management practices of HPH timber concession-holders and toward dealing effectively with the problem of overcapacity within Indonesia's wood processing industries. Just as importantly, the future of Indonesia's forests will depend on how the government and the international community choose to resolve the country's corporate debt crisis and restructure its financial sector. The prospects for sustainability will also depend on the degree to which global financial institutions—investment banks, export credit agencies, and brokerage houses—adequately assess the financial risks associated with investments in Indonesia's forestry sector industries.



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The Development of Indonesia's Forest-Based Industries Under Suharto's New Order Regime 1966-1998

Chapter 2

Indonesia has the world's third largest tract of tropical forests, surpassed in area only by those of Brazil and the Congo. In 1997, the country's total forest cover was officially estimated to be 100 million ha (MoFEC, cited in World Bank 2001). The natural forests of Kalimantan and Irian Jaya, in particular, are among the most biologically diverse ecosystems on earth, with each containing over 900 species of flora, between 34 and 55 percent of which are endemic (MacKinnon, et al. 1996). It has been conservatively estimated that at least 20 million people depend on Indonesia's forests for the bulk of their livelihoods (Sunderlin, et al. 2000).

The forests of Indonesia's Outer Islands¹ remained largely intact until the inception of Suharto's New Order regime in 1966. Over the ensuing 32 years, however, approximately 40 million ha of natural forest are believed to have been lost, and a much larger area of forest left in degraded condition. Between 1985 and 1998, deforestation is estimated to have occurred at an average pace of 1.6 million ha per year (Toha 2000). To a large extent, this rapid loss of forest cover was driven by the New Order state's promotion of forest-based industries for macroeconomic development and its utilization of forest resources as an important form of political patronage. Through the Suharto period, Indonesia's forestry sector ranked second only to the petroleum sector in its contribution to the country's gross national product (GNP).

This chapter traces the growth of Indonesia's forest-based industries under the New Order regime. It describes, in particular, three general stages of forestry sector development:

¹ The term 'Outer Islands' is used to refer to all of Indonesia's islands other than the densely-populated Java and Madura. Systematic timber extraction in the teak forests of Java has been carried out by successive colonial and post-colonial states since at least the early 17th century (Peluso 1992).

Rise of commercial timber extraction: The New Order government took control over the nation's vast forest resources in 1967, and initiated a process through which it would distribute over 60 million ha of timber concessions to privately owned companies (Brown 1999). During the 1970s, Indonesia was the world's largest exporter of tropical timber, shipping nearly 300 million m³ to international markets.

Growth in domestic wood processing: In the mid-1980s, the government imposed a national ban on log exports to catalyze downstream investment in plywood production. By the end of that decade, Indonesia had 132 plywood producers capable of producing over 12 million m³ of panels per year (Apkindo 1990). Indonesia's wood panel industry supplied over 70 percent of the world's tropical plywood exports through the 1990s and generated an average of US\$3.5 billion in annual export revenues. Under Suharto, the Indonesian Wood Panel Producers Association (or Apkindo) exercised monopolistic control over plywood exports, channeling enormous profits to Mohamed "Bob" Hasan, one of the President's closest associates.

Expansion of pulp and paper production: Between 1987 and 1997, the nation's pulp and paper production capacity grew by nearly sevenfold to reach 3.9 million tonnes and 7.2 million tonnes per year, respectively (APKI 1997). This expansion has placed new structural demands on Indonesia's forest resources, as pulp production on this scale entails the consumption of approximately 20 million m³ of fiber. To assist Indonesian pulp producers in obtaining raw material for their mills and in keeping their production costs among the lowest in the world, the New Order state provided heavy subsidies for the development of

pulpwood plantations. Through 1997, the government allocated 4.5 million ha of forestland to pulp producers for staged clear-felling followed by the planting of fast-growing hardwood species.

THE LEGAL-REGULATORY BASIS OF NEW ORDER FORESTRY POLICY

Large-scale logging began in Indonesia's Outer Islands in the late 1960s, shortly after the New Order regime came to power. Following the transfer of formal political authority from Sukarno, the Republic's first president, to Suharto in March 1966, the new regime's leadership was confronted with a domestic economy that was at a virtual standstill, soaring inflation, and a ballooning foreign debt, as well as widespread absenteeism within the state bureaucracy (Anderson 1990). Deep internal divisions also existed within the Indonesian military, and at that point, Suharto's own power base was largely limited to Java's Diponegoro Division and Army Intelligence, each of which he had headed in the years preceding his ascent to the presidency (Crouch 1988). Within this context, the New Order's senior officer corps saw the rich *dipterocarp* forests of the Outer Islands to be both a ready source of foreign exchange and a valuable resource that could be distributed through informal patronage networks to bolster its own political legitimacy at all level of the state apparatus (Barr 1999).

In May 1967, New Order policymakers adopted Indonesia's first Basic Forestry Law (*Undang-Undang Dasar Kehutanan*, hereafter BFL), which gave the state comprehensive legal-regulatory jurisdiction over 143 million ha—or roughly three-quarters of the nation's land area (Barber 1990). In defining this area as state-controlled “forest estate” (*Kawasan Hutan*), the regime's leadership effectively subordinated the traditional (*adat*) rights of forest-dependent

communities to national forestry law and policy.

To set forth a comprehensive legal and administrative framework for managing the nation's forest resources, the BFL delineated four functional categories to classify the land encompassed in the forest estate (Barber and Churchill 1987). These included protection forest; production forest; nature conservation forest; recreation forest. In the late 1980s, a fifth category, conversion forest, was adopted to cover degraded forest lands designated for permanent conversion to other uses.

The BFL laid the basis for commercial exploitation of Outer Island timber by giving the state forestry bureaucracy the authority to grant a “Right of Forest Exploitation” (Hak Pengusahaan-Hutanor, HPH) to state-owned corporations and to private investors in areas classified as Production Forest. The HPH contract provided the concession holder with nontransferable logging rights to a discrete area of production forest for a period of 20 years.² In a strictly technical sense, the HPH contract required concessionaires to adhere to what the Forestry Department defined to be principles of sustainable forest management under its “Indonesian Selective Cutting” system (*Tebang Pilih Indonesia*). Specifically, HPH holders were prohibited from harvesting stems with a breast diameter smaller than 50 cm and were required to manage their concessions according to a 35-year cutting rotation.³

2 The specific terms of the HPH contract were detailed in Government Regulation 21 of 1970. See Barber (1990) and Gray and Soetrisno (1989) for a fuller discussion of the HPH contract and Indonesia's timber exploitation laws.

3 In formulating these requirements, forestry policymakers assumed that logged-over forest would naturally regenerate at an average rate of 1-2 m³ per hectare per year, and as such would be able to sustain a selective harvest on average every 35 years. To promote concessionaire compliance with the HPH contract, the Forestry Department required that private timber operators submit for approval 20-year, 5-year, and annual work plans. Approval of the yearly work plan was supposed to involve cruising of the applicant's logging block by provincial forestry officials in order to determine the company's annual allowable cut (AAC).

The New Order state's framework for rent capture in the timber sector involved the collection of a variety of fees and royalties, which were modified both quantitatively and qualitatively over time. The main instruments of rent collection included the following:

- HPH License Fee (*Iuran Hak Pengusahaan Hutan*, or IHPH): an area-based fee collected annually from concessionaires.
- Forest Product Royalty (*Iuran Hasil Hutan*, or IHH): an *ad valorem* fee on each unit of timber harvested, depending on species and grade.
- Timber Export Tax: an *ad valorem* tax on all exported wood, differentiated according to species and grade.
- Reforestation Guarantee Deposit (later changed to a nonrefundable Reforestation Fee): introduced in 1980, this stumpage-based fee was officially introduced to ensure that concession holders would replant harvested areas but later became the largest tax on the timber industry.

Provincial and sub-provincial state agencies also collected a variety of lesser fees from private timber operators, including a regional development royalty, log pond and grading fees, as well as transport and port levies. In setting this schedule of fees and royalties for the forestry sector, New Order policymakers initially underpriced Indonesian timber quite considerably both in terms of the stumpage value of the wood and in relation to the fees that logging companies were required to pay in nearby timber-producing countries (Gillis 1988). In doing so, they created a system in which the majority of timber rents generated from a logging concession would flow to the HPH holder, not to the state.

THE RISE OF INDONESIA'S EXPORT-ORIENTED LOGGING INDUSTRY

With the establishment of the HPH concession system, the Forestry Department opened Outer Island forests to commercial timber extraction in 1967. This triggered a rush among both multinational logging companies and domestic entrepreneurs, particularly among Indonesia's ethnic-Chinese minority, to obtain HPHs that were well-stocked with commercial timber species. The largest of these investors often entered into partnerships with military officers or politico-bureaucratic power holders, scores of whom received HPHs from the New Order leadership in order to secure their loyalty to the Suharto regime (Ross 2001).

In such ventures, the military or bureaucratic stakeholder generally functioned as a "silent partner," receiving a 20 to 25 percent equity share in the enterprise by virtue of the fact that it had secured the concession and would provide political protection. The foreign or ethnic Chinese investor would contribute the bulk of the venture's investment capital, equipment, and day-to-day management of the logging operations. Allocating HPHs according to discretionary, nonbidding procedures, the Forestry Department distributed 519 timber concessions, covering 53 million ha, between 1967 and 1980 (Barr 1999).

The legal-regulatory framework and the policy environment that the state put in place to encourage private capital investment in the timber sector rapidly generated large volumes of log exports and exchange earnings. As Table 2.1 indicates, Indonesia's log production rose by 470 percent during the first eight years of the New Order period, climbing from 6.0 million m³ in 1966 to 28.3 million m³ in 1973. As significantly, the recorded volume of log exports during this period rose from 334,000 m³ to 18.5 million m³. By 1973, Indonesia's logging industry generated US\$562

million, or 18 percent of the nation's total exchange earnings (Barr 1999).

While the timber sector's contribution to GNP dropped substantially following the 1973 oil boom, Indonesia's log export levels and the revenues they produced reached new heights in the late 1970s. The known volume of unprocessed timber shipped overseas exceeded 20 million m³ per year during 1976-78, when Indonesia supplied 44 percent of world hardwood log exports. Moreover, annual earnings from log exports exceeded US\$1.5 billion during the timber boom of 1979-80.

Through the 1970s, a very significant portion of the exchange earnings produced by Indonesian log exports remained in the hands of private timber operators. Indeed, the official taxes, fees, and royalties collected by the various government agencies in the timber sector amounted to only a fraction of the actual rents arising from forest exploitation in the Outer Islands. Ruzicka (1979) estimates that the state captured between 25 and 33 percent of the total rents generated by timber operators in East Kalimantan during the period 1973-77. A more recent study for Indonesia's Ministry of Finance suggests that the state's rent capture may have actually fluctuated between 15 and 27 percent during this period (Haughton, et al. 1992). In other words, private concession holders were able to pocket between 67 and 85 percent of the returns from their logging activities *above and beyond a normal rate of profit*, which is generally assumed to be 15 percent per year.

The formal profit flows generated by the state's policy of rapid timber extraction, in fact, accounted for only a portion of the accumulation that occurred in the timber sector during this period. Indeed, some industry analysts have argued that actual timber removals by HPH holders were approximately twice the

reported volumes (Kartodihardjo 1999). Logging companies regularly cut areas that exceeded those documented in their annual work plans, and HPH holders frequently harvested forests located outside their concessions. In some provinces, illegal logging teams also conducted unauthorized operations in state-owned forests or within the boundaries of HPHs held by legitimate timber operators.

Several structural factors made these systematic transgressions of the HPH contract and related timber regulations possible. Most fundamentally, perhaps, the HPH contract itself was weak, delineating only general principles for timber company behavior but providing few specific guidelines for companies to follow (Gillis 1988). For instance, the fact that the annual allowable cut was set at 1/35 of the total concession area gave private timber companies an incentive to log areas outside those indicated in their official workplans in order to fully exploit their HPHs during the 20-year contract period.

In addition, the state forestry bureaucracy lacked the human resources and institutional structures necessary to effectively monitor concession management practices in the vast areas allocated to private logging companies. Most of the largest timber operators, moreover, were tied to military or politico-bureaucratic power holders, who provided them with a considerable degree of regulatory immunity. The widespread involvement of state elites in the timber industry meant that Forestry Department efforts to enforce the HPH contract were generally mediated by the interests that particular concession holders represented.

The collusion of government officials in circumventing timber regulations was not limited to the protection of well-connected logging companies by national state elites. Rather, timber was an important

form of booty for individual officials and institutional power holders at all levels of the state apparatus, most of which received formal salaries and budgetary outlays that met only a portion of their personal and organizational expenses. Regional military commands and forestry officials in the Outer Islands frequently worked together to extract profits from the timber resources within their jurisdictions (Sacerdoti 1979). These groups regularly provided ‘protection’ and bureaucratic ‘handling’ services for concession holders

in order to extract a variety of illegal fees and, in some cases, to obtain a portion of the logs harvested. It was not uncommon for provincial officials to engage legitimate timber operators in production-sharing arrangements to log state-owned forestlands located outside the boundaries of those operators’ concessions. By the same token, provincial timber syndicates sometimes used their coercive power to conduct illegal logging operations within existing HPHs, with or without the consent of the concession holder.

Table 2.1: Indonesian Log Production and Exports (1965-1980)

Year	Production (‘000 m3)	Export Volume (‘000 m3)	Nominal Export Earnings (US\$‘000)	Real (1980) Export Earnings (US\$‘000)
1965	5,815	209	2,618	6,836
1966	6,044	334	3,886	9,863
1967	6,587	590	7,815	19,296
1968	7,339	1,552	15,590	36,943
1969	8,934	3,728	29,347	62,308
1970	12,614	7,850	86,341	175,847
1971	15,696	10,848	163,960	322,756
1972	18,870	13,930	229,082	425,013
1973	28,297	18,523	562,013	939,821
1974	25,321	16,897	703,658	1,176,686
1975	18,781	14,746	439,948	673,734
1976	25,939	20,055	841,452	1,144,833
1977	28,825	20,127	925,409	1,168,456
1978	27,801	20,694	936,406	1,182,331
1979	24,109	19,517	1,579,468	1,792,813
1980	24,662	16,314	1,559,303	1,559,303
Total	294,870	185,914		10,660,839

Source: FAO, Yearbook of Forest Products (various years)

DOWNSTREAM INVESTMENT IN PLYWOOD PRODUCTION

In the early 1980s, state policymakers began to prioritize the development of an internationally competitive plywood industry in Indonesia and took a series of decisive steps to push private timber firms to shift their operations downstream. Most dramatically, the Directors General of Forestry, Multifarious Industries, Domestic Trade, and Foreign Trade jointly announced in April 1981 that a national ban on log exports would be introduced in phases by the end of 1984. Effectively cutting off Indonesian-based logging companies from international timber markets, the log export ban forced HPH-holders to invest in plywood production if they wanted to maintain access to the often exorbitant timber rents that they had enjoyed thus far.

By 1985, 101 plywood producers had brought processing operations online—up from 21 just six years earlier—and the nation’s wood panel industry had an annual production capacity of 6.5 million m³ (Apkindo 1986). The industry continued to expand rapidly through the late-1980s, and by 1990 Indonesia had 132 plywood producers capable of generating 12.6 million m³ of panels per year (Apkindo 1990).

The New Order state’s policy of pushing private logging companies to invest in plywood production also effectively concentrated control and ownership of capital in the timber sector. In response to the state’s disciplinary measures, which included increasingly strict requirements concerning local ownership, large numbers of foreign timber companies pulled out of Indonesia in the late 1970s and early 1980s. At the same time, domestic concession-holders who were unable or unwilling to invest in wood processing operations either sold their timber rights or otherwise aligned with larger firms. In this way, substantial areas

of Outer Island concessions became concentrated into the hands of a relatively small number of integrated timber conglomerates, which linked large-scale logging operations with plywood production.

By the mid-1990s, the 10 largest of these groups controlled 228 HPHs, covering over 27 million ha or 45 percent of the 60 million ha that had been allocated to private timber operators up to that point.⁴ As Table 2.2 shows, these groups also owned 48 of the nation’s 132 plywood firms in 1990, accounting for just under 40 percent of the wood panel industry’s total production capacity.

Apkindo and the Strategic Marketing of Indonesian Panels

The log export ban was phased in at a time when many of the world’s major plywood export markets were locked in an extended recession and demand for Indonesian panels was low. Recognizing that direct competition among Indonesian producers posed a serious threat to the timber industry’s overall profitability, New Order policymakers took steps during the early 1980s to regulate the nation’s plywood exports. They did so by giving Bob Hasan far-reaching authority to transform the Indonesian Wood Panel Association (*Asosiasi Panel Kayu Indonesia*, or Apkindo) into a collective marketing apparatus with cartel-like powers (Barr 1998).

Shortly after being named chair of the producers’ association in December 1983, Hasan installed a marketing commission for Apkindo and six market-specific price stabilization teams focused, respectively, on: 1) Indonesia’s domestic market; 2) the United States and Canada; 3) the United Kingdom and the European Economic Community; 4) Hong Kong and the People’s Republic of China; 5) Singapore and the

⁴ At that point, the state forestry enterprises Inhutani I, Inhutani II, and Inhutani III collectively held five concessions covering an aggregate of 3.8 million ha.

Table 2.2: Concession Holdings (1994-95) and Plywood Production Capacity (1990) of Indonesia's 10 Largest Timber Conglomerates

Group	Number of HPHs	Total Area (Ha)	Number of Plywood Firms	Plywood Capacity (m ³)
Barito Pacific	68	6,125,700	13	1,236,900
Djajanti	30	3,616,700	6	618,000
Alas Kusuma	26	3,364,200	5	409,340
KLI	21	3,053,500	2	349,300
Bob Hasan Group	12	2,380,800	4	390,000
Korindo	15	2,225,500	6	624,000
Surya Dumai	14	1,801,400	3	405,400
Satya Djaya Raya	13	1,663,500	3	369,000
Tanjung Raya	15	1,530,500	3	270,500
Hutrindo	14	1,503,750	3	252,000
Top 10 Groups	228	27,265,550	48	4,924,440
Industry Total	585	62,534,370	132	12,595,290

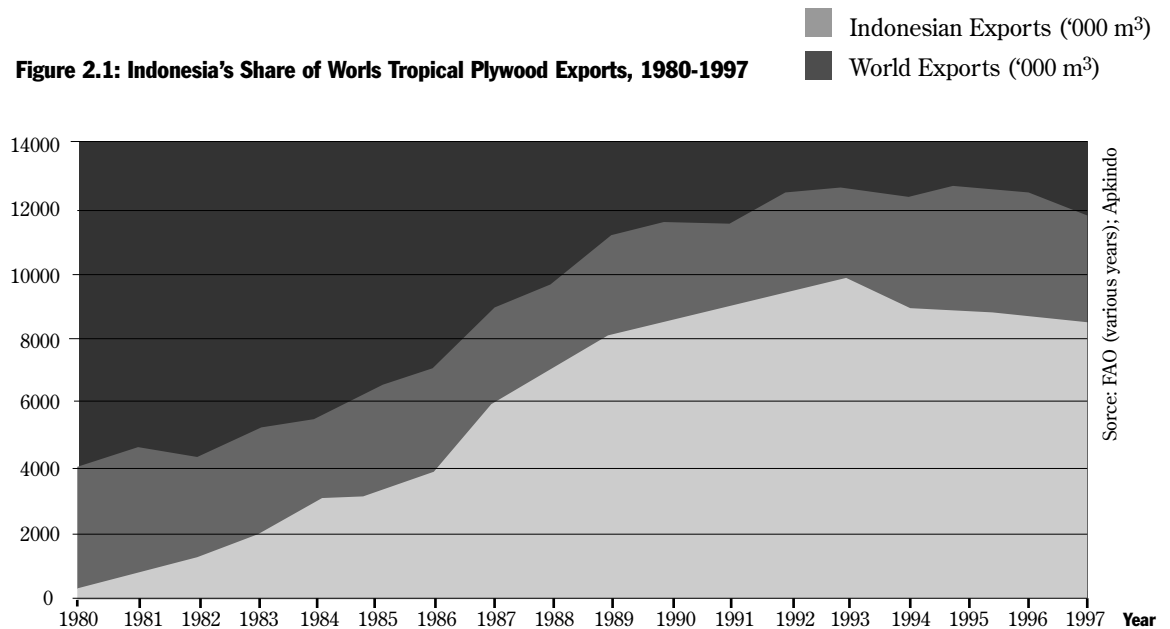
Source: Concession data (Brown 1999); plywood figures (Apkindo 1990).

Middle East; and 6) new markets. Initially, the price stabilization teams provided market-specific recommendations on a quarterly basis to the marketing commission, which in turn set check prices for Indonesian panel shipments to each destination country.

In late 1984, Apkindo's 108 members were organized into seven joint marketing boards (JMBs), ranging in size from six to 22 firms. With the Ministry of Trade's active support, Apkindo effectively restricted the allocation of plywood export licenses to members of a recognized JMB and, in doing so, established wide-ranging powers over the marketing practices of Indonesian producers. Under the joint marketing system, individual panel-makers were no longer permitted

to enter into binding sales contracts or to open letters of credit on their own behalf. Rather, they were obliged to submit proposed sales agreements with prospective buyers to the JMB, which would review them to determine if the volume of panels, price, and terms of payment were in accordance with the Marketing Commission's industry-wide policies. In April 1986, the Ministry of Trade further authorized the Marketing Commission to assign each JMB a quota defining the volume of panels that its members were required to sell to "traditional" markets.⁵ Producers that either exceeded or failed to supply the specific volume assigned to them faced fines of US\$100 for every cubic meter that they over- or under-sold their quota.

Figure 2.1: Indonesia's Share of World's Tropical Plywood Exports, 1980-1997



With the JMB quota system in place, Apkindo had the institutional capacity not only to determine the price of Indonesian panel exports to each destination country but also the ability to micromanage the specific volume of panels that individual producers shipped to particular markets. Through the mid-1980s, Apkindo's Marketing Commission used this power to mount strategic assaults on the world's "traditional" plywood-importing countries, including the United States, Canada, several European nations, China, Saudi Arabia, and other parts of the Middle East. It generally did so by flooding these markets with large volumes of cheap commodity-grade plywood in order to push out competing panel exporters, particularly

those from the transit-processing industries of Northeast Asia.

As Figure 2.1 shows, Indonesia's total plywood exports rose from 283,000 m³ in 1980 to just under 9 million m³ in 1991. As significantly, Apkindo's share of the world's tropical plywood exports during this period climbed from 7 to 79 percent.

Bob Hasan's Marketing Monopolies

In his position as chair of the producers' association, Bob Hasan was able to divert a significant portion of the plywood industry's economic rents for his own use (Barr 1998). In one sense, he had unparalleled access to hundreds of millions of dollars that were extracted from Apkindo's members through the collection of a variety of institutional fees, the most significant of which included an export promotion/market development fee of US\$7-10 per m³ and an aerial photography fee of US\$2-4 per m³. Hasan also used his power

⁵ Apkindo used the term "traditional markets" to refer to countries and regions that already imported large volumes of tropical plywood in the early 1980s. These included the US and Canada, the United Kingdom and Europe, Hong Kong and China, Singapore, and the Middle East. All other markets were referred to as "new markets." Chris BarrDraft, September 14, 2001 C.Barr@cgiar.org

within the association to assign monopoly contracts to firms under his own control. In the late 1980s, his Kencana Freight Lines was awarded an exclusive contract to ship Indonesian panels to foreign markets, and his insurance company, PT Tugu Pratama, was assigned sole authority to insure Apkindo members' plywood exports.

More significantly, in late 1988, Hasan established Nippindo, a marketing firm in which he held a 95 percent interest, to function as the sole distributor of Indonesian plywood in the Japanese market. Indonesian panel producers were then required to sell between 15 and 30 percent of their total production through Hasan's marketing firm at prices set by Nippindo. These prices were generally set below market rates, allowing Hasan to capture considerable profits through price mark-ups without assuming any direct personal risk. By the end of 1993, Nippindo handled 3.4 million m³ in annual panel shipments to Japan, accounting for 38 percent of Apkindo's total exports.

Through the mid-1980s, Bob Hasan moved aggressively to expand the monopolistic control that he held over Indonesian plywood exports to Japan by introducing similar arrangements for panel shipments to other destination countries, as well. Specifically, in late 1994, he established a series of marketing bodies which, like Nippindo, were assigned licenses to function as the sole distributor of Indonesian plywood to particular national and regional markets. These included Indo Kor Panels Ltd. in Hong Kong to handle sales to the South Korean market; Celandine Co. Ltd. in Hong Kong to coordinate panel shipments to China and Taiwan; PT Fendi Indah in Jakarta to manage

exports to the Middle East; and Fendi Wood in Singapore to oversee sales to Singapore and Europe (Lingga 1994).

With the establishment of these monopoly distributorships, Hasan's marketing firms assumed sole authority to engage in negotiations with plywood purchasers and to enter into binding sales contracts. In this manner, the monopoly marketing system stripped Indonesian plywood producers of virtually all control over the specific type and grade of plywood they would make; the volume of panels they would produce; the destination to which these panels would be shipped; and the price they would obtain for their product.

Hasan's monopolistic marketing strategies engendered a great deal of resentment among Apkindo's member firms, as well as among panel importers in many destination markets. During the mid-1990s, South Korean and Japanese buyers, in particular, sought out other sources of plywood whenever this was possible. Many turned to Malaysian panel producers, who were then aggressively seeking to expand their share of the world's tropical plywood trade. Although the aggregate volume of Indonesian panel shipments to Japan stayed fairly constant between 1992 and 1997, Apkindo was unable to increase its shipments to that country in spite of the fact that Japan's plywood imports grew by 45 percent.

With Malaysian producers capturing virtually all of the additional 1.3 million m³ in Japanese panel purchases during that period, Indonesia's share of the region's dominant market fell from 93 to 61 percent (Apkindo 1998). Similarly, Apkindo's shipments to China and Hong Kong fell by 25 percent between 1993 and 1997, largely in response to sharp growth in

China's domestic wood processing industry. Overall, Indonesia's plywood exports dropped from a peak of 9.7 million m³, valued at US\$4.6 billion, in 1993 to 8.4 million m³, valued at US\$3.9 billion, in 1997 (Apkindo 1999).

DIVERSIFICATION INTO PULP AND PAPER PRODUCTION

In the late 1980s, as Indonesia's wood panel industry was establishing its dominant position in the world's tropical plywood trade, the nation's pulp and paper industries also entered a period of accelerated expansion. Heavy investments in these industries during the decade preceding the 1997 financial crisis resulted in Indonesia emerging as the world's ninth-largest pulp producer and 13th-leading producer of paper and paperboard (Matussek, et al. 1997). These investments were motivated, above all, by the fact that the nation's vast wood supply, which the Suharto government made available to pulp producers with relatively minimal fees, offered producers some of the lowest output costs in the world (Kenny 1996). In addition, the extended period of 7-8 percent GDP growth that Indonesia experienced from the late 1980s through the onset of the financial crisis generated a significant increase in per capita demand for paper and paperboard products among the nation's population of 200 million. Investors, moreover, recognized that Indonesian producers were well-placed to take advantage of China's burgeoning demand for paper and board products, which was expected to reach 37.3 million metric tonnes by the year 2003 (Marcus 1994).

Paper and Board Production

Between 1987 and 1997, Indonesia's aggregate paper and board production capacity expanded by 635 percent, climbing from 980,000 to 7.2 million tonnes

per year (see Figure 2.2). The paper industry's real production during this period rose correspondingly from 826,500 to 5.3 million tonnes (APKI 1997). In 1996, 1.2 million tonnes of paper and board products - or just under one-third of the industry's total output - were exported. Domestic consumption rose from 782,420 to 3.1 million tonnes during the decade before the crisis, reflecting a steady increase in Indonesia's per capita paper consumption from 6 kg to 15 kg per year (APKI 1997). By 1997, 53 of the nation's 65 paper mills were located in Java, accounting for over 90 percent of the industry's total production capacity.

As Table 2.3 indicates, the paper subsector's exponential growth was largely concentrated in three segments of the industry, which collectively accounted for 85 percent of total production capacity by 1996. Expansion was most pronounced in the area of industrial paper and board products, due to the increased demand for packaging and shipping materials through Indonesia's period of rapid economic growth (APKI 1997). Annual production capacity in kraft liner and fluting and in paperboard products both rose by over 750 percent during the decade 1987-1996, reaching 2.0 million and 1.3 million tonnes, respectively, before the crisis. Likewise, Indonesia's capacity to produce writing and printing papers climbed from 329,200 tonnes in 1987 to 1.4 million tonnes per year in 1996, when it accounted for 25 percent of the industry's potential output.

By 1997, Indonesia had 10 paper mills with an annual capacity of 200,000 tonnes or more (see Table 2.4). Collectively, these mills were able to generate 4.9 million tonnes of paper and board products per year, accounting for 68 percent of the industry's aggregate capacity (APKI 1997). Five of the nation's 10 largest paper mills were controlled by a single conglomerate, the Sinar Mas Group, which mounted a series of

Figure 2.2: Total Capacity and Real Production of Indonesia's Paper and Board Industry

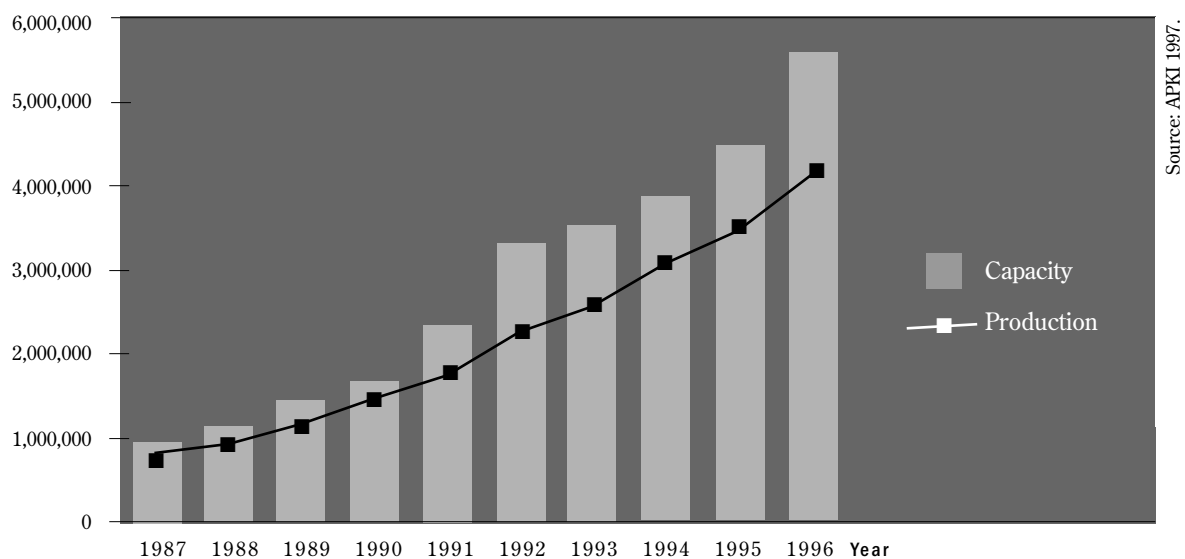


Table 2.3: Growth of Paper and Board Industry by Product Type 1987-1996

Product Type	1987 Production Capacity (tonnes/yr.)	Portion of Industry Total (%)	1996 Production Capacity (tonnes/yr.)	Portion of Industry Total (%)
Kraft Liner and Fluting	262,100	27	2,016,300	36
Writing and Printing	329,300	34	1,426,100	25
Boards	171,400	17	1,346,900	24
Newsprint	180,000	18	290,000	5
Sack Kraft	0	0	141,500	3
Tissue	11,400	1	119,000	2
Other	25,800	3	265,400	5
Total	980,000	100	5,595,280	100

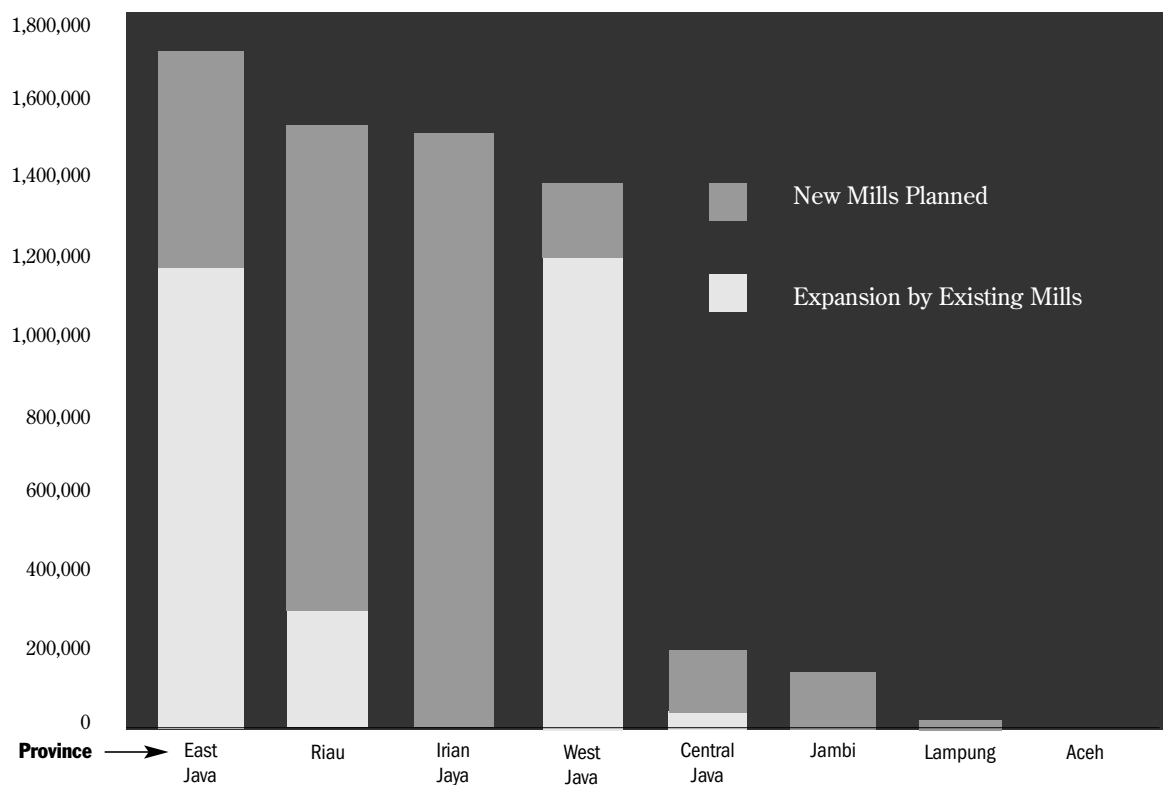
Source: APKI 1997.

Table 2.4: Production Capacity of Indonesia's 10 Largest Paper Mills, 1997

Firm	Business Group	Mill Location	Production Capacity (tonnes/yr)
Indah Kiat (Serang)	Sinar Mas	West Java	910,000
Pindo Deli	Sinar Mas	West Java	750,000
Pakerin	n.a.	East Java	700,000
Tjiwi Kimia	Sinar Mas	East Java	651,000
Fajar Surya	Dirgahayu	West Java	500,000
Aspex	Korindo/Hasan	West Java	430,000
Surya Agung	Dirgahayu	East Java	336,800
Indah Kiat (Riau)	Sinar Mas	Riau	252,000
Lontar Papyrus	Sinar Mas	Jambi	215,000
Jaya Kertas	n.a.	East Java	200,000
Top 10 Mills			4,944,800
Other 66 Mills			2,295,630
Industry Total			7,230,430

Source: APKI 1997

Figure 2.3: Paper and Board Production Capacity Expansion Planned for 1998-2005 by Province, as of 1997



Source: APKI 1997.

takeovers, expansions, and ambitious greenfield investments during the 1990s to establish itself as the dominant player in Indonesia's paper sector. Altogether, Sinar Mas had nine paper companies in Indonesia in 1997 with a collective production capacity of 3.1 million tonnes, giving it direct control over 43 percent of the industry's total output.

When the current economic crisis began, the rapid expansion of Indonesia's paper and board industry was still in full swing. Indeed, 17 of the industry's existing mills had plans to increase their production capacity by a combined 2.7 million tonnes, most of which was to be installed in East and West Java (see Figure 2.3). In addition, investors had plans to bring 16 new mills online between 1998 and 2005 with an aggregate capacity of 3.8 million tonnes, mostly in Irian Jaya and Riau (APKI 1997). Twelve of these new projects were to involve installation of units capable of producing 200,000 tonnes or more per year. Significantly, much of the planned expansion in the paper industry was concentrated in the hands of two business groups: Sinar Mas and the Raja Garuda Mas Group. In 1997, Sinar Mas had 4 mill expansion projects scheduled for the following year, which were intended to raise the group's aggregate production capacity by 1.5 million tonnes per year. Indonesia's second-largest pulp producer, Raja Garuda Mas Group, had seven major paper projects planned at that point. If fully realized, these expansions would have given the group an annual paper production capacity of 3.3 million tonnes.

Pulp Production

To support Indonesia's rapidly-expanding paper and board industries, large-scale investments have also been made in pulp production since the late 1980s. As Figure 2.4 indicates, the nation's aggregate pulp

production capacity rose by over 650 percent during the decade preceding the economic crisis, climbing from 515,000 tonnes per year in 1987 to 3.9 million tonnes per year in 1997 (APKI 1997). Real pulp production experienced an annual increase of just under 80 percent per year during this period, rising from 325,000 to 3.1 million tonnes.

By the onset of the economic crisis in late 1997, 11 of the pulp industry's 15 mills were directly integrated with paper production facilities, while four produced pulp for the open market. In contrast to the paper industry, which is heavily concentrated in Java, over 75 percent of the pulp industry's capacity is situated in Sumatra. Two pulp mills that accounted for 14 percent of total capacity in 1997 are located in Kalimantan, while seven mills accounting for nine percent of the industry's production capacity are located in Java. Two of the 15 mills—PT Inti Indorayon in North Sumatra and PT Kertas Kraft Aceh—produce long-fiber pulp from pinewood, while the remaining producers generate short-fiber pulp from a variety of hardwood species.

Capital ownership in the pulp industry is even more concentrated than it is in the paper and paper-board subsectors. In 1997, three conglomerates controlled approximately 90 percent of the industry's total production capacity. The largest of these is the Sinar Mas Group, which owns two giant pulp facilities—PT Indah Kiat Pulp & Paper in Riau and PT Lontar Papyrus in Jambi. Together, these mills were capable of generating 2.0 million tonnes per year, or just over 50 percent of the nation's overall capacity in 1997. The Raja Garuda Mas Group controls two pulp companies - PT Inti Indorayon in North Sumatra and PT Riau Andalan Pulp & Paper in Riau - that are capable of producing a combined 880,000 tonnes per year. The Bob Hasan Group controlled roughly 17 percent of

Indonesia's pulp capacity in 1997 through PT Kiani Kertas, which built the world's largest greenfield pulp mill (525,000 tonnes per year) in East Kalimantan in 1997, and through the Group's joint partnership with the Indonesian government in PT Kertas Kraft Aceh.

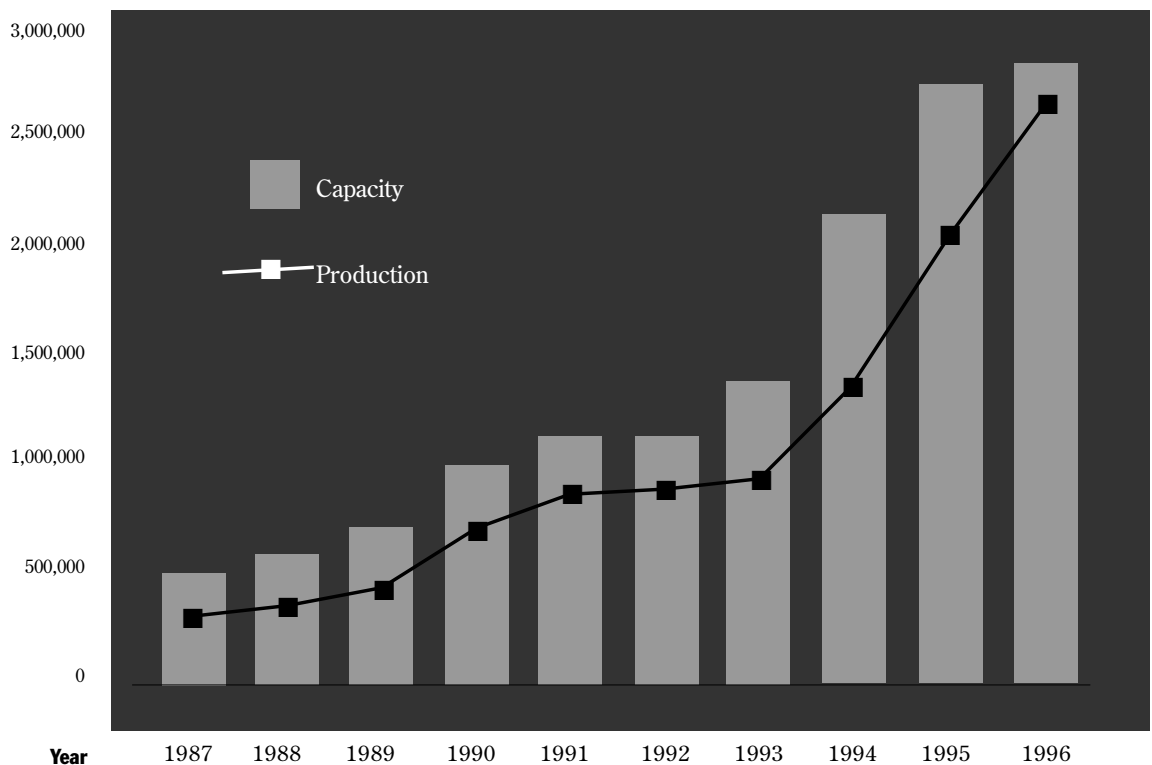
As in the paper industry, plans were in place prior to the onset of the economic crisis for substantial expansions in Indonesia's pulp production apparatus. In early 1997, the Indonesian Pulp and Paper Association reported that two existing mills were seeking to expand their capacity by a combined 940,000 tonnes in 1998, and that 20 new mills with a collective production capacity of 6.6 million tonnes were slated to be built between 1998 and 2005 (APKI 1997). As Figure 2.5 shows, the bulk of this new pulp

processing capacity was planned for East Kalimantan, Irian Jaya, and West Kalimantan, with the remaining projects spread among other parts of Kalimantan and Sumatra. It is likely that some of these projects would never have materialized even if the financial crisis had not occurred. Nonetheless, it is significant that both policymakers and industry actors were discussing plans to triple the size of Indonesia's pulp industry from 1997 capacity levels over the ensuing eight years.

