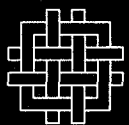




BACKS TO THE WALL IN SURINAME:

FOREST POLICY IN A COUNTRY IN CRISIS

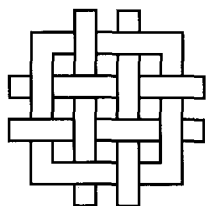
Nigel Sizer
Richard Rice



WORLD RESOURCES INSTITUTE

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April 1995

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ISBN 1-56973-034-2
Library of Congress Catalog Card No. 95-060863
Printed on recycled paper

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ACKNOWLEDGMENTS

Many people in many institutions helped make this research possible. At WRI, valuable comments, assistance, and collaboration came from Kenton Miller, Bill Urban, Lea Borkenhagen, Robert Repetto, Walter Reid, Jonathan Lash, Bruce Cabarle, Owen Lynch, Donna Wise, Charles Barber, Nels Johnson, Kirk Talbott, Aaron Zazueta, Tom Fox, Shirley Geer, Laura Lee Dooley, Donna Dwiggin, and Lisa Sullivan.

At Conservation International in Washington D.C. and in Suriname, help and support came from John Reid, Diji Chandrasekharan, Chris Rodstrom, Ian Bowles, Russ Mittermeier, Stanley Malone, and Yvette Merton. Others in Suriname who provided valuable insight, criticism, and encouragement include Kenneth Tjon, Henrie Wesenhagen, Muriel Held, Daniel Christiansen, Ambassador Roger Gamble, Ruth

van Hueven, Stanley Rensch, The Central Bank of Suriname, and the Ministry of Natural Resources.

Thanks also to Wouter Veening, Ambassador Robert Pringle, John Matuszak, Marcus Colchester, Andrew Howard, David Smith, Thomas Lovejoy, Michael Ross, Enrique Iglesias, and the staff of the Inter-American Development Bank for much stimulating discussion and thoughtful comment. Special appreciation must be expressed to Gary Brana-Shute for his insights.

Finally, thanks to Kathleen Courier for her superb editing, to Hyacinth Billings for managing production, and to Samantha Fields.

N.S.

R.R.

FOREWORD

A country on the brink of economic collapse, Suriname is under enormous pressure—from within and without—to restructure its economy and heal the wounds of twelve years of civil unrest. Poor, bereft of foreign currency reserves, suffering 500-percent annual inflation and rising unemployment, Suriname is desperately resisting advice to implement structural adjustment. To attract foreign investment, the government is poised to award forest concessions covering one fourth of the nation's territory to Asian timber barons whose records in Malaysia and Indonesia do not inspire confidence.

With pristine tropical rainforest blanketing 80 percent of its terrain, Suriname is among the world's most heavily forested countries. Indeed, Suriname is probably richer in rainforest now than Costa Rica was when the Spaniards arrived in the sixteenth century.

Each of the proposed concessions lies in forests now accessible only by aircraft or dugout canoes. One of the tracts is home to 10,000 forest-dwelling peoples. Although the concession contracts have already been drafted and submitted to Parliament, Suriname still has the opportunity to consider other options. *Backs to the Wall in Suriname: Forest Policy in a Country in Crisis*, by WRI Associate Nigel Sizer, and Richard Rice, Director of Economic Policy at Conservation International, examines the proposed contracts and proposes options for a more sustainable approach.

As the authors note, no rational observer would suggest that Suriname should not harvest timber from part of its forest patrimony. After all, this is one of the routes that wealthy countries of the North took in their nineteenth-century drive to industrialize. But unless Suriname revises its current plans, it will forego tens of millions of dollars in annual revenues—up to 10 percent of gross domestic product—essentially giving away its forests and getting shattered biodiversity, ruined fisheries, eroded soil, displaced populations, and perhaps ethnic strife in return.

Recognizing that Suriname's government may feel compelled to go ahead with substantial forest

concessions, Dr. Sizer and Dr. Rice offer pragmatic ways to improve concession policy. If it changed the way that forestry concessions are awarded, taxed, and enforced, the government could prevent the worst environmental damage and reap enough revenue to deal with its most pressing social and economic problems. Specifically, the authors propose auctioning off concessions after establishing minimum bids and making sure that prospective bidders have good track records in other countries, in addition to levying value-added taxes on timber and processed wood products.