Pulpwood Plantations

The Indonesian government began promoting the development of industrial timber plantations (*Hutan Tanaman Industri*, or HTI) in the mid-1980s with the stated aim of guaranteeing a long-term supply of raw

Figure 2.4: Total Capacity and Real Production of Indonesia's Pulp Industry, 1987-1996



Source: APKI 1997

Table 2.5: Production Capacity of Indonesia's Largest Pulp Producers, 1997

Business Group	No. of Pulp Mills	Production Capacity (m tonne/yr)	Portion of Industry Capacity
Sinar Mas	2	2,000,000	50.8
Raja Garuda Mas	2	880,000	22.4
Bob Hasan*	2	665,000	16.9
Other Producers	9	390,600	9.9
Industry Total	15	3,935,600	100.0

* Includes PT Kertas Kraft Aceh, the shares of which are divided between Hasan (15%) and the Indonesian government (85%) Source: APKI, 1997.

materials for the nation's wood-based industries. According to the Indonesian government's original HTI regulations, the Ministry of Forestry would allow private investors to establish timber plantations on marginal or degraded forest areas - defined to be those portions of the forest estate holding less than 20 m³ per hectare of commercial species with a diameter of 30 cm (Groome Poyry 1993). They were permitted to manage these areas for a period of 35 years beyond the rotation period of the main silvicultural species. The New Order state's HTI program was structured, in particular, to support the large-scale investments being made in pulp production. Whereas plantations intended to supply timber-based industries were limited in area to 60,000ha, HTIs established to support pulp mills were permitted to be as large as 300,000ha.

In 1992, the Minister of Forestry began designating all areas of production forest located within a 100 kilometer radius of a pulp mill for the development of pulpwood plantations (Groome Poyry 1993). In cases where such areas fell within the boundaries of an existing timber concession, the HPH-holder was instructed to prioritize the clearing of those portions needed for the establishment of the HTI. This allowed pulp projects to circumvent the restriction incorporated into the government's initial HTI regulations against converting natural forests that are still deemed to be productive. In effect, this meant that pulp producers were permitted to clearcut areas that held significant stands of commerciallyvaluable timber prior to the establishment of their plantations.

Firms establishing pulp plantations in Indonesia have generally planted fast-growing hardwood species such as *Acacia mangium*, *Acacia crassicarpa*, *Gmelina*

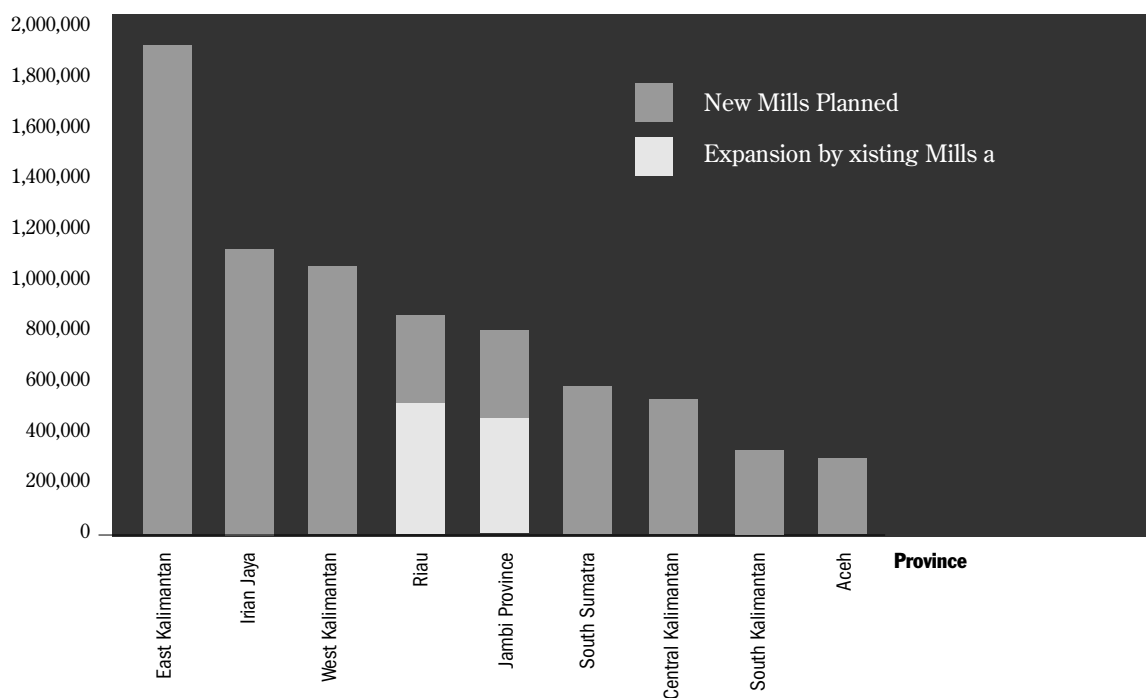
arborea, or *Eucalyptus deglupta*. With rotation periods of seven to eight years, these species provide Indonesian pulp producers with a significant competitive advantage over producers in North America and Scandinavia, where pulpwood rotations normally take 25 to 35 years. On average, the total cost incurred by Indonesian plantations from the point of opening the site for planting to harvesting the mature tree crop is roughly US\$1,000 per hectare (Groome Poyry 1993). While this would suggest that HTIs of a substantial size require significant amounts of capital - US\$200 million, for instance for a project of 200,000 ha—most pulp plantations have been heavily subsidized by the state.

To provide private investors with an added financial incentive to establish HTIs, the GOI has required them to make a direct equity contribution equivalent to only 21 percent of the plantation's total

capital investment (Ernst & Young 1999). Firms willing to enter into a joint venture with one of the Inhutani state forestry enterprises have been able to secure 14 percent of the project's total costs as a nonrefundable allocation from the government's Reforestation Fund (*Dana Reboisasi*, or DR). These firms have also been able to obtain 32.5 percent of the investment in the form of a no-interest, noncollateralized loan from the DR fund, with a repayment period of 10 years. Investors have been expected to obtain the remaining 32.5 percent of the necessary capital through commercial loans, which state banks have often provided.

Through mid-1997, the Ministry of Forestry had allocated 23 permits to private investors seeking to establish pulpwood plantations, covering a total area of 4.5 million ha (MoFEC 1999). Thirteen of these projects, which collectively extend over 3.3 million ha,

Figure 2.5: Pulp Production Capacity Expansion Planned for 1998-2005 by Province, as of 1997



Source: APKI 1997

were designated to be priority investments because they were slated to support the pulp industry's largest processing facilities. This designation has allowed these HTI projects to enjoy a streamlined investment approval process, under which the Minister of Forestry—rather than the Minister of Finance—was able to allocate financial subsidies from the Reforestation Fund. In May 1997, immediately prior to the beginning of the crisis, only 676,000 ha—or 20 percent of the total area allocated for priority pulp projects—had been planted (MoFEC 1999). At that point, all of Indonesia's pulp mills relied on wood harvested from natural forests for the vast majority of their raw materials.

Summary

Through the New Order period, Indonesia's wood-based and estate crop industries have placed heavy pressure on the nation's forests. Under the HPH system initiated in the late-1960s, the government allocated over 62 million ha of timber concessions to commercial logging companies. Between 1967 and 1997, HPH holders officially harvested approximately 550 million m³ of logs, or just under 20 million m³ per year for 30 years. Unofficial harvests during this period are estimated to have been on roughly the same scale. Following the government's introduction of a national ban on log exports in 1985, the bulk of this timber has gone to Indonesia's wood panel industry, which has generated over 70 percent of the world's tropical plywood exports since the late 1980s. Although the country's plywood industry had by 1997 entered a period of slow decline, Indonesia's wood panel producers still consumed roughly 20 million m³ of roundwood per year.

Prior to the onset of the financial crisis, there were strong indications that further expansion of Indonesia's pulp and paper and estate crop industries would exert increasingly heavy pressures on the nation's remaining tracts of natural forest. Between 1987 and 1997, Indonesia's pulp and paper industries had each grown by nearly seven-fold. Before the crisis hit, policymakers and investors were discussing plans to carry out further expansions that would triple the production capacities of these industries by 2005. Even if only a portion these investments were realized, they were likely to raise the industry's wood consumption capacity quite substantially from its 1997 level of 16 million m³ per year. The slow pace of plantation development up to that point suggested that much of this wood was likely to come from natural forests.

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Will HPH Reform Lead to Sustainable Forest Management?: Questioning the Assumptions of the “Sustainable Logging” Paradigm in Indonesia

Chapter 3

Since the mid-1980s, policy discussions aimed at promoting sustainable forest management in Indonesia have focused almost exclusively on reforming the HPH timber concession system. This emphasis on HPH reform is hardly surprising given the pressures that Indonesia’s commercial logging industry has put on the nation’s forests over the last three decades. From 1967, when the New Order regime opened the rich *dipterocarp* forests of the Outer Islands to large-scale timber extraction, the Indonesian government has allocated a total of 585 HPHs, covering 62 million ha, to private and state-owned logging companies (Brown 1999). According to official figures, HPH-holders generated 612 million m³ of roundwood between 1970 and 1999, or 20.4 million m³ annually for 30 years. Some industry analysts have argued that actual timber removals by HPH holders during this period were, in fact, approximately twice this volume (Kartodihardjo 1999).

Policy analysts advocating reform of the HPH system as a means to achieve sustainable forest management have generally prioritized three objectives. First, they have sought to increase the government’s capacity to enforce the technical aspects of sustainable concession management (Ministry of Forestry 1995; World Bank 1993; Gray and Hadi 1989). In practice, such efforts have largely been oriented toward designing more effective mechanisms for monitoring concessionaires’ harvesting practices in order to ensure that they adhere to the selective cutting guidelines stipulated in the HPH contract.¹

Second, forest economists have advocated a sharp

¹ Key elements of the Indonesian Selective Logging and Planting (Tebang Pilih Tanam Indonesia, or TPTI) guidelines include the use of a 35-year harvesting cycle; restrictions on cutting commercial species that are below 50 cm in diameter at breast height (dbh); rehabilitation of skid trails and enrichment planting; and thinning of non-commercial species at 10, 15, and 20 years. Djamaludin (1989) provides a detailed account of the development and implementation of the TPTI guidelines during the 1970s and 1980s.

increase in the government’s timber royalties and fees to halt the flow of resource rents - that is, revenues above a ‘normal’ rate of return - to concession-holders (Brown 1999; Scotland and Whiteman 1997; World Bank 1993; Ingram 1989; Gillis 1988). From a fiscal perspective, they maintain that the government’s failure to fully capture timber rents implies the loss of funds that might otherwise be used by the state for formal budgetary allocations. In terms of sustainability, they argue that access to excessive profits leads concession-holders to undervalue the resources under their control, which effectively undermines their incentive to manage their HPHs sustainably over the long term.

Third, policy analysts have long called on the Indonesian government to lift the prohibitive restrictions on log exports that it has maintained since the early 1980s (Manurung and Buongiorno 1997; World Bank 1995; Vincent 1992; Lindsay 1989). They emphasize that these restrictions have led concession-holders to sell virtually all of the timber they produce to Indonesia’s wood processing industries at prices that are well below international market rates. Underpricing of this sort is believed to promote inefficiency both at the point of log harvesting and during processing operations.

Taken together, these three sets of prescriptions - selective cutting, full rent capture, and market-based efficiency—represent the essential pillars of what can be called the “sustainable logging” paradigm. While the policy prescriptions associated with this paradigm have been proposed, in some form, for practically every timber-producing country in the world, they have been advocated especially loudly in the case of Indonesia. This approach to sustainability has been articulated most recently and most comprehensively by the World Bank following the onset of the current

economic crisis in late 1997. Key elements of the Bank's reform proposals included the following policy interventions:

- strengthening HPH contracts by extending them to 35 years and making them transferable;
- enforcing improved concession management by introducing performance bonds and independent monitoring;
- removing market-distorting practices by lifting restrictions on logs, sawnwood, and wood panels;
- increasing the state's rent capture by raising timber royalties and introducing area-based fees for logging concessions (World Bank 1998).

Five basic assumptions have supported efforts by the World Bank and others to achieve sustainable management of Indonesia's forests by reforming the HPH system. These include the following:

- 1) **Controlling log supply**, without taking any direct steps to reduce demand for industrial timber, is an effective strategy for sustaining the nation's natural forest resource base.
- 2) The most effective means of reducing Indonesia's log harvests to a sustainable level is by **reforming the HPH system**.
- 3) **Increased efficiency** will promote the conservation of natural forests.
- 4) **Sustainable concession management** is profitable.
- 5) The Indonesian government has **the institutional capacity to enforce** the proposed changes in the HPH system and the forest products trade.

This chapter examines each of these assumption and the policy prescriptions that emerge from them. Based on this analysis, it is argued that the "sustainable logging" reform agenda is quite unlikely to succeed in reducing Indonesia's timber harvests to the government's own widely cited sustainability threshold of 25 million m³ per year.² Indeed, for structural reasons this may, in fact, be an unachievable goal. Reform of the HPH system alone fails to address key factors that are encouraging unsustainable rates of log removals— most notably, effective demand for timber on the part of the nation's wood processing industries and new technologies that have made previously marginal areas and species commercially viable.

The reforms of the HPH system proposed by the World Bank and others have also failed to address significant qualitative changes that have occurred in the sources of timber supply over the past decade. These include a marked decline in the volume of logs generated by concession-holders, as well as a corresponding rise in large-scale forest conversion and other unsustainable harvesting practices. Moreover, in assuming that sustainable concession management is profitable, proponents of the "sustainable logging" paradigm erroneously conclude that most private timber operators will be willing—over both the short and long term—to employ environmentally sustainable logging practices if required to do so. Finally, advocates of HPH reform as a strategy for achieving sustainability generally overestimate the Indonesian government's political will to impose a substantial reduction in the nation's timber supply, as well as its institutional capacity to carry out such a policy.

² For the purposes of this paper, I do not examine how this figure was derived, nor do I analyze whether it, in fact, represents a realistic estimate of the volume of wood that can be sustainably harvested from Indonesia's natural forests. Rather, I maintain that even if this figure is assumed to be a reasonably accurate estimation of the nation's sustainability threshold, it is doubtful that the HPH reforms advocated by proponents of the "sustainable logging" paradigm will effectively reduce timber removals to this level.

ASSUMPTION #1: Controlling log supply, without taking any direct steps to reduce demand for industrial timber, is an effective strategy for sustaining the nation's natural forest resource base.

A central objective for advocates of the “sustainable logging” paradigm has been to establish tighter controls over Indonesia’s timber supply in order to reduce log removals to the supposedly sustainable level of 25 million m³ per year. Since the late 1980s, the World Bank has sought to accomplish this by persuading the Indonesian government to enforce improved HPH management practices through the implementation of performance bonds and an independent monitoring system (World Bank 1993; 1998). Moreover, to give logging companies an economic incentive to adhere to the government’s selective cutting guidelines and to reduce damage to

the forests under their control, the Bank has called for the Indonesian government to extend the HPH contract from 20 to 35 years and to make concessions transferable.

Collectively, these policy interventions have been intended to introduce more effective mechanisms for restricting the volumes of logs that are harvested from areas managed by timber concession-holders. To the extent that the World Bank and proponents of HPH reform have addressed the issue of demand for logs on the part of wood processing industries, they have done so only indirectly. Their attention to industrial timber demand has generally been limited to advocating policies designed to push Indonesia’s wood processors to invest in efficiency, which will presumably lead these processors to reduce the overall volume of wood they consume. In seeking to remove restrictions on log exports and to raise timber royalties, for example, the

Table 1: Production Capacity and Roundwood Consumption of Indonesia’s Major Wood-Based Industries, 1997³

Industry	Units	Production Capacity	Estimated Real Production	Est’d Roundwood Consumption (m3)
Sawnwood and Moulding	2,345	18,975,000 m³	13,300,000 m³	24,180,000
Plywood	115	12,600,000 m³	10,080,000 m³	20,160,000
Pulp	15	3,900,000 tonnes	3,400,000 tonnes	16,660,000
Total				61,000,000

Sources: Indonesian Sawmillers Association (ISA); Apkindo; and APKI

³ Production capacity figures included in this table are based on statistics provided by the respective industries’ producers associations. However, several assumptions are made to estimate real production levels and roundwood consumption. In the aggregate, sawnwood and moulding producers are estimated to have operated at 70 percent of their installed production capacity, and to have had an average recovery rate of 55 percent for the roundwood they consume. Plywood producers are estimated to have operated at 80 percent of their installed capacity, and

to have had an average recovery rate of 50 percent. Pulp producers are estimated to have operated at 87 percent of installed capacity, with 4.9 m³ of roundwood needed to produce each tonne of pulp.

World Bank has sought to bring Indonesia's domestic log prices up to international parity levels. Their primary aim in doing so has been to force the country's plywood and sawmills to use fewer logs in generating their processed wood outputs.

By focusing almost exclusively on controlling timber supply rather than reducing effective demand for logs, advocates of the "sustainable logging" paradigm have essentially failed to recognize the degree to which overcapacity exists within Indonesia's wood-based industries and the structural problems that it poses. In fact, the installed production capacities of the nation's sawnwood, plywood, and pulp industries have created a demand for logs and fiber that substantially exceeds the supply capacity of Indonesia's formal timber production apparatus. Table 1 shows the installed production and wood utilization capacities of these three industries in 1997.

While aggregate roundwood consumption capacity for the three industries stood at approximately 78 million m³ during 1997, it is conservatively estimated that these three industries consumed 61 million m³ of raw materials.⁴ This figure is 36 million m³ higher than the volume of timber removals that the Ministry of Forestry and Estate Crops claims is sustainable as an annual harvest.

The existence of such a substantial "structural timber deficit" poses fundamental problems for the "sustainable logging" reform agenda in terms of both policy formulation and implementation. On the one hand, the very existence of these industries promotes an expectation among policymakers that processors should have access to raw materials—that is, that they are literally machines that need to be fed. As a plywood officer at the Barito Pacific Group explained in an interview, "The government won't let the industry collapse from lack of raw materials because

plywood is too important for the economy. The Forestry Department will always find a way to make more timber available, as long as the demand exists. In fact, this is what they have done over the last several years in opening large areas of IPK [conversion forest], carrying out the One Million Hectare Peatlands Project, and so forth."⁵ Policymakers are likely to feel particularly strong pressures to ensure a continuous supply of raw materials to industries, such as pulp and paper, in which processing facilities entail extremely high fixed costs and/or in which processors have close ties to state elites.

The structural demand for substantial volumes of timber above and beyond those generated by the official log supply is a central factor driving Indonesia's illegal timber trade. Estimates of illegal log removals in recent years have ranged from 12 to 32 million m³ per year (ITFMP 1999). There is anecdotal evidence suggesting that illegal logging may have expanded dramatically in many parts of the country since the financial crisis began. Undocumented harvesting is often carried out by licensed concession-holders who extract logs above their annual allowable cut or by logging in areas that have not been approved by the Ministry of Forestry (Kartodihardjo 1999). At times, this includes forests located outside their concessions. Moreover, organized syndicates of illegal loggers are known to be active in most timber-producing provinces (Telapak Indonesia and EIA 1999). While these groups are often financed by local businesspeople—in some cases HPH-holders—they are said to almost always involve some degree of collusion with members of the armed forces, the local

4 By comparison, Scotland, et al. (1999) estimate that in 1997, aggregate real consumption of roundwood in Indonesia may have been as high as 82.3 million m³.

5 Interview with Soedibyo, director of Barito Pacific Group, February 19, 1999.

forestry bureaucracy, and other elements of the government's law enforcement apparatus. In parts of Kalimantan and Sumatra, whole units of the armed forces and national police are known to run rogue timber operations as a means of supplementing their official budgets (Asnawie 2000; WWF and DFID 1998; Sacerdoti 1979).

The pervasiveness of illegal logging and the Indonesian government's relatively weak capacity to enforce its own forest boundaries suggests that any efforts to control timber supply without reducing effective demand on the part of the nation's wood-based industries is likely to be futile. Indeed, widespread sentiment within the industry suggests that the establishment of an effective log monitoring and regulatory system would take several years to implement, even under the most favorable of circumstances. Continued demand for illegal timber on the scale that currently exists in Indonesia is likely to seriously undermine this process and to keep log removals well above the government's own sustainability targets. In this way, it would appear that any serious attempt to cut harvest levels substantially must, at some point, involve proactive steps to reduce production capacity on the part of Indonesia's wood processing industries.

ASSUMPTION #2: The most effective means of restricting Indonesia's log harvests to a sustainable level is by reforming the HPH system.

A majority of the forestry sector policy interventions put forth by the World Bank and other proponents of the "sustainable logging" paradigm have focused on reforming the HPH system in order to bring about a sharp reduction in timber production levels. Proposed interventions to the HPH system have included better enforcement of concession management practices

through the introduction of performance bonds and independent monitoring; extending the HPH contract and making it transferable; de-linking HPHs and processing facilities; and raising the state's rent capture by increasing timber royalties and introducing area-based fees. By contrast, proposed reforms have directed scant attention toward reducing log output levels from other (i.e. non-HPH) legal sources of timber production or toward controlling illegal log removals outside of HPH areas.

This emphasis on reforming the HPH system made a fair amount of sense in the late-1980s when Indonesia's timber concessions formally generated between 26 and 27 million m³ of logs per year, accounting for approximately 90 percent of the country's official timber supply (Departemen Kehutanan 1994). Over the last decade, however, Indonesia's legal timber supply has experienced significant changes that recent policy proposals aimed at promoting "sustainable logging" have largely failed to address. Specifically, there has been a steady decline in the volume of logs officially produced within the HPH system since 1990. According to Ministry of Forestry statistics, timber production levels realized under concessionaires' approved annual workplans (*Rencana Karya Tahunan*, or RKT)—in effect, the cumulative legal output for all HPH-holders—dropped from just under 24 million m³ in 1990-91 to 15 million m³ in 1996-97 (Direktorat Bina Pengusahaan Hutan 1999a). This 37.5 percent drop in RKT output at the national level was, in fact, surpassed by the declines recorded for many of Indonesia's major timber-producing provinces. RKT levels during this period dropped by 48 percent (from 6.0 to 3.2 million m³) in East Kalimantan and by 79 percent (from 2.9 million to 600,000 m³) in Riau.

This sharp decline in RKT production levels stems from the fact that large numbers of HPHs were taken

out of production during the 1990s. Indeed, by the time President Suharto was forced to step down in mid-1998, only 389 of the 652 concessions that had been distributed during the New Order period remained in operation.⁶ Seventy-seven HPHs covering 5.5 million hectares were either returned to the state or revoked by the Ministry of Forestry before the concessionaire's initial 20-year contract had ended. More significantly, the Ministry chose not to renew the license for 186 HPHs covering 15.7 million hectares after their initial contract period had expired. Unfortunately, detailed information on why these HPHs were revoked or not extended is not publicly available, so it is difficult even to speculate on the extent to which these areas remain at all commercially viable. Of the 263 HPHs that reverted to the state, only 33 covering 3.3 million hectares were reallocated to other concession-holders. A far larger number—147 HPHs covering 9.5 million hectares—were assigned to the control of the state's five Inhutani forest enterprises for 'rehabilitation.'

Over the past several years, the Ministry of Forestry has adopted a number of strategies to make new supplies of timber available to Indonesia's wood-based industries to compensate for the HPH system's declining output. Within the parameters of the HPH system, the Ministry has responded to the growing scarcity of accessible and commercially valuable logs in many parts of Kalimantan and Sumatra by opening the expansive forests of Irian Jaya (now referred to as Papua) to large-scale logging. It has done so by allocating 40 HPHs in Papua, covering an area of 9.7 million ha, between 1989 and 1997 (Direktorat Penyiapan Pengusahaan Hutan 1998). Papua's role as the timber industry's new frontier is made clear by the fact that

the province's RKT output levels rose from 732,000 m³ in 1990-91 to 2.3 million m³ in 1997-98, in sharp contrast to the declines recorded in most other timber-producing provinces (Direktorat Bina Pengusahaan Hutan 1999a).

During this period, the Ministry has also taken steps to broaden and deepen the nation's legal timber production system in order to generate significant volumes of logs from new sources. It has done so by:

- 1) Slating large areas of forest for conversion to other uses, and making these available to logging companies for clear-cutting;
- 2) Allowing private timber operators to extract logs from areas under Inhutani control through *ad hoc* contractual arrangements;
- 3) Weakening of the HPH system's Indonesian Selective Logging and Planting (*Tebang Pilih Tanam Indonesia*, or TPTI) selective cutting guidelines.

Although each of these strategies poses direct challenges to the sustainability of natural forests, they have thus far largely gone unaddressed by those advocating policy interventions aimed at promoting "sustainable logging" through HPH reform.

Growing Reliance on Forest Conversion

The most significant strategy Ministry of Forestry has used for maintaining Indonesia's formal timber supply has been to make vast tracts of conversion forest available to logging companies for clear-cutting. Since the early 1990s, this policy has been tied to the government's efforts to support the development of the nation's pulp and oil palm industries by opening up forested areas for the establishment of tree plantations. Under the Ministry's forest conversion policy, a private

⁶ The figures in this paragraph are drawn from Ministry of Forestry data (Kartodihardjo and Supriono 1999).

timber operator is able to obtain a Wood Utilization Permit (*Izin Pemanfaatan Kayu*, or IPK) to harvest the timber from areas that have been slated for conversion. In contrast to the HPH contract, the IPK agreement allows the logging company to employ nonselective harvesting techniques and to pay minimal royalties (and no reforestation fee) on the logs that are cut. Although some of Indonesia's timber groups have made investments in oil palm plantations, it is not uncommon for IPK-holders to abandon these sites once they have removed all stems of commercial value.

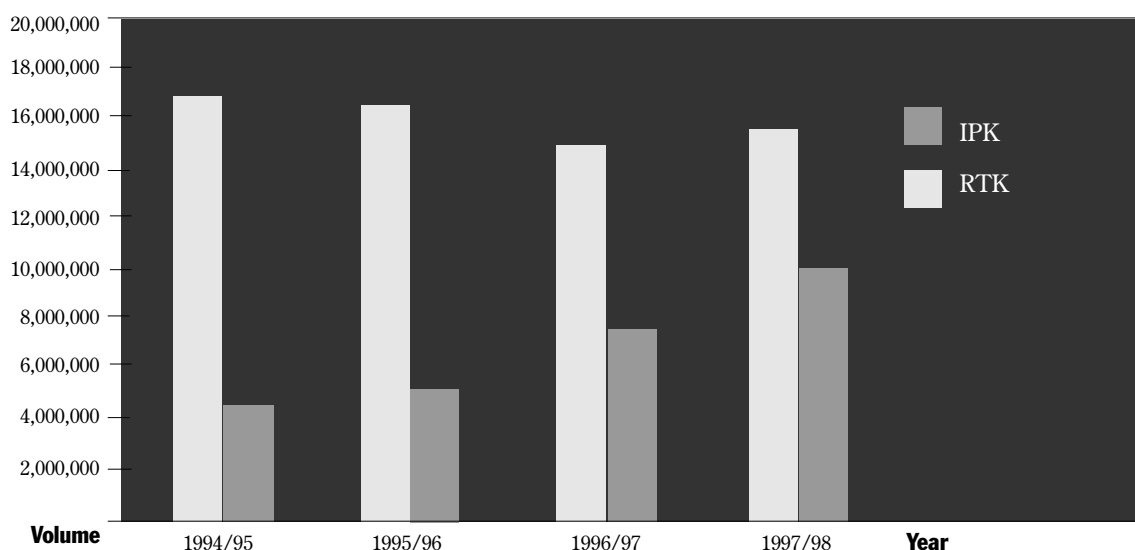
As Figure 1 shows, the aggregate volume of timber produced through IPK forest conversion rose from 4.2 million m³ in 1994-95 to 10.1 million m³ in 1997-98, compensating substantially for the sharp decline in logs produced under the HPH system (Direktorat Bina Pengusahaan Hutan 1999b).

In its 1998 issues paper, the World Bank acknowledges the very major threat to sustainability

posed by widespread conversion of natural forests calling it “one of the most insidious forces operating in the forests at present in Indonesia” (World Bank 1998, 16). Significantly, however, the Bank fails to recognize the degree to which the government's conversion policy is linked to the aggregate decline in timber yields from the HPH system over the last several years. In fact, it identifies “the most significant forces for conversion of forest” as being largely exogenous to the forestry sector per se: oil palm and cocoa projects; livelihood-based agriculture; and transmigration (World Bank 1998, 16). This leads the Bank to offer the astonishing conclusion that “most of the conversion pressures on the forests in recent years in Indonesia have originated from decisions made by stake holders and interest groups outside the official Ministry of Forestry.”

The Bank's failure to appreciate the central role that forest conversion currently plays in MOFEC's

Figure 1: Roundwood Production from RTK vs IPK



Source: Ministry of Forestry, Direktorat Bina Pengusahaan Hutan 1999b.

roundwood supply strategy leads it to grossly underestimate the pressures that exist both within the private sector and within the state to keep a large-scale conversion policy in place. Given the fact that IPK forest conversion accounts for roughly 40 percent of the nation's legal timber and pulpwood supply, it is difficult to imagine that the ministry will not seek to maintain current conversion levels for as long as possible to meet the demand for timber among Indonesia's wood-based industries. Moreover, now that estate crops are formally under the ministry's jurisdiction, it can promote large-scale forest conversion without losing administrative authority over the areas allocated for agroindustrial estates.

Exploitation of Areas Under Inhutani Control

A second strategy employed by Ministry of Forestry has been to allow select logging companies to extract timber from areas that are under the jurisdiction of the Inhutani state forestry enterprises, which currently totals just under 10 million ha.⁷ This typically occurs in one of two ways: In some cases, the ministry allocates an area with remaining stands of commercially valuable timber as an HPH that is run as a joint venture between a private timber operator and one of the Inhutanis. More often, an Inhutani will engage a private logging company—at times, reportedly, an area's former concession-holder—to harvest timber stocks under an informal work contract known within the industry as KSO (*kerja sama operasi*, or operational collaboration).

There exists little public information about the terms of these contracts, the types of areas exploited, and the management practices used or the volumes of logs produced under such arrangements. However, many industry observers claim that KSO contracts often enable logging companies to harvest timber from

degraded areas, to cut in logged-over areas before their 35-year rotation has passed, and to engage in a variety of other practices that technically would not be allowed under a HPH contract. Indeed, Titus Sarijanto, former Director General of Forest Production, acknowledged in an interview that it is not unusual for the Inhutani enterprises to permit private timber operators to log in areas classified as rehabilitation forest. As he explained:

*This occurs for two reasons: Often an area needs to be cleared before it can be rehabilitated. Sometimes, too, the Inhutanis don't have the funds to carry out the rehabilitation, so they will allow a portion of the area to be logged in order to finance the rehabilitation of the rest.*⁸

A senior officer at Inhutani I in East Kalimantan also stated that “to ensure security of these areas, Inhutani needs to have activity there. If we don't log in these areas, it is certain that other parties will come in and take whatever wood is left.”⁹

Some industry observers suggest that one of the Inhutanis' motives for exploiting the forests under their jurisdiction is that the funds generated play an important role in supporting the Forestry Department's formal and informal budgetary needs (Ascher 1998). Moreover, it is widely believed that the individual Inhutani enterprises have a significant degree of discretion in deciding which logging companies will have access to KSO contracts, which

7 There are currently five Inhutani state-owned forestry enterprises. PT Inhutani I controls 3.9 million ha in East Kalimantan, South, Central and North Sulawesi, and Maluku. PT Inhutani II controls 3.8 million ha in South, East, and West Kalimantan and Central Sulawesi; PT Inhutani III controls 2.9 million ha in South, Central and West Kalimantan; PT Inhutani IV controls 500,000 ha in North Sumatra, West Sumatra, Aceh, and Riau; and PT Inhutani V controls 400,000 ha in South Sumatra, Jambi, Bengkulu, and Lampung.

8 Interview with Titus Sarijanto, Jakarta May 3, 1999.

9 Confidential interview, Inhutani I, Tarakan, East Kalimantan, March 25, 2000.

areas will be opened to timber operations, and what types of harvesting practices will be permitted.¹⁰ Many of these decisions, which play a critical role in determining whether sustainable harvesting practices are used, are apparently made by Inhutani field officers and the contractors working with them.

Weakening of Selective Cutting Guidelines

Finally, the Ministry of Forestry has sought to bolster the output from Indonesia's remaining HPHs by modifying the principles of the TPTI system. It has done so most significantly by introducing a new silvicultural system, Selective Logging and Line Planting (*Tebang Pilih Tanaman Jarak*, or TPTJ), in November 1998. The TPTJ guidelines may be applied on areas of production forest with a slope no greater than 25 percent and with altitudes up to 500 meters above sea level.¹¹ Ostensibly designed as a modification of the TPTI system to make it more appropriate for logged-over areas, the TPTJ scheme may also be applied to tracts of primary forest as well.

Under the TPTJ system, the timber operator is permitted, first, to carry out selective logging of a designated block using a 40 cm maximum diameter cutting limit. This initial harvest is followed by the use of clear-cutting to open up "planting strips," which are then to be planted with high-value local species. By reducing the cutting limit from the 50 cm diameter prescribed under the TPTI guidelines and by permitting a portion of the area to be clear-cut, TPTJ will make substantially larger volumes of logs available from a given area of forest than would be possible

10 Personal communication, Hariadi Kartodihardjo, Bagor, February 10, 1999 and Mubariq Ahmad, Jakarta May 4, 1999.

11 The TPTJ system is specified in Keputusan Menteri Kehutanan No 435/Kpts-II/97 and No. 338/Kpts-II/1998, and in Keputusan Menteri Kehutanan dan Perkebunan No. 625/Kpts-II/1998. A critical examination of the implications of the TPTJ system is provided by Purnama, et al. (1999).

under TPTI. Some industry observers have also speculated that the introduction of the TPTJ system may, in fact, be the Ministry of Forestry's first step in opening logged-over areas to commercial timber extraction without regard to where those forests are in the 35-year rotation originally designated under the HPH contract.

ASSUMPTION #3: Increased efficiency will promote the conservation of natural forests.

Proponents of the "sustainable logging" paradigm have long argued that raising efficiency levels in all segments of the timber sector is a critical component in any strategy for conserving Indonesia's natural forests. In a 1995 study on the economics of long-term forest management in Indonesia, the World Bank, for instance, argues that "sustainability should be sought through the promotion of efficiency, rather than an attempt to simply administer a reduced flow of raw materials to the sector, while leaving cost and price conditions and incentives unchanged" (World Bank 1995, 16). The Bank and others calling for increased efficiency in the timber sector have generally addressed the issue in both allocative and operational terms. Whereas allocative efficiency refers to who produces and where, operational efficiency is concerned with how efficiently each producer conducts its activities.

Proponents of the "sustainable logging" paradigm seek to raise the sector's allocative efficiency to promote the optimal distribution of the nation's timber resources in accordance with market-based calculations of cost and scarcity. To the extent that efficient producers receive a larger share of the nation's timber output, the sector's overall efficiency is expected to improve. At the same time, they promote

an increase in operational efficiency for individual producers through a reduction of waste in timber harvesting and higher log utilization rates in processing. The rationale is that even if the same producers account for the same share of total production, any increase in efficiency will reduce pressure on forests. Most proponents of the “sustainable logging” paradigm consider the two types of efficiency to be closely linked. Policy interventions that raise allocative efficiency within the timber sector are generally deemed to be a crucial mechanism for increasing operational efficiency on the part of timber producers and wood processors.

To raise allocative efficiency in the timber sector, the World Bank has long sought to remove several of the major market-distorting policies put in place by the New Order state. Since the current economic crisis began, it has taken steps to lift restrictions on log and sawnwood exports; to eliminate controls over plywood marketing held by Apkindo; to de-link logging concessions and processing facilities; and to make HPHs transferable. The Bank justifies these reforms by arguing that the government’s restrictive policies have led to an uncompetitive and inefficient processing sector, “characterized by high levels of rent-seeking, which has become totally dependent on highly subsidized log prices” (World Bank 1995, 16). The Bank maintains that the log export ban, in particular, has undermined sustainability by leading “the sector [to] substitute logs, which should be regarded as a scarce factor of production for other factors... [encouraging the forests to be] treated as a low-value resource by both the private sector and government agencies” (World Bank 1995, 16).

In calling for the removal of log export restrictions, the World Bank and others have maintained that they are seeking to enable Indonesian timber producers to

obtain full market value for their logs (Manurung and Buongiorno 1997; Barbier, et al. 1995; World Bank 1995; Vincent 1992; Lindsay 1989). They claim that policies that have kept domestic timber prices below international parity levels have led processing companies to use their wood inputs carelessly. This, in turn, has kept the volume of timber being logged higher than would have been necessary if wood panel producers and sawmills were able to generate their processed wood products in a more efficient manner. These analysts argue that higher log prices will promote the sustainability of Indonesia’s natural forests in two ways: First, increased profits from timber sales should lead concession-holders to attach greater value to the forest resources under their control, and in doing so, to take steps to reduce the volume of waste associated with their harvesting operations. Second, substantially higher raw material costs are likely to lead Indonesia’s wood-based industries to invest in more efficient processing techniques, which will presumably generate greater levels of output with a smaller volume of logs.

In their efforts to raise domestic log prices, the World Bank and other advocates of efficiency-based sustainability have largely ignored the additional pressures that the removal of log export restrictions would place on Indonesia’s forests. Nonetheless, it is probable that open access to international timber markets—where roundwood prices are often considerably higher than they are domestically—would introduce a substantially greater structural demand for Indonesian logs than currently exists. Such additional demand on the part of foreign buyers can be expected to create pressures for increased levels of timber removals in both Indonesia’s legal and illegal logging industries, leading to large volumes of roundwood being shipped overseas. The correlation

between reduced export taxes and increased logging is, in fact, predicted by most econometric studies that have analyzed the marketing restrictions imposed in Indonesia's timber sector over the last 20 years (cf Manurung and Buongiorno, 1997; Barbier, et al. 1995). Together with the World Bank, however, these analyses generally assume that pressures for additional logging will be offset by steps taken to raise efficiency on the part of wood processors. Unfortunately, none of these studies provides compelling evidence to support this assumption.

The effects of such pressures to increase log supply will be particularly acute if Indonesia's log export restrictions are removed before effective mechanisms are installed to control timber extraction and marketing. In the absence of such controls, higher log prices are likely to support a proliferation of illegal logging above the current high levels that exist in most timber-producing provinces. A similar problem arises with the World Bank's proposal to de-link HPHs from processing facilities. The Bank's rationale for trying to separate the two is that it will "weaken the official monopoly over log supplies that large-scale processing complexes have hitherto benefited from" (World Bank 1998:20) and, in doing so, remove a major structural factor contributing to the undervaluing of Indonesian forests. The Bank envisions the development of a domestic log market, in which processors would be forced to purchase the bulk of their raw materials at market rates (which would presumably be on par with international prices if log export restrictions were successfully removed). As with opening log exports, however, the Bank's efforts to de-link HPHs and mills are likely to encourage an expansion of illegal logging if they are carried out before an effective chain of custody system is put in place.

Over the past several years, many Indonesian panel

producers have, in fact, purchased a growing portion of their logs from outside their own concessions. The Barito Pacific Group, Indonesia's largest panel producer, has reportedly purchased 30 to 40 percent of its logs since 1994.¹² Similarly, the Korindo Group is reported to purchase over one-half of the 1.3 million m³ that its mills consume, due to the declining productivity of its own concessions and the fact that several of its own HPHs have been involuntarily revoked.¹³ Several industry officers interviewed in the course of this study indicated that their firms often have little information on either the source of these logs or the conditions under which they are harvested. As one plywood executive put it:

We buy logs from a broker. Sometimes they have documentation, but often they do not. We generally do not know where the logs come from. If the Forestry Department finds out that we're using logs without documentation, we point to the broker and he's the one that gets penalized.¹⁴

The World Bank and others seeking to deregulate Indonesia's timber trade have done so to encourage both concession-holders and wood processors to invest in measures that will improve the efficiency of their operations. Investments in harvesting efficiency might include the use of new technologies or practices that allow logging companies to extract more timber from each hectare of forest, more wood out of each stem that is cut, or larger volumes of timber harvested in shorter time frames or at reduced cost. Similarly, measures to raise processing efficiency would include the adoption of new equipment or techniques that

¹²Interview with Soedibyo, director of Barito Pacific Group, February 19, 1999.

¹³ Interview with Kim Young Cheol, manager of Forestry Division, Korindo Group, February 25, 1999.

¹⁴ Confidential interview, Jakarta, February 9, 1999.

enable wood processors to raise the volume and/or value of output from each unit of wood that their mills consume.

The arguments used to promote greater operational efficiency are rooted in the assumption that improvements in efficiency at both the harvesting and processing levels will relieve pressures on Indonesia's forests. Embedded in this assumption is a belief that if firms are able to obtain greater output from each cubic meter of wood (or hectare of forest) by improving the efficiency of their operations, they will thereafter demand the same or possibly a smaller volume of timber (or exploit a smaller area). Efficiency becomes associated with conservation because it is assumed that investments in efficiency will produce greater volumes of processed output without generating increased demand for raw materials. Yet, there is little evidence to indicate that either logging companies or processing firms would voluntarily place a cap on their earnings by restricting the volume of timber they harvest or process, if access to this timber were not otherwise constrained. On the contrary, basic economic theory would suggest that firms able to raise profits through increased efficiency would have an incentive to expand their operations, thereby increasing their demand for logs.

Moreover, technological innovations, such as the widespread adoption of the chainsaw, that increase efficiency in timber extraction or processing have, at times, changed the nature of demand and/or accelerated the pace of forest destruction quite considerably.¹⁵ The growing adoption of small-spindle rotaries on the part of Indonesian plywood producers may be having just such an effect.¹⁶ Introduced in the mid-1990s, the new rotaries allow panel producers to peel logs as small as 15 cm in diameter, leaving a core of 6-8 cm. The old, large-spindle rotaries, by contrast,

would generally leave a 15-25 cm core that could not be peeled. According to several producers interviewed, the use of the new technology has had the practical effect of raising their log recovery rates—particularly when their preexisting machinery had become highly depreciated—from the 45 to 50 percent range to that of 55 to 60 percent.

As significantly, the new rotaries have enabled producers both to peel logs from younger trees and to process a variety of timber species that were previously considered to be marginal. In this sense, the widespread adoption of the new rotaries is likely to increase the burden on Indonesia's forest resource base quite substantially. Indeed, several producers interviewed for this study indicated that the new rotaries had given them incentive to return to logged-over areas for a second harvest and/or to seek harvesting rights in areas without old-growth *dipterocarps*. Most admitted that both of these processes would have been uneconomical just a few years ago, when their mills' capabilities were limited by the constraints of the large-spindle peelers that were then in place. As a timber manager with the Korindo Group explained, "The new rotaries are what has made IPK profitable, as we can cut trees with diameters of 20 cm and up and all species but *ulin* and *bengeris*. With the old technology, we would not have been able to use most of this for plywood."¹⁷

15 Colfer (1983), for instance, describes a rapid acceleration in timber harvesting in the Apo Kayan region of East Kalimantan following the introduction of the chainsaw in the late 1970s and early 1980s.

16 The new rotaries cost between US\$1 million and US\$2 million, and as such, they are a form of technology that is accessible (though by no means inexpensive) to plywood producers of all sizes. Indeed, 12 of the 15 firms interviewed indicated that they had either already installed or initiated the purchase of new rotaries in at least one of their mills. For many producers, the installation of the new rotary has been part of broader restructuring process, which has often involved the purchase of new driers, kilns, and hot presses, as well as other capital investments to improve efficiency. The general belief within the industry is that all of Indonesia's plywood producers will eventually buy new rotaries, although many will now have to wait until after the economic crisis is over to do so.

ASSUMPTION #4: Sustainable concession management is profitable.

Beyond seeking to rescind Indonesia's log export restrictions, the World Bank and other proponents of the "sustainable logging" paradigm have called on the government to raise timber royalties and to introduce a system of performance bonds to ensure that logging companies manage their concessions sustainably. Implicit in these proposals is an assumption that HPH-holders will be able to generate profits in spite of the additional costs that these new fees impose on their operations. That is, Indonesian-based concessionaires are assumed to be enjoying such high rents that they are able to afford the additional financial obligations that sustainability imposes. To the extent that sustainable concession management is not profitable for private timber operators, they can be expected either to withdraw from the timber sector or, more likely, to resort to increasingly unsustainable practices for as long as they are able to. Simply put, HPH-holders will not play by the rules if it is not profitable for them to do so.

Through much of the New Order period, there was a general consensus that Indonesia's HPH system did, indeed, generate high rents and that a substantial portion of these accrued to private timber operators in the form of excess profits. Ruzicka (1979), for instance, estimates that in the mid-1970s, medium- and large-scale concessionaires in East Kalimantan were able to capture 67 to 75 percent of the rents associated with their logging activities, yielding average annual returns of 120 to 150 percent. Similarly, Ahmad and Ramli (1991) concluded that the government allowed private

concession-holders to capture no less than 83 percent of the rents generated in the timber sector during the period 1980-90, or roughly US\$80 in rent for every cubic meter these companies harvested.

Several concessionaires contacted in the course of this study, however, indicated that the profitability of timber extraction on at least some of their HPHs had declined markedly over the past decade. Some attributed this to the fact that the most productive parts of their concessions—particularly those areas with stocks of high-value, high-diameter *meranti* (*Shorea spp.*)—have already been logged over, and they are now harvesting stands of lesser commercial value. Several also claimed that they are having to travel greater distances than in the past to obtain commercially valuable timber, and that the added transport costs have cut into their profits. While anecdotal claims of this sort should not be interpreted to mean that rents no longer exist in Indonesia's timber sector, they do suggest that some concessionaires may no longer be enjoying the high excess profits that they did in the past.

Assessment of Current Rent Levels

To better assess whether sustainable concession management is, in fact, viable for a majority of Indonesian HPH-holders, it is useful to examine the concession rent studies conducted by the Indonesia-UK Tropical Forest Management Programme (ITFMP). These studies offer the most detailed calculations of timber sector profitability in recent years. Based on the results of a 1995 survey of 31 concessions located in five provinces, ITFMP has developed a Forest Concession Model, which estimates the economic rent that concessionaires obtain from their operations for a given log price and production costs. Using this model, Scotland (1999) estimates

17 Interview with Kim Young Cheol, manager of Forestry Division, Korindo Group, February 25, 2000.

that prior to the onset of the economic crisis in July 1997, a timber operator with a 15-year old concession of 115,000 ha—characteristics purportedly selected “to represent an average concession in Indonesia”—enjoyed an internal rate of return of 19 percent. Total economic rent under those conditions stood at US\$42.00 per m³, corresponding to excess profits of US\$3.16 per m³ for the concessionaire, assuming a 15 percent discount rate.

In estimating rent levels after the monetary crisis began, Scotland assumes that most concessionaires adopted a range of cost-cutting measures to compensate for the sharp devaluation of the *rupiah*. These included switching to exclusive use of the *rupiah* in order to minimize dollar expenditures; placing a moratorium on all large capital purchases; and reducing by 50 percent all non-essential expenditures—anything not directly related to felling operations and the sale of timber. With these adjustments, it is estimated that timber operators were able to generate an internal rate of return of 27 percent, which was just slightly higher than the assumed post-crisis discount rate of 25 percent. In response to the precipitous drop in domestic log prices, rent levels are believed to have fallen to US\$13.50 per m³ during the months after the crisis began, leaving concessionaires to capture US\$0.60 per m³ in excess profits. From these figures, Scotland estimates that during the first year of the crisis, aggregate rents associated with Indonesia’s logging industry were US\$447 million, of which approximately US\$16 million accrued to the private sector as excess profits. By comparison, total rents before the crisis began were on the order of US\$1.1 billion per annum, of which US\$84 million went to concession-holders (Scotland 1999).

What is striking about these numbers is the relatively small portion of the total rents generated

by the HPH system that are actually collected by concession-holders as excess profits—7.6 percent before the crisis and a mere 3.5 percent since the crisis began.¹⁸ Under either set of conditions, it is not at all clear that a substantial majority of Indonesia’s concession-holders would be able to continue operating profitably if timber royalties were raised significantly and a performance bond equivalent to 30 percent of annual operating costs were imposed, as the World Bank has recommended. Unfortunately, the ITFMP model does not account for the considerable variation in operating costs or productivity—and, therefore, rent levels—that exists across geographic space and among firms with different processing capacities, investment strategies, and management objectives. As such, it does not reliably predict what portion of HPH-holders would lose money if they did not manage their concessions sustainably.

As Scotland’s study is based upon figures derived from a hypothetical “representative” concession, its conclusions extrapolate from the assumption that all concessions are able to obtain 28 m³ of commercial timber per hectare and that 70 percent of their species mix is made up of valuable *meranti*. While it is acknowledged that these figures are “undoubtedly higher than production in marginal and degraded concessions, the latter of which there are many,” the study offers little sense of the ranges of productivity or profitability associated with such sites either before or

18 Clearly, it is important to recognize that most of Indonesia’s timber concessions are controlled by integrated timber conglomerates, through which they are linked to plywood and sawmills. A portion of the rents associated with a concession is often transferred to these industries through the sale of roundwood to an allied processing firm at artificially low prices, a process known as transfer pricing. Moreover, by adding value to the logs they consume, these industries generate additional rents for each cubic meter of roundwood processed (see Scotland and Whiteman, 1997:12). As concessions and processing operations become increasingly separated, however, timber groups will have no reason to use rents generated from processing to subsidize concessions if they are not profitable in their own right.

after the crisis (Scotland 1999, 15). In fact, however, the rent survey on which the ITFMP Forest Concession Model was constructed found that no fewer than 10 of the 31 firms covered had productivity levels of 15 m³ per hectare or less. The least productive of these sites reported yields of only 5 m³ per hectare.

Moreover, anecdotal evidence from interviews conducted during the course of the present study suggests that *meranti* accounts for substantially less than 70 percent of the timber currently being harvested at many HPHs. Several industry sources indicated that there has been a marked decline in high-value, large-diameter *meranti* in most timber-producing regions over the past 10 to 15 years. As such, many concessionaires are now cutting smaller-diameter stems and a broader range of species than in the past. Former Apkindo Chair Bob Hasan described this process as follows:

*Through the 1970s and 1980s, most of what we cut was meranti. The trees were enormous and we could pick which ones we wanted. Generally, we chose those 60 cm and up. Now, the big meranti is much more scarce and harder to get. At least half of what we harvest is other species.*¹⁹

To some extent, this decline in high-value *meranti* logs has been obscured by the fact that, since the early 1990s, the Indonesian Timber Society (*Masyarakat Perhutanan Indonesia*) has encouraged its members to market a variety of species with properties similar to *Shorea* as “*meranti* group.”

Scotland uses the ITFMP model to estimate forest concession profitability and levels of economic rent associated with HPHs of varying sizes. He finds that under the post-crisis scenario, there is a substantial economy of scale in the timber sector and that con-

cessions only begin to register a profit when they are 80,000 hectares or larger (Scotland 1999, 19-20). At the assumed post-crisis discount rate of 25 percent, he argues that concessions smaller than this show a negative net present value and that economic rent on each cubic meter of roundwood produced falls below the log levies collected by the government. These findings, therefore, suggest that a significant portion of Indonesia’s concessionaires have not been able to maintain their economic viability if they adhere to the government’s regulations through much of the period since the crisis began.

In addition, Scotland’s analysis was prepared in early 1999 when international petroleum prices were low, and when domestic fuel prices were being heavily subsidized by the Indonesian government to keep them at roughly 30 percent of international rates. As a result, the potentially large impact of fuel costs on profit margins is not readily apparent in the rent levels calculated. Because it is improbable that domestic fuel prices will remain at such low, subsidized rates for very long, many concessionaires, particularly those that must haul their logs overland, are likely to face substantially higher transportation costs over the medium term than those estimated.

The point of this discussion is not to critique Scotland’s study, which, indeed, offers the most serious analysis of concession-holder profits since the economic crisis began. Nor is it to imply that Indonesian concession-holders are no longer making profits. It is, rather, to underscore the manner in which discussions of Indonesian timber rents have often overstated the profits available to a substantial portion of the nation’s concessionaires. Timber companies with the largest, most productive, and most accessible HPHs were clearly capturing sizeable rents before the crisis, and most have apparently continued to enjoy excess profits

¹⁹ Interview with Mohamad “Bob” Hasan, former Chair of Apkindo, May 3, 1999.

on a more modest scale since the crisis began.

However, timber companies with smaller, less productive, and/or remote concessions have been operating much closer to the margins of profitability. It is likely that many have resorted to illegal, and presumably unsustainable, practices in order to maintain their profit levels.

This poses an important practical challenge for the World Bank and other agencies that have recommended that the Indonesian government raise its timber royalties and to introduce performance bonds. Together, these two fees will need to be large enough that they motivate concessionaires to employ sustainable management practices, but not so high that they inhibit timber operators from generating a reasonable profit at the prevailing discount rate. As mentioned above, concession-holders cannot rationally be expected to manage their HPHs sustainably if it is not sufficiently profitable for them to do so. Given the range of rent levels that appears to exist across space, companies, and time, it is difficult to imagine how the government will be able to increase its own rent capture and impose effective performance bonds without also pushing a segment of the industry's concession-holders out of business. Several industry officials interviewed indicated that to the extent these fees reduced the profitability of their own logging operations, their firms would shift toward sourcing their logs from the open market. In practical terms, this would imply a growing reliance by many wood processors on illegally and unsustainably harvested timber.

Dwindling Prospects for Rents Over the Long-Term

By definition, sustainable concession management also involves the maintenance of a site's productivity at a commercially viable level for an indefinite number of harvests beyond the first logging rotation. Such systems generally take into account the fact that second harvests are almost always lower than first harvests. At least in theory, they are designed to maintain all subsequent harvests at levels that are similar to the second cut as well as profitable. Indonesia's TPTI selective cutting system is based on the assumption "that a residual stand after logging will contain an adequate stocking of sound, commercial species trees of 20 cm dbh or more, which will grow into an economically harvestable timber in 35 years from the original logging date" (World Bank 1993:38). To be successful, the TPTI system is dependent on commercial species in the logged-over forest regenerating at a rate of at least 1 cm per year, so that there is an adequate number of stems with a diameter of 50 cm and up when the second rotation begins.

With a growing number of concessions in Indonesia's Outer Islands nearing the end of their first 35 year rotation, the question of whether there will be trees of adequate size and value to make sustainable management profitable during the second harvesting cycle is emerging as a critical issue. Many of the concession-holders interviewed for this study indicated that they anticipate that the second rotation may, in fact, not be profitable if the concession is managed for 'sustained yield.' Some questioned the theory behind the TPTI system, claiming that the trees at their concession sites did not grow at a rate of 1 cm per year and, therefore, would not fully regenerate in 35 years. Others reported that noncommercial or lesser-value species dominated the residual stand after the first rotation. Several industry studies have documented

the fact that collateral damage during logging operations is often severe, with the effect that it sharply limits the sites' future productivity. Post-logging surveys in the early 1990s estimated that damage and mortality in residual stands was frequently in the range of 35 to 50 percent (World Bank 1993).

In interviews, several industry officials noted that logging companies frequently have little incentive to leave commercially valuable stems standing in residual forests, as there is often scant hope that these trees will remain in place or that their firms will have continued access to them until the second rotation begins. Although the World Bank has used this to justify extending the HPH contract from 20 to 35 years, there is growing evidence that, in fact, longer concession periods will hardly be adequate to counteract such pressures. With timber roads and skid trails providing easy access, logged-over areas are often highly susceptible to encroachment on the part of illegal loggers and settlers. Some companies also reported that after their initial harvest, portions of their concession areas have been reclassified by the Ministry of Forests for other uses such as plantations and transmigration. Consequently, it is common practice for concessionholders to re-log a regenerating stand prematurely, a practice known as *cuci mangkok* (literally, "washing the bowl"). In fact, some concessionaires are known to have intentionally logged in degraded and cut-over areas in order to encourage the Forestry Department to reclassify their HPH sites as conversion forest. Logged-over areas have also been particularly susceptible to the widespread forest fires of the last few years, which has further diminished the availability of second-rotation timber (Dennis and Hoffmann 2000; Hoffmann, et al. 1999).

The combination of these factors raises serious doubts as to whether sustainable concession

management practices will be at all profitable in areas entering their second rotation—a prospect facing concessions allocated in the late 1960s within the next five years, and a rapidly growing number after that. In fact, there is growing evidence that in many parts of Sumatra and Kalimantan, timber concessions subject to repeated logging and other forms of disturbance will have no commercial volume remaining at the point that the second logging rotation is due to begin.

ASSUMPTION #5: The Indonesian government has the institutional capacity to enforce the proposed changes in the HPH system and the forest products trade.

To be implemented effectively on any large scale, the reforms put forth by proponents of the "sustainable logging" paradigm would require a considerable degree of institutional capacity on the part of the Indonesian government. According to the reform agenda proposed by the World Bank, the government's central task in the forestry sector is to reduce aggregate roundwood production by roughly 30 million m³ per year. The Bank argues that the government will be able to achieve this by regulating concession management practices more tightly and by removing restrictions on the marketing of logs and other wood products. To be even minimally successful in accomplishing these, the government would need to have the following institutional capabilities:

- 1)** mechanisms to monitor and enforce the use of sustainability practices on the part of concessionaires within their HPHs;
- 2)** the capacity to enforce concession boundaries in order to restrict outside actors from encroaching on HPHs;

- 3) the ability to keep concession-holders and others from logging in areas that have not been designated for commercial timber extraction;
- 4) an effective system of surveillance and chain-of-custody to control both the domestic timber trade and log exports.

For several reasons, it appears highly unlikely that the Indonesian government will, at any point in the near future, have the institutional capacity needed to make systemic changes in the HPH system and the nation's forest products trade. From a purely logistical perspective, the need to enforce rigid, exclusionary boundaries around areas designated as HPHs and to monitor the harvesting practices of close to 400 concession-holders poses a number of formidable challenges. Indonesia's total concession area currently extends over 49 million hectares, much of which is located in remote regions or covers terrain that is difficult to access. The state forestry bureaucracy, which, since 1967, has been charged with managing 75 percent of the nation's land mass, is understaffed, poorly trained, and ill-equipped to administer such a large area. Moreover, the vast majority of the Ministry of Forests personnel are concentrated in Java, Jakarta, and provincial capitals.

Some observers anticipate that such institutional weaknesses are likely to be exacerbated by the current decentralization process, in which authority over forest administration is shifting from Jakarta to provincial and district governments. Until now district governments have played a minimal role in administering the forests within their jurisdictions. Most have little technical capacity to assess whether timber companies are adhering to the government's regulatory guidelines for sustainable concession management. Likewise, few, if any, have the enforcement capacity

needed to regulate the activities of either formal concession-holders or the various actors involved in informal timber harvesting. Under the decentralized system, significant responsibilities for forest sector policymaking and planning are also likely to remain with the Ministry of Forests in Jakarta, while implementation responsibilities lie with the provincial and district governments. This implies that implementation of a coherent policy for sustainable timber extraction will require a substantial amount of coordination across the various tiers of government, which in many cases have competing institutional interests.²⁰

Complicating matters significantly, units of the military, national police force, and other arms of the state apparatus are known to be heavily involved in illegal logging in most timber-producing provinces (McCarthy 2000, Telapakand EIA, 1999). It is likely that the involvement of such actors could become more entrenched as the state becomes weaker and/or more decentralized and as these agencies are less able to rely on formal budgetary allocations to support their operations.²¹ While the World Bank and others have proposed the establishment of an independent monitoring system to regulate concessionaire management practices, it is difficult to imagine how such a system could function without the active support of the state's own law enforcement agencies. In any case, it would

20 To date, the district, provincial, and national governments have shown little willingness or capacity to coordinate effectively in the areas of forestry planning or regulation. In East Kalimantan and other timber-rich provinces, district officials have frequently allocated small-scale logging and forest conversion permits in areas that fall within the boundaries of HPH timber concessions previously allocated by the Ministry of Forestry in Jakarta.

21 In a recent news interview, Minister of Defense Juwono Sudarsono stated that formal budget allocations currently "only account for around 25 percent of the minimum budget needed for TNI [Indonesian Army] operational costs" (Jakarta Post, May 24, 2000). Juwono noted that "because minimum standards to enhance professionalism are not met, there are many [military officers] who are involved in unsavory activities, including 'influencing' legal processes."

appear that reducing effective demand for logs by closing some processing mills would be an easier, and arguably more effective, strategy to implement than controlling log supply.

CONCLUSION: REORIENTING TIMBER SECTOR REFORM

Over the last 15 years, the policy dialogue in Indonesia's forestry sector has been dominated by proposals to reform the HPH timber concession system. The central aim of these reforms has been to reduce Indonesia's aggregate timber extraction rates to the supposedly sustainable level of 25 million m³ per year. As argued in this chapter, the World Bank and others promoting environmental sustainability through improved concession management are unlikely to achieve this objective under the circumstances that currently exist in Indonesia's forestry sector. The effectiveness of the proposed policy interventions is likely to be limited in that they:

- Seek to control timber supply without reducing effective demand on the part of Indonesia's wood-based industries.
- Overlook or inadequately address roundwood extraction from large areas, including areas designated protection and conversion forest, as well as areas under Inhutani control.
- Fail to provide a credible plan for reducing illegal logging.
- Encourage investments in efficiency without regard for the often damaging impacts that such investments may have on natural forests.
- Assume that sustainable concession management is profitable over both the short and long term, in spite of strong indications to the contrary.

- Assume, without evidence, that the Indonesian government has the institutional capacity needed to make systemic changes to the HPH system and the forest products trade.

In assessing the prospects for environmental sustainability in Indonesia's forestry sector, this analysis has largely focused on policy reforms proposed by the World Bank since the mid-1980s. It is important to recognize, however, that the Bank has hardly been alone in arguing that sustainability can best be achieved by modifying the HPH concession system and regulatory structures framing the nation's forest products trade. Indeed, many forest economists and policy analysts have joined the Bank in calling on the Indonesian government to better enforce its selective cutting guidelines; to increase its capture of timber resource rents; and to encourage market-based efficiency in log harvesting, processing, and trade. Moreover, proponents of the 'sustainable logging' paradigm have advocated a very similar set of policies in many countries besides Indonesia. These include tropical timber-producing countries as diverse as Cameroon, Guyana, Malaysia, and Papua-New Guinea.

While sustainable forest management is clearly an important goal to be pursued by the World Bank or other agencies seeking to leverage reforms on the part of the Indonesian government, it loses much of its legitimacy to the extent that it is fundamentally unachievable on any large scale. This, in turn, raises important questions about what priorities should guide the policy reform process in Indonesia's timber sector. The following sections outline three major directions in which the reform process should be reoriented.

Limiting Demand for Roundwood

The considerable logistical difficulties associated with controlling timber supply in Indonesia suggest that any serious effort to relieve pressures on the nation's remaining natural forests should involve proactive steps to limit demand for wood on the part of domestic forest-based industries. With illegal logging going virtually unchecked in most timber-producing provinces, it is probable that Indonesia's annual log harvest will greatly exceed the legal and sustainable harvesting levels as long as a substantial "structural timber deficit" remains in place. Industrial overcapacity in Indonesia's wood-processing sector was identified as a critical problem facing the forestry sector at the February 2000 meeting of the Consultative Group on Indonesia, placing the issue squarely on the forestry sector policy agenda. There, both the government and the international donor community agreed to take immediate steps toward "closing illegal sawmills" and "downsizing and restructuring of [Indonesia's] wood-based industry [in order] to balance supply with demand for raw materials" (Keating 2000).

To implement these commitments, it will be necessary for the Indonesian government and international donors to define practical steps that can be taken to reduce the demand for wood by domestic processing industries, and to identify which agencies would need to carry these out. In this regard, it is significant that the Indonesian Banking Restructuring Agency (IBRA) now controls many of Indonesia's wood processors, either in whole or in part (see Chapter 5). To the extent that IBRA chooses to call in outstanding loans held by forest sector debtors, it can exert a great deal of leverage in carrying out reductions in processing capacity at both the firm and industry levels. In playing such a role, it would clearly be necessary for IBRA to work closely with

policymakers from a range of government agencies, civil society organizations, and forest industry groups.

As a first step, these actors would need to develop criteria for determining which mills should be subject to capacity reduction measures or closure. Clearly, this should not be based simply on which mills hold the largest amounts of outstanding corporate debt. Rather, it should include detailed and transparent assessments of whether:

- these mills have verifiable access to legal and sustainable raw material supplies;

- their operations have a profoundly negative impact on the surrounding environment;

- their activities have led to social conflicts with local communities which threaten either the viability of the processing enterprise or the socio-political stability of the region in which they are operating;

- the processing enterprise carries an inordinate degree of financial risk.

Slowing Forest Conversion

To the extent that policymakers do seek to control Indonesia's wood supply, their focus will need to extend beyond restricting log output from the HPH system. Sharp reductions in roundwood harvests can only be achieved if steps are taken to significantly reduce the pace at which Indonesia's remaining natural forests are being converted to other uses. To its credit, the World Bank secured from the government a temporary moratorium on the allocation of forested land for conversion to oil palm and other agroindustrial crops, in late 1998. This moratorium should be maintained at least until detailed surveys have been carried out to determine whether

appropriate nonforested areas are available for such projects, and until existing legal claims on such land have been resolved. Moreover, efforts should be made to ensure that subsidies in the form of underpriced IPK wood, discounted capital and loan guarantees, or corporate debt write-off do not offer perverse incentives for agroindustrial conglomerates to clear new tracts of forested land.

In addition, Indonesian government policymakers should be encouraged to seriously consider placing restrictions on the allocation of new IPK licenses to pulp mills and other wood processors. Companies seeking access to IPK wood should be required to provide verifiable documentation that they are making adequate progress in establishing plantations in order to ensure that their operations will eventually be sustainable over the long term. Policymakers may also wish to consider requiring IPK license holders to pay higher royalties on the wood they harvest in order to ensure that its costs are comparable to the costs associated with obtaining wood from industrial wood plantations.

Finally, the Indonesian government should be encouraged to restrict the use of logging in areas allocated to the Inhutani state forestry enterprises for 'rehabilitation' purposes. More generally, efforts should be made to establish a clear code of accountability for the Inhutani and mechanisms for monitoring the forest areas under their control, although such efforts would almost certainly be hindered by many of the same factors that limit monitoring of existing HPHs. This latter point is especially critical in light of the Ministry of Forestry proposal in mid-2000 to transfer all of Indonesia's existing HPHs to Inhutani management.

Shifting the Agenda Toward Equity

The recognition that, at this point, sustainable concession management is fundamentally unachievable on any large scale begs the issue of who should have access to and control over the nation's forest resources. Through the New Order period, both the Ministry of Forestry and many advocates of the "sustainable logging" paradigm routinely argued that large, privately owned logging companies connected to processing facilities are the most appropriate actors for managing areas designated as production forest in Indonesia's Outer Islands. The stated rationale was that such actors would have an incentive to manage their concessions sustainably because they have both a long-term investment in processing which relies on continued access to timber supplies, and an economy of scale that enables them to run their harvesting operations efficiently.

In this way, the principle of sustainability has often been used to legitimize the extreme inequity around which the HPH system was structured during the Suharto era. In practice, it appears that some large-scale timber operators may, indeed, have adhered to the government's selective harvesting and replanting regulations. However, a far larger number have employed indiscriminate logging practices to liquidate as rapidly as possible the timber resources made available to them by the state.

Recognizing sustainability of forest management by large-scale enterprises to be untenable under the current circumstances makes it impossible to justify maintaining the New Order regime's policy of categorically excluding forest-dependent communities from areas that the state has defined to be production, protection, or conversion forest. On the contrary, the demise of sustainability as an achievable policy goal

suggests that equity for local communities with clear historical or customary (*adat*) claims to forest land should, in fact, be a central principle guiding forestry sector reform in the present context. The current decentralization process has, in fact, created new opportunities for advancing an equity-based agenda in the forestry sector, as far-reaching authority over forest administration now lies in the hands of district governments.

Clearly, the legal recognition of local tenure will not, in itself, guarantee that any given tract of forest would remain standing longer than if a timber concessionaire managed it. It would, however, provide the basis for ensuring that members of forest-based communities would have legitimate authority to determine how the forest resources on which their livelihoods depend should be managed and to share equitably in the benefits of any products harvested from the areas under their jurisdiction. Moreover, numerous studies have shown forest-dependent communities in many parts of Indonesia to consist of highly skilled resource managers, who have sustained complex forest ecosystems for generations (Fried 1995; Dove 1986).

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The Political-Economy of Fiber and Finance in Indonesia's Pulp and Paper Industries

Chapter 4

Since the late 1980s, Indonesia's pulp and paper industries have expanded rapidly to push the country into the ranks of the world's top 10 producers. Indonesia's pulp production capacity grew from 606,000 to 4.9 million metric tonnes per year between 1988 and 2000, while the paper industry's processing capacity rose from 1.2 million to 8.3 million tonnes per year (Spek 2000b). Last year, pulp and paper products generated US\$2.9 billion in export earnings, accounting for over 50 percent of the country's forest-related exports (Bank Indonesia 2001).

The meteoric growth that has occurred in both industries, however, has proceeded far more rapidly than efforts to secure a sustainable supply of raw materials through the development of pulpwood plantations (Cossalter 1998). Of the 120 million m³ of wood estimated to have been consumed by the pulp industry during 1988-2000, only 10 percent was harvested from plantations.² To date, Indonesia's pulp mills have relied heavily on unsustainable and, in many cases, illegal sources of fiber, much of which is obtained through the clear-cutting of natural forests. During this period, demand for pulpwood is estimated to have caused the loss of over 900,000 ha of natural forest. Although the industry's largest producers are now taking steps to bring online industrial pulpwood plantations (*hutan tanaman industri*, or HTIs), it is projected that most of the country's pulp mills will face sizeable deficits of sustainably harvested fiber for at least the next seven years, and quite possibly well beyond.

1 The paper on which this chapter is based was initially released on CIFOR's web site in November 2000, with the title "Profits on Paper: the Political Economy of Fiber, Finance, and Debt in Indonesia's Pulp and Paper Sector." For the purposes of this book, the issue of corporate debt has been placed in Chapter Five. Since the first version of this paper was circulated, some revisions have also been made to the sections on the fiber supply strategies of PT Indah Kiat Pulp & Paper and PT Riau Andalan Pulp & Paper, based on information provided by the companies.

2 These figures are derived from APKI (1997), Jaakko Poyry (1998) and Spek (2000b).

The growth of Indonesia's pulp and paper industries over the past decade has involved an aggregate capital investment of at least US\$12 billion. In both industries, there has been a trend toward the development of processing facilities with very large production capacities, which have generally entailed high fixed costs—in several cases, exceeding US\$1 billion per mill (Bell 1997; Spek 2000a). These large investments have often been justified as enabling Indonesian producers to remain profitable in highly cyclical pulp and paper markets by producing large volumes of product at low cost (Spencer and Choi 1999). The fact that Indonesian companies have made investments on this scale without first securing a legal and sustainable raw material supply, however, suggests that many of these projects carry a substantial degree of financial risk.

To a significant degree, Indonesian pulp and paper companies have been motivated to invest such large sums in high-risk projects because their owners have been able to avoid much of the financial risk involved. Three factors have enabled them to do so: First, the Indonesian government has provided substantial capital subsidies to pulp and paper producers, including the provision of pulpwood fiber at costs well below its stumpage value. Second, the government's weak regulation of the nation's financial system has enabled pulp and paper companies to employ a variety of illegal practices to obtain discounted finance. Third, international financial institutions have helped Indonesian producers to borrow billions of dollars from offshore investors without rigorously assessing either the long-term viability of those firms' fiber supplies or the legality of their financial practices.

In spite of the considerable structural pressures that Indonesia's pulp and paper industries have placed on natural forests, they have been largely overlooked by

the World Bank and other agencies involved in the post-1997 forestry adjustment process, due mostly to the Bank's absence from Indonesia's forestry sector during the years immediately prior to the financial crisis. Indeed, it was during these years that the pulp and paper industries underwent accelerated growth, while the country's plywood industry began its slow decline. The Bank's policy interventions have generally focused on timber concession management, rather than pulpwood fiber supply, because the HPH system dominated Indonesia's forestry sector when the Bank was involved in the early 1990s.

Given the amount of capital invested in Indonesia's pulp and paper industries, it is also striking that the World Bank and the IMF have until now failed to address the real financial risks associated with unsustainable fiber supplies. Arguably, this reflects the limitations of sectorally focused policymaking. The agencies involved in reforming Indonesia's financial sector and restoring macroeconomic growth clearly recognize the significant exchange earnings made by pulp and paper producers. However, they have shown little recognition that the financial viability of Indonesia's pulp mills is ultimately dependent on their ability to secure long-term supplies of fiber from pulpwood plantations.

Pulp and Paper Capacity Expansion During the 1990s

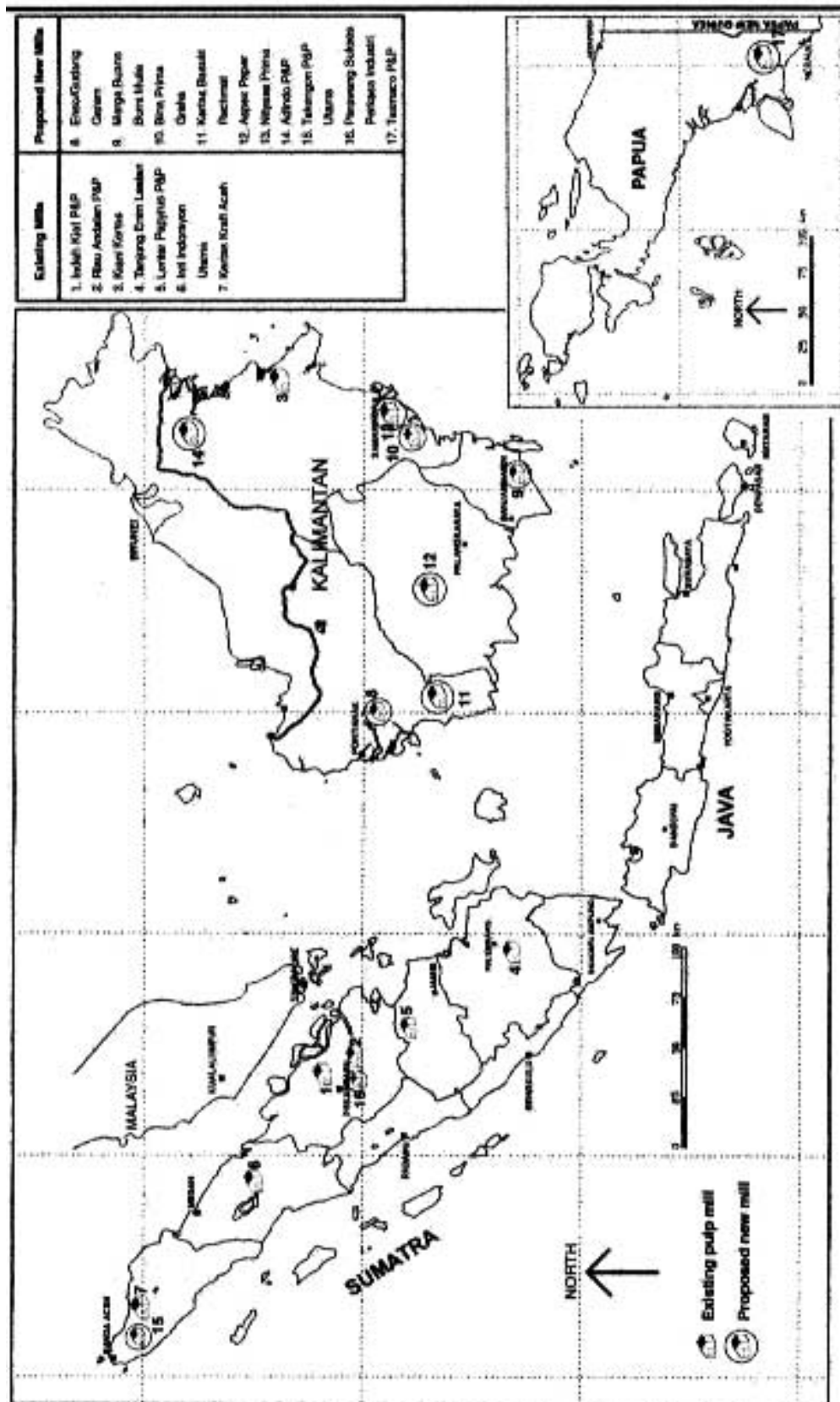
Four large conglomerates have accounted for virtually all of the growth that has occurred in Indonesia's pulp industry over the past decade. For analytical purposes, these groups can be divided into two categories: integrated producers and producers of market pulp. Integrated producers include the Sinar Mas and Raja Garuda Mas groups, each of which has sought to establish large-scale pulp processing operations that

are directly linked to affiliated paper production facilities. Both groups have been active in Indonesia's pulp and paper sector since at least the mid-1980s, and for the last several years, each has coordinated its operations through a Singapore-incorporated holding company. The Sinar Mas Group has financed much of its expansion through Singapore-based Asia Pulp & Paper (APP), while the Raja Garuda Mas Group has used Asia Pacific Resources International Ltd. (APRIL), a Singapore-based holding company, to coordinate its activities in the sector.

The Sinar Mas/APP Group is by far the dominant player in Indonesian pulp processing as well as paper and board production. The group owns two of the nation's largest pulp mills: Indah Kiat and Lontar Papyrus, located respectively in the east Sumatran provinces of Riau and Jambi (see Figure 4.1). Between 1991 and 1999, the group's pulp processing capacity grew from 410,000 tonnes to 2.3 million tonnes per year (Ausnewz 1999). During the same period, Sinar Mas/APP mounted an aggressive series of expansions and acquisitions to raise the group's paper and board production capacity in Indonesia from 383,000 to 3.8 million tonnes per year (Ausnewz 1999). Since the mid-1990s, APP has also initiated investments in five paper and board facilities in China, which currently have an aggregate production capacity of 1.8 million tonnes per year (APP 2000). Following these massive capacity expansions, APP has emerged as the world's eighth largest paper and board producer and the largest in non-Japan Asia (James, et al. 2000).

The Raja Garuda Mas/APRIL Group has pursued a similarly aggressive expansion strategy over the past decade, albeit on a much smaller scale. Like Sinar Mas/APP, the group controls two Indonesian pulp processing facilities: Riau Andalan Pulp & Paper (RAPP) and Indorayon, located respectively in Riau

Figure 4.1: Existing and Proposed Pulp Mills in Indonesia, as of 1997



and North Sumatra (see Figure 4.1). These mills have a combined production capacity of 1.1 million tonnes per year (APRIL 2000). Since the mid-1990s, Raja Garuda Mas/APRIL has taken steps to integrate its pulp mills with paper production facilities. The group brought online its first paper production at RAPP in 1998, and output was scheduled to reach 300,000 tonnes by the year 2000. Through a strategic partnership with the Finnish-based multinational UPM-Kymmene, APRIL has also taken steps to develop a

paper and board mill in southern China that will produce 300,000 tonnes per year (APRIL 2000).

During the late 1990s, two of Indonesia's largest timber sector conglomerates entered the pulp industry with the aim of producing bleached hardwood kraft pulp (BHKP) that would be sold rather than processed internally. Kiani Kertas, a fully owned subsidiary of the Bob Hasan Group, developed a pulp mill in East Kalimantan that has the capacity to produce 525,000 tonnes per year (Kenny 1997). When the mill came

Table 4.1: Annual Pulp Production and Roundwood Consumption of Indonesia's Pulp Industry, 1987-2000, with Projections for 2005 and 2010.

Year	Pulp Production Capacity ('000 tonnes/yr)	Roundwood Processing Capacity ('000 m ³ sob/yr)	Pulp Production ('000 tonnes/yr)	Roundwood Consumption ('000 m ³ sob*)
1987	515	2,524	325	1,593
1988	606	2,969	368	1,805
1989	706	3,459	461	2,261
1990	1,000	4,900	697	3,415
1991	1,100	5,390	850	4,165
1992	1,100	5,390	870	4,263
1993	1,335	6,540	900	4,410
1994	2,055	10,068	1,314	6,439
1995	2,629	12,880	2,022	9,908
1996	2,741	13,431	2,561	12,549
1997	3,900	19,110	3,048	14,984
1998	4,300	21,070	3,430	16,807
1999	4,600	22,540	3,400	16,660
2000	4,900	24,010	4,140	20,286
2005	6,400	31,360	5,790	28,945
2010	7,200	35,280	6,715	33,605

*sob- stripped of bark

Sources: APKI 1997 and Spek 2000b for 1987-2000 figures; Jaakko Poyry (1998) for 2005 and 2010 projections

online in early 1998, the company's stated aim was to export up to 95 percent of its product to Asian, North American, and European markets. In early 2000, PT Tanjung Enim Lestari—a joint venture among the Indonesia's Barito Pacific Group, a consortium of Japanese investors, and a holding company owned by former President Suharto's eldest daughter—completed construction on a pulp processing facility in South Sumatra that has the capacity to produce 450,000 tonnes per year (Bell 1997). Under the terms of the partnership, Tanjung Enim Lestari's mill is operated by Nippon Paper Industries, while Japan's Marubeni Corporation and Cellmark of Sweden have agreed to purchase the pulp produced for the first 10 years of the mill's operation.

Growing Demand for Pulpwood Fiber

The pulp industry's ten-fold increase in output between 1988 and 2000 entailed a rise in annual pulpwood consumption from 1.8 million m³ to 20.3 million m³ (see Table 4.1). Aggregate wood consumption by Indonesia's pulp industry during this period amounted to 120 million m³.³ Prior to the crisis, industry analysts projected that Indonesia's pulp production capacity would climb further to 6.4 million tonnes per year by 2005 and to 7.2 million tonnes per year by 2010 (Jaakko Poyry 1998). These projections imply that the volume of roundwood that the industry is capable of processing on an annual basis would rise from 24.0 million m³ in 2000 to 31.4 million m³ in 2005

3 These figures are based on the assumption that 4.9 m³ of roundwood (green wood over bark) are needed, on average, to produce each air-dried metric tonne (Adt) of pulp. This figure is derived from Jaakko Poyry (1998), which calculates conversion rates for mixed tropical hardwoods (MTH) of 4.84 m³ per Adt of pulp in the mill and 5.36 m³ per Adt pulp, standing volume in the forest. Likewise, Jaakko Poyry calculates a conversion rate for plantation-grown *Acacia mangium* of 5.01 m³ per Adt pulp in the mill, and 5.38 m³ per Adt pulp, standing volume in the forest. The figure of 4.9 m³ per Adt has been derived by averaging the in-mill conversion rates of MTH and *Acacia*.

and to 35.3 million m³ in 2010. Assuming that the industry were to operate with a capacity utilization rate of 90 percent or higher through this period, the consumption of pulpwood by Indonesian producers has been projected to reach 28.9 million m³ in 2005 and 33.6 million m³ at decade's end (Jaakko Poyry 1998).

Development of Pulpwood Plantations

Since the late 1980s, the Indonesian government has promoted the development of HTI plantations with the stated aim of establishing a sustainable source of fiber for the nation's rapidly growing pulp industry (Groome Poyry 1993). As detailed in chapter 2, the government has done so by allocating large tracts of conversion forest to each of the country's major producers, as well as to several prospective investors in the pulp and paper subsector. HTI license-holders are permitted to clear-cut their concession areas, and to use the wood generated from such harvests until the plantations are fully online. To date, the Forestry Department has distributed 23 pulpwood plantation licenses covering an aggregate area of 4.3 million ha (see Table 4.2). Thirteen of these, accounting for 2.9 million ha, have been designated as "priority" HTIs, making them eligible for an expedited approval process and access to subsidized financing from the government's Reforestation Fund.