Backs to the Wall outlines how Suriname's government could protect both forests and forest-dwelling communities of Amerindians and Maroons, descendants of escaped slaves who live by the traditions their ancestors brought from West Africa 300 years ago. Launching a program to protect communal lands, sharing information with forest communities on pending development proposals, and requiring social impact assessments for concessions within or bordering on communal lands would improve development planning. Establishing a program to continuously monitor forest concessionaires' performance would help ensure compliance with contract provisions.

Who can help? The Organization of American States, which is already helping forest-dependent communities map their lands, could broaden its efforts into a formal land-demarkation program that includes mechanisms for resolving conflicts between communities and outside interests. Multilateral funders could supply technical and financial assistance to communities through micro-enterprise development grants to help them better satisfy their needs. Suriname's government could bolster social progress by requiring that concessionaires and wood-processing industries meet minimum employment standards and integrate training and apprenticeship programs into their business plans. Government could also help ensure that concession workers have the right to organize labor unions.

All people with a stake in the forests must be represented in decision-making circles if concession agreements are to reflect their rights and interests, and *Backs to the Wall* outlines ways to ensure this. Suriname has already established councils designed to give people in the hinterland a say in decisions that will profoundly affect their lives, but the nation has been unable to get them up and running because of budget constraints. *Backs to the Wall* stresses that supporting these participatory mechanisms should be a key part of any international assistance package. Indeed, as the authors note, simply providing Suriname's councils enough money to operate would go a long way toward bringing isolated rural peoples into the forest policy-making process.

Dr. Sizer and Dr. Rice end by suggesting development alternatives that would make the most of Suriname's unique opportunities. Because the nation doesn't face the population and migration pressures that lead to deforestation in other countries, it can make a compelling case for the relatively small cash transfers needed to keep its forests intact. Besides tapping such mechanisms as the climate treaty's Joint Implementation provisions, Suriname could attract funds from debt-for-development programs, green venture capital, and green investment funds. Unlike most countries, Suriname has invested little in unsustainable logging, so it is well-positioned to take advantage of the emerging demand for "green seal" timber, i.e., wood and wood products that are certifiably produced in sustainable ways.

The authors endorse the Inter-American Development Bank's efforts to take the lead in establishing

a multilateral assistance package that would give Suriname enough time to explore other ways of using its forests to spur economic development. The assistance funds would help build the capacities of Suriname's public and private sectors to design sustainable forestry options, in addition to providing compensation to cover the short-term opportunity costs of putting the contracts on hold. A modest investment in assistance for Suriname at this crucial juncture can enable this beleaguered nation to examine other forest options that exist in plenty.

Backs to the Wall in Suriname extends the analyses and recommendations set forth in such previous WRI studies as *Breaking the Logjam: Obstacles to Forest Policy Reform in Indonesia and the United States*, *Surviving the Cut: Natural Forest Management in the Humid Tropics*, and *The Forest for the Trees: Government Policies and the Misuse of Forest Resources*.

We would like to thank the Government of the Netherlands, the Government of Germany, the Wallace Genetic Foundation, and the U.S. Forest Service for their financial support of the research and analyses reflected in *Backs to the Wall in Suriname*. We are deeply grateful for this assistance. We also want to express our appreciation to the Government of Suriname for inviting us to do this research—and our hope that this report will help Suriname find ways to exploit its forest wealth to ensure a lasting flow of economic, environmental, and social benefits.

Jonathan Lash
President
World Resources Institute

I. BACKGROUND AND CURRENT FOREST POLICY IN SURINAME

1.1 OVERVIEW

In 1993, Suriname took the desperate step of inviting Asian investors to explore possibilities for establishing multi-million hectare logging concessions in the country's interior. By mid-1994, at least five proposals were on the table and in negotiation; one from a Malaysian gambling tycoon, two from Indonesian logging consortia, and two from state-owned Chinese enterprises—most with unenviable histories of social and environmental disregard. Total investments proposed are over \$500 million (not far short of Suriname's Gross Domestic Product), and somewhere between three and five million hectares (7–12 million acres) or 25 to 40 percent of the country's land area, could be logged.