In developing their HTIs, Indonesian plantation companies have utilized a number of fast-growing pulpwood species. The most promising have been *Acacia mangium*, *Acacia crassicarpa*, and to lesser extent *Gmelina arborea* and *Eucalyptus deglupta*. Of these, the dominant species utilized has been *A. mangium*, which accounts for approximately 80 percent of the total area planted thus far (Jaakko Poyry 1998). Pulpwood producers have chosen *A.*

Table 4.2: Location, Affiliation, and Area of Priority Pulpwood Plantations, January 1999

Province	Company Name	Group (ha)	Total Area (ha)	Area Planted
Aceh	Tusam Hutan Lestari	Bob Hasan	175,000	23,706
	Aceh Nusa Indrapuri	Takengon	166,500	29,946
North Sumatra	Inti Indorayon Utama	Raja Garuda Mas/APRIL	269,060	48,553
Jambi	Wirakarya Sakti	Sinar Mas/APP	269,580	60,923
Riau Arara Abadi	Sinar Mas/APP	300,000	160,209	
	Riau Andalan	Raja Garuda Mas/APRIL	280,500	83,759
South Sumatra	Musi Hutan Persada	Barito	300,000	200,155
South Kalimantan	Menara Hutan Buana	Mercu Buana	186,300	79,452
East Kalimantan	ITCI Hutani Manunggal	ITCI	191,800	87,294
	Surya Hutani Jaya	Astra	198,000	110,283
	Tanjung Redeb Hutani	Bob Hasan	180,900	68,569
	Adindo Hutani Lestari	Adindo	201,000	27,097
West Kalimantan	Finnantara Intiga	Enso/Gudang Garam	200,700	29,189
<i>Total 13 Priority HTI-Pulp Projects</i>			<i>2,919,340</i>	<i>1,009,135</i>
<i>Total 10 Non-Priority HTI-Pulp Projects</i>			<i>1,405,186</i>	<i>35,236</i>
Cumulative Total			4,324,526	1,044,371

Source: MOFEC 1999.

mangium for its rapid growth, high pulp yields, and ability to thrive in a wide range of ecological conditions, including degraded and heavily leached soils.

Over the past decade, the productivity of *A. mangium* has increased steadily, as Indonesian plantation companies have used improved planting stock and employed better management practices at their HTI sites. Areas planted in the late 1980s and early 1990s, for instance, generated a mean annual increment of only 15 to 20 m³/ha/year, well below the levels initially anticipated by the industry (Jaakko Poyry 1998). With a rotation period of seven to eight

years, the average volumes harvested from the sites generally have been in the range of 112 to 150 m³/ha. These low yields were largely caused by the planting of poor genetic material; inappropriate site preparation; planting in areas with compacted soils; lack of diligence in weed control; and less than optimal plantation management once the trees were planted.

Following improvements in each of these areas, most plantations of *A. mangium* initiated since the mid-1990s have reportedly generated estimated mean annual increments (MAI) of 20 to 25 m³/ha/year, which should provide an average yield at harvest of 150 to 190 m³/ha (Jaakko Poyry 1998). The ability to

obtain such yields every seven to eight years represents a critical element in Indonesian producers' competitive advantage over their counterparts in the North American and Scandinavian (Norscan) pulp-producing countries. Most Norscan producers rely on pulpwood species such as birch, spruce, and pine, which generally require at least 20 to 25 years per harvesting cycle (PT Indah Kiat 1999). Indonesia's major producers claim that, in fact, they have already raised their mean annual increments to 25 to 30 m³/ha/year through further improvements in both the genetic materials and silvicultural practices, and are now expecting average per hectare yields of 190 to 225 m³/ha for new areas planted. Their ability to generate such yields on a large scale, however, remains to be seen.

Reliance on Unsustainable and Illegal Fiber Supplies

In spite of the technical improvements in plantation management that have occurred over the past decade, the development of HTI pulpwood plantations in Indonesia has lagged far behind the expansion of processing capacity in the nation's pulp and paper industries (Cossalter 1998). All of Indonesia's pulp mills have been installed several years before supporting plantations have come online, with the single exception of PT Tanjung Enim Lestari's pulp plant in South Sumatra.⁵ Of the 100 million m³ of wood that pulp producers consumed between 1988 and 1999, less than 8 million m³ was sourced from plantations.⁶

Because the increases in processing capacity have far outpaced HTI development, all of Indonesia's pulp producers have until now been highly dependent on mixed tropical hardwoods (MTH) obtained through clearing of natural forest. In 1988, MTH made up all of the 1.8 million m³ of wood consumed by the industry.⁷ The volume of unsustainably harvested wood grew

steadily over the ensuing decade, reaching 9.7 million m³ in 1995 and 12.5 million m³ in 1999.⁸ The aggregate volume of MTH consumed by the pulp industry during 1988-1999 totaled 92 million m³. If it is assumed that, on average, producers are able to obtain 110 m³ of pulpable wood from each hectare they clear, then consumption of MTH on this scale implies that Indonesia's pulp industry has accounted for approximately 835,000 ha of deforestation over the past 12 years. It is notable that virtually all of this area was cleared to supply wood to four large mills; and that a single mill—Indah Kiat Pulp & Paper owned by Sinar Mas/APP—accounted for over one-third of the total area deforested.

A major factor encouraging pulp and paper producers to invest in new processing capacity without first bringing plantations online has been the Indonesian government's readiness to make large tracts of forest available for clear-cutting. Since the Ministry of Forestry initiated the HTI program in the 1980s, it has allowed license-holders to use at minimal cost the trees cleared from their plantation sites, under a wood utilization permit (*Izin Pemanfaatan Kayu*,

4 In publishing these figures, the Ministry of Forestry and Estate Crops provides no indication of the current condition of the areas planted at each HTI site. It would appear, for instance, that they have not been adjusted to account for the 100,000 ha of planted area that are estimated to have been heavily damaged or destroyed by the fires of 1997-1998 (Grahame Applegate, CIFOR, personal communication).

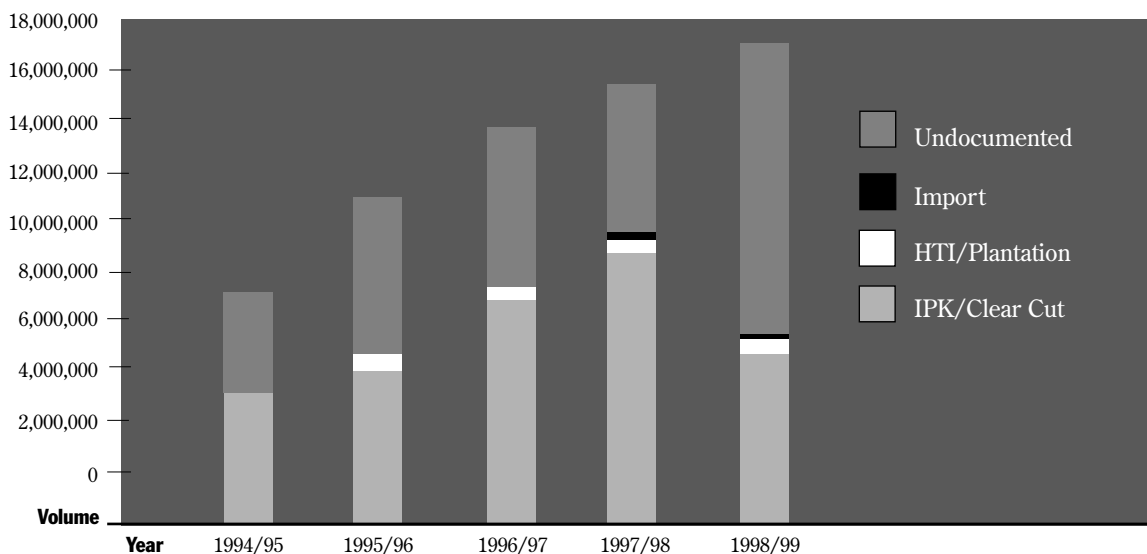
5 Tanjung Enim Lestari's distinction in this regard probably had less to do with the company's concern for establishing a sustainable fiber supply before initiating processing operations than it did with the timing of the mill's financing. Initially scheduled for construction in the early 1990s, Tanjung Enim Lestari encountered several delays in securing offshore financing for the project, and the mill did not come online until late 1999.

6 These figures, as well as those in the following paragraph, are derived from the pulpwood consumption figures presented in Table 4.1 and estimates of HTI yields presented in Jaakko Poyry (1998).

7 See fn 5.

8 These figures are obtained by subtracting the estimated harvest volumes of plantation-grown pulpwood cited in Jaakko Poyry (1998) from the overall volumes of pulpwood consumed by the industry during these years (see Table 4.1).

Figure 4.2: Sources of Wood Consumed by Indonesia's Pulp Industry 1994-1999



Source Departemen Kehutanan (1999). Data for 1998-99 are preliminary.

IPK) (Departemen Kehutanan and PT Herzal Agrokarya Pratama 1991). Through the 1990s, the Ministry has also made available IPK permits for the clearing of large forested areas slated for conversion to oil palm and other estate crops. The government's stated rationale for doing so has been to provide a temporary "bridging supply" of wood to pulp producers until their plantations are fully operational (Manurung and Kusumaningtyas 1999).⁹

A point that has generally been overlooked, however, is that the 4.3 million ha (gross) that the Ministry has allocated for pulpwood plantations vastly exceeds the area that Indonesia's pulp industry would actually need if it were to be run sustainably. If it is conservatively assumed that HTIs will generate average yields of 150 m³/ha/year, then it can be estimated that 133,000 ha per year would need to be harvested to provide the 20 million m³ of wood that the pulp industry consumes annually at its current production level of 4.1 million tonnes per year. An eight-year harvesting cycle would imply that just under 1.1 million ha would need to be

planted for this volume of fiber to be supplied on a sustainable basis. The fact that the Indonesian government has allocated roughly four times this area to pulpwood plantation companies suggests that the HTI program is motivated by a desire to make large volumes of MTH available to pulp producers, regardless of whether the areas cleared are ever actually replanted.¹⁰

⁹ It bears mentioning that the author does not view clear-cutting natural forest to provide a 'bridging supply' of fiber to Indonesia's emerging pulp industry to be, a priori, a negative development. Indeed, many would argue that the conversion of natural forest to pulpwood plantations is a legitimate strategy to provide a launching pad for a competitive industry. What is important to recognize, however, is that the Indonesian government has allocated to the pulp industry an aggregate area of natural forest that well exceeds the industry's fiber needs if it were to pursue an efficient plantation development program. Moreover, a handful of very large-scale actors have until now enjoyed the vast majority of the benefits that have derived from the government's forest conversion policy.

¹⁰ It should be acknowledged that in many HTI concession sites, the net plantable area is limited to 60 to 70 percent of the total area allocated. If this ratio is applied to the 4.3 million ha that the government has assigned to pulpwood plantation companies, it implies that between 2.6 and 3.0 million ha are plantable. These areas are still considerably greater than the 1.1 million ha that are presumably needed to meet existing industry demand on a sustainable basis.

Although the pulp industry's major producers are now actively engaged in developing plantations on a considerable scale, there are compelling reasons to believe that they will continue to rely on large volumes of mixed tropical hardwoods for as long as they are able to do so. MTH is, by any measure, an extremely low-cost source of fiber under Indonesia's current forest royalty regime, which requires the payment of a reforestation fee of US\$2 per m³ (payable in rupiah at a rate of 5,000 to the US dollar) and a royalty of Rp 2,000 per tonne (Spek 2000a). MTH is particularly cheap when pulp producers are able to obtain their wood from concession areas under the control of affiliated companies. Both Indah Kiat and Riau Andalan Pulp & Paper, for instance, have been able to secure the bulk of their raw materials from affiliated HTI license-holders at a price that is equal to the actual cost of harvesting and delivering the wood to the mill, along with the payment of government royalty fees (Ausnewz 1999).

Some industry officials have suggested that Indonesia's two largest pulp producers see substantial capital investments in plantations, by comparison, as being financially burdensome: not only do they place constraints on the group's liquidity over the seven to eight year rotation period, but they also entail a considerable degree of risk. A financial officer at one of these groups summed up his company's wood supply strategy as follows:

Of course we are bringing our plantations online. But we're in no rush to switch our mill to acacia if there are still cheap supplies of mixed tropical hardwoods (kayu campuran) available. Why should we be? As it stands, we have access to a very low-cost supply of raw materials. Developing good plantations not only involves higher costs, but also a good deal of risk—the trees have to be there for harvest seven years

*from now. Right now, our HTIs are essentially an insurance policy, and we will cash it in when the MTH is no longer available.*¹¹

In addition to the large volumes of legal but unsustainably harvested wood that have been cut by IPK license-holders, a substantial volume of fiber consumed by Indonesia's pulp industry has come from undocumented sources. Industry statistics indicate that the country's pulp mills processed approximately 50 million m³ of wood during the period between 1994 and 1999 to produce 10 million tonnes of pulp. According to Indonesian government figures, 28 million m³ of this originated from areas covered by IPK licenses, just under 1.3 million came from HTIs, and a small amount was imported in the form of wood chips (see Figure 4.2).¹² While these figures are far from conclusive, they suggest that Indonesian pulp producers may have obtained as much as 20 million m³—or 40 percent of the wood they consumed during this period—from illegal sources.

In interviews, several industry executives acknowledged that the use of illegally harvested wood is common practice among the nation's pulp producers. Some indicated that their mills regularly purchase a substantial portion of the wood they process without knowing its provenance. According to one company's wood supply manager, "Our concern is to keep our mill running. When we buy wood, why should we care where it comes from as long as the price is reasonable? Whether or not it was harvested illegally, that is the Forestry Department's responsibility [to monitor]."¹³ In some cases, pulp producers are

11 Confidential interview, Jakarta, December 8, 1999.

12 It should be noted that these figures are, in fact, quite conservative. They do not take into account the fact that at least a portion of the wood harvested under IPK licenses was processed for lumber or wood panels. Typically, IPK holders will send logs that are 30 cm and up to sawmills or plywood mills, while the smaller diameter wood is utilized for pulp fiber.

reported to purchase wood from harvesting teams that are illegally logging within those companies' own concession sites.¹⁴ These companies reportedly finance such illegal logging operations not only to circumvent the payment of royalty fees on the wood harvested, but also to secure use of the wood before it is cut by other actors seeking to establish control over the land.

Projected HTI Yields and Potential Shortfalls

In spite of the slow pace of HTI development thus far, many industry analysts anticipate that the volumes of pulpwood produced in plantations will expand exponentially over the next several years. International forestry consulting firm Jaakko Poyry, for instance, has projected that by 2003, aggregate yields from HTIs would quadruple from 1999 levels to reach 17 million m³, or approximately 70 percent of the industry's anticipated fiber demand for that year (Jaakko Poyry 1998). HTI yields are thereafter projected to rise to 32 million m³ in 2009, when they are expected to provide 95 percent of the pulp industry's raw material supply. Formulated in 1998, these projections were apparently based on the aggressive planting schedules that the industry's two largest producers, the Sinar Mas and Raja Garuda Mas conglomerates, had followed through the previous year. In 1997, the two groups' annual planting programs are reported to have planted 27,000 and 28,000 ha, respectively, at their Riau plantation

13 Confidential interview, Jakarta, December 8, 1999.

14 The wood supply manager for one of Indonesia's major pulp producers explained in an interview that his company regularly purchased 40 percent of the wood that its mill consumes. He said that the mill often finds it cheaper to buy wood from locals illegally harvesting wood within the company's concession area than from the firm's own contractor because the former do not require payment of government royalties. To facilitate such harvesting, the company reportedly provides illegal logging teams with chainsaws. Much of this harvesting is done at night, while the contractor's formal logging operations are carried out during the day. When asked what his company would do when MTH stocks at its concession site were depleted, the informant expressed little concern, explaining that "There's still lots of protected forest [Hutan Lindung] available!" Confidential interview, Jakarta, December 8, 1999.

sites (PT Indah Kiat 1999; APRIL 2000).

However compelling these projections may seem, there are at least four significant reasons to believe that they could prove to be overly optimistic. First, there are widespread allegations within the industry that Indonesian plantation companies have regularly overstated the size of the areas planted and anticipated growth rates in order to inflate their projected yields. As will be discussed below, recipients of plantation subsidies from the government's Reforestation Fund have frequently been motivated to do so in order to obtain higher grant allocations and discounted financing than they would otherwise be entitled to (Ernst & Young 1999). While neither the Sinar Mas/APP nor the Raja Garuda Mas/APRIL groups has drawn on DR funds to support its plantation development efforts, both groups have nonetheless had strong incentives to maintain the image that they are solidly on schedule in meeting what are, by any measure, ambitious planting targets. Indeed, both groups obtain much of their investment and working capital through equity and bond issues, and therefore each relies heavily on investor confidence in the company's ability to generate low-cost fiber on a sustainable basis. Perhaps for this reason, both groups are extremely cautious about divulging the details of their annual planting programs and the relative growth of each year's tree stock as it moves through its rotation.¹⁵ This makes it extremely difficult for industry observers to estimate with confidence actual areas planted at these companies' concession sites and what volumes of wood these areas can be expected to yield. The critical point is that for Indonesia's HTI

15 In their annual reports and Form 20-F filings with the US Security and Exchange Commission, neither Sinar Mas/APP nor Raja Garuda Mas/APRIL reports annual areas planted on a year-by-year basis. Nor do they identify seedling densities in specific planting blocks or areas where planted trees have failed. Instead, they generally limit their reporting to aggregate figures of total planted area at their plantation sites.

plantation program to generate the volumes of pulpwood fiber that have been projected, an adequate number of hectares will need to be planted seven to eight years before the expected harvest; these planted areas will need to be fully stocked; and the trees planted will need to be available for harvest when the rotation is complete.¹⁶

The fact that plantations of fast-growing tree species are potentially vulnerable to a range of technical problems represents a second reason that the abovementioned HTI projections may prove to overestimate actual yields.¹⁷ A critical challenge facing many HTIs is that they are being developed on areas with fragile soil structures (e.g., peat or impoverished mineral soils), which can degrade rapidly under the high-frequency logging regime that a seven to eight year harvesting rotation implies (Ausnewz 1999). To maintain yields across several rotations, companies will need to utilize harvesting methods that minimize soil loss and compaction. At some sites, pests, fungus, and disease have already emerged as problems after the second planting, and there is reason to believe that these will become even more serious during subsequent rotations.¹⁸ This is particularly the case for *Acacia mangium*, which does not coppice like most *Eucalyptus*

16 Since the onset of the financial crisis, for instance, there have been dramatic cuts in planting at most HTI sites. The areas planted at the Sinar Mas/APP group's main plantation in 1998 and 1999 are reported to have fallen by over 50 percent from pre-crisis levels, while those for Raja Garuda Mas are believed to have dropped even further still (Spek 2000). These apparent slowdowns in the pace of planting will clearly have a significant impact on the raw materials available to the industry's major producers in the coming years. Because pulpwood plantations operate on a seven to eight year rotation, failure to plant an adequate number of hectares in 1998 and 1999 will lead to deficits in 2005 and 2006.

17 A point of particular concern is that none of Indonesia's pulp producers has yet grown *A. mangium*, or the other species currently being used, through a full second rotation. Indeed, the country's first pulpwood plantations were established in 1987, which means that their second harvest will not take place until 2001. At most HTI sites, initial planting did not occur until the early 1990s. Plantation companies, therefore, have little empirical data to indicate how these species will perform when they are grown intensively across multiple rotations.

species and, therefore, requires harvesting and replanting operations to be carefully timed. Many industry sources are confident that new silvicultural technologies will be adapted to address each of these problems as it arises. Some, however, have quietly speculated that Indonesia's plantation companies may only be able to maintain yields beyond the second rotation by developing new HTI sites and/or by adopting new genotypes over time.

Fires are a third factor that could keep Indonesia's pulpwood plantations from generating the yields that have been projected. Indeed, the catastrophic fires of 1997-1998 are estimated to have destroyed approximately 100,000 ha of planted HTIs in Kalimantan and Sumatra (Asian Development Bank 1998).¹⁹ *Acacia* and *Eucalyptus* plantations are particularly susceptible to fire as their leaves have a high oil content. Trees that are three years of age and younger are the most vulnerable, as their thin bark is not yet fire-resistant.²⁰ Moreover, the proliferation of low-level branches often helps to carry fire from grassy understory to the crowns of the trees. This frequently gives added intensity to a fire, turning what may start as a low-level burn into a high-intensity blaze once it enters a plantation site. It should also be noted that most Indonesian plantation companies have poor fire prevention and suppression systems in place.

The prevalence of social conflict linked to pulpwood plantations presents a fourth reason that HTI yields may fall short of the projections outlined above. Such conflicts have frequently arisen because HTI concessions have been located on areas traditionally owned and/or managed by local people (Fried 1995).

18 Christian Cossalter, CIFOR, personal communication, August 14, 2000.

19 This figure is based on an estimation of HTI areas burned with trees that are three years of age and under. Trees over three years are believed to have been able to survive fires of moderate intensity.

20 Grahame Applegate, CIFOR, personal communication, August 28, 2000.

In the case of PT Musi Hutani Persada's 300,000 ha pulpwood plantation in South Sumatra, for instance, members of surrounding communities have demanded compensation payments of Rp 25 million (US\$3,000) per hectare for areas that they claim have been unjustly occupied by the company since 1991 (Nadiar 2000). Because HTI development is generally structured to provide the plantation company with exclusive control over the land within the concession area for an extended period of time, many communities have responded to the establishment of HTIs even more vociferously than to the allocation of logging concessions on adat lands. In numerous cases, villagers have taken action to disrupt HTI operations, including the use of arson and pulling up trees after they are planted.²¹

In some areas, local communities also have been actively competing with plantation companies for access to land in order to plant their own cash crops. Industry analysts familiar with the large Sumatran plantation programs have indicated, for instance, that growing numbers of smallholders have sought to establish oil palm estates within the formal boundaries of the HTI concessions over the last few years.²² Such practices threaten to undermine the companies' access to raw materials both by reducing the total volume of MTH that can be extracted from these sites and by restricting the net planting area available for pulpwood species. Recognizing this, both companies have taken

steps to consolidate control over the land in the concession allocated to them. At this point, however, it is not at all clear that either group will be able to secure the full area of land needed to meet its long-term HTI planting targets.

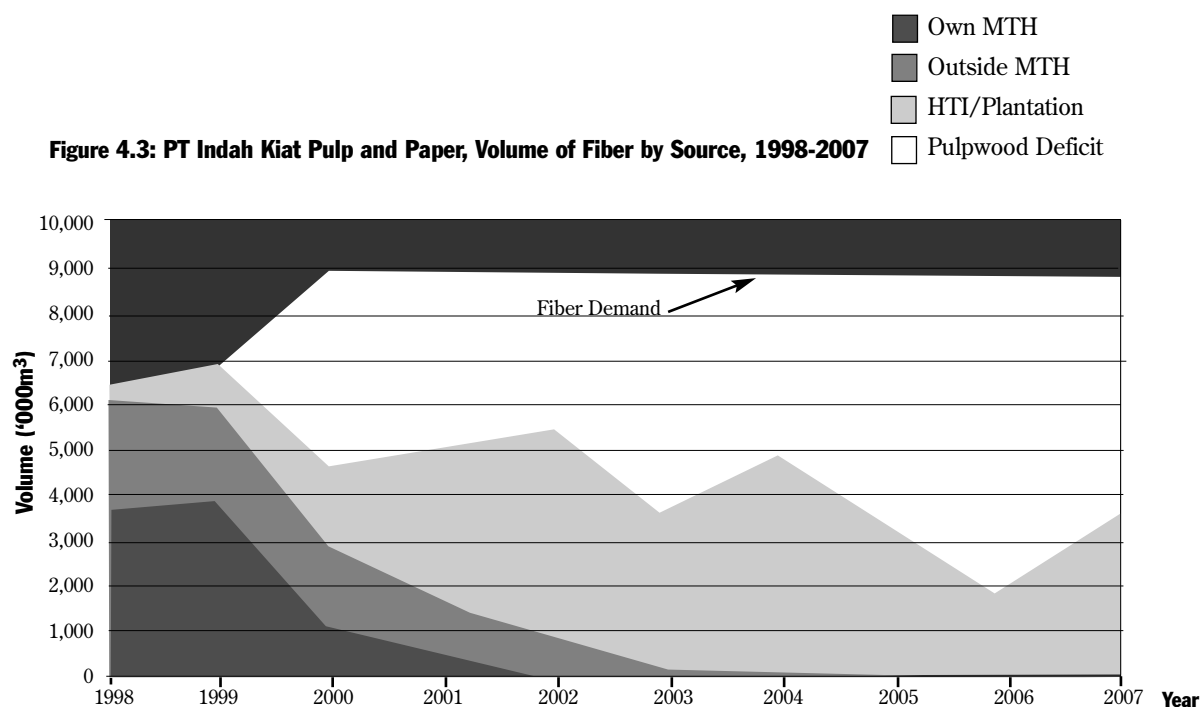
FIBER DEFICITS AT THE MILL LEVEL

Figures 4.3 and 4.4, in the sections below, provide graphic illustrations of how the projected industry-wide deficits of sustainably harvested pulpwood fiber are likely to play out at the micro-level. Based on projections of fiber supplies from pulpwood plantations and from IPK forest clearing, these figures show the volumes of wood that the country's two largest pulp mills—Indah Kiat and Riau Andalan Pulp & Paper—are expected to obtain from existing legal sources during the period 1998 to 2007. The two mills are located less than 100 km from one another in the east Sumatran province of Riau. Together, they account for roughly 60 percent of Indonesia's total pulp production.

To date, both mills have relied heavily on the use of mixed tropical hardwoods, much of which is obtained through the clearing of natural forest. However, each is now facing a sharp decline in the availability of MTH as stocks are dwindling at their own concession sites and increasingly small areas of forest are available for conversion within a commercial distance of the two mills. Both companies are actively bringing pulpwood plantations online with the aim of supplying their mills' fiber needs on a sustainable basis. Neither firm's plantations, however, will be sufficient to supply the volume of wood needed for its mill to run at or near capacity at any point during the next several years. Indeed, both mills face sizeable fiber deficits over the coming decade. There is growing evidence to suggest that each will continue to rely on unsustainably harvested wood and will be forced to purchase an

21 As will be discussed later in the chapter, the threats to HTIs posed by conflicts with local communities appear to have increased significantly since the fall of the Suharto regime. During the New Order period, forestry conglomerates were rarely hindered by local communities' opposition to their projects because the government was willing to take harsh measures to guarantee social control. (Fried 1995). Under the current administration, however, the central government is substantially weaker and considerably less willing to use force to resolve resource conflicts between local communities and large business interests in favor of the latter (Campbell 1999).

22 Confidential communication, January 23, 2000.



Note: Assumes mean annual increment = 25 m³/ha/year and 7-year rotation. Area planted in 2000 assumed to be 20,000 ha. Sources: HTI figures and 1998-1999 MTH figures based on projections from data provided in Spek (2000a) and Jaakko Poyry (1998) for MTH figures.

increasing portion of its raw materials from sources outside of Sumatra.

Indah Kiat Pulp & Paper

Indah Kiat is the largest subsidiary of Asia Pulp & Paper, the Sinar Mas Group's Singapore-based holding company. Since 1989, Indah Kiat has expanded its pulp production capacity from 120,000 tonnes to 1.8 million tonnes per year (APP 2001). It currently accounts for 77 percent of APP's pulp production capacity and approximately 40 percent of Indonesia's overall pulp output. In 2000, the mill consumed an estimated 8.8 million cubic meters (m³) of wood—or roughly one-third of Indonesia's legal wood supply (APP 2001).

Thus far, Indah Kiat has sourced the bulk of its raw materials from an affiliated company, Arara Abadi, which holds a 300,000 ha plantation concession permit (PT Indah Kiat 1999). Arara Abadi's concession area is disbursed among several blocks that are located 60 to 120 km from Indah Kiat's Perawang mill site. Under a

15-year supply contract signed in 1994, Indah Kiat purchases mixed tropical hardwoods harvested by Arara Abadi, at prices that amount to the cost of harvesting and delivering the wood to the mill (inclusive of government royalties). Such at-cost purchases from Arara Abadi have accounted for roughly 70 percent of the wood consumed by Indah Kiat over the past decade. The company purchases whatever remaining wood it needs from a range of third-party suppliers, which include IPK license holders that are clearing forested areas for oil palm and other estate crops, as well as various units of the state forestry enterprise, Inhutani IV. Typically, such external wood purchases entail costs that are substantially greater than those associated with obtaining MTH from Arara Abadi.

Since the mid-1980s, Arara Abadi has taken steps to develop a pulpwood plantation that can supply Indah Kiat's fiber needs on a sustainable basis over the long term. The net plantable area of the company's various

concession blocks is 217,000 ha (PT Indah Kiat 1999). Arara Abadi carried out its first substantial annual planting of *A. mangium* in 1987, and through 2000, the cumulative area planted had reached approximately 180,000 ha. Annual area planted has varied considerably over the past several years, ranging from a low of 10,000 ha in 1993 to a high of just under 27,000 ha in 1997 (Spek 2000a). Planting is believed to have slowed considerably in 1998 and 1999, dropping to 18,000 ha and 11,000 ha, respectively. However, during these years Arara Abadi also made its first substantial harvests from the plantation, obtaining 390,000 m³ in 1998 and 900,000 m³ in 1999 (Spek 2000a). The *acacia* wood harvested in 1999 accounted for 20 percent of the fiber consumed by Indah Kiat that year.

Through the 1990s, Indah Kiat regularly stated in its annual reports that the Arara Abadi plantation would supply “substantially all” of the mill’s wood requirements by 2004 (PT Indah Kiat 1999). This implies that the company expected the plantation, by then, to generate upwards of 9.0 million m³ of pulpwood on an annual basis to keep the mill running at its current capacity. A simple estimation of the area actually planted at Arara Abadi and the anticipated volume yields suggests that Indah Kiat’s sustainability target has been extremely optimistic. Using a seven to eight year growing cycle, the trees to be harvested in 2004 would have had to be planted in 1996 or 1997. In fact, Arara Abadi planted nearly 20,000 ha in 1996 (Spek 2000a). However, for this area to generate 9.0 million m³ of wood, it would have to produce a yield of 450 m³/ha (or a mean annual increment of 64.3 m³/ha/yr). Many industry analysts conservatively estimate that Arara Abadi’s maximal yields for areas planted in 1996 will be closer to 175-200 m³/ha, assuming a mean annual increment of 25 m³/ha/yr.

Recognizing that its 2004 sustainability target is no

longer tenable, Indah Kiat recently revised its projection to 2007 (APP 2001). A detailed financial analysis prepared by Singapore-based brokerage house GK Goh suggests that even this revised target is extremely optimistic (Spek 2000a). With the areas that the company is believed to have planted thus far, the annual volume harvested from Arara Abadi’s plantation can be expected to grow to 1.7 million m³ in 2000 and to 4.6 million m³ in 2004. As Figure 4.3 shows, this latter volume amounts to roughly 50 percent of the mill’s fiber needs at that point. In 2005 and 2006, the volume of wood coming from the plantation is expected to drop, being that the areas planted in 1998 and 1999 had declined from previous years.

The GK Goh study points out that with a net plantable area of 217,000 ha, Arara Abadi can plant at most 27,125 ha if it manages the site on an eight-year rotation (Spek 2000a). To fully meet Indah Kiat’s fiber needs on a sustainable basis, the plantation would have to obtain a mean annual increment of at least 41 m³/ha/yr for all planted areas. If Arara Abadi seeks to reduce the rotation period to six years, as Indah Kiat has at times suggested, the company would need to plant over 36,000 ha annually, while also achieving these ambitious growth rates in order to fulfill the mill’s current fiber needs.

In facing such substantial fiber shortfalls from Arara Abadi’s plantation, Indah Kiat has increasingly few options for filling the deficit with cheap supplies of mixed tropical hardwoods. As Figure 4.3 shows, MTH supplies at Arara Abadi and the affiliated concession areas nearby are expected to be exhausted within the next couple of years (Jaakko Poyry 1998). Moreover, analysts expect that there will be a marked decline in the volumes of legally harvested MTH that are available within a commercial distance of the mill, and that Riau’s supplies of such wood will be exhausted by

2005. This implies that Indah Kiat will be facing substantially higher wood costs in the near future, as it may be forced to purchase a growing portion of its fiber from other parts of Indonesia or possibly from overseas.

Indah Kiat officials have recently admitted that the Arara Abadi plantation does not have adequate plantable area to meet the mill's overall fiber needs.²³ However, they deny that the mill is facing a fiber shortfall. They claim that the company has recently secured access to 180,000 ha of degraded forests in Riau, which it will manage through joint venture contracts with 'cooperatives' (APP 2001). These officials report that Indah Kiat will clear the remaining standing forests to harvest the MTH and immediately replant these areas with *Acacia mangium*. As of October 2001, however, Indah Kiat has provided no details regarding where these areas are located; what volumes of wood they contain; who has managed these forests until now; what licenses have been issued to the company to allow them to convert these sites to plantations; at what pace they will be planted; and the likely wood costs involved for the mill.

Riau Andalan Pulp & Paper

Riau Andalan Pulp & Paper (RAPP), a subsidiary of the Raja Garuda Mas group's APRIL holding company, began operating in 1995 and has recently passed Indah Kiat to become Indonesia's single largest pulp mill. The mill's effective production capacity rose to 850,000 tonnes per year in 1999 to 2.0 million tonnes in 2001, when the company completed a two-phase installation of a second production line (*Paperloop.com*, June 1 2001).

Until now, virtually all of the mill's fiber has been mixed tropical hardwoods obtained through the clearing of natural forest (APRIL 2000). Roughly 80 percent of this has come from the company's 280,500 ha HTI concession site, which is located near the mill in Riau. Much of the remainder has come from an affiliated company's plantation development project 400 km to the north of the mill.

Like Sinar Mas/APP, the Raja Garuda Mas/APRIL group has been moving aggressively to bring large-scale pulpwood plantations online. RAPP reportedly has access to 195,000 ha of net plantable area at its HTI site; 85,000 ha at plantation sites held by associated and joint venture companies; and 20,000 ha managed by nearby communities as part of an out-grower scheme (RAPP 2001). The company claims that through the end of 2000, 151,000 ha had been planted on all sites (RAPP 2001). In its 1999 annual report, APRIL projected that the company's then-pulp capacity of 850,000 tonnes would be fully supplied with plantation wood by year 2004. Following the mill's recent expansion to 2.0 million tonnes, the company claims that it will supply all of its fiber needs from sustainably managed plantations from 2008 onwards (RAPP 2001). The company claims that until the plantations are fully online, it will bridge the mill's fiber needs with low-cost MTH obtained from areas cleared

23 Mark Werren, Director APP Forest Audit, personal communication, July 22, 2001

for timber and oil palm plantation development and from sawmill and plymill residues.

APRIL apparently bases these projections on the assumption that in 2004, it will be able to harvest 27,800 ha of *acacia* plantations that were reportedly planted in 1997.²⁴ To generate the 4.3 million m³ of wood that would be needed to produce 850,000 tonnes of pulp, these areas would need to show an average growth rate of 22 m³/ha/year over a seven-year rotation. Industry analysts familiar with the company's plantation program have confirmed that a mean annual increment on this order is a reasonable estimation of average growth rates for areas planted at RAPP's HTI site over the past several years. This would suggest, then, that the company's ability to meet its plantation target for 2004 will largely depend on whether the company actually planted the total area reported, whether the areas planted are fully stocked, and whether these areas are available to the company when it is time for harvest.

APRIL's longer-term plantation projections are far more difficult to reconcile. The company claims that its plantation program will generate 9 million m³ per year by 2008 (RAPP 2001). It further maintains that this volume of fiber would be more than sufficient to meet RAPP's raw material needs at the mill's current capacity of 2.0 million tonnes per year.²⁵ APRIL's strategy for achieving such a sharp rise in the volume of plantation wood harvested involves a massive increase in the annual area planted at both its own and affiliated HTI sites. The company currently projects that the annual area planted at all sites will climb from 18,730 ha in 2000 to 37,000 ha in 2001 and to 48,000 in 2002 (RAPP 2001).²⁶ Thereafter, the total area planted at all sites is projected to remain above 45,000 ha per year at least through 2020.

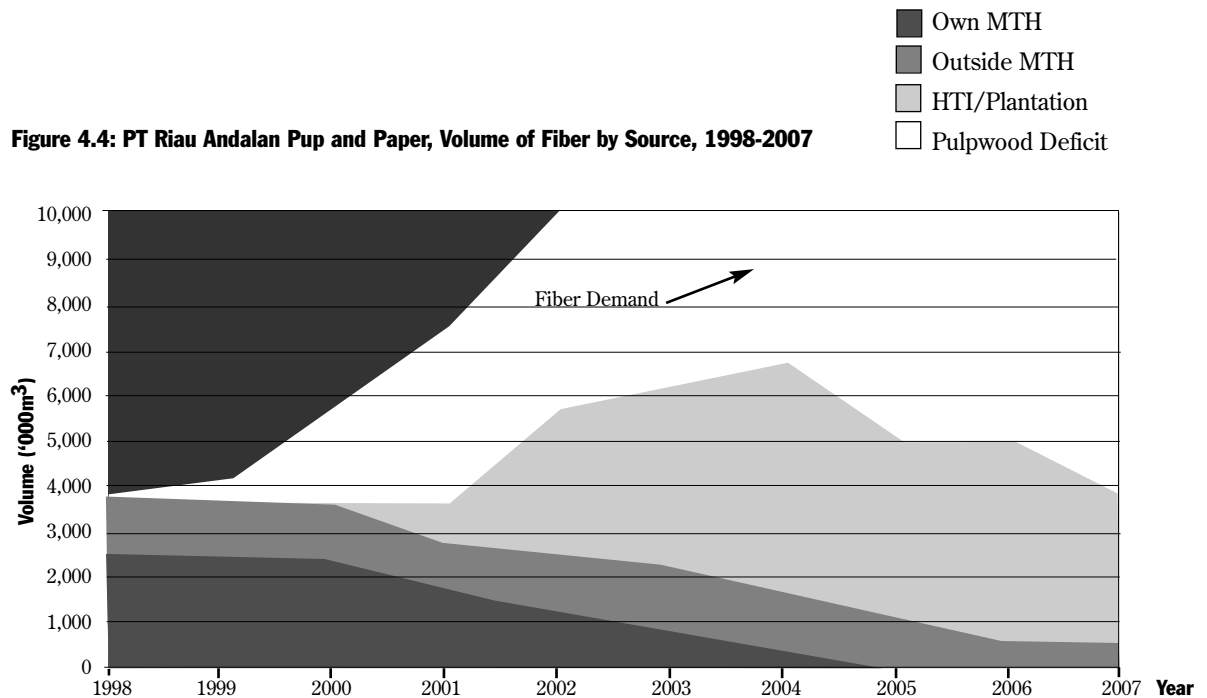
Industry analysts who are familiar with RAPP's

plantation program vigorously question the feasibility of these projections. There is considerable skepticism within the industry that APRIL has the capacity to orchestrate the planting of 48,000 ha as early as 2001 and to maintain annual planting rates at 45,000 ha each year thereafter. Expansion on this scale would effectively amount to a 150 percent increase in the annual areas planted at both RAPP's own HTI and affiliated sites, as compared to 2000 levels. The sheer logistics of planting such a large area on an annual basis are complicated by the fact that planting must follow land clearing in close sequence in order to avoid the invasion of *imperata* grass. Moreover, some analysts have expressed concerns regarding the fact that APRIL's projections are based on an assumed mean annual increment of 30 m³/ha/year, claiming that growth rates across such a large area are likely to be closer to 25 m³/ha/year for areas now being planted.²⁷ APRIL's mean annual increment projections

24 APRIL's 1999 annual report indicates that RAPP planted approximately 18,000 ha in 1997 at its own HTI site, and that affiliated companies and joint ventures planted roughly 10,000 ha. An additional 1,000 ha was reportedly planted by community out-growers. In 2001, the company reduced its estimation of the total area planted in 1997 to 27,800.

25 It should be noted that APRIL assumes that 4.5 m³ of wood will be needed to produce each tonne of pulp. Other sources (e.g., Jaakko Poyry 1998) have placed the conversion ratio at 4.9-5.1 m³ of roundwood (greenwood over bark) per tonne of pulp, depending on whether plantation acacia or MTH is used. If this higher conversion ratio is used, it would imply that RAPP will need approximately 10 million m³ of wood to run its mill at 2.0 million tonnes per year.

26 In its 1999 annual report, the company projected that the annual area planted would climb from 27,000 ha in 1998 to 58,000 ha in 2001 (APRIL 2000). Thereafter, the annual area planted at all sites was projected to average 50,000 ha through at least 2012. If it is assumed that the net plantable area at all plantation sites is 300,000 ha, then planting at this pace would also imply that these sites are going to be managed on a six-year rotation. While RAPP and some other companies have reported being able to obtain adequate yields on limited areas of acacia plots when harvested at six years, this is well below the industry average of seven to eight years. Plantation experts interviewed for this study generally agree that it is highly unlikely that an area as large as 300,000 ha can successfully be managed under such an abbreviated rotation within the next several years. To plant at a rate of 50,000 ha per year over a seven to eight year cycle, RAPP would need a net area of 350,000-400,000 ha, or 17 to 33 percent more land than it currently claims to have access to.



Note: Assumes MAI = 25 m³/ha/year and seven-year rotation.

Sources: HTI and fiber demand figures derived from data provided by APRIL (2001); MTH figures from Jaakko Poyry (1998).

would appear to be particularly optimistic for areas that are to be managed through joint ventures and out-grower schemes, and will not therefore be under the company's direct management.

Figure 4.4 presents an alternative scenario for Riau Andalan Pulp & Paper's fiber sourcing for the period 1998-2007, based on a more conservative set of assumptions than those used by APRIL. Specifically, the data presented assume that RAPP manages its plantation areas according to a seven-year harvesting cycle and that the average growth rate across all planted areas is 25 m³/ha/year for a yield of 175 m³/ha. It is assumed that APRIL planted 27,800 ha in 1997; 22,400 ha in 1998; 24,700 ha in 1999; and 18,700 ha in 2000, as it claimed, and that all of these areas will be available for harvest at the end of the rotation.

27 One reason for this is that much of the areas now being planted by RAPP are on peat soils, which are unlikely to produce 30 m³/year over multiple rotations (confidential communication with plantation industry expert, August 28, 2000).

Moreover, it is assumed that legally available sources of mixed tropical hardwood will be exhausted at RAPP's concession and site by 2005.

Based on the assumptions described, the volume of fiber that RAPP obtains from plantation-grown pulpwood is projected to rise from 944,000 m³ in 2001 to just under 5.0 million in 2004. At that point, plantation-grown *acacia* will supply roughly 50 percent of the mill's total fiber needs. In the years that follow, however, the portion of the mill's fiber that comes from HTIs is projected to decline. By 2007, it is anticipated that the company's plantations will supply roughly 32 percent of the 10 million m³ of fiber then expected to be consumed by the mill. Although the company has claimed that it would rely on bridging supplies of MTH to supply the mill with whatever volumes of fiber cannot be sourced from plantations, there are strong indications that legal supplies of MTH within a commercial distance from the mill will be substantially

diminished, if not exhausted, by 2005 (Jaakko Poyry 1998). This suggests that APRIL will increasingly be forced to obtain wood from outside of Sumatra, which will entail considerably higher raw material costs than it has paid until now.

LARGE CAPITAL INVESTMENTS AND HIGH LEVELS OF FINANCIAL RISK

The exponential growth of Indonesia's pulp and paper industries over the past decade has been led by the development of a relatively small number of mills with very large processing capacities. Whereas most paper machines installed through the late 1980s were generally capable of producing no more than 50,000 tonnes per year, several of those purchased by Indonesian companies since the mid-1990s have production capacities of 300,000 tonnes or more (Spencer and Choi 1999). Likewise, the country's four major pulp producers had brought online processing facilities that were able to generate at least 450,000 tonnes per year. Each of these ranks among the largest processing facilities of its kind in the Asia/Pacific region.

The most commonly stated rationale for this emphasis on mega-projects has been that pulp and paper investors are eager to take full advantage of the low production costs available in Indonesia (Hill 1998). Historically, pulp and paper have both been highly cyclical commodities, with heavy shifts in world demand leading to sharp upswings and downturns in market prices. By investing in large-scale processing facilities, Indonesian producers have sought to establish economies of scale that would allow them to remain profitable even during protracted market down cycles.

The development of pulp and paper mills on the scale that has occurred in Indonesia has required very substantial allocations of investment capital. Greenfield mill projects typically require investments of between US\$1,000 and US\$2,000 per tonne of processing capacity (Spencer and Choi 1999). As such, Indonesia's largest pulp and paper projects have cost between US\$600 million and US\$1.3 billion apiece, while new production lines at existing mills have cost one-quarter to one-third of this. It is estimated that the increase in Indonesia's pulp and paper processing capacity since the late 1980s has involved total investments of at least US\$12 billion.²⁸

The high fixed costs associated with pulp and paper projects generally means that mills are only economical if they are run continuously at or near capacity. In Indonesia and elsewhere, most pulp and paper producers seek to keep their mills running 24 hours per day for 51 weeks out of the year, with the remaining week scheduled for general maintenance and debottlenecking.²⁹ Heavily leveraged mills that are unable to operate near capacity often have difficulty staying current on their outstanding financial obligations. In this context, it is clear that Indonesian pulp and paper producers have assumed a high degree of financial risk by developing large-scale processing facilities without first securing a legal and sustainable fiber supply. The substantial risks associated with heavy investments in processing expansion, given raw material uncertainties, are highlighted in a 1999 industry study:

²⁸ This is based on the conservative assumption that the average cost per tonne of processing capacity (new mills and additional lines) in both the pulp and paper industries was US\$1,100.

²⁹ The term "debottlenecking" refers to the process of making technical changes in a mill's production process so as to remove inefficiencies that might keep the mill from operating at full capacity.

In opting for such headlong expansion in capacity, the companies appear to have subscribed (or over-subscribed) to the continual extrapolation of the consultants' proposition that the only safe way to invest in pulp capacity is to build the mill so big that it is always on the lowest part of the capital and operating cost/tonne curve. This is an enviable situation to be in, provided the funds continue to flow to support such massive expansions. Prodigious volumes of wood are, however, required and there would be few locations on earth capable of supporting such massive capacity without extensive and successful prior planting... In Indonesia at the present time, the folly of proceeding with large pulping developments without a pre-established wood supply is being demonstrated by the very large amount of wood that is having to be brought in from increasingly distant locations over roads that are rapidly deteriorating, with little prospect of adequate repair (Ausnewz 1999).

The large mills run by Sinar Mas/APP and Raja Garuda Mas/APRIL may seek to ship in pulpwood fiber from outside Sumatra once MTH supplies in Riau and surrounding provinces are exhausted. By boat, wood chips can often be transported economically over great distances. Japanese pulp producers, for instance, import nearly 25 million tonnes of pulpwood chips per year from 16 countries, including such distant locales as Chile and the southern United States (*International Woodfiber Report* 1998; Jaakko Poyry 1997). This raises important questions about where, and at what cost, Indonesian pulp producers might be able to obtain fiber when natural forests within commercial distance from the large mills can no longer supply their needs.

To the extent that Indah Kiat and RAPP seek to purchase chips from outside Sumatra, there is a strong likelihood that they would source this fiber, at least initially, from Kalimantan and West Papua. From an

environmental perspective, such purchases would likely extend to those islands the pressures that these large mills have until now exerted on the natural forests of Riau. Financially, the transport of pulpwood chips over several hundred kilometers would raise the mills' operating costs quite considerably from their present levels. Indeed, some industry analysts have argued that both mills would face logistical difficulties bringing in large volumes of wood being that they are located approximately 50 km upriver, and the rivers are shallow.³⁰ As discussed in subsequent sections, such cost increases would pose serious concerns for investors due to the fact that these mills are now carrying heavy debt loads and will soon be facing higher-than-normal tax burdens (Spek 2000a).

It is also possible that Indonesia's largest mills would seek to obtain plantation-grown fiber from Australia, Thailand, Malaysia, or other countries in the region. However, in addition to the distances involved, importing chips would force these companies to pay world market prices for their wood, which are several times higher than domestic rates. An Australian wood chip exporter, for instance, recently estimated that at November 2000 prices, the anticipated cost for the Sumatran mills to import plantation-grown eucalyptus chips from Tasmania would run as follows: 1) US\$75-80 Freight on Board (FOB) per bone dry tonne; 2) US\$30 per bone dry tonne for freight; 3) 25 to 30 percent of freight charges in discharging fees (depending on the port). Added up, this suggests that

30 Confidential interview with an Australian wood chip exporter, November 20, 2000. According to this exporter, it is not possible to get a full-size chip boat up the Siak or Kampar rivers to Indah Kiat or RAPP, so the chips would have to be transferred to smaller barges -- which would still have a challenge getting up to the mills. In the case of RAPP, the mill is located some distance from the river, so the chips would have to be transported by truck from wherever they are landed. He noted that this is all in sharp contrast to the Japanese chip importers, which have their mills located right along the coast so as to minimize transfer costs.

APP and APRIL would need to pay approximately US\$120 per bone dry tonne, which is equivalent to about US\$60 per green tonne of chips—or roughly three to four times what the mills are currently paying to source MTH from their own concessions in Sumatra. Moreover, imports would require Indonesian producers to use hard currency to secure a substantial portion of their raw materials, thereby undermining a significant cost advantage that they have enjoyed until now.

With growing demand among Northeast Asian pulp producers, some analysts have also projected that the Pacific Rim wood chip trade is likely to become sharply more competitive in the coming years, leading to stepped-up prices over the medium to long term (*International Woodfiber Report 1998; International Woodfiber Report 1996*).³¹

GOVERNMENT SUBSIDIES AND WEAK FINANCIAL REGULATIONS

To a significant degree, Indonesian pulp and paper producers have been motivated to invest large amounts of capital in high-risk projects because much of the costs involved have been borne by others. In particular, the Indonesian government has provided substantial

³¹ The Australian chip exporter interviewed indicated that it would be a few years before that country's chip market could absorb the anticipated demand for chips from Indah Kiat and RAPP. Currently the Australian chip industry generates 1.5–2.0 million green tonnes of hardwood chips. He said that it would be 2007 or 2008 before the industry could easily absorb an additional demand of 4 million tonnes or so (Indah Kiat's projected shortfall). His sense was that the companies would be looking to bring wood in from Kalimantan if they were able to do so. Confidential interview, November 20, 2000.

³² It should be noted that subsidies are not intrinsically perverse. Indeed, governments in most countries routinely use subsidies to encourage investment in strategic industries or sectors that provide socially-desirable goods or services, such as transportation or education. The critical point in the sections that follow is not to condemn subsidies to Indonesia's pulp and paper industries as such, but rather to emphasize the role that government subsidies have played in encouraging the country's pulp and paper producers to engage in high-risk practices.

capital subsidies for pulp and paper projects, which have enabled producers to sharply discount their investment and production costs.³² These subsidies have included the provision of cheap raw material supplies, discounted loans from state-owned banks, allocations from off-budget pools of finance, as well as generous tax deductions. During Suharto's New Order period, senior officials often disbursed these subsidies in a discretionary manner, providing firms linked to state elites with benefits well beyond those allocated to producers without such ties.

In addition to providing direct capital subsidies to pulp and paper producers, the Indonesian government has indirectly subsidized investments in each of these industries through the weak regulation of the nation's financial system. Most of Indonesia's major pulp and paper companies are owned by large conglomerates with investments in a range of other sectors, several of which control their own banks. In the years leading up to the financial crisis, the government regularly failed to enforce its own laws in the commercial banking sector, particularly when they threatened to constrain the lending practices of banks owned by groups with ties to state elites. Indonesia's largest pulp and paper producers have taken advantage of this weak regulatory environment to obtain large sums of finance well below commercial lending rates. They have done so most significantly through the allocation of related-party loans above the government's legal lending limits, the misappropriation of central bank liquidity credits, and the use of financial mark-up schemes.

Cheap Raw Material Supplies

Access to cheap supplies of pulpwood fiber is arguably the most significant factor motivating the heavy investments made in Indonesia's pulp and paper industries since the late 1980s. Pulp producers have

benefited heavily from the government's policy of making available large volumes of mixed tropical hardwoods, coupled with relatively minimal royalty payments (currently less than US\$2.50 per m³). Through clearing of natural forest at affiliated HTI concession sites, Indonesian pulp producers have obtained the bulk of their fiber at prices that are only slightly above the cost of harvesting the wood and transporting it to the mill. They have also been able to purchase large volumes of pulpwood from IPK license-holders and illegal harvesters at prices that are well below the wood's actual stumpage value. While the cost of producing a tonne of pulp fluctuates widely according to market cycles and monetary conditions, access to such cheap fiber has often allowed Indonesian mills to enjoy pulp production costs that range as low as 20 to 30 percent of those faced by North American and European producers.³³

Since the early 1990s, the Ministry of Forestry has also provided firms establishing pulpwood plantations with heavily discounted finance and equity capital through allocations from the government's Reforestation Fund (Groome Poyry 1993). As outlined in chapter 2, the Forestry Department subsidizes HTI projects by providing 14 percent of the project's total cost in the form of equity capital and 32.5 percent in the form of a no-interest loan with a repayment period of 10

years. In addition, the plantation company is permitted to draw on loans from the DR fund at commercial rates to finance 32.5 percent of the project's expenses. This arrangement effectively allows the firm establishing the plantation to commit only 21 percent of the overall investment from its own funds. A recent audit of the DR fund carried out by the international accounting firm Ernst & Young determined that through the end of the 1997-1998 fiscal year, the government had allocated over Rp 1 trillion in DR monies to subsidize the development of 10 pulpwood plantation projects (Ernst & Young 1999). Conservatively converted at the mid-1997 exchange rate of Rp 2400 per US\$, this amounts to disbursements of roughly US\$417 million, exclusive of foregone interest earnings.

The Ernst & Young audit found that, in fact, many recipients of the plantation subsidy have been able to manipulate the process through which the DR monies are allocated so as to further reduce the portion of such projects that is funded by their own capital (Ernst & Young 1999). Most commonly, plantation companies have overstated the net area to be planted at their HTI sites when they apply for the DR funds. In the case of a plantation company that realizes only 90 percent of the planted area stated in its application for DR support, without adjusting the distribution of funds, the portion of the project's total cost covered by DR monies rises from 46.5 percent to 51.7 percent. The Ernst & Young audit concludes that overestimation of HTI planted areas and similar irregularities resulted in the loss of US\$223 million from the DR fund between 1993 and 1998.

33 One analyst (Hill 1998) summarized the significance of subsidized wood costs for Asia Pulp & Paper and other Indonesian producers as follows: "APP's access to low-cost timber is key to its competitive advantage. According to a regional analyst, APP's imputed cost of wood to produce one tonne of pulp is Rp 280,000 (US\$35). These costs include government royalties, taxes, labor, and transport. By comparison, a confidential industry survey says, the imputed wood costs for a North American producer to produce one tonne of pulp are US\$130 and for European producers about US\$170. As of mid-November [1998], say the analysts, the taxes and royalties that APP and other Indonesian producers paid to the government for the wood needed for one tonne of pulp was just US\$10. 'Compared to producers elsewhere, they get the wood for free,' says one analyst. Judging the changes in APP's US dollar costs of labor and transport is more difficult, since some gains from depreciation have been offset by Indonesia's high inflation rate."

Table 4.3: Summary of Reforestation Fund Allocations to Pulpwood Plantation Companies, as of March 1998.

Company	Affiliated Pulp Mill	Gov't Grant (Rp '000 bn)	0-Interest Loan (Rp '000 bn)	Commercial Loan (Rp '000 bn)	Total (Rp '000 bn)
Musi Hutani Persada	PT TEL	51.9	127.4	164.6	343.9
Surya Hutani Jaya		36.6	90.5	61.7	188.8
Menara Hutan Buana		43.5	100.9	0.0	144.4
ITCI Hutani		28.0	88.9	0.0	116.9
Tanjung Redeb Hutani	Kiani Kertas	25.0	58.1	0.0	83.2
Acehnusa Indrapuri		13.0	30.2	0.0	43.2
Adindo Hutani Lestari		12.4	28.8	0.0	41.2
Fendi Hutani Lestari		20.1	11.9	0.0	31.9
Tusam Hutani Lestari		7.5	17.4	0.0	24.9
Finantara Intiga		11.6	11.6	0.0	23.1
Total		249.6	565.7	226.3	1,041.6

Source: Ernst & Young 1999

Soft Loans from State Banks and Off-Budget Financial Allocations

In addition to providing pulp producers with under-priced raw materials, the Indonesian government has subsidized the development of some pulp and paper mills through the allocation of discounted finance. Under Suharto's New Order regime, Indonesia's seven state-owned banks regularly provided loans to investors with ties to elite government officials, regardless of whether the projects being funded were likely to be profitable (Delhaise 1998). Such loans were frequently based on political directive rather than prudential calculations of risk, and often involved the provision of little or no collateral on the part of the borrowing firms. Moreover, interest rates and the

specific terms of repayment were generally negotiated on a borrower-by-borrower basis, with companies tied to state elites often receiving terms far more favorable than those available from commercial lending institutions (Winters 1992). It was not uncommon for credits from state banks to be "repeatedly renewed with interest obligations capitalized into the loan rather than paid to the banks" (Cole and Slade 1996). Loans of this sort essentially functioned as "capital subscriptions from which the banks received no cash returns."

Investors with particularly close ties to senior officials were also able to obtain capital subsidies through allocations from a variety of off-budget funds maintained by the New Order government (Ascher 1998). The state's leadership kept these funds separate

from the government's official budget to allow them to exert a high degree of discretion in channeling them to favored projects or clients. One of the largest sources of off-budget finance was the DR reforestation fund, which had total receipts of just under US\$2.5 billion between fiscal years 1993-1994 and 1997-1998 (Ernst & Young 1999). During the five-year period covered by the Ernst & Young audit, the DR fund incurred losses of US\$670 million as a result of disbursements made by presidential decree for projects that were not related to reforestation (Ernst & Young 1999).

Under the New Order regime, none of Indonesia's major pulp and paper investors was better placed to access these discretionary funds than Kiani Kertas. Owned by Hasan, the company secured much of the financing for its 525,000 tonne greenfield pulp mill in East Kalimantan from the Indonesian government. When the mill was constructed in 1997, the company received at least US\$300 million in loans from four state banks, as well as a US\$100 million allocation from the DR reforestation fund (*Kompas* 1999a; Borsuk 1997). The government further subsidized the mill by providing Kiani a 10-year holiday on corporate tax,

including customs duties that would normally be charged on imported and exported goods.³⁴ In addition, Kiani has had access to low-cost wood from over 2.7 million ha of timber concessions and plantation licenses then controlled by Hasan's Kalimantan group (Brown 1999).

Conglomerate-Owned Banks and Related-Party Lending

Since 1988 when the Indonesian government liberalized the country's commercial banking sector, most of Indonesia's largest conglomerates have owned their own banks. As Table 4.4 shows, each of the major pulp and paper producers was also involved in the banking industry before the onset of the 1997 financial crisis.

Under Indonesia's commercial banking law, these and other private sector banks have been required to follow a fairly extensive set of regulations designed to ensure prudential management of commercial lending institutions. In particular, these laws have placed numerous controls on lending practices in order to maintain arm's length transactions between banks and the firms to which they loan money. Through the

Table 4.4: Indonesian Banks Controlled by Pulp and Paper Conglomerates Prior to the 1997 Financial Crisis

Conglomerate	Major Pulp/Paper Asset	Bank
Sinar Mas	Asia Pulp & Paper	Bank Internasional Indonesia
Raja Garuda Mas	APRIL	Unibank
Barito Pacific	Tanjung Enim Lestari	Bank Andromeda
Bob Hasan	Kiani Kertas	Bank Umum Nasional
Bob Hasan/Apkindo		Bank Bukopin
Bob Hasan		Bank Muamat
Astra	Surya Hutani Jaya	Bank Universal

decade preceding the current crisis, however, the government's financial regulatory agencies enforced these rules only sporadically. Moreover, on more than one occasion, the New Order government took steps to bail out failing private sector banks belonging to groups with strong political connections when their financial mismanagement threatened them with insolvency.

In this weak regulatory environment, Indonesian conglomerates frequently used banks under their control—often illegally—to access much higher levels of finance than they would be able to secure from outside lending institutions (Deyang 1997). As one banking industry executive explained, “It was not unusual for a group to buy a bank that no one had ever heard of for US\$5 million or so, and to use this bank as the vehicle for financing its major projects. In many cases, this proved to be cheaper than borrowing capital at market rates from banks with which the group was not affiliated.”³⁵ Two fundamental banking laws that the government regularly failed to enforce were those stipulating the capital adequacy ratio (CAR) that private sector banks were required to maintain and those governing limits on lending to affiliated companies.

Since 1992, privately owned banks have been required to keep on hand capital stocks equivalent to at least 8 percent of the bank's total assets (Cole and Slade 1996). This regulation was intended to ensure that the banks would be able to maintain at least a minimum amount of liquidity in the event that they failed to recoup outstanding loans on schedule or that a substantial portion of the bank's depositors chose to withdraw their funds suddenly or unexpectedly. In the years preceding the financial crisis, several of the banks owned by conglomerates with major investments in pulp and paper regularly violated the government's capital adequacy ratio regulations, in some cases

loaning out far greater sums of capital than Indonesian law allowed. In practice, this meant that those banks' assets, including outstanding loans, were often considerably smaller than their outstanding liabilities.

Violations of the government's capital adequacy regulations were particularly problematic in that conglomerate-owned banks frequently loaned far greater sums of capital to affiliated companies than Indonesia's banking law allowed. Formally, the government prohibited banks from extending more than 20 percent of their credit to firms with which the bank was affiliated through ties of ownership or management (Deyang, et al. 1997). Related-party lending above this limit is generally believed to expose a bank's depositors to an excessive degree of risk. On the one hand, banks loaning money to affiliated companies presumably have an incentive to provide these funds at rates that do not adequately reflect the financial risks involved. On the other hand, banks are often loath to collect outstanding loans to affiliated companies if the borrower is unable or unwilling to repay.

Bob Hasan's Kiani Kertas pulp project is believed to have benefited substantially from the weak regulatory environment in Indonesia's commercial banking sector. Through 1997, Bank Umum Nasional, in which Hasan was the majority shareholder, reportedly channeled 79 percent of its loans to sister companies (*Indonesian Commercial Newsletter* 1998). It is speculated that much of this was channeled to Kiani while the mill was under construction, including a portion of Rp 6.8

34 One of Kiani's special privileges has included the placement of a government customs office at the mill site. With its customs holiday, Kiani has been able to import capital goods directly to its mill and to export pulp without paying import-export duties, which are often on the order of 30 percent of the value of the goods themselves. It bears noting that as of November 2000, the Indonesian government continues to allow Kiani to enjoy this duty holiday.

trillion in liquidity credits that the bank received from Indonesia's central bank in the early weeks of the crisis to keep the bank solvent (*Jakarta Post* 1998). Through 1997, Bank Umum Nasional reported operational income of only Rp 1.5 trillion while posting losses of Rp 4.4 trillion—much of this apparently being incurred through loan defaults on the part of Hasan-affiliated companies (*Indonesian Commercial Newsletter* 1998). At that point, the bank's assets amounted to only 62 percent of its outstanding liabilities.

Financial Mark-Up Schemes

In establishing new mills and adding production lines, Indonesian pulp and paper companies have frequently secured lines of credit that well exceed the real costs of their investments.³⁶ They have done so by employing a variety of financial mark-up schemes, in which they report to investors and lending institutions a set of inflated investment costs for projects for which they are seeking financing. By obtaining funds from banks and investors at the marked-up level, the owners of an expanding pulp or paper company are able to reduce the amount of capital that they, themselves, must commit to the project, typically on the order of 30 percent of the total cost of the investment. In cases where the mark-up is particularly high, companies are sometimes able to avoid committing any of their own funds and, instead, to emerge from the investment process with financing to spare. Such excess funds are frequently injected into the new mills in the form of working capital to generate what is known in the industry as “profit before operating.”

As Figure 4.5 shows, the per unit costs of

investments in Indonesia's pulp industry have varied quite considerably. The Sinar Mas/APP group, which is often said to have among the lowest investment costs in the world, has reported spending approximately US\$1,100 per tonne of capacity in developing its Indah Kiat and Lontar Papyrus pulp mills (APP 2000).³⁷ By comparison, the Raja Garuda Mas/APRIL group spent US\$1,500 per tonne at its Riau Andalan Pulp & Paper facility. At the upper end of the spectrum, the Bob Hasan group reportedly built its Kiani Kertas pulp mill at a cost of US\$2,600 per tonne (Spencer and Choi 1999). Similarly, a partnership between Indonesia's Barito Pacific group and the Japanese trading company Marubeni claims to have spent US\$2,700 per tonne in developing the Tanjung Enim Lestari pulp plant (Bell, 1997).

There has been strong speculation among financial analysts and industry sources that the relatively high costs of the Kiani Kertas and Tanjung Enim Lestari mills—each of which was roughly 75 percent above the industry's intermediate costs of US\$1,500 per tonne of capacity—reflect substantial mark-ups during the investment process (*Pulp & Paper Online* 1998).³⁸ If these reports are true, it suggests that these mills involved mark-ups that may have been as high as US\$ 577 million and US\$540 million, respectively. The owners of these mills would then have been able to use these funds however they wished, with few strings attached.

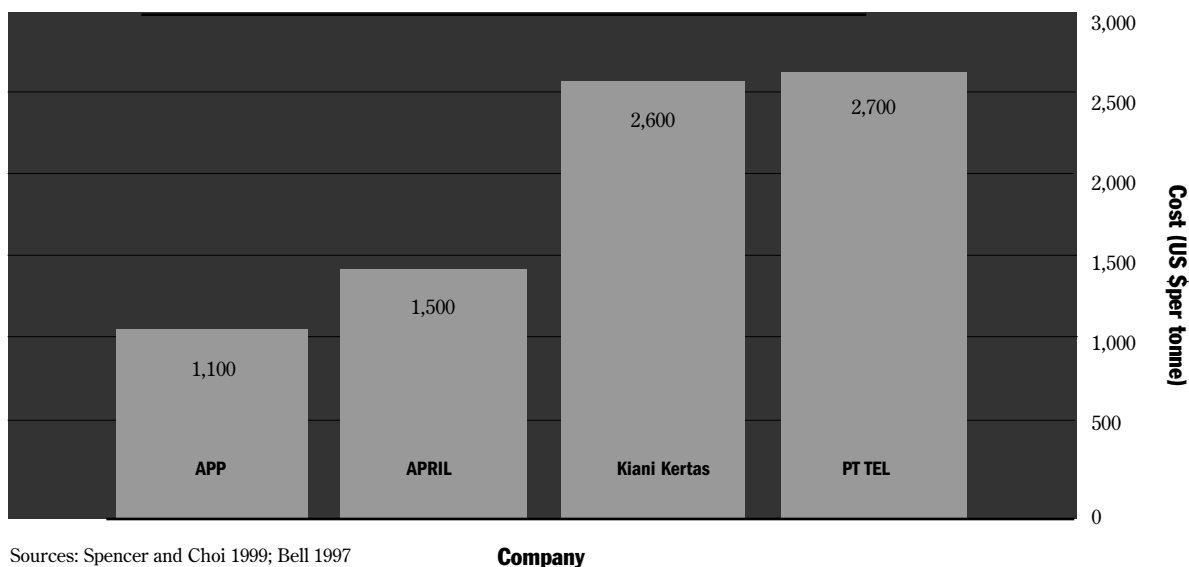
37 Although Sinar Mas/APP has a reputation for having among the lowest pulp and paper investment costs in the region, some analysts have questioned whether the group may also be inflating the costs of its expansion projects. For instance, Singapore's GK Goh brokerage house noted that “Indah Kiat's recent capacity expansions have been costly. Based on investment costs reported in APP's bond prospectuses, we have seen 25 to 30 percent investment cost increases for identical projects between October 1996 and April 1997, resulting in a long-term depressing effect on investment returns” (GK Goh 2000).

38 Confidential interviews with pulp industry executive, Jakarta, February 18, 1999; with finance executive, Jakarta, February 20, 1999; and with finance executive, Singapore, April 8, 1999.

35 Confidential interview, Jakarta February 20, 1999.

36 Confidential interviews with pulp industry executive, Jakarta, February 18, 1999, and with finance industry executive, Jakarta, February 20, 1999.

Figure 4.5: Reported Investment Costs Per Unit of Processing Capacity for Indonesia's Major Pulp Producers



Sources: Spencer and Choi 1999; Bell 1997

The use of financial mark-up schemes to generate capital above a project's real cost is hardly unique to Indonesia's pulp and paper industries. On the contrary, such practices were reportedly a common feature of high-cost investments throughout the Indonesian economy during the New Order period. According to one pulp industry executive,

All of Indonesia's major conglomerates used mark-up strategies in one form or another. In fact, some of them lived off mark-ups—they would use the mark-up from one project to finance the next. In some cases, the mark-up they got up front was the whole point of the project, not the profits those projects would produce down the road.³⁹

This emphasis on generating profits through the diversion of funds during the investment process would appear to have played a significant role in

encouraging Indonesian producers to develop large-capacity mills in spite of the financial risks involved. By maximizing the price tag on a new mill (or a new production line), the company could ensure that its investment would turn a profit even if the project ran into financial difficulties or collapsed later on.

Mark-up schemes in Indonesia's pulp and paper industries have been structured in a variety of ways to circumvent both international and domestic financial regulations. They have commonly involved the artificial inflation of costs for equipment and other capital goods when new mills and production lines are being installed. In some cases, the purchasing company makes an explicit arrangement with the vendors of the equipment to work with two different sets of invoices.⁴⁰ One of these is based on the real prices of the materials purchased, and the other is based on inflated prices. While the purchasing

³⁹ Confidential interview with pulp industry executive, Jakarta, April 16, 1999 and April 27, 1999.

⁴⁰ Confidential interview with pulp industry executive, Jakarta, February 18, 1999.

company and the vendor use the first of these invoices for their actual transactions, the purchaser uses the latter invoice to support its marked-up credit applications with banks and investors.⁴¹

In some cases, too, Indonesian pulp or paper firms use affiliated offshore holding companies to serve as intermediaries between themselves and foreign vendors.⁴² The offshore holding company—which essentially serves as a fictitious retailer – will purchase the capital goods from the vendor at their real price, and will then “resell” these goods to the pulp or paper producer, issuing an invoice that records an artificially high price. The goods themselves, however, are generally shipped from the vendor straight to the producer, and never pass through the hands of the holding company.

Financial mark-up schemes are also reportedly common in the construction phase for new mills and related infrastructure.⁴³ In some cases, such projects involve networks of fictitious contractors and subcontractors, which are purported to be suppliers of necessary services. The mill owner typically works with a legitimate engineering firm to mark up the cost of the construction process—at times by as much as 50 percent—and much of the excess finance obtained is then channeled through these fictitious companies.

Favorable Tax Laws and Accounting Procedures

Indonesia’s favorable tax laws have provided yet another means for the country’s pulp and paper companies to discount their capital costs. In particular, producers have benefited from government regulations that allow firms to accelerate depreciation on fixed capital assets for tax purposes. Generally accepted accounting procedures (GAAP) in both Indonesia and the United States allow companies to record commercial depreciation charges over the life of a fixed asset, such as a piece of machinery or a mill. In practice, this means that some portion of an asset’s total value can be charged as an expense and deducted from the company’s gross profits each year that the asset is in use. In the case of a US\$250 million paper machine that is expected to operate for 25 years, commercial depreciation on a straight-line basis would result in charges of US\$10 million per year for two-and-a-half decades after the machine is installed. At a corporate tax rate of 30 percent, commercial depreciation on this level would allow the company to avoid paying US\$3 million per year in taxes for 25 years, at which point the machine would be fully depreciated.

Whereas commercial depreciation is a standard accounting procedure practiced in most countries of the world, Indonesian tax law permits companies to enjoy the added benefit of fiscal depreciation. The government’s fiscal depreciation regulations allow firms to depreciate for tax purposes the cost of an asset over the first half of the asset’s life. This allows companies to further reduce their tax liabilities during the years immediately following large capital investments. As a recent financial report on Indonesia’s pulp and paper industry explains, the tax benefit deriving from fiscal depreciation is a timing benefit only:

41 One variation of this arrangement that has reportedly been common not only in the pulp and paper industries, but also in other parts of Indonesia’s forestry sector, has been for the purchasing firm to report that it is buying new equipment when, in fact, it is purchasing used equipment at a discounted price.

42 Confidential interview with pulp industry executive, Jakarta, April 27, 1999.

43 Confidential interview with pulp industry executive, Jakarta, December 8, 1999.

Table 4.5: Indah Kiat's Accelerated Depreciation: FY1989—FY1996, excluding FY1995 (US\$m)

Year	Cumulative Machinery Expenditure	Commercial Depreciation	Fiscal Depreciation	Taxable Income	Future Tax Liability
1989	250.6	3.4	(54.3)	(16.2)	50.9
1990	465.4	13.9	(86.8)	(39.7)	72.9
1991	466.7	19.9	(58.8)	(22.4)	38.9
1992	671.1	22.5	(94.1)	(36.9)	71.7
1993	687.1	40.0	(61.5)	(24.2)	27.5
1994	710.0	35.7	(54.9)	(15.8)	19.2
1995	1,473.2	71.1	n.a.	n.a.	n.a.
1996	1,768.7	75.2	(151.9)	(47.9)	76.7

Source: Derived from Spek 2000a.

Once the relevant piece of equipment has been fully depreciated for fiscal purposes, commercial depreciation is no longer an allowable deductible. Without such deductibles, taxable income will first turn positive and, as tax credits run out, the pretax income for fiscal purposes will be higher than that calculated on a commercial basis, resulting in tax payments that, compared to the pretax commercial income exceed the top rate (Spek 2000a).

In the case of the US\$250 million paper machine mentioned above, for instance, fiscal depreciation would allow the company to deduct US\$20 million per annum from pretax earnings for the first twelve and a half years after the machine was installed. Thereafter, the company would be entitled to no further deductions on the machine, and the firm's annual tax burden would be higher than if it had recorded depreciation charges on a commercial basis.

An important effect of Indonesia's fiscal depreciation

regulations is that they encourage pulp and paper companies to engage in a process of perpetual expansion. As long as a producer is purchasing new equipment or installing new processing capacity, it is able to enjoy the considerable tax benefits associated with accelerated depreciation.⁴⁴ This, in turn, can have a very positive effect on a company's real cash flow. Some financial analysts have argued that the tax benefits associated with Indonesia's fiscal depreciation rules have played a central role in driving the aggressive expansion strategies carried out by the APP and APRIL groups during the 1990s (Spek 2000a; Ausnewz

⁴⁴ Indonesian GAAP provides pulp and paper producers with an additional incentive to expand their operations in that firms are allowed to capitalize interest on work in progress. Although producers generally pay interest charges on their debt while their operations are expanding, they are not required to record such payments on their balance sheets. This, in turn, enables them to publish higher profits than would be allowed if they were required to follow more conservative US GAAP reporting requirements. Inflation of profits in this manner often functions to boost a company's share price, as well as making its bond offerings more attractive to investors.

1999). By making large capital purchases on a regular basis, these groups have been able to avoid a substantial portion of the tax obligations that would otherwise consume up to 30 percent of their corporate earnings.

The case of Indah Kiat illustrates the cost benefits that pulp and paper producers have derived from Indonesia's favorable tax laws. Between 1989 and 1996, the company expanded at a rapid pace, raising its pulp production capacity from 120,000 to 925,000 tonnes per year and installing capacity to produce 624,000 tonnes per year of paper and board (Spek 2000a). Indah Kiat's expenditures on machinery during these years grew from Rp 450 billion to Rp 4.2 trillion. Through this period (excluding 1995), the company incurred depreciation charges of Rp 448 billion while recording aggregate fiscal depreciation of Rp 1.19 trillion (Spek 2000a). In real terms, this means that Indah Kiat took advantage of Indonesia's accelerated depreciation regulations to avoid paying some US\$90 million in taxes over a period of seven years. It is likely that the total sum of Indah Kiat's foregone tax payments would be considerably higher than this if the company's fiscal depreciation for the period from 1997 onward were also calculated.

To put Indah Kiat's fiscal depreciation strategy in perspective, it is helpful to recognize that since 1989 the company has generated over seven million tonnes of paper and board products and just under eight million tonnes of pulp – accounting for roughly 287,000 ha of natural forest loss. By 1999, the company's annual sales exceeded US\$1.3 billion and operating profits were US\$429 million. Yet, through the 1990s, Indah Kiat paid no corporate income tax to the Indonesian government.

In fact, the company has not been able to avoid Indonesian taxes altogether—rather, much of its tax

burden has simply been deferred. During the period 1989-1996 when Indah Kiat avoided paying US\$90 million through accelerated depreciation of its fixed assets, the company also incurred some US\$358 million in future tax liabilities. Now that the firm has reached a point where it can no longer expand its processing facilities in any significant way, analysts expect that Indah Kiat's tax credits will rapidly run out and the company will soon pay taxes at or above the statutory rate of 30 percent. A substantial tax bill is likely to cut sharply into Indah Kiat's profits, and in doing so, to reduce earnings margins at Asia Pulp & Paper, which currently derives 50 percent of its profits from Indah Kiat.

ACCESS TO INTERNATIONAL FINANCE

It would be misleading to suggest that Indonesian pulp and paper producers have made large-scale investments in high-risk projects solely, or even primarily, because domestic government subsidies and weak financial regulations have enabled them to discount their capital costs. International financial institutions have also played a critical role in facilitating the rapid expansion that has occurred in these industries. Since the early 1990s, international investment banks have channeled over US\$12 billion into Indonesian-based pulp and paper projects through direct capital loans or by orchestrating bond offerings that tap into North American and European debt markets. Some of the industry's largest producers have also obtained funds by offering equity shares on international stock exchanges, establishing joint ventures with offshore partners, and entering into vendor financing arrangements.

Among Indonesia's pulp and paper producers, the Sinar Mas Group has been, by far, the most successful at securing international finance to carry out massive

expansions in processing capacity. In 1994, the group placed its pulp and paper assets under the control of the Singapore-incorporated holding company, Asia Pulp & Paper. It did so to present itself to investors as a bonafide multinational, and to circumvent much of the sovereign risk premiums associated with investments in Indonesia (Hill 1998). In 1995, the group listed APP on the New York Stock Exchange, and obtained US\$311 million through its initial equity offering (*Asiamoney* 1996). Far more importantly, the group's New York listing enabled it to enter the US bond market, which allowed it to secure much larger amounts of capital than were possible through bank borrowing.

Impressed by APP's access to low-cost fiber, US investors and international investment banks enthusiastically supported an aggressive series of capacity expansions at the company's subsidiaries through the mid-1990s (Hill 1998). APP took advantage of these circumstances to borrow nearly US\$7 billion in the space of five years. APP's total debt grew from US\$2.4 billion in 1994 to US\$9.1 billion in 1998, while the group's assets rose from US\$4.1 billion to US\$15.7 billion (Ausnewz 1999).⁴⁵ One analyst described this exponential growth by noting that "in only six years (1992-1998), the Sinar Mas Group built APP from insignificance to a point that it vied for a spot among the world's top 10 pulp and paper producers" (Hill 1998).

The Raja Garuda Mas Group, Indonesia's second largest pulp producer, carried out a financial strategy that in some ways was remarkably similar to that of Sinar Mas, though on a much smaller scale. Like its

competitor, Raja Garuda Mas consolidated its pulp and paper assets under APRIL, a Singapore-based holding company, in 1994. The following year, the group listed APRIL on the New York Stock Exchange to generate US\$280 million in equity capital (*Asiamoney* 1996). With its New York listing, APRIL also borrowed heavily to finance capacity expansions at its Riau Andalan Pulp & Paper facility. Through 1998, APRIL's total debt had reached US\$2.0 billion, versus total assets worth US\$3.3 billion (Ausnewz 1999).

The relative ease with which APP and APRIL have been able to obtain offshore financing underscores the fact that the international investment community has regularly underestimated or ignored the substantial risks associated with large-scale pulp and paper projects in Indonesia. This underestimation of financial risk can be attributed to two components of the process through which investment capital is channeled to high-growth industries in much of the developing world. First, it reflects a general weakness in the due diligence practices used by banks and other financial institutions to evaluate the risks associated with loans or bond offerings, particularly when these institutions stand to make large short-term profits from such transactions. Second, loan guarantees provided by industrial-country export credit agencies have substantially reduced the risk exposure of investment banks, often motivating them to loan large sums to much riskier ventures than they might otherwise. The combined effect of these practices has been to place undue structural pressures on Indonesia's forests by directing capital into pulp and paper capacity expansions at costs that do not fully reflect the financial risks involved.

⁴⁵ The bulk of APP's long-term debt came in the form of bonds and notes payable, which grew from US\$1.5 billion in 1995 to US\$5.6 billion in 1998. By comparison, the group's long-term bank debt rose from US\$1.4 to US\$2.5 billion during the same period (Ausnewz 1999).

Weak Due Diligence Practices

In raising funds through bond issues, pulp and paper companies work with international investment banks. The bank is responsible for evaluating the project that will be supported by the funds generated from the bond, and for providing investors with a prospectus that offers the bank's assessment of the likelihood that the bond will be repaid with interest when it comes due. The information presented in a bank's due diligence report plays a critical role in shaping investor decisions regarding whether or not to subscribe to a particular company's bond offering.

Interviews with investment bankers involved in financing Indonesian pulp and paper projects suggest that the due diligence process has rarely involved rigorous analysis of the large mills' raw material supplies. According to one bank officer who has played an active role in organizing bond offerings for Asia Pulp & Paper, "Back in 1994-95, we finance people didn't really discuss wood supply because there was plenty of it. It's only now that we've started talking about it—because suddenly wood is a problem."⁴⁶ Even as the Sumatra mills face looming fiber deficits, however, the major banks that underwrote APP and APRIL's rapid expansion continue to base their due diligence reports largely on information provided by the companies themselves. A senior financial analyst at a Singapore-based investment bank described this process as follows:

Generally, I look at the information the company provides and see if it sounds plausible. This normally includes the documents and reports that the company is required to disclose to the SEC [US Securities and Exchange Commission]. When I see that the company has had an audit by [forestry consulting firm] Jaakko Poyry, then I'm more confident in the information they're providing. But I've never actually seen a

Jaakko Poyry audit. The companies treat this as highly proprietary and don't like to release it. And [the bank] is not in a position to do our own audits like [international accounting firm] Arthur Andersen. So we have to get information wherever we can ... and to verify it through cross-checking.⁴⁷

The fundamental lack of rigor involved in the due diligence process would seem to be particularly negligent to the extent that Indonesian pulp and paper producers are engaged in illegal practices. As discussed above, there are strong indications that the pulp industry relies heavily on illegally harvested wood and that several of the sector's large producers have employed a variety of illicit financial practices in funding their mills and plantations. Investment bankers interviewed for this study generally indicated that pulp producers' use of illegal wood was not of direct concern to their banks unless it threatened to affect those companies' profit margins. As one bank officer put it:

[A client's use of illegally-obtained fiber] would be a concern to the extent that there was a possibility that that wood wasn't going to be there in the future. If the company was going to get its license revoked or face heavy fines, or if the government was going to stop the illegal cutting, then this would be an additional burden on those companies' operating costs. Clearly, we'd be concerned if their operating costs were going to go up significantly.⁴⁸

46 Confidential interview, Singapore, February 1, 2000.

47 Confidential interview, Singapore, February 1, 2000. This same financial analyst said that he generally visits these companies' pulpwood plantations once a year "to assess whether their claims regarding fiber supply are justifiable." He noted, however, that he has no training in forest management and "would not know if [he] was seeing 50,000 ha or 100,000." When asked if his bank had ever considered

48 Confidential interview, Singapore, February 1, 2000

International investment banks, in fact, have strong incentives not to look too closely at the projects they fund. With bond offerings in particular, these banks make substantial profits on commissions, which are generally based on the number of notes or shares that investors purchase and the total value of the capital raised.⁴⁹ The bank normally receives an added bonus when a large-scale bond issue is fully subscribed. Moreover, the banks, themselves, often have at least short-term risk exposure with most initial public offerings in that they commit to purchasing a predefined portion of an offering's shares. If the bond is under-subscribed, then the banks are generally forced to sell the shares they are holding at a marked-down rate.