At stake is one of the world's oldest and most pristine stretches of tropical rain forest. Sitting atop the ancient Guiana shield, bounding the northern edge of the Amazon Basin, this continuous stretch of forest was until now accessible only by light aircraft or dugout canoe up rapid-strewn rivers. The forest is inhabited by a mixture of descendants of escaped slaves, the Maroons (or "bush-negroes"), who proudly maintain the 300-year-old traditions of West Africa, and the Amerindians with their rich shamanistic traditions and intimate knowledge of the forest's secrets. It's also a forest that several thousand traditional people depend upon for their livelihoods.

This report provides an up-to-date overview of the facts behind the changes under way in Suriname's forest policy and forestry development. The likely economic, social, and environmental benefits and costs of the changes are described, along with the historical and political forces driving them. Options for addressing the issues are presented, and the consequences of the government's current policy course and alternatives are compared. Most important, measures that should promote economic development based upon long-term management of Suriname's forest resources are identified.

The opportunities and problems spelled out here

are by no means unique to Suriname. In Indonesia, Malaysia, West Africa, and other parts of the world, poor policy, weak institutions, and short-term fiscal planning have in recent decades resulted in the massive loss of forest. Similar situations have also emerged in some Central American countries and in Guyana,¹ Laos, and Cambodia.² The analyses and options presented here should thus interest policy-makers beyond Suriname.

1.2 THE ISSUES

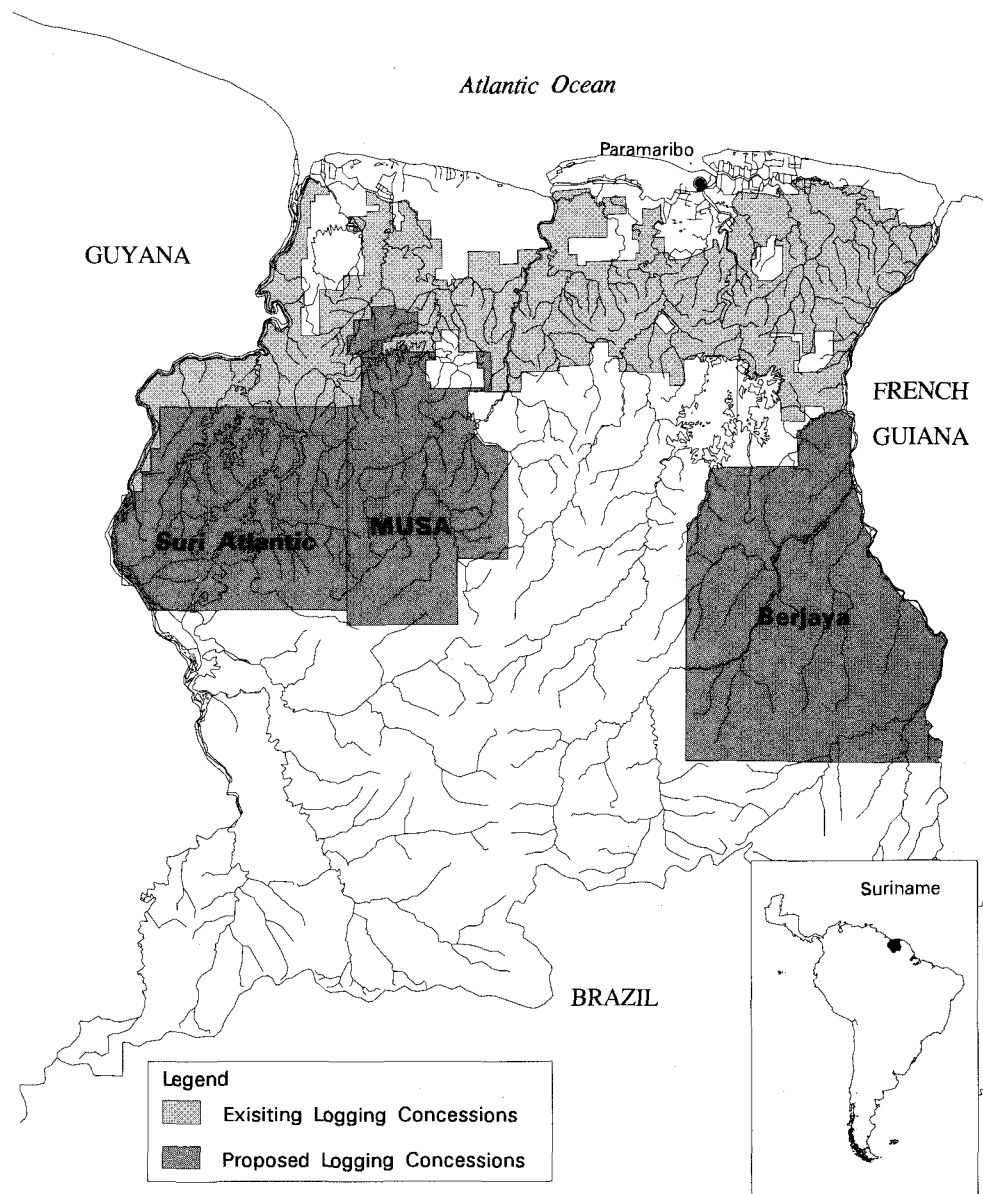
Suriname—formally Dutch Guiana—nestles on the northern edge of South America between Guyana and French Guiana, just north of Brazil. (See *Figure 1*.) The total land area of 161,470 square kilometers (slightly larger than the U.S. state of Georgia) is approximately 90 percent forest and at least 80 percent primary tropical forest. The annual deforestation rate is less than 0.1 percent. Suriname has one of the world's highest proportions of forest cover.