Export Credit Guarantees and Project Finance

Loan guarantees provided by export credit agencies (ECAs) from northern countries have also played a significant role in encouraging the flow of international investment capital to high-risk projects in Indonesia's pulp and paper sector (Fried and Soentoro 1999). Industrial country export credit agencies are parastatal financial institutions which have a mandate to facilitate capital investment projects involving the export of goods by their own country's vendors. North American and European export credit agencies, for instance, have actively supported overseas pulp and paper projects in order to promote exports of paper machines and other capital goods by home-country manufacturers. They typically play this role by providing

49 One Singapore-based financial analyst estimated the profits that investment banks have made through facilitating bond issues for Indonesian pulp and paper projects, as follows: "Banks get a straight commission of approximately 1.25 percent for bond origination and underwriting fees. They get an additional 0.5 percent in selling fees, depending on the bond's syndicate structure. All banks together, therefore, would have made—at abare minimum —1.75 percent on all of APP's bond debt, at least through originating, underwriting and placing the bonds. This is before advisory fees, swaps, and trading transactions are taken into account." Confidential interview, Jakarta, August 24, 2000. Will explain this as well:

noncollateralized guarantees for loans made by commercial banks to finance projects in countries, like Indonesia, involving high degrees of sovereign risk (Stephens 1999). In practice, this means that the export credit agency agrees to repay the banks if the importer is, for any reason, unable or unwilling to repay the loan when it comes due. In some cases, export credit agencies themselves provide investment capital through direct loans (Fried and Soentoro 1999).

Export credit agency loan guarantees have often played a critical role in securing project financing for high-cost investments, such as pulp and paper mills (Stephens 1999). On the one hand, they encourage commercial banks to support such projects with capital loans, by reducing or eliminating the banks' risk exposure. On the other hand, the export credit agency guarantees reduce the financing costs associated with capital-intensive projects, which is frequently essential for attracting investors. In both respects, the loan guarantees effectively promote investments in financially risky projects. In short, the export credit agency agrees to bear the cost if the project fails. Many export credit agencies, however, routinely pass on the risks associated with such investments to the government of the importing country. They do so by requiring the government to sign a counter-guarantee before the export credit agency will provide the initial loan guarantees that are often required for large investment projects to move forward. With such counter-guarantees in place, the risks associated with private investments are ultimately borne by public institutions.

A recent study of 33 large investment projects in Indonesia during the period 1994-1997 found that the country's pulp and paper sector has been a prime beneficiary of export credit agency loan guarantees (Fried and Soentoro 1999). Surpassed only by the country's power sector, large-scale pulp and paper

projects received US\$4.2 billion in loans during this period that were covered by export credit guarantees. Mills known to have benefited from export credit agency support include Tanjung Enim Lestari, Indah Kiat, and Riau Andalan Pulp & Paper. As Fried and Soentoro (1999) explain, export credit agency guarantees often covered only a portion of the loans made for these projects, but they functioned in part to leverage much higher levels of investment funds:

The finance packages for the larger ECA-supported projects typically involve a number of tranches, including long-term commercial loans (some covered by private or public guarantees or insurance), equity, revolving credit, and often an “ECA tranche” which may be a commercially syndicated loan covered by ECA guarantees... A 1997 US\$1.3 billion loan to Tanjung Enim Lestari for the construction of a

controversial pulp mill in South Sumatra, for example, involved 6 tranches ...The provision of ECA guarantees in one tranche of the loan—[totaling US\$650 million]—leveraged total project finance of over US\$1.3 billion.

IMPACT OF THE FINANCIAL CRISIS AND REFORMASI

Prior to the onset of the financial crisis in July 1997, Indonesian companies had plans to double the processing capacity of the country’s pulp industry by the year 2005 (Jaakko Poyry 1998). This capacity expansion included the installation of new production lines at Indah Kiat and Riau Andalan, as well as the construction of several new mills by companies not previously active in the sector. With the international investment community then giving strong signals that it would continue to support the development of large-

Table 4.6: Corporate Debt Owed by Indonesian Pulp and Paper Producers to Offshore Creditors and to IBRA, January 1999

Group	Offshore Pulp/Paper Debt (US\$m)	IBRA Pulp/Paper Debt (Rp bn)	IBRA Debt Other Sectors (Rp bn)	Total IBRA Debt (Rp bn)
Sinar Mas /APP	9,075	n.a.	423	423
Raja Garuda Mas/APRIL	2,010	484	433	917
Kiani Kertas/Bob Hasan	670	2,480	1,997	4,477
PT TEL/Barito Pacific	911	n.a.	6,395	6,395
Surya Agung	250	n.a.	n.a.	n.a
Basuki Rachmat	n.a	1,634	n.a.	1,634
Kertas Leces	n.a	308	n.a.	308
Total	12,916	4,906	9,248	14,154

Sources: Offshore debt figures extracted from Ausnewz (1999); domestic debt figures from IBRA (June 1999). [January 2000 exchange rate = Rp 6,700/US\$]

scale pulp facilities in Indonesia, several of the country's largest conglomerates were eager to participate in the seemingly endless flow of profits that such projects offered.

These new mill projects came to a sudden halt following the collapse of Indonesia's monetary system in late 1997. With the rupiah losing 80 percent of its value between July of that year and January 1998, the country's private sector was thrown into a severe liquidity crisis that made new capital investment virtually impossible. Domestic lending dried up as large numbers of private and state-owned banks became insolvent. As significantly, offshore financial institutions pulled back from Indonesia as the economic crisis and subsequent political transformation pushed the country's sovereign risk ratings sharply upward.

For pulp and paper producers operating in the sector before the crisis hit, the country's economic and political turmoil has had three significant, and in some respects contradictory, effects. First, the crisis has put added financial pressure on Indonesia's heavily-indebted producers by curtailing their access to capital markets and by pushing some companies into receivership. Second, the depreciation of the rupiah has substantially reduced domestic pulp production costs, thereby providing Indonesian producers with windfall profits in many export markets, as their products are sold in US dollars. Third, the weakening of the Indonesian state since the fall of the Suharto regime has substantially raised the financial risks associated with the country's large-scale mills and pulpwood plantations.

Corporate Debt

The fact that Indonesian pulp and paper producers had borrowed heavily to fund their capacity expansions through the 1990s meant that many of these companies were particularly vulnerable when the financial crisis hit the region. This was especially the case for companies carrying substantial loads of dollar-denominated debt, which included each of the industry's major producers. As Table 4.6 shows, the country's five largest producer groups held pulp and paper-related debts totaling just under US\$13 billion to offshore creditors through the end of 1998.⁵⁰ The largest portion of this, by far, was held by the Sinar Mas group's holding company, Asia Pulp & Paper.

In addition to their large offshore obligations, Indonesia's pulp and paper groups are responsible for over Rp 14 trillion in nonperforming loans that had been transferred to the Indonesian Bank Restructuring Agency (IBRA) through January 1999. Converted at the January 2000 exchange rate of Rp 6,700/US\$, this sum amounts to US\$2.1 billion. Just over one-third of this total—US\$728 million—is owed to IBRA by four companies operating specifically in the pulp and paper sector. The largest of these is Bob Hasan's Kiani Kertas mill, which owes IBRA US\$370 million to rank ninth on the agency's list of over 4,000 corporate debtors. Kertas Basuki Rachmat, an integrated pulp and paper producer located in East Java, ranks eleventh on IBRA's list, owing the bank restructuring agency US\$244 million.

It is significant that the Barito Pacific and Bob Hasan groups also account for over US\$1.2 billion in nonperforming loans owed to IBRA that are associated with investments in industries other than pulp and paper (Barr, et al., forthcoming). In the case of Barito

50 This figure includes US\$2.7 billion that APP borrowed to finance its paper and board mill projects in China.

Box 4.1: Indorayon and the Financial Costs of Social Conflict⁵¹

PT Inti Indorayon Utama is a US\$600 million pulp and rayon mill in North Sumatra owned by Indonesia's Raja Garuda Mas group. For several years, Batak communities living near the mill have voiced concerns over environmental problems associated with its operations, including forest degradation, the release of noxious fumes, and a drop in the water level of nearby Lake Toba. In July 1998, local residents blocked trucks entering the mill to keep them from bringing in raw materials, forcing Indorayon to halt production for four months (Thoenes 1998). Then, in January 1999, violent clashes between community members and security forces led President Habibie to close the mill, pending an independent audit (*Jakarta Post* 1999c). The Jakarta Stock Exchange, in turn, suspended trading of Indorayon shares.

Indorayon has paid a considerable financial cost for its conflicts with the communities. The company posted net losses of US\$40 million in 1998 (Fung 1999b). In March 1999, it failed to pay US\$15 million in bond coupon obligations, as well as US\$144 million owed to bond holders who wished to cash in their guaranteed notes. At that point, Standard & Poor's down-graded its ratings on US\$110 million unsecured Indorayon notes due in 2000 and US\$150 million guaranteed notes due in 2001 to D from double-C (Dow Jones News Service 1999). The company has since entered into discussions with creditors to restructure its overall debt of US\$360 million (Fung 1999a). Financial analysts generally agree that the success of Indorayon's restructuring proposal will depend on the outcome of the mill's still-pending environmental audit and the company's ability to negotiate an effective settlement with the surrounding communities.

Pacific, it is possible that failure to resolve these debts could lead the bank restructuring agency to place in receivership the group's equity interests in the Tanjung Enim Lestari pulp mill and its affiliated Musi Hutan Persada plantation.

Windfall Profits

If the financial crisis has put added pressure on Indonesia's heavily leveraged pulp and paper companies, it has also created conditions that have allowed them to earn windfall profits on much of their output. This has occurred because 60 to 70 percent of the costs involved in pulp production are rupiah-based, while the remainder are linked to the US dollar. When the rupiah lost 80 percent of its value in the first six months of the crisis, Indonesian companies' pulp production costs tumbled from US\$290 to less than US\$100 per tonne (Thoenes 1998; Goldman Sachs 1998).

These low cash costs have sharply increased the competitiveness of Indonesian pulp in international markets, and at times have made it possible for Indonesian producers to deliver pulp to the European and North American markets at prices that are still below those of the importing regions' own producers (Thoenes 1998; Spencer and Choi 1999). Through 1998 and 1999, for instance, the pulp production costs of most European and North American producers rarely dropped as low as US\$400 per tonne. For integrated pulp and paper producers such as APP, the drop in pulp costs has also allowed the group's paper producers to remain profitable when international paper prices have been low (Goldman Sachs 1998).

51 Extracted from Barr, et al. "Corporate Debt and the Indonesian Forestry Sector," forthcoming in C. Colfer and I. Resosudarmo, eds. *Which Way Forward? Forest, Policy, and People in Indonesia*, Resources for the Future, Washington, DC (expected publication 2001)

Increased Financial Risk

The changes in Indonesia's political landscape since President Suharto's forced resignation in May 1998 have significantly raised the degree of financial risk associated with the country's large-scale pulp and paper mills, as well as pulpwood plantations. In particular, the considerable weakening of the state apparatus vis-à-vis Indonesian society has left many of these projects vulnerable to conflicts with surrounding communities. Whereas the New Order government regularly used the nation's military and police forces to keep local communities from threatening the interests of private sector investment projects, the post-Suharto state has shown itself increasingly unwilling and unable to do so. In many provinces, violent land and resource conflicts between rural communities and extractive industries have become endemic.

The financial risks that such conflicts pose are magnified for Indonesia's major pulp and paper projects for two reasons. First, the high levels of capital investment in large mills means that they incur substantial costs if their operations are, for any reason, disrupted. Such costs become particularly problematic for heavily leveraged companies, which need to maintain a substantial cash flow to stay current on their interest payments. The financial vulnerability of large mills has become readily apparent in the case of Inti Indorayon, the Raja Garuda Mas group's US\$600 million pulp and rayon facility in North Sumatra. For much of the period since November 1998, communities located near the mill have halted Indorayon's operations to protest the company's negative impact on the surrounding environment (see Box 4.1)

A second factor that magnifies the financial risks of social conflict for pulp and paper producers is their need to secure long-term control over large plantation areas. To establish a sustainable fiber supply for its

mill, a pulp producer must not only be able to plant a sufficiently large area on an annual basis, but also to harvest each area planted when the trees mature seven to eight years later. In many parts of Sumatra and Kalimantan, efforts on the part of HTI companies, first, to clear large tracts of forested land, and then, to place these areas under long-term management regimes have triggered intense disputes with both indigenous and settler communities (Potter and Badcock 2000). In several reported cases, local peoples have allegedly pulled up trees planted by HTI companies and, at times, burnt plantation estates. In an ongoing dispute involving the Musi Hutan Persada plantation in South Sumatra, villagers have reportedly blocked company trucks from carrying wood from the HTI site to the Tanjung Enim Lestari pulp mill.

CONCLUSION AND POLICY OPTIONS

This paper has argued that the rapid expansion that has occurred in Indonesia's pulp and paper industries over the past decade has far outpaced efforts to develop sustainably managed pulpwood plantations. As such, the country's largest pulp mills—APP's Indah Kiat and APRIL's Riau Andalan—are facing looming fiber supply deficits over at least the next five to seven years. Given the high fixed costs involved in pulp and paper production, Indonesian producers' failure to secure a legal and sustainable fiber supply implies that these projects carry a significant degree of financial risk. At the very least, these mills' production costs are likely to increase sharply in the coming years as supplies of mixed tropical hardwoods available in Riau and surrounding provinces are exhausted.

To a significant degree, owners of Indonesia's major pulp and paper mills have carried out high-cost capacity expansions because they have been able to avoid the financial risks involved. Pulp conglomerates

until now have had access to large volumes of pulpwood fiber from natural forests at prices that are well below the wood's actual stumpage value. They have also received both direct and indirect capital subsidies through soft loans from government banks and the Reforestation Fund; favorable tax laws that allow for accelerated depreciation of fixed assets; and weak enforcement of Indonesia's financial regulations, which has enabled companies to mark-up the cost of their investments and to borrow money from affiliated banks.

As significantly, Indonesia's pulp and paper producers have enjoyed relatively easy access to international finance, borrowing approximately US\$12 billion to support their expansion efforts during the 1990s. Weak codes of due diligence and loan guarantees from industrial-country export credit agencies have led international investment banks to fund high-cost capacity expansion projects without adequately evaluating the financial risks involved. The use of public monies to relieve the debt burdens of Indonesia's pulp conglomerates, as will be discussed in chapter 5, suggests that their debt-driven expansion strategies have been characterized by a high degree of moral hazard. Indeed, just as these producers built their mills with money that did not belong to them, there are now indications that at least a portion of their debts will be paid off by funds coming initially from industrial country taxpayers and ultimately from the people of Indonesia.

By any account, the high capital costs associated with pulp and paper processing suggests that it will be difficult to alleviate the structural pressures that Indonesia's existing mills place on the country's remaining natural forests. However, there are steps that can be taken to enforce the adoption of more sustainable forest management practices on the part

of the industry. Options that government policymakers and financial institutions might consider include:

- 1.** A moratorium on new pulp and paper processing capacity expansions in Indonesia until full and public audits of the companies' pulp wood supply plans are carried out.
- 2.** Elimination of the wood supply subsidy to Indonesia's pulp industry, by raising royalties and fees to reflect the full stumpage value of the wood.
- 3.** Enforcement of the Indonesian government's 1998 moratorium on the allocation of new forest conversion licenses, in accordance with the government's existing commitments to the IMF and the Consultative Group on Indonesia. This moratorium could be extended to include restrictions on new harvesting permits for existing forest concessions slated for conversion.
- 4.** Introduction of a credible independent monitoring program of plantation development (including the use of aerial or satellite images) and sanctions provided for companies that fail to meet agreed-upon sustainability targets.
- 5.** Enforcement of improved due diligence practices on the part of financial institutions funding pulp and paper projects, so as to ensure that the financial risks associated with these projects are fully assessed and that financing is not being allocated to projects involved in illegal practices, including use of illegally obtained raw materials.



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Corporate Debt and Moral Hazard in Indonesia's Forestry Sector Industries

Chapter 5

Chapter by:
Christopher Barr and
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In their efforts to restructure Indonesia's timber and wood processing industries, the IMF and the World Bank have taken steps to remove a range of subsidies that the Indonesian government extended to the nation's forest sector conglomerates under Suharto's New Order regime. The most significant policy interventions put forth by the multilateral development banks in this regard have included:

- Increased log royalties to reduce the flow of timber rents to HPH concession-holders;
- Removal of log export restrictions to prohibit Indonesian wood processors from obtaining raw materials at costs substantially below world market prices;
- Abolition of the monopoly on plywood exports held by Apkindo;
- Audit and transparent management of the government's Reforestation Fund.

Collectively, these reforms have been aimed at blocking the flow of forest sector rents to key clients of the Suharto regime, while also introducing market-based efficiency into all aspects of the country's timber and wood processing industries. To varying degrees, perhaps, each of these policy interventions is rooted in the assumption that capital subsidies invariably lead timber producers and wood processors to undervalue forest resources, which in turn lead to unsustainable management practices.

Whatever success the World Bank and the IMF have had in eliminating forest sector subsidies may well be offset by the bank recapitalization and corporate debt resolution processes currently being carried out by the Indonesian Bank Restructuring Agency (IBRA). The government created IBRA in early 1999 in fulfillment of a

key conditionality from the IMF and with technical assistance from the World Bank. Broadly defined, IBRA's mandate has been to refloat Indonesia's failing banking system and, by extension, to play a central role in resolving the nation's corporate debt crisis.

In this capacity, IBRA has assumed control over some Rp 645 trillion, or US\$92 billion in assets, giving the agency far-reaching influence over Indonesia's banking and corporate sectors (IBRA 2001).¹ These assets include an estimated US\$3 billion in outstanding loans directly associated with forestry sector investments, as well as several billion dollars worth of pledged equity shares in three of Indonesia's largest forestry conglomerates. The agency has thus far succeeded in recovering only a very small fraction of the debts in its portfolio, and there are strong indications that much of this debt will eventually be marked down or written off. To the extent that Indonesia's forestry sector conglomerates are able to avoid repaying the debts now owed to IBRA, the government will effectively be returning to these actors a substantial share of the subsidies that the IMF and the World Bank have sought to remove.

Viewed from a broader perspective, the concentration of indebted forestry and estate crop companies under IBRA would appear to offer a unique institutional mechanism for addressing some of the core structural problems facing Indonesia's forestry sector. By calling in debts held by insolvent wood processors, for instance, IBRA could play a key role in reducing the overcapacity that currently exists in the country's wood processing industries. To date, however, IBRA has restricted its focus to restructuring the debts held by companies in its portfolio and selling assets to raise cash for the bank recapitalization process.

¹ In this chapter, dollar-equivalents of *rupiah*-denominated figures are calculated on an exchange rate of Rp 7,000 per US\$, unless noted otherwise. Indonesia's exchange rate has fluctuated widely since 1997, ranging from approximately Rp 2,400 per US\$ in June of that year to Rp 17,000 at the height of the monetary crisis.

This has created a situation in which many heavily indebted forestry and estate crop enterprises have been allowed to continue operating under their pre-crisis owners, with minimal supervision from IBRA, as long as they agree to repay some portion of their debts over time. In some cases, debt restructuring has been linked explicitly to further expansion of these companies' operations. The fact that many Indonesian forestry conglomerates are engaged in high-risk and illegal activities suggests that IBRA is creating the conditions for future financial instability and reinforcing the poor corporate governance that has long existed within the country's forestry sector.

IBRA AND BANK RECAPITALIZATION

IBRA was founded with the issuance of Government Regulation 17 in February 1999 (Lindgren, et al. 1999). Placed under the Ministry of Finance, the agency was given far-reaching legal authority to implement the government's 'General Bank Recapitalization Program,' as defined by a Joint Decision from the Minister of Finance and the Governor of the Bank of Indonesia in December 1998.² IBRA was assigned a broad mandate to restructure and revitalize the country's collapsed banking sector, which has included the implementation of "a bank liability guarantee program, bank restructuring, restructuring of bank loans, shareholder liability settlements, and the recovery of state funds provided as liquidity assistance to banks" (IBRA 2001).

In this capacity, the agency has conducted portfolio reviews of the nation's private and state-owned lending institutions to classify Indonesian banks into four categories: those to be closed; those to be taken over and managed by the government; those to be recapitalized; and those that are sufficiently healthy to continue operating on their own. Through IBRA, the government

2 Surat Keputusan Bersama Menteri Keuangan Republik Indonesia dan Gubernur Bank Indonesia No. 53/KMK.017/1999 dan 31/12/KEP/GBI Tentang Pelaksanaan Program Rekapitalisasi Bank Umum.

has closed 70 of the nation's 238 banks since the onset of the financial crisis (*Jakarta Post* 2001b). The agency has taken over 13 privately owned banks, although this number has since been reduced through mergers to four.³ Through late 2001, IBRA has also recapitalized 27 banks. These include four state-owned banks⁴; 11 private banks⁵; and 12 smaller regional development banks (*Jakarta Post* 2001c).

Under the recapitalization process, the government injected up to 80 percent of the funds needed to bring the banks' capital adequacy ratios to 4 percent, while the banks' owners were required to contribute the remaining 20 percent.⁶ In turn, all nonperforming loans were stripped from the recapitalized banks' portfolios and transferred to IBRA. The government obtained equity shares in the banks in direct proportion to the percentage of recapitalization funds that it injected. In most banks, the government's share has been 80 percent; however, in at least one case, the government's share until recently was

3 In June 2000, nine banks taken over by IBRA were merged with Bank Danamon. These included: Bank Tiara Asia, Bank PDFCI, Bank Duta, Bank Nusa Nasional (BNN), Bank Risjad Salim International, Bank Tamara, Bank Pos Nusantara, Bank Jaya International, and Bank Rama. Other banks taken over by IBRA include Bank Central Asia, Bank Bali, and Bank Niaga.

4 State-owned banks that have been recapitalized include Bank Mandiri, Bank Negara Indonesia, Bank Rakyat Indonesia, and Bank Tabungan Negara. It should be noted that Bank Mandiri was formed in late 1999 through a merger of four large state-owned banks that were in operation before the 1997 crisis.

5 Seven private banks were recapitalized outright, including the publicly listed Bank Lippo, Bank Internasional Indonesia and Bank Universal; and the non-listed Bank Prima Ekspres, Bank Artha Media, Bank Patriot, and Bank Bukopin. Four private-sector banks were first taken over by IBRA before they were recapitalized, including Bank Central Asia, Bank Danamon, Bank Niaga, and Bank Bali.

6 A bank's capital adequacy ratio refers to its cash assets as a percentage of total loans outstanding. Before the 1997 financial crisis, Indonesia's commercial banking law required banks to maintain a capital adequacy ratio of 8 percent to ensure that they would be able to stay solvent in the event that they were unable to collect on outstanding obligations on schedule or were suddenly subject to larger than expected withdrawals by depositors (Cole and Slade 1996).

Table 5.1: Government Bonds Issued for Banking Sector Restructuring, as of December 31, 2000.

Category of Bonds Value	(Rp trillions)
Bank Recapitalization	425.54
BLBI Liquidity Credit	144.54
Bank Guarantee Program	73.78
Bank Credit Program	9.97
Total	653.82

Source: IBRA 2001.

as low as 57 percent as the bank's shareholders contributed more than the minimal amount of funds (IBRA 2001). In the second phase of the recapitalization process, participating banks are obliged to raise their capital adequacy ratio to 8 percent by the end of 2001, according to the government's agreement with the IMF (*Jakarta Post* 2001c).

In June 1999, Standard & Poor's international ratings agency estimated that the up-front fiscal cost of resolving Indonesia's banking crisis will amount to US\$87 billion, or 82 percent of the country's 1998 GDP (Standard & Poor's 1999).⁷ These costs have largely been incurred through the issuance of government bonds related to various components of the bank restructuring process. Through December 31, 2000, the government issued some Rp 654 trillion in bonds, worth approximately US\$93 billion (see Table 5.1). Bonds issued to finance the bank recapitalization process amounted to Rp 425 trillion (US\$61 billion), or two-thirds of the total sum. In August 2001, at the IMF's

⁷ Standard & Poor's defines 'up-front fiscal cost' as the funds provided by the government to initially recapitalize or pay out creditors of distressed banks. This is distinguished from 'final costs,' which are defined as "costs net of recoveries on collections of bank loans, on the disposal of bank assets, and after privatization of seized financial institutions." Although the final costs of rescuing Indonesia's banking sector may ultimately be lower than the up-front fiscal cost, the latter better represents the real pressure on public finance and monetary policy.

instruction, the Indonesian government agreed to issue an additional Rp 30 trillion in bonds to further bolster the government's bank guarantee scheme.

Many financial analysts speculate that the costs of the recapitalization program may rise substantially if Indonesian banks are unable to generate sufficient levels of real earnings through normal bank lending (World Bank 2000; Murphy 2000). In recent months, the recapitalized banks have struggled to operate profitably due to Indonesia's high interest rates and the weakness of the rupiah. Consequently, most of these institutions continue to have highly unbalanced asset structures, with the bulk of their assets being in the form of government bonds rather than outstanding loans. In March 2001, for instance, the Ministry of Finance reported that government recapitalization bonds accounted for between 40 and 70 percent of the assets held by state banks and for over 50 percent of the assets held by three of the largest private banks that have been recapitalized (*Jakarta Post* 2001c).

This situation is complicated by the fact that the government's recapitalization bonds, thus far, have proven to be highly illiquid, as demand for these bonds in secondary markets has been minimal. The government is, therefore, faced with the possibility of having to inject substantial new sums of capital into the banking system to prevent the closure of banks unable to reach the 8 percent capital adequacy ratio by the end of 2001 (*Kompas* 2001c).

Recapitalization of Forestry-Linked Banks

Prior to the 1997 financial crisis, conglomerates with substantial investments in forestry and estate crop industries controlled 10 of Indonesia's private-sector banks (see Table 5.2). Under IBRA's bank restructuring process, two of these banks have been closed; four have been taken over; and four have been recapitalized (including the Salim Group's Bank Central Asia, which was first taken over by the government). Of the forestry-linked banks, only the

Table 5.2: Current Status of Banks Controlled by Conglomerates with Substantial Investments in the Forest and Estate Crop Sector before the 1997 Crisis

Group	Bank	Status Under IBRA
Astra	Bank Universal	Recapitalized
Bakrie	Bakrie Bank (Bank Nusa)	Taken Over
Barito Pacific	Bank Andromeda	Closed
Bob Hasan	Bank Umum Nasional	Closed
Bob Hasan	Bank Duta	Taken Over/Merged
Bob Hasan/Apkindo	Bank Bukopin	Recapitalized
Raja Garuda Mas	UniBank	Not under IBRA
Sinar Mas	Bank Internasional Indonesia	Recapitalized/Merged
Salim	Bank Central Asia	Taken Over/Recapitalized
Salim	Bank Risjad Salim Int'l	Taken Over/Merged

Source: Barr, et al., forthcoming.

Raja Garuda Mas Group's Unibank has remained independent of IBRA.

For the handful of conglomerates whose banks qualified for this process, recapitalization has brought substantial benefits. Not only have these groups' banks been able to stay in business, but they have also been able to unload large sums of bad debt from their balance sheets. As significantly, recapitalization has helped these groups to protect their non-bank assets, which often held outstanding obligations that would be transferred to IBRA or other creditors if the bank became insolvent. In at least one case, the government injected over US\$900 million in recapitalization funds into a bank that still carried on its books US\$1.3 billion in outstanding loans to affiliated forestry companies (see Box 5.1).

Corporate Debts Held by IBRA

Under the bank restructuring process, IBRA has assumed control over outstanding bank loans to over 4,000 private sector companies totaling Rp 349 trillion, or US\$50 billion (IBRA 2001). These debts represent both performing and nonperforming loans stripped from the books of the banks that have been closed, and all nonperforming loans from the banks that have been taken over and/or recapitalized. Approximately two-thirds of the loans in IBRA's portfolio, valued at Rp 230 trillion (US\$33 billion), have been classified as non-performing debt—defined to include all loans more than three months past due, as well as all restructured debt. To put this in perspective, the aggregate debt in IBRA's portfolio represents 32 percent of Indonesia's 1998 GDP and 72 percent of that year's total exports (Standard & Poor's 1999).

Data released by IBRA in early 2001 indicates that the agency currently holds Rp 21.9 trillion (US\$3.1 billion) in

Box 5.1: Recapitalization of Bank Internasional

Before the 1997 financial crisis, Bank Internasional Indonesia (BII) was controlled by the Sinar Mas Group, the nation's largest pulp and paper producer. Through the 1990s, the bank regularly held several billion dollars in deposits from the group's Singapore-based holding company, Asia Pulp & Paper and other affiliates. BII was managed by the family of Eka Tjipta Widjaja, the principal shareholders in Sinar Mas. After the crisis struck, it had a negative shareholder value of Rp 7 trillion (US\$1 billion) and needed additional capital of Rp 11 trillion (US\$1.6 billion) to stay solvent (Sender 1999). In April 1999, BII was one of seven private sector banks to qualify outright for the government's recapitalization program. The government injected Rp 6.6 trillion (US\$942 million) into the bank in the form of recapitalization bonds, thereby assuming a 58 percent equity stake. Sinar Mas and the Widjaja family contributed Rp 4.4 trillion to retain an 18 percent share of BII.

At the time of its recapitalization, Bank Internasional Indonesia had US\$1.2 billion in outstanding loans to subsidiaries of the Sinar Mas Group (Adityaswara 2001). Representing 52 percent of the bank's total loans, this constituted a breach of the government's 20 percent legal lending limit to affiliated parties (Webb 2001a). As a result, members of the Widjaja family failed a 'fit and proper' test administered by Indonesia's central bank and were removed from the bank's management (Rubin 2000). To ensure that these loans would be repaid, IBRA signed a memorandum of understanding with Sinar Mas and BII in March 2000 extending the tenor of the loans

to 30 months and securing pledged collateral from Sinar Mas valued at 145 percent of the amount owed. Collateral assets included equity shares in New York-listed Asia Pulp & Paper and other operating subsidiaries.

Mounting debts and falling paper prices resulted in a sharp deterioration in Sinar Mas's financial position during the second half of 2000, with APP losing 96 percent of its share value on the year. This raised concerns that the collateral assets pledged to IBRA would no longer cover the related-party loans, in the event of a Sinar Mas default. In February 2001, the Indonesian government issued an irrevocable guarantee that these loans would be repaid (AFXAsia 2001). Ministry of Finance officials claimed that the government had few alternatives, as a Sinar Mas default on the debts to BII would certainly lead to the collapse of the newly recapitalized bank. This would carry high costs, as the government would effectively lose its up-front 'investment' in the bank's recapitalization and would need to pay out approximately Rp 30 trillion (US\$4.3 billion) to cover depositor losses (Adityaswara 2001).

In issuing its guarantee of the related-party loans, the government instructed IBRA to secure collateral assets from the Sinar Mas Group worth Rp 23 trillion. The government has also taken over all remaining shares in BII, and has now merged it with state-owned Bank Mandiri.

debts that are directly related to forestry investments (IBRA 2001; Brown 2001). These debts were generated by 128 companies with activities in timber extraction and/or wood processing. As Table 5.3 shows, Rp 11.8 trillion (US\$1.7 billion)—or over half of the total forestry debt—is owed by wood processing companies without HPH timber concessions. At least 20 percent of the outstanding debt is owed by HPH concession-holders without processing

facilities; 8 percent by wood processors with affiliated HPHs; and 4 percent by pulp and paper producers. According to IBRA, the activities of 38 indebted forestry companies, accounting for Rp 3 trillion (US\$430 million), have not yet been determined.

Analysis of IBRA's forestry debt by business group (or "obligor") indicates that five conglomerates are responsible for roughly two-thirds of the total obligations (Brown

Table 5.3: Area of Activity for Forestry Companies with Debts Under IBRA

Forestry Activities	No. of Firms	Total Outstanding Debt (billion Rp)
HPH concession	23	4,288
Wood processing w/out HPH	52	11,800
Wood processing w/ HPH	11	1,700
Pulp and paper	4	873
Not yet determined	38	3,000
Total	128	21,661

Source: Unpublished IBRA data

Table 5.4: Outstanding Forestry Debts under IBRA by Obligor, March 2001

Outstanding Forestry Debt by Group "Obligor" (Top 12 Only)	Total Outstanding (billion Rp)	% of Total	No. of Firms	% of Total
Bob Hasan	7,024	32.1	16	12.5
Djajanti	3,321	15.2	6	4.7
Raja Garuda Mas	1,476	6.7	7	5.5
Barito	1,374	6.3	9	7.0
Batasan	1,155	5.3	4	3.1
Dirgahayu	915	4.2	2	1.6
Andatu	497	2.3	1	0.8
Sumatera TUD	473	2.2	5	3.9
Hutan Raya Indonesia	460	2.1	5	3.9
Surya Dumai	426	1.9	4	3.1
Kayu Mas	412	1.9	5	3.9
Kayu Lapis/Henrison	369	0.7	4	3.1
ALL OTHERS	3,973	18.0	60	47.0
TOTAL	21,882	100.0	128	100.0

Source: Brown 2001

2001). As shown in Table 5.4, these groups include the Hasan, Djajanti, Raja Garuda Mas, Barito, and Andatu conglomerates, which collectively account for Rp 14.4 trillion (US\$2.1 billion) in outstanding forestry debt under IBRA. Notably, over one-third of IBRA's forestry debt is linked to three specific firms: the Bob Hasan Group's Kiani Kertas (Rp 2.8 trillion) and Kiani Lestari (Rp 2.3 trillion); and the Djajanti Group's Nusantara Plywood (Rp 2.7 trillion) (Brown 2001).

It is important to note that the data on forestry debt released by IBRA do not include outstanding debts held by Indonesian forestry conglomerates in industries outside the forestry sector. Such non-forest debts are known to be quite large, as major producers in the forestry sector also have holdings in automobile manufacturing, petrochemicals, food production, shipping, property, and a range of other industries. An analysis of debts held by Indonesian forestry conglomerates, based on IBRA data from January 1999, found that the 10 largest groups then accounted for at least Rp 10.7 trillion (US\$1.5 billion) in such extra-sectoral debts (Barr, et al. forthcoming). It is likely that this figure has grown substantially since those data were collected, as significant amounts of additional debt have since been moved from Indonesian banks to IBRA.

The forestry debt figures released by IBRA also do not reflect the large offshore debts held by Indonesian forestry conglomerates. At present, it is estimated that five of these groups are carrying nearly US\$17 billion in outstanding obligations to foreign creditors. Conservative estimates of the dollar-denominated debts held by these conglomerates are as follows: Sinar Mas (US\$12 billion); Raja Garuda Mas (US\$1.6 billion); Astra (US\$1.1 billion); Salim (US\$1 billion); Barito (US\$1 billion) (Barr, et al., forthcoming).

FORESTRY ASSETS PLEDGED TO IBRA

In addition to corporate loans transferred to IBRA from banks involved in the restructuring process, the agency holds pledged equity shares in companies owned by several of the nation's largest conglomerates. These include all of the corporate holdings of two of Indonesia's leading forestry producers, the Salim Group and the Bob Hasan Group. IBRA also holds Rp 23 trillion in assets pledged by the Sinar Mas Group, Indonesia's largest pulp and paper producer.

IBRA secured asset pledges from the Salim and Hasan conglomerates in an effort to guarantee repayment of Rp 38 trillion (US\$4.9 billion) in Bank Indonesia liquidity credits (*bantuan likuiditas Bank Indonesia*, or BLBI) extended to those groups' banks in 1997 and 1998 (*Kompas* 2000b). These credits were allocated by Bank Indonesia in the early months of the financial crisis as part of a larger effort to prevent depositor runs on the country's private lending institutions. During this period, the central bank transferred some Rp 144.5 trillion (US\$20 billion) to 48 banks, including several controlled by conglomerates with close ties to President Suharto (Sondhi 2000). An official audit of the BLBI by Indonesia's State Auditing Agency in mid-2001 found that 95 percent of the credits allocated were misused by the recipient banks (*Jakarta Post* 2001a). In many cases, these funds were channeled to companies affiliated with the owners of the banks, and much of the money is believed to have been moved offshore in the early weeks of the crisis.

Two of the largest beneficiaries of the Bank Indonesia liquidity credit scheme were the Salim Group's Bank Central Asia and the Hasan Group's Bank Umum Nasional, which received allocations of Rp 26 trillion (US\$3.7 billion) and Rp 12 trillion (US\$1.7 billion), respectively (*Kompas* 2000b).⁸ Under IBRA's bank restructuring program, Bank Central Asia was taken over by the government in May 1998 and recapitalized, while

Table 5.5: Forestry Assets Pledged to IBRA by the Salim and Bob Hasan Conglomerates

Type of Firm	Salim Group		Bob Hasan Group	
	Co's	Total Area or Capacity	Co's	Total Area or Capacity
HPH timber concession	(2)	280,000 ha	8	1,322,000 ha
Sawnwood, moulding	(2)	70,000 m ³ /yr	(2)	73,000 m ³ /yr
Plywood	3	290,000 m ³ /yr	4	335,000 m ³ /yr
Pulp and paper	0		2	660,000 tonnes/yr
HTI plantation	1	13,800 ha	3	249,000 ha
Oil palm plantation	24	271,000 ha	0	
<i>Non-forestry/estate crop</i>	<i>79</i>		<i>13</i>	
Total	107		30	

Note: Figures in Percentages refer to companies with operations in more than one category.
Source: IBRA 2000a.

Bank Umum Nasional was closed in August 1998. To ensure repayment of the BLBI funds, IBRA has required the banks' owners to pledge controlling shares in other businesses owned by their conglomerates (Sondhi 2000; *Kompas* 2001b).

Under the terms of a Master Settlement and Acquisition Agreement signed with each group, IBRA has placed the pledged assets in separate holding companies overseen by the agency's Asset Management Investment unit. In each case, the groups' pre-crisis owners retain legal ownership over the pledged companies, as long as they abide by the terms of the agreement. Through these agreements, IBRA has arranged to receive repayment of the BLBI liquidity credits over an extended period of time, with funds being

generated by profit flows from the pledged companies and strategic asset sales.

To cover the BLBI credits, the Salim Group has pledged controlling shares in some 107 companies to IBRA (see Table 5.5). These include two HPH timber concessions with a combined area of 280,000 ha; three plywood companies with an annual capacity of 290,000 m³ per year; and 24 oil palm plantation estates. The Bob Hasan Group has, likewise, pledged equity shares in 30 companies to IBRA, including eight HPH timber concessions covering 1.3 million ha; two HTI pulpwood plantations; four plywood companies with a combined production capacity of 335,000 m³ per year; and PT Kiani Kertas, one of Indonesia's largest pulp producers.

In addition to the companies pledged by the Salim and Hasan groups to cover BLBI liquidity credits, IBRA has also secured pledged assets valued at Rp 23 trillion from the Sinar Mas Group (Adityaswara 2001). The agency obtained these assets in May 2001 as collateral for the Indonesian government's guarantee of US\$1.3 billion in related-party loans from Sinar Mas-owned Bank

8 Aside from business groups directly owned by members of the Suharto family, no Indonesian conglomerates had closer ties to President Suharto before the 1997 financial crisis than the Salim and Hasan Groups (Schwarz 1994). The Salim Group is controlled by the family of Liem Sioe Liong, whose business partnership with Suharto originated in the 1950s. Bob Hasan, likewise, began working with Suharto when the future president was a colonel in Java's Diponegoro Division (see Barr 1998). Both groups had numerous joint ventures with Suharto and his children during the New Order period, giving them unparalleled access to financial and regulatory support from the Indonesian government.

Internasional Indonesia. (The circumstances leading the government to issue this guarantee will be discussed later in this chapter). Assets pledged by Sinar Mas include land, buildings, equipment, and other physical assets associated with the group's two pulp mills and six paper and board production facilities in Indonesia. IBRA also secured options to assume control over the group's two largest pulpwood plantation companies.

CAPITAL SUBSIDY THROUGH DEBT WRITE-OFF

The large-scale transfer of debt and equity-holdings from Indonesia's failing banks to IBRA has made the agency the single largest holder of corporate assets in the nation's forestry sector. In handling these and other assets in its portfolio, IBRA has been guided by its mandate from the Ministry of Finance to raise funds to help offset the considerable costs associated with recapitalizing the nation's banking sector. For 2001, IBRA has been assigned a target of generating Rp 27 trillion (US\$3.9 billion) for the state budget (Wright 2001).

The agency is raising these funds primarily in two ways: First, IBRA's Asset Management Credit unit is taking steps to restructure the non-performing loans in its portfolio. These restructured loans are then sold in financial sector debt markets to generate cash. Second, IBRA's Asset Management Investment unit is coordinating the strategic sale of assets pledged by conglomerates that received BLBI liquidity credits from the central bank.

Overvalued Assets and Undercollateralized Loans

IBRA's debt restructuring efforts have been complicated by the fact that the book value of the loans and other assets held by the agency is much higher than their real or fair value. An official audit of IBRA released in July 2001 found that the fair value of the agency's total assets was Rp 167.7 trillion (US\$24 billion), or roughly one-quarter of their book value, which amounted to Rp 645.8 trillion

(US\$92 billion) (*Kompas* 2001a).⁹ Outstanding bank loans managed by the agency's Asset Management Credit unit were found to have a fair value of only 22 percent of their total book value. Likewise, equity shares and other collateral assets pledged by the shareholders of banks that have been closed or taken over were found to have a fair value that amounts to only 20 percent of their book value (IBRA 2001).

In the case of bank loans, this 'overvaluation' reflects the poor due diligence practices employed by Indonesian lending institutions in the years prior to the 1997 financial crisis. A general failure on the part of both private and state banks to adequately assess the risks involved in the ventures they financed led to large numbers of nonperforming loans with little or no real collateral (Winters 1992; Cole and Slade 1996). In particular, the widespread use of financial 'mark-up' schemes meant that many of the loans later transferred to IBRA were for substantially greater amounts than what had actually been needed by the projects they funded.¹⁰

While IBRA has broad legal powers to require the owners of debtor companies to provide additional assets and personal guarantees to secure these loans, such steps have thus far done little to strengthen IBRA's position as creditor. Frequently, obligors have argued that they have few additional assets to pledge that are not already under IBRA's control (Murphy and Dipasena 2000). In some cases, indebted conglomerates have also apparently been able to draw on close ties to senior government officials to

9 For the purposes of this audit, 'fair value' was defined as "the value of IBRA's assets (in the form of bank loans, fixed assets, marketable securities or equity investment) that would be realized in the market according to appraisal data and/or the latest sales data available to IBRA" (IBRA 2001).

10 Financial 'mark-up' refers to the practice of artificially inflating the real value of a project for which funding is sought in order to secure larger amounts of finance than is actually needed. During the New Order period, the costs of large-scale investment projects were routinely marked up by 15 to 30 percent, and sometimes more. This gave the companies involved with such ventures considerable profits before the projects even began operating. For further details, see chapter 4.

elicit favorable treatment during the debt restructuring process (Vatikiotis 2000; Dhume 2001). These circumstances have often led IBRA to provide obligors with sharp discounts in the amount of debt they are expected to repay; to waive or suspend interest and penalty payments; to extend the tenor of outstanding debts; and to serve as effective underwriter of indebted firms by purchasing convertible bonds to cover portions of their debts (see Box 5.2).

IBRA faces similar difficulties in securing repayment of the Rp 144 trillion (US\$20 billion) in outstanding BLBI liquidity credits. The State Auditing Agency's official review of the BLBI scheme found that the banks receiving the emergency liquidity support provided collateral that is worth only a fraction of the real value of the credits (*Kompas* 2001b).¹¹ These pledged assets were later transferred from Bank Indonesia to IBRA, suggesting that the latter now holds inadequate collateral for the liquidity credits it is seeking to recover. In addition, the audit found that IBRA's own records were often contradictory with regard to the actual amounts of BLBI loans that had been transferred from Bank Indonesia. Such discrepancies have led Jakarta-based accounting firm Hans Tuanakotta and Mustofa to issue a disclaimer of opinion after auditing IBRA's books for 1998, 1999, and 2000 (*Kompas* 2001a).

There has, likewise, been widespread speculation that assets pledged to IBRA by BLBI recipients as part of the Master Settlement and Acquisition Agreements have been overvalued (*Bisnis Indonesia* 2000a). In some cases, it is likely that obligors have pledged companies that, in fact, have a negative value, as they are carrying substantial

¹¹ The agency's official audit of the BLBI found that recipient banks employed a number of strategies to avoid fully collateralizing the credits allocated by Bank Indonesia. Eleven banks, for instance, pledged bank shares, valued at Rp 2.4 trillion, and commercial notes, valued at Rp 1.0 trillion, without ever presenting the physical documents that would be needed for Bank Indonesia to take ownership of these in the event of default. In some cases, the audit found, recipient banks pledged assets to Bank Indonesia that had already been sold.

Box 5.2: IBRA and the Texmaco 'Bail Out'

IBRA's controversial restructuring agreement with the Texmaco Group offers one example of how the agency's debt resolution process has often favored large obligors. During the New Order period, Texmaco invested heavily in the production of machinery, textiles, and automobiles to become one of Indonesia's largest exporters (Dhume 2001). The group had also announced plans before the financial crisis to develop two mega-scale pulp mills in Irian Jaya with a combined processing capacity of 800,000 tonnes per year. When the *rupiah* collapsed in late 1997, Texmaco-owner Marimutu Sinivasan drew on his close ties to President Suharto to obtain more than US\$1 billion in discounted export credits from the government's bank Negara Indonesia (Tesoro 1999). These and other loans associated with 16 affiliated companies were transferred to IBRA when Bank Negara Indonesia was recapitalized.

In September 2000, IBRA signed a two-stage debt restructuring agreement with Texmaco. In the first stage, all of the group's indebted companies were placed under a newly formed holding company, aptly named Newco. Then Newco issued obligations in the form of exchangeable bonds, 70 percent of which were 'purchased' by IBRA and 30 percent of which were held by Texmaco (IBRA 2000c). In the second stage, all debts of the Texmaco subsidiaries that had been placed in Newco were restructured. The tenor of these debts were extended to 11 years, and it was agreed that Texmaco would repay none of the principal on the loans for eight years (*Kompas* 2001d). In effect, the group was required only to make interest payments during this period.

Critics have claimed that IBRA's restructuring agreement with Texmaco amounts to a massive 'bail out' of a conglomerate with strong political connections (*Kompas* 2001d). They argue that the agreement is aimed not at seeing Texmaco's debt repaid, but at protecting the group's cash flow position. In its August 2001 Letter of Intent, the IMF, as well, called on the government to review the agreement.

amounts of unpaid debt and are technically bankrupt. This would appear to be the case, for instance, with at least a portion of the companies pledged by the Bob Hasan Group, now under the Kiani Wirudha holding company. Among other assets, the group has pledged its equity shares in two forestry firms – Kiani Kertas and Kiani Lestari—which together account for Rp 5.1 trillion (US\$728 million) in nonperforming loans now held by IBRA's Asset Management Credit unit (IBRA 2001). At the very least, such a situation puts IBRA in the inherently contradictory position of being a creditor to companies whose equity shares have been pledged as collateral to ensure repayment of BLBI credits.

Projected Write-Off of Forestry Debts

Through August 2001, IBRA has reported a 20 percent loan recovery level from its debt restructuring process (Dardani, et al. 2001). For forestry loans in its portfolio that have not yet been restructured, the agency has also classified just over 20 percent of the total value of these debts as having a high probability for recovery. These figures correspond roughly to Standard & Poor's 1999 projection that Indonesian banks will require at least a 70 percent loan-loss provisioning level to cover that portion of nonperforming loans that are unlikely ever to be recovered (Standard & Poor's 1999).¹²

Based on these figures, it can be conservatively estimated that IBRA will eventually write off between 50 and 70 percent of all non-performing loans associated with indebted forestry companies in its portfolio (Barr, et al. 2001). In aggregate terms, this suggests that IBRA is likely to write off between Rp 10.9 trillion (US\$1.6 billion) and Rp 15.2 trillion (US\$2.1 billion) of the Rp 21.7 trillion

¹² Some observers have suggested that this figure may, in fact, be quite optimistic. Indeed, former IBRA chair Glenn Yusuf offered a far more sobering forecast in November 1999, speculating that the government will eventually recover only 4 percent and 3 percent, respectively, of nonperforming loans owed to state banks and nationalized private banks (Jakarta Post 1999a)

in non-performing loans linked to timber, wood processing, and pulp and paper investments.

These figures will rise even further to the extent that IBRA writes off a similar percentage of non-forest sector loans held by Indonesia's forestry conglomerates. If it is assumed that, minimally, forestry conglomerates account for Rp 11 trillion in nonperforming loans from other sectors (excluding offshore debt), then a write-off on this scale would amount to between Rp 5.5 trillion (US\$786 million) and Rp 7.7 trillion (US\$1.1 billion). Moreover, if it is assumed that IBRA fails to recover between 30 and 50 percent of the BLBI credits owed by the Salim and Hasan groups, the amount of forestry-related debt written off would rise by an additional Rp 11.4 trillion (US\$1.6 billion) to Rp 19.0 trillion (US\$2.7 billion). If IBRA achieves a similar recovery level for the US\$1.3 billion in related-party loans held by the Sinar Mas Group, projected debt write-off for forestry obligors would increase further by US\$390 million to US\$650 million.

Cumulatively, these figures suggest that IBRA may ultimately write off between US\$4.4 billion and US\$6.5 billion in debts associated with Indonesian forestry conglomerates. By releasing them from their obligations to repay such a sizable portion of their outstanding loans, IBRA will essentially be providing these groups with a substantial new form of capital subsidy. To put these figures in perspective, debt write-off on this scale is roughly twice the US\$2.7 billion that was calculated to have been lost from the Reforestation Fund during the five-year period from 1993 through 1998 (Ernst & Young 1999). Similarly, these figures amount to four to five times the US\$1.2 billion in rents that the Apkindo plywood cartel is estimated to have extracted from Indonesian panel producers during the period 1985 to 1998 (Brown 1999, cited in Barr, et al., forthcoming).

In all likelihood, a capital subsidy on this scale will provide the forestry sector's major investors with a strong

incentive to continue—and in some cases, to expand—their involvement in ventures characterized by high degrees of financial risk and/or socially and environmentally unsustainable practices. This not only threatens to perpetuate degradation of Indonesia's forests at its current high rate, but also to create the conditions for future financial collapse of many of the sector's largest investors. Debt write-off as a form of capital subsidy takes on added significance when it is considered that very little new finance is currently being allocated by either domestic or offshore banks to support forestry investments in Indonesia (*Bisnis Indonesia* 2001a).

PERPETUATION OF HIGH RISK AND ILLEGAL PRACTICES

Many indebted forestry companies with loans or pledged equity shares under IBRA are engaged in activities characterized by a high degree of financial risk. These include, for instance:

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- capital-intensive pulp mills that have not secured a sustainable supply of raw materials;

 - wood processing firms that have installed rebuilt or second-hand equipment as a means of 'marking up' their investment costs;

 - large-scale plantation projects being developed on lands which are subject to tenure disputes with local communities;

 - pulp and paper processing facilities involved in environmentally hazardous practices with significant negative impacts on the livelihoods of surrounding communities.

 - timber concession-holders that are unable to keep illegal loggers from harvesting trees within their HPH sites.

There is also a strong probability that many of the forestry companies linked to IBRA are engaged in illegal activities. Under Indonesia's HPH timber concession system, for instance, logging companies have routinely harvested much larger volumes of wood than their concession contracts allow (Kartodihardjo 1999). Likewise, on an aggregate basis, Indonesia's wood processing industries have been estimated to consume as much as 56 million m³ of illegally harvested wood each year (Scotland, et al. 1999). As discussed in chapter 4, some forestry investors have also employed illegal 'mark-up' practices and transfer pricing schemes in financing their operations.

The fact that IBRA controls such a large concentration of Indonesia's forestry assets suggests that a unique opportunity exists both to reduce the financial risks associated with the nation's timber and wood processing industries and to strengthen corporate governance in the forestry sector. The regulations defining IBRA's mandate give the agency broad authority to take whatever steps are necessary to protect the interests of the Indonesian government in recapitalizing the nation's banking sector. Under Government Regulation No. 17/1999, for instance, IBRA has been vested with far-reaching legal powers to exercise ownership responsibilities over banks undergoing restructuring; to call in outstanding loans held by these banks; and to dissolve commercial contracts (Setiono and Manurung 2001). Broadly interpreted, these powers give IBRA the authority to assume financial control, if not outright ownership, over virtually all of the companies with loans or pledged assets in the agency's portfolio.

IBRA, however, has defined its fiduciary responsibilities over these corporate assets in very narrow terms. In interviews, IBRA officials have vehemently denied that the agency is effectively the owner of these assets.¹³ In their view, the agency's role is essentially that of a creditor—albeit one with extraordinary legal powers. Like a bank,

they maintain, IBRA's responsibility is to collect the outstanding loans and credits in its portfolio. The agency has little concern over how an indebted company is managed as long as it pays its debts.

'Hands-Off' Management

In practical terms, this approach has meant that IBRA has taken very few steps to ensure that debtor firms are run in a fully legal and commercially responsible manner. On the contrary, IBRA has left these companies under the management of their original owners, who are allowed to operate these enterprises with little direct oversight or monitoring. In the case of businesses that were pledged to IBRA by conglomerates whose banks received BLBI support, IBRA has placed these firms in holding companies to keep each group's assets together. These holding companies, too, are managed by the major shareholders of the BLBI recipient banks, although IBRA is represented on their boards of directors. While representation at this level may give IBRA some broad measure of oversight, the day-to-day management of the pledged companies and almost all cash flow decisions are handled by their owners.¹⁴

This 'hands-off' approach to asset management suggests that IBRA has little concern for whether the forestry assets in its portfolio are associated with the

types of high risk or illegal practices outlined above.

Indeed, senior IBRA officers have indicated that they view practices such as overharvesting by timber concession-holders and the use of illegally harvested logs by wood processors as being regulatory problems that should be handled by the Ministry of Forestry and relevant law enforcement agencies.¹⁵ They maintain that IBRA has neither the institutional capacity nor the fiduciary responsibility to enforce government laws outside the finance sector.

IBRA's loose oversight of how indebted companies are managed also has implications for the future value of those firms' commercial assets. It is conceivable, for instance, that companies with debts or equity shares pledged to IBRA would operate in a manner that involves running down their productive assets. In the case of a plywood or pulp mill, this could mean that the company fails to maintain its processing facility, diverting funds normally allocated for replacement parts to other uses. For an HPH-holder, it could mean that the company reduces the diameter of the trees that it cuts and extracts an increasingly unsustainable volume of logs from its concession site. In either case, the asset loses at least a portion of its value over time, suggesting that IBRA's chances of recovering debts held by such companies may diminish correspondingly. In the forestry sector, such practices often are also likely to imply further degradation of the resource base.

13 Interview with IBRA Chair I Putu Gede Ary Suta and Vice Chair Sumantri Slamet, Jakarta, July 31, 2001. Whether or not IBRA should behave as the owner - or potential owner - of the assets in its portfolio is not an entirely theoretical exercise. As part of the debt restructuring process being managed by IBRA's Asset Management Credit unit, the agency typically agrees to enter into a 'debt-to-equity' or 'debt-to-convertible bond' swap with the companies whose debts are being restructured. Under such arrangements, if the firm fails to repay some or all of its obligations, IBRA ends up as a shareholder.

14 This arrangement has raised questions within the financial community. As one analyst put it: "What are the ethics of allowing a group of companies that have essentially embezzled several hundred million from the central bank to retain their assets and to pay this money back over time? Moreover, how is it that they have been left under the management of the same team that was running them before the crisis?" (Confidential interview, Jakarta, March 10, 2000).

15 Interview with IBRA Chair I Putu Gede Ary Suta and Vice Chair Sumantri Slamet, Jakarta, July 31, 2001.

Debt Restructuring Without Corporate Restructuring

IBRA's failure to fully assess the operations of indebted forestry companies extends to the debt restructuring process, as well. While the agency's restructuring guidelines require a due diligence review of these actors' forestry activities, such reports are generally prepared by consulting firms hired by the debtor companies themselves (Setiono and Manurung 2001). Moreover, these assessments focus almost exclusively on issues related to raw material supply and cash flow, and do not evaluate the extent to which forestry assets are being managed in a legal and sustainable manner. Nor do they assess the social or environmental impacts of these companies' operations, and the financial risks that may be associated with these impacts.

To the extent that IBRA addresses legality issues related to forestry operations, it does so through a 'technical covenant' which is attached to the Memorandum of Understanding and Credit Agreement with the firm whose debts are being restructured (Setiono and Manurung 2001). Under the technical covenant, the debtor company agrees, among other things, that it will not use illegally harvested wood to repay its debts. Once the restructuring agreement is signed, failure to abide by the terms of the technical covenant constitutes default on the outstanding loan. However, monitoring and enforcement of these agreements is essentially left to the Ministry of Forestry.¹⁶

IBRA officials have expressed reluctance to incorporate either a detailed technical forestry audit or social and environmental impact assessments into the debt

¹⁶ IBRA has been criticized by Indonesian environmental groups and other government agencies for the narrow scope of its technical covenant (Setiono and Manurung 2001). A more encompassing version proposed by a working group of the Inter-Departmental Committee on Forests requires indebted forestry companies to submit one-year and five-year work plans and environmental impact assessments; to carry out responsible forestry planning and to meet all forestry regulations; to stay current on all outstanding fees to the government; to post a performance bond and to plant HTI sites within five years after the license is issued; and to abstain from using illegal wood.

restructuring process for companies active in the forestry sector. On the one hand, they view the issues that would be covered by these studies as falling under the jurisdiction of the Ministry of Forestry and other regulatory agencies, and well outside of IBRA's own realm of responsibility. Additionally, they believe that such measures would complicate the debt restructuring process and make it much harder to reach agreement with debtor companies. Whatever the real merits of these arguments may be, IBRA's reluctance to fully assess debtors' forestry operations suggests that the agency is carrying out debt restructuring without making a serious effort to improve the corporate structure and operating practices of the companies involved.

GROWING RISKS FOR FORESTRY INVESTMENTS

However substantial, the high levels of financial risk and illegal practices that were facilitated by capital subsidies and lack of due diligence prior to the 1997 financial crisis were clearly not unique to investments made in Indonesia's forestry sector. Similarly, there is no evidence to indicate that these factors played a central role in catalyzing the country's financial collapse when the 1997 crisis struck. There are, nonetheless, several factors that are specific to the forestry sector that suggest that these industries may face significantly higher levels of financial risk than other sectors in the years to come. These factors imply that IBRA's efforts to restructure forestry-related debts without restructuring the companies involved could very well create conditions for financial instability in the future.

In many parts of the country, there are growing indications that Indonesia's once-abundant timber resources have declined significantly both in terms of commercial volumes and quality. As discussed in chapter 3, this has meant that most concession-holders are now operating much closer to the margins of profitability than they were

in the past, and in many cases, timber companies are dependent on illegal harvesting practices to maintain existing revenue levels. With deforestation proceeding at a pace of 1.6 million ha per year, a sizeable portion of Indonesia's remaining commercial timber resources is likely to be depleted over the next decade (Toha 2000). Scotland, et al. (1999) estimate that the total area of unlogged production forest estate¹⁷ is currently only 17 million ha, and at least 5 million ha of this has already been designated for conversion. The World Bank has, likewise, projected that Sumatra's remaining lowland forests will be exhausted by 2005 (World Bank 2001).

A second factor that has raised the financial risks associated with forestry investments is the rising prevalence of conflicts between forestry industries and local communities. Under Suharto's New Order regime, the Indonesian government routinely used its coercive apparatus to maintain tight control over local communities' access to land and forest resources, and made it a policy to prohibit forest-dependent communities from challenging the activities of timber and plantation companies (Fried 1995). However, in the post-Suharto period, communities have become increasingly assertive in demanding recognition of local tenure claims and compensation for resources appropriated, foregone earnings, and environmental damages. In many cases, conflicts over land and forest resources have put local communities in direct confrontations with both companies and government agencies.

The suspension of operations since 1998 at the US\$600 million Indorayon pulp mill in North Sumatra, following violent conflicts with local communities, offers perhaps the most dramatic example of the financial risks involved in socially and environmentally damaging practices (see Box 4.1). Similar conflicts involving timber concession-

¹⁷ This includes areas designated as production forest, limited production forest, and conversion forest.

holders and plantation companies have become endemic in most forest-rich provinces. In March 2000, for instance, the Indonesian Forest Concessionaires Association (*Asosiasi Pengusahaan Hutan Indonesia*, APhi) reported that at least 50 of its member firms, with HPHs totaling 10 million ha, had been forced to suspend their operations following disputes with local residents in Kalimantan, Sulawesi, and Irian Jaya (*Jakarta Post*, March 18, 2000). APhi also claimed that 77 logging companies in East Kalimantan were then engaged in ongoing conflicts with communities, some of which had seized the firms' heavy equipment and were demanding compensation totaling billions of *rupiah*.¹⁸

A third factor contributing to higher levels of financial risk in Indonesia's forest-based industries is the process of increasing decentralization within the government itself. This process has weakened the central government's capacity to guarantee investors access to land and forest resources, as it did during the Suharto era. There is currently a great deal of uncertainty as to how the rights and responsibilities associated with forest administration will be divided among the central government, provincial governments and district agencies. Since the decentralization process began, however, provincial and district governments have taken steps to redistribute commercially valuable forestlands, and to raise their share of timber revenues by imposing a number of new fees and royalties on HPH-holders.

Weak law enforcement represents a fourth major risk factor affecting the financial viability of timber producers and wood processors. The widespread prevalence of

¹⁸ More recently, in August 2001, the Indonesian Forestry Society (*Masyarakat Perhutanan Indonesia*, MPI) reported that 213 HPH-holders with concessions covering 19 million ha had stopped operating during the last two years (*Bisnis Indonesia* 2001b). This represents just under one-third of the 61 million ha managed by the 569 concession-holders that were active in 1999. The head of the MPI pointed out that the closure of these concessions has created raw material supply shortages for many Indonesian wood processors.

illegal logging in most timber-rich provinces has made it extremely difficult for many HPH-holders and plantation companies to secure their forestry assets. Wood theft and acts of arson can cut deeply into the long-term profitability of such ventures.

Collectively, these factors suggest that the risks associated with forestry sector investments in Indonesia are now significantly higher than they were for much of Suharto's New Order period. Moreover, they imply that for the foreseeable future, forestry sector investments are likely to face substantially greater risks than most other sectors of the economy. Under these circumstances, it is reasonable to assume that many of the forestry companies now undergoing debt restructuring with IBRA will encounter serious financial difficulties in the years ahead. By restructuring their debts without restructuring the companies, themselves, IBRA would appear to be pushing the sector's financial problems into the future.

DEBT-DRIVEN EXPANSION AND MORAL HAZARD

In spite of the enormous loads of capital debt that they are carrying, most of Indonesia's forestry conglomerates have been able to keep large portions of their timber, plantations, and wood processing operations running since the onset of the 1997 financial crisis. Most notably, none of Indonesia's major pulp and paper producers has been forced to halt its operations due to bankruptcy, in spite of the fact that their parent conglomerates are carrying over US\$17 billion in outstanding obligations.

Paradoxically, the capacity of these companies to continue operating has been due, in no small part, to the fact that these groups owe so much money. Domestic policymakers and international financial institutions, alike, have signaled that the country's largest mills are 'too big to fail.' Not only did they account for US\$3 billion in much-needed exchange earnings in 2000; they also represent the core productive assets for some of Indonesia's most

heavily indebted conglomerates. IBRA officials and finance sector decision-makers are concerned that the collapse of indebted pulp and paper producers would effectively inhibit the repayment of debts much larger than the cost of the mills themselves.

IBRA, for instance, has allowed Bob Hasan's Kiani Kertas mill—the seventh largest debtor company in the agency's portfolio—to continue running its pulp facilities in spite of the fact that the group is technically insolvent. IBRA officials have claimed that keeping the mill in business is a necessary condition for IBRA to recoup close to US\$900 billion in Bank Indonesia liquidity credits from the Hasan Group. IBRA officials have complained, moreover, that due to the high investment costs associated with Kiani Kertas, any effort to sell the mill will yield only a fraction of its US\$1.3 billion book value (*Pulp & Paper Online* 1998).

At times, the corporate debt resolution process in Indonesia's forestry sector has been linked to the expansion of high-risk activities. In the case of the Raja Garuda Mas/APRIL group, for example, both IBRA and international creditors have tied debt rescheduling to the installation of new processing lines at the group's Riau Andalan pulp facility (*Jakarta Post* 1999b). Their stated rationale has been that Raja Garuda Mas/APRIL will be able to repay its debts sooner if it is able to expand the volume of pulp that it produces. In entering into this arrangement, IBRA and the group's other creditors have apparently given little consideration to the financial risks associated with the impending fiber supply deficits at APRIL's Riau mill, which will be exacerbated considerably by the recent expansion (see chapter 4).

For Indonesia's largest pulp and paper producer, the Sinar Mas/APP group, the financial risks associated with impending fiber shortages are compounded significantly by the group's unsustainable debt load. In fact, through the first three years of the crisis, Sinar Mas/APP pursued

a debt management strategy that involved borrowing substantial amounts of new capital to pay off existing debts. From mid-1997 through mid-2000, the group borrowed over US\$3 billion in new funds, bringing its outstanding obligations to US\$13.4 billion (Webb 2001e). During this period, Sinar Mas/APP was the only major Indonesian conglomerate able to maintain access to international capital markets, and its heavy borrowing placed it among the world's largest emerging market corporate debtors. In 1999 and 2000, the Indonesian government also injected close to US\$900 million into Sinar Mas-owned Bank Internasional Indonesia as part of the IMF-sponsored bank recapitalization program (Sender 1999).

Sinar Mas/APP's spectacular financial collapse since mid-2000 suggests that the group's debt-driven strategy carried enormous risks. There are strong indications that Sinar Mas/APP pursued such a strategy because the group's principal owners recognized that in the event of a major default, they would not necessarily have to repay all of the money borrowed. Within Indonesia, Sinar Mas/APP's debt had reached levels large enough to have serious negative consequences for the country's macroeconomy if it went unpaid (Adityaswara 2001). This meant that the Indonesian government would effectively be forced to cover some portion of the group's obligations if Sinar Mas/APP were unable to do so. Indeed, when the group's default seemed imminent in January 2001, the government quickly took steps to guarantee over US\$1.2 billion in outstanding related-party loans from Bank Internasional Indonesia to Sinar Mas affiliates. Ministry of Finance officials argued that to do otherwise threatened to trigger a second collapse of Indonesia's recently recapitalized banking sector and put heavy negative pressure on the already weak rupiah (Adityaswara 2001).

The fact that public funds are being used to keep Indonesia's highly indebted pulp and paper mills

running—and in some cases to assist them in expanding – suggests that the aggressive borrowing strategies used by the industry's largest producers have been characterized by a significant degree of moral hazard.¹⁹ In short, each of these conglomerates seems to have calculated that if its debt levels were sufficiently large, others would be forced to bear much of the costs in the event of a default – as, indeed, IBRA and creditor groups are now doing.

It is important to recognize that the costs associated with restructuring these companies' debts cannot be quantified in purely financial terms alone. Indeed, the substantial debt burdens associated with these mills will likely translate into added pressures on Indonesia's forests. This is particularly the case with the country's largest pulp mills, which are now seeking new sources of cheap fiber due to plantation shortfalls that are projected to last for at least the next several years. Carrying heavy debt loads, these producers must run their mills near full capacity to keep up with their high finance costs. At the same time, cash flow constraints are likely to discourage these groups from making significant new investments in long-term plantation development, thereby exacerbating the fiber shortages their mills will face in the future.

¹⁹ The term 'moral hazard' is used to describe a situation in which economic actors have a perverse incentive to behave in an excessively risky or cost-incurring manner because the costs associated with such behavior will be borne by others.

DEBT STRATEGIES OF FORESTRY

CONGLOMERATES: THREE CASE STUDIES

The following sections trace, in some detail, the specific manner in which three of Indonesia's largest forestry conglomerates have sought to manage their debts since the 1997 financial crisis began. These include each of the three groups mentioned in the preceding section: the Bob Hasan Group; the Raja Garuda Mas/APRIL Group; and the Sinar Mas/APP Group.

BOB HASAN GROUP

In the early months of the 1997 financial crisis, the Bob Hasan Group was one of the main beneficiaries of the government's BLBI liquidity credit scheme. As part of the government's broader effort to shore up the nation's commercial banking sector, Bank Indonesia transferred some Rp 12 trillion (US\$1.7 billion at an exchange rate of Rp 7,000 per US\$) to the Hasan Group's Bank Umum Nasional between late 1997 and mid-1998 (*Kompas* 2000b).

Bank Umum's management reportedly passed on most of these funds to Hasan-owned companies, including the group's Kiani Kertas pulp mill in East Kalimantan, which received an unspecified amount to cover "cost over-runs" as the plant was being constructed (*Jakarta Post* 1998).

The BLBI funds were part of a long series of government subsidies that were channeled to Kiani Kertas. Other subsidies included at least US\$300 million in loans from four state banks, an allocation of US\$100 million from the government's Reforestation Fund, and a 10-year tax holiday (see chapter 4).

In September 1998, when IBRA moved to close Bank Umum Nasional for failure to repay the BI liquidity credits, Hasan offered to surrender Kiani Kertas to the bank restructuring agency in exchange for a US\$1.3 billion mark-down in its outstanding obligations (*Jakarta Post* 1999d). IBRA refused the offer, apparently believing the book value of the mill to be far higher than the real

value of the asset. Instead, the agency worked out a repayment arrangement under which Hasan's group pledged 30 companies to IBRA as collateral for returning the BLBI liquidity credits over a set period of time (*Kompas* 1999). Although the specific terms of the agreement have not been made public, the length of time for repayment has been reported variously as being either three or five years (*Ausnewz* 1999). In the meantime, the companies are allowed to continue operating under the control of the Bob Hasan Group, as long as they stay on schedule in repaying the liquidity credits.

In addition to its obligations related to the BLBI liquidity credits, the Bob Hasan Group is responsible for Rp 7.0 trillion (US\$1.0 billion) in forestry sector loans held by IBRA, making it the obligor with the largest forestry loans in the agency's portfolio (Brown 2001). These include Rp 2.8 trillion in loans held by Kiani Kertas and Rp 2.6 trillion in loans held by Kiani Lestari. These loans have been transferred to IBRA by state and private banks that have been closed, taken over, or are being recapitalized by IBRA. As noted earlier, many of the companies associated with these loans have also been pledged to IBRA as part of the group's BLBI repayment agreement. Some financial analysts have argued that at least a portion of these companies are likely to have negative value due to their heavy debt loads and technical insolvency. If it is assumed that 50 to 70 percent of the Hasan Group's overall debt is eventually written off, this would result in a subsidy of US\$500-700 million.

In October 2000, IBRA entered into a debt restructuring agreement with the Bob Hasan Group that covered some US\$478 million in both 'sustainable' and 'unsustainable' debt held by Kiani Kertas (IBRA 2000d). According to the terms of the agreement, IBRA has agreed to reschedule US\$226 million in so-called 'sustainable debt' with an extended repayment period of 10 years (due in 2010, with a two-year grace period) and a fixed annual interest rate of

12 percent. IBRA has also agreed to purchase US\$246 million in mandatory convertible bonds, which can be converted to equity at any time.

In interviews, IBRA officials speculated that the agency would be able to recoup at most 50 percent of Kiani's 'sustainable debt' when it is offered for sale. They indicated, moreover, that they do not anticipate IBRA to obtain much, if any, cash value from Kiani's 'unsustainable debt.' To the extent that such projections turn out to be accurate, they imply that IBRA will recover only US\$113 million of the US\$478 million in debts held by Kiani Kertas—or below 25 percent of the total amount due. It should also be noted that the extended tenor and relatively low interest rate of the restructured loan can be expected to ease the terms of repayment for Kiani quite significantly. The implications of such a subsidy become somewhat more profound to the extent that the mill's original price was marked up, as has been widely alleged (see chapter 4).²⁰

In addition to the subsidy that a substantial debt write-off would entail, there is also a moral hazard issue involved in keeping afloat a company that appears to carry a high degree of financial risk. Since it began operating, the mill has been run at approximately 50 percent of its total capacity due to liquidity shortages and a series of technical problems (Ausnewz 1999). Pulp engineers familiar with the Kiani's operations attribute many of these technical problems to the fact that the mill was constructed with rebuilt and, in many cases, subpar equipment. Moreover, they report that the company has often failed to implement a regular maintenance program at the mill, generally replacing parts only once they have worn out.²¹ To the extent that such reports are accurate, they suggest that the mill's productivity is constrained by structural factors that will likely undermine the profitability of its operations for the foreseeable future and lead to physical depreciation of the mill well ahead of

schedule.

Over the longer term, limitations on the mill's raw material supply also threaten to place severe constraints on the company's earnings. According to Kiani's original plan, the mill was to be fed by sustainably grown *Acacia* wood from a 180,000 ha plantation run by an affiliated company, Tanjung Redeb Hutani. To date, however, the company's planting has been well behind schedule, and since the crisis began, the area planted has reportedly not exceeded 5,000 ha per year—or less than one-quarter of its target (Ausnewz 1999; PT Tanjung Redeb Hutani 1996). Industry analysts also report that the company faces considerable problems establishing the infrastructure it will need to get the wood from the plantation site to the mill when it is ready to harvest (Ausnewz 1999; Jaakko Poyry 1998).²²

20 The structure of the mill's financing is reported to have involved US\$530 million in vendor finance; US\$120 in offshore bank loans; US\$510 million in domestic loans; and US\$140 million in equity from Bob Hasan, the group's major shareholder (Ausnewz 1999). If it is assumed that the real cost of the mill was on the order of US\$600-800 million, as many analysts speculate, then Hasan would have actually contributed none of his own money and, in fact, would have raised at least US\$360 million in excess finance in the form of loans. If 70 percent of the project's domestic loans (US\$510 million) are now to be written off, the Hasan Group will be able to avoid repaying some US\$360 million - or roughly the same amount as the excess finance raised. In short, these calculations suggest that the mill will ultimately cost the Hasan Group between US\$240 million and US\$440 million.

21 Confidential communication with a pulp engineer at Tanjung Redeb, November 11, 2000. As this informant explained, "For a mill to run efficiently, it needs high levels of coordination between raw material supply and processing; proper use of machinery and the right equipment in place; and spare parts on hand when equipment breaks. Kiani has none of these. Equipment is being pushed to the max. If the normal life of a part is three to four months, Kiani pushes it to six to eight months. The problem is, you never know when you are going to have a catastrophic break-down. Normally, when a part needs to be replaced, a mill will run down its stocks to 30 percent or less. In Kiani's case, the mill is run until a part breaks, then everything stops."

22 As significantly, the new political climate has raised questions as to whether the mill will be able to get all the wood it needs (see Obidzinski and Barr 2001). Since the fall of Suharto, Hasan's Kalimanis group has had several timber concessions revoked, including one in Berau, where Kiani Kertas is located. Partially for this reason, the mill has reportedly imported a substantial portion of its wood from Malaysia and Australia. This has added substantially to the cost of the company's operations, and some analysts question whether the company will be able to maintain such a strategy through downswings in the world pulp market.

RAJA GARUDA MAS (APRIL)

When the financial crisis hit, the Raja Garuda Mas Group's Singapore-based holding company, APRIL, was holding over US\$2 billion in debt to offshore creditors (Ausnewz 1999). This considerable debt load was problematic in that much of the company's dollar-denominated debt was in the form of short-term liabilities or long-term liabilities that were then coming due. At the end of 1998, 54 percent of APRIL's US\$624 million in long-term debt was then maturing. Total current liabilities at that point amounted to US\$1.1 billion, and an additional US\$576 million was scheduled to mature by the end of 2000. APRIL's 1998 financial report shows the ratio of current liabilities to current assets was then four to one (Ausnewz 1999).

Two additional factors significantly complicated the company's liquidity crisis. First, the disruption of pulp production at APRIL subsidiary, PT Inti Indorayon Utama, due to conflicts with communities surrounding the mill put an added strain on the group's cash flow and threatened to undermine the whole group's financial ratings (see Box 4.1). As noted above, banks and investor groups expressed growing concerns over Indorayon from mid-1998 onward, as the company's losses mounted and it failed to stay current on its interest and debt payments. Second, APRIL was in the process of expanding production capacity at its Riau Andalan Pulp and Paper (RAPP) facility in Kerinci, Sumatra when the crisis began. This expansion program included the installation of a second 350,000 tonnes per annum paper machine to double the plant's paper capacity; the installation of a new 450,000 tonnes per annum pulp line; and debottlenecking of RAPP's first pulp line to raise production capacity by 100,000 tonnes to 850,000 tonnes per annum (Potter 1999; *Pulp & Paper* 1999).

The new paper line was being developed under a joint venture arrangement with Finnish multinational UPM-Kymmene, and was being financed in part by Finland's export credit agency (Potter 1999). In early 1998, however,

the Finnish export credit agency withdrew its support for the deal citing political and economic volatility in Indonesia. Lacking the US\$140 million needed to complete the project, APRIL was forced to suspend construction on the new production line, while the paper machine reportedly sat in a warehouse in Finland waiting to be shipped. APRIL was, likewise, forced to halt its US\$520 million investment in RAPP's second pulp line.

In September 1999, APRIL secured a US\$800 million debt restructuring agreement with its foreign creditors to ease the company's liquidity constraints (*Jakarta Post* 1999b). Significantly, the restructuring agreement was linked explicitly to expansion of the company's pulp production facilities. According to the terms of the plan, APRIL's creditors agreed to waive the company's interest payments for an initial period of 18 months, while the firm completed its debottlenecking efforts and phase A of the installation of a second pulp line. Together, these two steps expanded the company's total pulp production capacity from 750,000 tonnes to 1.3 million tonnes per annum.

Creditors reportedly agreed to help fund the US\$520 million capacity expansion because the additional production capacity promises to generate cash that APRIL can use to pay back existing debts. APRIL's chief financial officer also noted that the debt restructuring agreement would help position the company to obtain new financing for additional capacity expansion projects (*Jakarta Post* 1999b). He indicated that APRIL had already begun to seek investment funds to raise RAPP's total pulp output to its ultimate target of 2 million tonnes per annum and to complete installation of the second paper line.

APRIL's parent conglomerate, the Raja Garuda Mas Group, has negotiated a similar debt rescheduling arrangement with its largest domestic creditors, including IBRA. In April 2000, it was reported that IBRA and two of the state banks that IBRA is recapitalizing had agreed to restructure the debts of three APRIL subsidiaries, with an

aggregate value of Rp 9.6 trillion which then amounted to US\$1.3 billion (*Bisnis Indonesia* 2000b). These included: PT Riaupulp (US\$550 million), PT Riaupaper (US\$280 million), and PT Riau Prima Energy (US\$428 million).²³ Like the agreement made with foreign creditors, APRIL's domestic rescheduling plan involves an 18-month deferral of interest payments on outstanding debts in order to allow Raja Garuda Mas to resume its pulp and paper capacity expansion program (*Bisnis Indonesia* 2000b). This interest deferral would amount to a US\$165 million subsidy for Raja Garuda Mas. Moreover, the group would not be required to repay the principal on these debts until 2006 (*Kompas* 2000a).

When the arrangement was announced, reports in the Indonesian business press criticized IBRA Chair Cacuk Sudarijanto for authorizing the debt rescheduling agreement without the plan first being approved by the agency's loan workout committee (*Kompas* 2000a). Apparently, IBRA and a consortium of domestic banks had initially negotiated the debt rescheduling arrangement with Raja Garuda Mas in August 1999. At that time, however, former IBRA Chair Glenn Yusuf refused to sign the agreement, claiming that it had been structured strictly to benefit Raja Garuda Mas. He pointed out that it would be an improper use of public funds to allow the APRIL subsidiaries to defer their interest payments when the group has substantial offshore capital holdings. He noted, in particular, that APRIL holds a 51 percent stake in a 350,000 tonnes per annum uncoated woodfree paper mill in Changshu, China. IBRA has not formally explained how Mr. Yusuf's successor arrived at his decision to support the rescheduling agreement.

In August 2000, APRIL cashed in on its China holdings, selling its share in the Changshu paper mill to UPM-Kymmene for US\$150 million. The group apparently used

these funds to help finance a further expansion at its Riau Andalan pulp facility. In June 2001, APRIL announced that it had completed a second phase of expansion on its newly installed second pulp line, bringing the mill's total pulp production capacity to 2.0 million tonnes per annum (*Paperloop.com* 2001). Almost immediately thereafter, the group also reported that it would be unable to make interest payments on some US\$1.2 billion in debts due to a sharp decline in world pulp prices (Webb 2001c). By early September, the New York Stock Exchange announced that it had suspended APRIL's shares and would seek to have the company delisted, as its share price had remained below US\$1.00 for over 30 days (Borsuk 2001).

SINAR MAS (ASIA PULP AND PAPER)

Through the 1990s, the Sinar Mas Group borrowed heavily in offshore debt markets to finance its massive capacity expansions in the pulp and paper sector both in Indonesia and China. Much of these funds were obtained through APP, the group's Singapore-incorporated holding company, which issued several billion dollars worth of bonds and commercial paper in global debt markets. By the onset of the Asian financial crisis, Sinar Mas/APP ranked among the world's largest 'emerging market' corporate debtors, carrying US\$7.1 billion in outstanding obligations on APP's balance sheet at the end of 1997 (APP, cited in Ausnewz 1999).

This heavy debt load required Sinar Mas/APP to direct a very substantial portion of its earnings to cover financing costs. Short-term obligations and long-term maturities that came due in 1997 amounted to just under US\$1.0 billion. Maturities of APP's long-term debt (i.e., excluding short-term borrowing) were scheduled to climb to US\$875 million in 1998 and to US\$1.4 billion in both 1999 and 2000, respectively (APP, cited in Ausnewz 1999). Adding to the group's precarious financial position, Bank Internasional Indonesia, owned by Sinar Mas/APP, faced

²³ These dollar figures reflect the companies' *rupiah*-denominated debts converted at the April 2000 exchange rate of Rp 7,600 per US\$.

effective insolvency through 1998. By the end of that year, the bank had a negative shareholder value of Rp 7 trillion, or US\$1.0 billion at an exchange rate of Rp 7,000 per US\$ (Sender 1999). Financial analysts then estimated that the bank would need a capital injection of Rp 11 trillion—or US\$1.6 billion—to stay afloat (*Asia Pulse* 1999).

Until the group's spectacular financial collapse in late 2000, Sinar Mas/APP pursued a two-pronged strategy to protect its core assets after the financial crisis struck. On the one hand, the group took steps to retain control over Bank Internasional Indonesia by ensuring that the bank qualified for IBRA's recapitalization program. Specifically, Sinar Mas channeled US\$628 million into the bank, or 40 percent of the funds needed to raise the bank's capital adequacy ratio to the required level of 4 percent. The government, in turn, injected Rp 6.6 trillion (US\$942 million) in government recapitalization funds (Sender 1999).²⁴ It did so in spite of the fact that Bank Internasional Indonesia then carried on its books US\$1.3 billion in outstanding loans to companies affiliated with Sinar Mas (*Reuters* 2001a).

On the other hand, Sinar Mas/APP went to great lengths to stay current on the group's interest and debt payments. To generate the large amounts of capital needed, Sinar Mas/APP initially took steps to postpone new investments and to sell its noncore assets.²⁵ Within a short time, however, the group reverted to a more familiar strategy of securing funds by taking on more debt. *Asia Pulp and Paper's* balance sheet shows that over 1998 and 1999, the company assumed over US\$2.9 billion in new interest-bearing debt (APP 2000). This figure is particularly striking in light of the fact that international financial flows to Indonesian conglomerates, and to companies with heavy exposure in Indonesia, had slowed to little more than a trickle since the onset of the 1997 crisis. In fact, Sinar Mas/APP stands alone as the only major Indonesia-based conglomerate that was able to

access international financial markets in the years since the crisis began.

Much of the new debt taken on by the Sinar Mas/APP group from 1998 through 2000 came in the form of direct capital loans from international investment banks. Bank loans are typically short-term in nature, and those extended to Sinar Mas/APP after the crisis began often carried high interest rates due to Indonesia's increased risk premiums. In July 2000, for instance, APP borrowed US\$100 million at a rate of 25 percent (Rubin 2000). In hindsight, financial analysts have noted that the lending banks did not seem to be concerned by the fact that Sinar Mas/APP was already carrying US\$10 billion in outstanding obligations on its balance sheet and was using much of its new debt to pay off old debt (Shari 2001). One Singapore-based banker interviewed in February 2000 described the company's situation as follows:

24 Sinar Mas raised these funds through two separate rights issues, carried out in April and June of 1999. Bank Internasional Indonesia's major shareholders were able to use these rights issues not only to obtain the funds needed for the bank's recapitalization, but also to secure an extra US\$100 million through a little-seen loop-hole. Sender (1999) describes this process: "Those fortunate to have subscribed to the April issue were granted options giving them the rights to subscribe to the second offer at a price of Rp 125 - a bargain considering that the average price of BII's shares rose to Rp 200 after the earlier issue. That meant that anyone with the option could buy the shares at below-market prices and make a quick profit by selling them on the secondary market. That would have been fine except that fund managers and analysts claim they weren't informed in April of the right to subscribe to the second rights offer at the old exercise price. Therefore, most of the second rights offer was taken up at the preferential price by the Widjaja family, which controls both Sinar Mas and the bank. [One analyst complained], 'It's like announcing the winning number in a lottery after you know what number you've drawn.'"

25 APP's most significant asset disposals have included the sale of power plants attached to the group's mills in both Indonesia and China to Singapore Power, Ltd, that country's main electricity utility. More recently, Sinar Mas/APP has been seeking to sell a large packaging facility attached to its Indah Kiat plant at Serang.

In this business, you're not broke as long as someone will lend you money. And the banks are tripping over themselves to loan money to APP. A big part of this is that APP is staying current on its payments, and as long as they continue to do so, there's always going to be someone who will give them new credit.²⁶

In addition to securing operating loans from international banks, Sinar Mas/APP also made an effort to tap new lines of investment finance. In doing so, however, the group recognized that its pulp and paper operations in Indonesia had reached a point where they were no longer able to expand in any significant way (Spek 2000; Ausnewz 1999).²⁷ Sinar Mas/APP, therefore, shifted its financial strategy towards China, where the group has five paper facilities. In April 1999, APP placed 48 million American depository shares on the New York Stock Exchange to obtain US\$404 million for unspecified expansions at its China projects (Hilsenrath 1999). In February 2000, APP followed with a US\$380 million bond issue—the company's first since the 1997 crisis—to obtain additional funds for its operations in China. Some analysts have speculated that Sinar Mas/APP channelled at least a portion of these funds to pay off the group's existing debt maturities as they came due.²⁸ A report from Dow Jones Newswires described China, with its investment-grade credit, as being a “proxy” for Indonesia's Sinar Mas Group to reenter international bond markets (Pruitt 2000).

Sinar Mas/APP's strategy of securing ever-increasing sums of new debt to stay current on existing obligations

26 Confidential interview, Singapore, February 1, 2000.

27 Sinar Mas/APP's pulp processing capacity in Indonesia is limited primarily by the fact that the group's plantations are not fully online and supplies of MTH within a commercial distance of the Sumatra mills are rapidly diminishing. On the paper and packaging side, the group's processing capacity already well exceeds Sinar Mas/APP's pulp production capabilities, and the group is now facing the prospect of needing to purchase over half of its pulp requirement from outside sources (Ausnewz 1999).

28 Confidential interview, Bogor, August 24, 2000.

began to unravel in mid-2000. At that time, mounting short-term debts put severe constraints on the group's ability to meet long-term obligations as they came due. Global paper prices also dropped sharply relative to pulp prices, putting heavy pressures on Sinar Mas/APP's cash flow.²⁹ Anticipating that it would be unable to make payments on nearly US\$2 billion in long-term bond issues maturing in October 2000, APP applied to the United States Securities and Exchange Commission (SEC) for approval to approach creditors with an offer to raise the interest rates on some bonds in exchange for a longer payment period (Linebaugh 2000). News of the exchange offer undermined investor confidence, and sent APP's share price plummeting. APP shares listed in New York closed the year at US\$0.54, having lost 96 percent of their value over the previous 12 months.

In January 2001, the New York Stock Exchange suspended trading of APP shares and threatened the company with delisting (*Reuters* 2001c). The following month, two of Sinar Mas/APP's Indonesian paper units—Tjiwi Kimia and Pindo Deli—failed to make coupon payments on outstanding bonds. In March, the group announced that it had retained Credit Suisse First Boston to formulate a debt restructuring plan and JP Morgan to coordinate strategic asset sales (Webb 2001e). This was followed almost immediately by an announcement that Sinar Mas/APP had suspended payments to all creditors. The group's total debts at that point stood at US\$13.4 billion.

In spite of the fact that most of its debt is owed to offshore creditors, the financial collapse of the Sinar Mas Group has had profound implications for Indonesia's macroeconomy (Simanungkalit and Sasongko 2001).

29 In carrying out its large-scale capacity expansions in Indonesia and China during the 1990s, Sinar Mas/APP had installed considerably more paper and board capacity than its own pulp operations could support. As such, the group has been forced to purchase 400,000 to 500,000 tonnes of hardwood pulp on the open market each year.

Most immediately, it threatened to trigger the collapse of Bank Internasional Indonesia, the country's second largest private-sector lending institution (Kagda 2001). Through early 2001, Bank Internasional Indonesia still carried US\$1.3 billion in loans to Sinar Mas affiliates, and these loans represented approximately 50 percent of the bank's performing assets. Indonesian finance officials recognized that Sinar Mas/APP's failure to repay these loans would result in enormous costs for the government. If BII collapsed, the government would not only lose its recapitalization 'investment' (US\$942 million), but it would also be required to pay out close to US\$2.0 billion to the bank's depositors (Adityaswara 2001). More significantly, the failure of Bank Internasional Indonesia could easily catalyze a second financial crisis by undermining the nation's newly recapitalized banking sector. Even the prospect of the bank's collapse put downward pressure on the *rupiah*.

To preempt such negative impacts on the macro-economy, the Indonesian government was effectively forced to guarantee repayment of Bank Internasional Indonesia's related party loans. It did so in January 2001, in spite of the fact that APP was then showing clear signals that it was close to defaulting on payments to some creditors (*Jakarta Post* 2001d). In turn, the government instructed IBRA to secure asset pledges from Sinar Mas/APP worth 145 percent of the group's debts to Bank Internasional Indonesia, as well as personal guarantees from the Widjaja family. IBRA has reportedly obtained pledged assets from the group that are nominally valued at Rp 23 trillion (Adityaswara 2001). These include land, machines, and most other physical assets associated with the group's pulp and paper operations in Indonesia. IBRA has also secured an option to assume equity control of Sinar Mas/APP's pulpwood plantations and forestry concessions, if the group fails to repay its loans to Bank Internasional Indonesia. In addition, the government has

taken over Bank Internasional Indonesia, and has merged the bank with the largest state-owned lending institution, Bank Mandiri.

Creditor groups reportedly anticipate that the debt resolution process with Sinar Mas/APP will take several years to work out, and there is a strong likelihood that many of those with outstanding credits to the pulp and paper conglomerate will never be repaid (Webb 2001b). The position of international creditors, in particular, is weakened by the fact that the vast majority of Sinar Mas/APP's productive assets are located in Indonesia and China. Unlike Singapore, where APP is incorporated, neither country has an effective bankruptcy court. One fund manager who has traded in Asia Pulp and Paper distressed debts described the situation as follows:

In Singapore, the commercial courts strongly favor the creditor. If a company fails to repay its debts, the creditors can sue, and the indebted company's owner holds unlimited personal liability to cover the debts. If debts go unpaid, the courts will also not hesitate to declare a company bankrupt and liquidate its assets. In Indonesia and China, however, the courts strongly favor the debtor—particularly if the creditors are from overseas. The owners of indebted companies are almost never held personally liable for their companies' debts.³⁰

Many offshore bond-holders are concerned that Sinar Mas/APP will work out debt repayment arrangements with its Chinese and Indonesian creditors—including IBRA—that further undermine their chances of recovering the funds they have lent. Such fears are apparently not unfounded. In March 2001, four Chinese banks, led by the Bank of China, entered into a collective debt restructuring agreement with APP aimed at ensuring repayment of US\$1.8 billion in loans associated with the group's China

³⁰ Interview with Jason Brown, Jakarta, February 22, 2001.

operations (Webb 2001f). In exchange for an extended repayment period, the agreement prohibits APP's China operations from using their earnings to repay the group's offshore creditors.³¹ In Indonesia, Sinar Mas/APP has, likewise, repeatedly made coupon payments to holders of its *rupiah*-denominated bonds, while payments on its dollar-denominated debt remain suspended (Dow Jones Newswire 2001). Some financial analysts have also questioned whether the assets that Sinar Mas/APP has pledged to IBRA may, in some cases, have been pledged to other creditors as well.

The fact that Sinar Mas/APP's financial collapse has led the Indonesian government to assume such a direct stake in the group's debt holdings carries with it a very significant degree of moral hazard. In addition to the financial costs involved in guaranteeing the related-party loans from Bank Internasional Indonesia to Sinar Mas affiliates, the government is now under considerable pressure to ensure that Sinar Mas/APP's operations remain highly profitable. This is likely to create a strong incentive on the government's part to keep the mill running at or near capacity, in spite of fluctuations in prices for raw materials or products generated. At the same time, restrictions on Sinar Mas/APP's cash flow will increase pressure to minimize operating costs at the group's pulp and paper facilities. A substantial portion of profits earned by APP's operating units will be used to meet financial obligations incurred by the group's holding companies.

For Sinar Mas/APP's forestry operations, this is likely to mean a sharp reduction in further investments related to long-term sustainability. It is possible that the group's

³¹ Specifically, the banks agreed to suspend APP's debt payments for a period of six months, and to provide the group's operating units in China with letters of credit to enable them to purchase raw materials and to engage in foreign trade. Under the agreement, APP is required to allocate 80 percent of its China subsidiaries' earnings to repay the Chinese banks, and to utilize the remaining 20 percent for working capital. None of APP-China's earnings may be used to repay debts outside of China. Draft (September 2, 2001)

plantation companies will slow their planting schedules, scale back on plantation maintenance, and cut expenses on research and development. However, reduction in area planted will mean that at least a portion of projected *Acacia* yields will not be available for at least seven years forward, and possibly well beyond. This, in turn, will create added incentives for APP's pulp mills to ship in pulpwood harvested from natural forest outside Sumatra and/or to rely increasingly on illegally harvested wood.

Conclusion and Policy Options

The pace and extent of Indonesia's macroeconomic recovery will largely depend on IBRA's effectiveness in restructuring the nation's banking sector and resolving the country's corporate debt crisis. The specific manner in which IBRA carries out these twin tasks will have considerable repercussions for the forestry sector, in particular, as IBRA currently holds a substantial portion of total corporate assets in Indonesia's timber, plantation, and wood processing industries. These include US\$3 billion in outstanding forestry-related loans, and approximately US\$8.5 billion (nominally valued) in pledged equity shares or physical assets from three of Indonesia's largest forestry conglomerates: the Bob Hasan, Salim, and Sinar Mas Groups.

There are strong indications that IBRA will ultimately write off between US\$4.4 billion and US\$6.5 billion of the forestry and non-forestry obligations held by these groups. In doing so, the agency will effectively provide Indonesia's forestry conglomerates with a lucrative capital subsidy at a time when little new finance is coming into the sector. In all likelihood, the allocation of a subsidy on this scale would provide these groups with a direct incentive to continue, or in some cases to expand, their engagement in practices characterized by a high degree of financial risk. In the forestry sector, such practices have often been associated with illegal logging, social conflict,

and environmental degradation.

The capital subsidy that Indonesian forestry conglomerates receive through debt write-off could rise significantly to the extent that international creditors are unable to recoup portions of the US\$17 billion in dollar-denominated debts that these groups now hold. The recent financial collapse of Sinar Mas/APP, which alone carries US\$13.4 billion in corporate debt, suggests that the large-scale write-off of offshore forestry debts may well be imminent.

At present, the vast majority of forestry assets in IBRA's portfolio are still being managed by their original owners. Although IBRA holds wide-ranging authority to control the operations of indebted companies, the agency has thus far exerted little fiduciary oversight to ensure that forestry debtors are being run in a fully legal and commercially responsible manner. Moreover, IBRA has done little to address forest management issues—including the social and environmental impacts of forestry operations—during the process of debt restructuring. In this way, the debts of many Indonesian forestry conglomerates are being restructured, often on terms that are highly favorable to the obligor, without any real steps being taken toward corporate restructuring.

Policy Options

At the February 2000 meeting of the Consultative Group on Indonesia, the international donor community secured a commitment from the Indonesian government to take immediate action to ensure that debts held by forestry conglomerates were not written off. Specifically, the government agreed to “close heavily indebted wood industries under the control of IBRA and [to] link proposed debt write-off to capacity reduction” (Keating 2000). To date, however, the government has done little to put this policy commitment into operation. Implementation has been hampered by poor communication and

coordination between IBRA and member agencies of the Inter-Departmental Committee on Forests, most notably the Ministry of Forestry and the Ministry of Industry and Trade.

To follow through on the government's commitments to the Consultative Group on Indonesia, members of the Inter-Departmental Committee on Forests should work with IBRA to formulate a strategy for resolving Indonesia's forestry debt crisis. At the very least, this process should involve direct coordination among the Ministries of Forestry, Industry and Trade, Finance, and State Enterprises, the last of which has recently assumed authority to oversee IBRA.

A forestry debt policy initiative should focus on four things:

- 1) Implementing an effective mechanism for supervision of forest sector companies under IBRA's jurisdiction to ensure that they are operating in a fully legal and commercially responsible manner.** This should include public audits, ongoing monitoring by forestry experts, and a code of accountability for IBRA to ensure that the agency meets its full fiduciary responsibilities.
- 2) Securing maximal financial accountability on the part of forest sector debtors under IBRA.** This should include full and timely repayment of debts by companies capable of repaying, and strategic downsizing or closures of companies unable to repay and/or deemed to be engaged in illegal practices. IBRA should also coordinate its debt resolution process with domestic and offshore creditor groups to help ensure that debtor firms bear the full cost of their overall financial obligations.
- 3) Linking IBRA's debt resolution process to broader forestry sector policy goals.** In particular, the Inter-Departmental Committee on Forests should consider



to what extent IBRA's debt resolution process can be used as a lever for reducing Indonesia's overcapacity in wood processing industries and the reliance of these industries on illegally harvested logs.

4) Implementing an expanded code of financial due diligence for forestry investments. Fuller risk assessment will help ensure that investment banks and other financial institutions refrain from allocating future funds for illegal and/or inordinately risky practices in forestry sector industries. IBRA and other groups involved in the process of forestry sector debt restructuring also need more effective due diligence practices to better assess future risks associated with indebted forestry companies' current operations.

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Revitalizing Indonesia's Forestry Reform Agenda

Chapter 6

This study has examined the prospects for sustainable forest management in Indonesia within the context of the structural adjustment and forestry reform processes that have occurred since the onset of the 1997 financial crisis. The analysis took as its starting point the forestry-related policy conditionalities attached to the US\$43 billion bail-out loan agreement signed by the IMF and the Indonesian government in January 1998. Largely formulated by the World Bank, these policies served an important function in placing forest sector reform squarely on the agenda of national decisionmakers at a time when Indonesia was undergoing rapid political and economic change.

They held particular significance in that the Suharto government, for three decades, had staunchly resisted carrying out any measures in the forestry sector that threatened to reduce the flow of rents to the large conglomerates that dominated Indonesia's timber and plywood industries. Notably, the inclusion of forestry-related conditionalities in the World Bank and IMF's initial adjustment loan package also signaled that the multilateral development banks would pursue environmental as well as economic policy objectives in carrying out the structural adjustment process.

The policies initially proposed by the World Bank and IMF were collectively aimed at promoting sustainable forest management by reforming Indonesia's HPH timber concession system. As detailed in chapter 3, these interventions drew heavily on the conventional "sustainable logging" paradigm that the Bank and others have long prescribed not only for Indonesia but also for practically every other timber-producing country in the world. Key components included increased timber royalties, the introduction of performance bonds, extension of the concession period, removal of prohibitive restrictions on the export of logs and processed wood products, and independent monitoring to enforce selective cutting practices on the part of concessionaires.

Limited Effectiveness of HPH Concession Reform

However useful the World Bank's efforts were in opening the door to forestry reform in Indonesia, the policy interventions put forth in the wake of the 1997 crisis have been largely ineffectual in terms of putting the nation's forestry sector on a more sustainable trajectory. In particular, they have been constrained by the fact that the country's wood-based industries annually consume a volume of timber that is two to three times the sustainable harvest. Over the past decade, this 'structural timber deficit' has fueled a sharp rise in illegal logging to supply whatever volumes of wood cannot be produced by Indonesia's formal timber sector. In this context, the Bank's efforts to promote improved concession management practices are extremely unlikely to bring timber removals down to levels even approaching the government's long-standing sustainability threshold of 25 million m³ per year.

Additionally, the relative significance of HPH timber concessions as a source of logs has declined markedly since the early 1990s, as large numbers of concessions have either been exhausted or taken out of production. At the national level, the Ministry of Forestry has sought to compensate for the sharp decline in the volume of logs produced by the HPH system by making new wood supplies available. In particular, it has allowed IPK permit holders to clear large areas of forestland that have been slated for conversion to other uses. Indonesia's rapidly evolving process of decentralization has also meant that provincial and district governments are now exerting increasing control over areas heretofore managed by HPH concession-holders. While HPH reform may have been the key to sustainable forest management in Indonesia in the 1970s and 1980s, these trends suggest that the system is now rapidly becoming obsolete and that growing volumes of roundwood are being generated through increasingly unsustainable practices.

The effectiveness of the World Bank's effort to promote sustainable concession management through increased timber royalties has been limited by the fact that many HPH-holders are no longer obtaining the high levels of resource rents that they did in the past. With a decline in the volume of large-diameter, high-value logs at many HPH sites, a substantial number of Indonesia's concessionaires are apparently operating much closer to the margins of profitability than they were 10 to 15 years ago. This suggests that sustainable concession management may, in fact, not be profitable for many logging companies. Moreover, to the extent that sustainable management involves added costs, such as higher royalties and performance bonds, many timber companies can be expected to adopt increasingly unsustainable practices. Quite simply, concessionaires will not play by the rules if it is not profitable for them to do so.

The World Bank's efforts to promote environmental sustainability through increased efficiency in the timber sector face similar limitations. On the one hand, the Bank and the IMF have pressured the Indonesian government to lift restrictions on log exports, so that domestic timber producers can obtain world market prices for their wood. The aim of this policy is to force the country's wood processors to invest in efficiency and thereby to use smaller volumes of logs to produce the same or a greater volume of processed output. As discussed in chapter 3, however, there is a strong likelihood that lifting log export restrictions before an effective chain of custody system is in place would put added pressure on Indonesian forests by encouraging higher levels of timber removals.

On the other hand, the adoption of more efficient harvesting and processing technologies does not guarantee that the actual volume of wood being consumed will necessarily drop. The introduction of small-spindle rotaries in many of Indonesia's plywood mills over the past few years, for instance, appears to be having quite the

opposite effect. By peeling much smaller logs than the old rotaries, this new technology has created a demand for younger trees and varieties of species that were previously not commercially harvested.

Finally, the potential effectiveness of the World Bank's HPH reform strategy is severely constrained by the limited political will and institutional capacity that currently exists within the Indonesian government. The weakening of the state since the fall of Suharto, together with the formal decentralization process, has shifted power decisively away from the Ministry of Forestry in Jakarta. In much of Indonesia, decisions regarding timber extraction and forest conversion are being made by local actors operating largely beyond the reach of the central government's planning and regulatory processes. The military and the national police force are also known to be heavily involved in illegal logging in many provinces. While the World Bank has proposed the creation of a system of performance bonds and independent monitoring to ensure concessionaire compliance with the government's HPH regulations, it is highly unlikely that such an arrangement could work effectively without the active and coordinated involvement of the government's law enforcement agencies at each level of the state apparatus.

Overcapacity and Financial Risk in Pulp and Paper

To date, the forest policy reforms put forth by the World Bank, IMF, and other members of the international donor community have largely overlooked the enormous structural problems associated with rapid expansion of Indonesia's pulp and paper industries. The most significant of these include substantial new pressures on natural forests, particularly in Sumatra, and high degrees of financial risk. Indeed, producers have invested approximately US\$15 billion to expand pulp and paper processing capacity by over 700 percent since the late 1980s.

Currently, the nation's pulp industry has an installed production capacity of 6.1 million tonnes per year, implying an annual wood consumption level of 29 million m³ if the industry were operating at full capacity. This volume would amount to 40 to 50 percent of the country's real annual timber harvest at present. Before the financial crisis, processing capacity in the pulp industry was projected to increase to 7.2 million tonnes by 2010.

Investment in high-cost pulp and paper mills has proceeded far more rapidly than efforts by these companies to establish sustainable pulpwood plantations. Until now, most pulp mills have obtained the vast majority of their fiber from natural forest under IPK clear-cutting permits and from undocumented sources. While each of the mills is linked to HTI pulpwood plantation projects that involve fast-growing species, actual plantation yields are likely to be substantially lower than those projected by the industry. In some cases, it would appear that Indonesian pulp producers may have artificially inflated their plantations' growth rates and projected yields in order to maintain access to global capital markets.

Indonesia's two largest pulp mills—Indah Kiat Pulp & Paper and Riau Andalan Pulp & Paper—both face sizeable fiber supply deficits for at least the next seven years, and possibly well beyond. Indah Kiat's own sources of IPK wood are likely to be finished by 2002, and industry studies project that outside sources of IPK wood in Riau will be exhausted by 2005. While the company's pulpwood plantation is expected to produce approximately 4.6 million m³ of fiber by 2005, this will supply roughly one-half of the 9 million m³ of wood that the mill is likely to consume each year. In a similar manner, RAPP's plantation sites are also likely to generate no more than one-half of the 10 million m³ of wood that the mill is capable of consuming on an annual basis, through at least 2007.

With sizeable fiber supply deficits looming, each of these mills is facing considerable financial risks. The

conglomerates that have made large-scale investments in Indonesia's pulp and paper industry without first securing legal and sustainable sources of raw materials have done so, in part, because they have gotten heavy subsidies from the Indonesian government. Subsidies have included cheap wood supplies; capital allocations from the Reforestation Fund; soft loans from state banks; and tax discounts and deferrals. Indirectly, the Suharto government's weak regulation of Indonesia's financial sector have allowed these groups to discount their capital costs by making related-party loans from banks owned by the same conglomerates making pulp and paper investments, and by 'marking-up' the cost of these projects.

Indonesia's largest pulp and paper producers have relied heavily on international sources of finance to support their expansion over the past decade. Sinar Mas/APP is currently estimated to hold approximately US\$12 billion in offshore debt, through bank loans, equity listings, and international bond offerings. During the same period, Raja Garuda Mas/APRIL obtained over US\$2.0 billion in offshore debt. International financial institutions have been willing to channel funds to such high-risk ventures because they have employed weak due diligence procedures that have not adequately assessed the financial risks involved. Also, industrial country export credit agencies have provided loan guarantees that have allowed the banks themselves to avoid much of the risk associated with these projects. Often, export credit agencies have required the Indonesian government to sign counter-guarantees—thereby turning private risk into public risk.

Capital Subsidies Through Debt Write-Off

Indonesia's IMF-sponsored bank recapitalization process has placed a significant portion of the forestry sector's overall assets under the control of IBRA. These include US\$3 billion in outstanding bank loans directly associated with timber, plywood, and pulp processing facilities, as well as several billion dollars' worth of pledged equity shares and physical assets from the Salim, Bob Hasan, and Sinar Mas/APP Groups.

To date, IBRA has been able to recover only a very small portion of the debts in its portfolio, and there are strong reasons to believe that the agency will write off at least 70 percent of the US\$33 billion in outstanding nonperforming loans that it now holds. There are also strong reasons to believe that IBRA will ultimately collect only a portion of the US\$4.9 billion in Bank Indonesia liquidity credits owed by the Salim and Hasan Groups, and the US\$3.3 billion in guaranteed related-party loans that the Sinar Mas/APP conglomerate is obliged to repay. It is, therefore, estimated that IBRA may ultimately write off between US\$4.4 billion and US\$6.5 billion in capital debts owed by the Indonesia's forestry producers.

Debt write-off on this scale would amount to a substantial capital subsidy for a set of industries that is already putting heavy pressures on Indonesia's remaining natural forests. Moreover, it would allow many companies to continue operating in spite of the fact that they carry high levels of financial risk. This could create the conditions for their financial collapse in the future, which would almost certainly carry with it a considerable degree of moral hazard. There is also a strong possibility that the amount of forestry debt that is ultimately written off could rise considerably if offshore creditors are unable to secure full repayment of the US\$17 billion in dollar-denominated debt that Indonesian forestry conglomerates now hold. The financial collapse of the Sinar Mas/APP Group suggests that large-scale write-offs by offshore creditors may be

inevitable.

Thus far, IBRA has shown itself to have little inclination or capacity to ensure that the forestry assets under its control are managed in either a commercially or environmentally responsible manner. In most cases, the agency has allowed the companies' original owners to continue to operate the firms in its portfolio, with little direct oversight from IBRA. Although IBRA technically has the authority to call in outstanding debts held by these companies and to change their management structures, the agency has generally chosen not to do so. In the case of Hasan's Kiani Kertas pulp mill, discussed in chapter 4, IBRA has allowed the company to negotiate an arrangement whereby it may repay outstanding Bank Indonesia liquidity credits over an extended period of time, in spite of strong indications of financial mismanagement and future financial risk. In the case of the Raja Garuda Mas/APRIL group, both IBRA and offshore creditors have linked debt restructuring to further processing capacity expansions at the group's Riau pulp facility.

Revitalizing the Forestry Reform Agenda

This study has generated several conclusions that underscore the need for a revitalization of Indonesia's ongoing forestry reform process. In perhaps oversimplified terms, the most important findings can be summarized as follow:

- **First**, efforts to reform Indonesia's HPH timber concession system and to improve efficiency levels among wood processors are highly unlikely to achieve their stated aim of promoting sustainable forest management.
- **Second**, the rapid expansion of Indonesia's pulp and paper industries over the past decade has placed profound new pressures on the nation's remaining natural forests and has been characterized by a considerable degree of financial risk and moral hazard.

■ **Third**, decisions made by financial institutions and by financial sector regulatory agencies such as IBRA often have a far more direct impact on forest management practices than government policies in the forestry sector itself.

These conclusions suggest that the forestry reform process in Indonesia will have greatest impact if it focuses on achieving five specific policy objectives. These include:

- 1) Limiting demand for timber and pulpwood;
- 2) Slowing forest conversion;
- 3) Strengthening codes of financial due diligence;
- 4) Designing an effective debt resolution strategy;
- 5) Shifting the reform agenda towards equity.

Several of these policy objectives were identified as priorities at the February 2000 meeting of the Consultative Group on Indonesia in Jakarta. At that time, the government made eight forestry-related agreements to the international donor community. These include, among others, commitments to restructure the nation's wood processing industries; to maintain the government's 1998 moratorium on natural forest conversion; and to close indebted forestry companies under IBRA. The government also initiated the formation of the Inter-Departmental Committee on Forests to oversee implementation of these commitments and to develop a National Forestry Plan.

Through October 2001, the IDCF has been slow to design effective strategies for carrying out the government's eight forestry-related commitments. However, the newly installed Megawati administration has shown signs that it is prepared to give high priority to forestry reform on its broader policy agenda. The sections that follow

sketch out the significance of these particular policy priorities and how they might be implemented most effectively.

Limiting Demand for Timber and Pulpwood

The considerable logistical difficulties associated with controlling log supply in Indonesia suggest that any serious effort to relieve pressures on the nation's remaining natural forests should involve proactive steps to limit demand for wood on the part of domestic forest-based industries. With illegal logging going virtually unchecked in most timber-producing provinces, it is probable that Indonesia's annual log harvest will greatly exceed the legal and sustainable harvesting levels as long as a substantial 'structural timber deficit' remains in place.

Industrial overcapacity in Indonesia's wood processing sector was identified as a critical problem facing the forestry sector at the February 2000 meeting of the Consultative Group on Indonesia, placing the issue squarely on the forestry sector policy agenda. There, both the Indonesian government and the international donor community agreed to take immediate steps towards "closing illegal sawmills" and "downsizing and restructuring of [Indonesia's] wood-based industry [in order] to balance supply with demand for raw materials."

To implement these commitments, it will be necessary for the Indonesian government and international donors to define practical steps that can be taken to reduce demand for wood on the part of domestic processing industries, and to identify which agencies would need to carry these out. It is significant that many of Indonesia's wood processors are now controlled, either in whole or in part, by IBRA. To the extent that IBRA chooses to call in outstanding loans held by forest sector debtors, it can exert a great deal of leverage in carrying out reductions in processing capacity at both the firm and industry

levels. In playing such a role, it would clearly be necessary for IBRA to work closely with policymakers from the Ministries of Forestry, Industry and Trade, State Enterprises, and Finance, as well as a range of civil society organizations and forest industry experts.

A comprehensive forest industry restructuring strategy would need to evaluate likely social and economic impacts of mill closures at the local, regional, and national levels. It would need to assess how displaced workers would find alternate employment, and the implications of forestry sector down-sizing on government revenues at each level of the state apparatus. Moreover, policymakers would need to develop criteria for determining which mills should be subject to capacity reduction measures or closure. Minimally, such an initiative should include detailed and transparent assessments of whether:

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- these mills have verifiable access to legal and sustainable raw material supplies;
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- their operations have a profoundly negative impact on the surrounding environment;
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- their activities have led to social conflicts that threaten either the viability of the processing enterprise or the socio-political stability of the region in which they are operating;
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- the processing enterprise carries an inordinate degree of financial risk;
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- the company is associated with heavy debts that are likely to be written off at public expense.
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Slowing Forest Conversion

To the extent that policymakers do seek to control Indonesia's wood supply, their focus will need to extend beyond restricting log output from the HPH system. Sharp

reductions in roundwood harvests can only be achieved if steps are taken to significantly reduce the pace at which Indonesia's remaining natural forests are being cleared and the land converted to other uses. To its credit, the World Bank in late 1998 secured from the Indonesian government a temporary moratorium on the allocation of forested land for conversion to oil palm and other agroindustrial crops. This moratorium should be maintained at least until detailed surveys have been carried out to determine whether appropriate nonforested areas are available for such projects, and until existing legal claims on such land have been resolved. Moreover, efforts should be made to ensure that subsidies in the form of underpriced IPK wood, discounted capital and loan guarantees, or corporate debt write-off do not offer perverse incentives for agroindustrial enterprises and pulp producers to clear new tracts of forested land.

In addition, Indonesian government policymakers may wish to consider placing restrictions on the allocation of new IPK licenses to pulp mills and other wood processors. Companies seeking access to IPK wood should be required to provide verifiable documentation that they are making adequate progress in establishing plantations in order to ensure that their operations will eventually be sustainable over the long term. Policymakers might also consider requiring IPK license holders to pay higher royalties on the wood they harvest in order to ensure that its costs are comparable to the costs associated with obtaining fiber from pulpwood plantations.

Within the context of Indonesia's ongoing decentralization process, successful implementation of the government's moratorium on forest conversion will require effective coordination among the national, provincial, district, and village governments. A critical point of intervention will be the land-use planning process at that district level, as districts have assumed considerable authority over forest administration and formal land-use

decisions under the new decentralization regulations. It will be particularly important to ensure that the spatial planning process is conducted in a genuinely participatory manner and is based on sound technical principles to ensure optimal utilization of forest and land resources.

Strengthening Codes of Financial Due Diligence

The large amounts of finance that have been allocated to Indonesian pulp mills without a secure raw material supply point to the need for financial institutions to adopt an expanded code of due diligence for forestry investments. Such a code should be designed to ensure that financial institutions fully assess the risks associated with the projects they support and that they do not allocate funds if they are to be used for illegal activities.

Legal-regulatory mechanisms should be established to ensure that such a code is employed by domestic financial entities, including IBRA and private and state banks, as well as by international investment banks and export credit agencies. Minimally, such a code should require financial institutions to obtain an independent audit of a project's long-term raw material supply strategy, as well as its likely social and environmental impacts. Financial institutions, moreover, should be required to carry out regular monitoring of the borrower's adherence to this strategy for as long as they are involved in financing the project.

In the case of new pulp mill expansion projects, for instance, the financial institutions involved should be obliged to require the borrower to submit a viable plan for establishing a dedicated and sustainable fiber source before new processing capacity comes online. Working with independent forestry experts, financial institutions could easily monitor a pulp producer's efforts toward plantation development through the use of satellite images coupled with periodic ground-truthing. Under the new due diligence code, financial institutions should be legally

mandated to withhold or to withdraw financial support from forestry sector projects that are deemed to have a long-term dependence on unsustainable raw material supplies. Similarly, restrictions should be placed on the allocation of finance to companies whose activities are determined to have gross negative impacts on the environment and/or to be fueling social conflict with communities in the areas where they are operating.

Finally, legal-regulatory mechanisms should be established (or strengthened, if indeed they already exist) to hold financial institutions liable if they knowingly provide funds to companies engaged in illegal activities. An investment bank realistically cannot be expected to maintain an ongoing physical presence at a borrowing firm's operations to determine the provenance of each log that enters its pulp plant or plywood mill. However, it is reasonable to expect that a bank should commission an independent audit of a borrower's raw material supply, and should be held liable if it knowingly funds a mill that has been documented to rely heavily on illegally obtained wood. Indeed, virtually every country in the world prohibits banks from lending money to support illegal practices.



Designing an Effective Debt Resolution Strategy

Closely related to the issue of financial due diligence is the manner in which the large outstanding corporate debts held by the forestry sector's major investors are resolved. To the extent that IBRA writes off the non-performing loans associated with investments in the timber, plywood, pulp, and paper industries, the agency will be channeling a substantial capital subsidy to the relatively small number of conglomerates that dominate Indonesia's forestry sector. With private debt being converted to public debt in this way, the cost of debt write-off would initially be borne by taxpayers in industrialized donor countries that are underwriting the financial restructuring of the Indonesian economy. Ultimately, however, these costs will be borne by the people of Indonesia.

The costs involved in writing off corporate debts held by forestry producers are arguably much greater than the value of the specific loans or credits that are not recovered. On the one hand, as the World Bank has long maintained, large-scale subsidies to forest-based industries often encourage concession-holders to employ unsustainable forest management practices and wood processors to operate inefficiently. On the other hand, much of the debt

that IBRA may potentially write off is associated with investments involving high degrees of financial risk and/or illegal practices. Recognizing these factors, in February 2000, the Consultative Group on Indonesia adopted as one of eight forest-related commitments an agreement to carry out the "closure of heavily-indebted wood industries under the control of IBRA and linking proposed debt write-off to capacity reduction in the wood processing sector."

It is important to recognize that Indonesia's macroeconomic recovery will ultimately require some degree of corporate debt write-off. However, to avoid creating the conditions for future financial crises and unrestrained pressures on Indonesia's remaining forest resources, it will be essential for IBRA to work with other stakeholder groups to design an effective strategy for resolving the outstanding forestry debts in a responsible manner. These groups would include the Ministries of Forestry, Industry and Trade, and Finance, and they should solicit active engagement with government agencies, civil society organizations, and donor groups. As outlined in chapter 5, this debt policy initiative should focus on four major objectives:

- 1) Implementing an effective mechanism for supervision of forest sector companies under IBRA's jurisdiction to ensure that they are operating in a financially sound and legal manner. This would include public audits, ongoing monitoring, and the adoption of a code of accountability for IBRA to ensure that the agency meets its full fiduciary responsibilities.
- 2) Securing maximal accountability on the part of forestry sector debtors under IBRA's jurisdiction. This should include full repayment of outstanding debts by companies that are deemed to be capable of repaying; and strategic downsizing or closure of companies unable and/or unwilling to repay, as well as those determined to be engaged in illegal practices.
- 3) Linking IBRA's debt resolution process to broader forestry sector policy goals. In particular, members of the IDCF should consider the extent to which IBRA's debt resolution process can be used as a lever for reducing Indonesia's overcapacity in wood-processing industries and the reliance of these industries on illegally harvested logs.
- 4) Carrying out careful assessments of the medium- and long-term financial risks associated with forest and estate crop companies in IBRA's portfolio. These assessments should play a significant role in shaping the terms of repayment that IBRA negotiates with debtor firms, and in determining whether IBRA sells the assets of companies who do not repay, or simply closes their operations.

Shifting the Agenda Toward Equity

Perhaps the most sobering conclusion to emerge from this study is that the sustainable management of Indonesia's remaining forest resources may be fundamentally unachievable on any large scale. This begs the question of who, then, should have access to and

control over the nation's forests. Through the New Order period, both the Ministry of Forestry and many advocates of the "sustainable logging" paradigm routinely argued that large, privately owned logging companies connected to processing facilities are the most appropriate actors for managing areas designated as production forest in Indonesia's Outer Islands. The stated rationale was that such actors would have an incentive to manage their concessions sustainably because they have both a long-term investment in processing that relies on continued access to timber supplies, and an economy of scale that enables them to run their harvesting operations efficiently. In this way, the principle of sustainability has often been used to legitimize the extreme inequity around which the HPH system has been structured over the past three decades.

It appears that some large-scale timber operators may, indeed, have adhered to the Indonesian government's selective harvesting and replanting regulations. However, a far larger number have employed indiscriminate logging practices to liquidate as rapidly as possible the timber resources made available to them by the government. Recognizing sustainability to be untenable makes it impossible to justify maintaining the New Order regime's policy of categorically excluding forest-dependent communities from areas that the state has defined to be production, protection, or conversion forest. On the contrary, the demise of sustainability as an achievable policy goal suggests that equity for local communities with clear historical or customary claims to forest land should, in fact, be a central principle guiding forestry sector reform in the present context.

The legal recognition of local tenure would not, in itself, guarantee that any given tract of forest would remain standing longer than if it were managed by a timber concessionaire. It would, however, provide the basis for ensuring that members of forest-based

communities have legitimate authority to determine how the forest resources on which their livelihoods depend should be managed and to share equitably in the benefits of any products harvested from the areas within their domain. Moreover, numerous studies have shown that forest-dependent communities in many parts of Indonesia are highly skilled resource managers who have sustained complex forest ecosystems for generations. Indonesia's ongoing decentralization process has created an unprecedented opportunity for reorienting forestry sector policy, planning, and regulatory processes so that they are more directly responsive to the needs and interests of local communities.

In addition to strengthening tenure rights for forest-dependent communities, an equity-oriented reform agenda in the forestry sector might include initiatives such as the following:

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- reorientation of large-scale plantation programs to support the development of small-scale, locally managed outgrower schemes;

 - use of unspent resources from the government's multi-billion dollar Reforestation Fund to finance initiatives aimed at poverty alleviation;

 - retraining of workers who will be displaced by forestry sector restructuring;

 - capacity-building for local people, village and district governments, and civil society organizations in areas such as resource mapping, spatial planning, and legal rights.
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Conclusion

Indonesian policymakers will clearly face considerable challenges in implementing the reforms outlined in this study. Not the least of these is the need to integrate equity and sustainability objectives in the forestry sector with the government's broader strategy for macroeconomic recovery. This will require decision-makers in the Ministry of Forestry to broaden their scope by working 'cross-sectorally' with their counterparts in the Ministries of Finance, Industry and Trade, and State Enterprises, as well as in IBRA itself.

Government agencies and civil society organizations will also need to find ways to engage with one another constructively in order to build broad-based support for the forestry reform process. This process is certain to require difficult trade-offs that directly affect the interests of a range of stakeholder groups. As such, it will be essential for the reform process to be carried out in a genuinely transparent and consultative manner, building on the significant degree of openness that has characterized the post-Suharto reform era thus far.

For forestry reform to succeed in Indonesia, it will also need to be closely tied to the nation's ongoing decentralization process. Ultimately, policymakers at the national, provincial, district, and village levels will need to find some measure of agreement with regard to their respective rights and responsibilities in the area of forest administration. The decentralization process holds a great deal of promise for making the government's regulation of forest management more responsive to the needs of the millions of Indonesians whose livelihoods depend upon these resources. Together with the reforms sketched above, increased accountability of this sort represents a critical step towards ensuring that Indonesia's remaining natural forests are managed in a fully legal and sustainable manner.

Acronyms

AAC —Annual allowable cut	HTI —Industrial timber plantations
Adt —Air-dried metric tonne	IBRA —Indonesian Bank Restructuring Agency
Apkindo —Indonesian Wood Panel Association (Asosiasi Panel Kayu Indonesia)	ICDF —Inter-Departmental Committee on Forests
APHI —Indonesian Forest Concessionaires Association (Asosiasi Pengusahaan Hutan Indonesia)	IHPH —HPH license fee
APKI —Indonesian Pulp and Paper Association (Asosiasi Pulp dan Kertas Indonesia)	IHH —Forest product royalty
APP —Asia Pulp & Paper Company Ltd.	IMF —International Monetary Fund
APRIL —Asia Pacific Resources International Ltd.	IPK —Wood utilization permit (Izin Pemanfaatan Kayu)
Bappenas —National Planning Agency	JMB —Joint marketing board
BFL —Basic Forestry Law (Undang-Undang Dasar Kehutanan)	m³ —Cubic meters
BHKP —Bleached hardwood kraft pulp	Menko Ekuin —Coordinating Ministry for the Economy, Finance, and Industry
CGI —Consultative Group on Indonesia	MOFEC —Ministry of Forestry and Estate Crops
DR —Reforestation Fund	MTH —Mixed tropical hardwoods
GAAP —Generally accepted accounting procedures	NFP —National Forestry Program
GDP —Gross domestic product	NGO —Non-governmental organization
GNP —Gross national product	PT TEL —PT Tanjung Enim Lestari
GOI —Government of Indonesia	RAPP —Riau Andalan Pulp & Paper
ha —Hectares	Rp —Rupiah
HPH —Indonesia’s timber concession system or “Right of Forest Exploitation” (hak pengusahaan hutan)	tpa —Tonnes per annum
	WRI —World Resources Institute

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