Beginning in early 1993, the Government of Suriname began seeking international assistance and investment as domestic and international pressures to reform the ailing economy mounted. The historical links of Suriname's population to Indonesia, China, and other parts of Asia made the governments of these far-off countries natural allies in Suriname's struggle for fiscal independence. In the case of Indonesia, the solidarity with Suriname runs deeper, reinforced by shared tensions with the Netherlands, former colonial authority to both countries, over Dutch foreign aid policy.

In early 1993, an official Surinamese ministerial delegation went to Indonesia. In May 1993, an Indonesian investment group (subsequently incorporated locally in Suriname under the acronym MUSA) visited Suriname with investing in large forestry concessions in mind.

In August 1993, MUSA was granted 150,000 ha, the maximum area permitted under the 1992 Forest Management Act. MUSA then proposed creating

Figure 1. Map of Suriname Showing Proposed Concessions



Source: World Resources Institute and Conservation International

roughly 67 additional wholly-owned, locally-incorporated subsidiaries, each of which would receive a further 150,000 ha. In turn, it promised to invest over \$1 billion. This blatant affront to the spirit of Suriname's 1992 Forest Management Act drew heated local and international criticism, and the government rejected the proposal.

Since then, other companies have made proposals for large concessions. They include The Berjaya Group from Malaysia, Suri Atlantic from Indonesia, and two state-owned companies from mainland China. Most of these companies have been active in the forestry sectors of other countries. Changes in government policy in Malaysia, Indonesia, and some

of their Pacific neighbors, together with the exhaustion of local forest resources and rising international timber prices, all attract investors to Latin America's relatively intact forest reserves.

Suriname is not an isolated case. Several Indonesian, Malaysian, and Korean firms have expressed interest in, or applied for concessions in Suriname and neighboring Guyana.³ Investors seeking large-scale logging concessions have also recently shown up in Panama, Venezuela, Honduras and the Andean region. Canada's Buchanan Forest Products Limited has put in a bid for a concession in Guyana.

The three largest new concession proposals (as of December 1994) are outlined in Table 1. (See also Figure 1.) The proposed agreements are all for 25 years, extendable for another quarter century. By granting almost a quarter of Suriname's total land area to three foreign companies, the government points to stated objectives to:

1. Generate direct and indirect (from workers' pay) revenues to improve the country's balance of payments, thus promoting economic growth, stability and independence.
2. Provide employment to thousands of currently unemployed or underemployed Surinamers and promote development of Suriname's hinterland.
3. Perform the above in an environmentally sustainable fashion.

If the Government implements the concessions as proposed in the contracts and investment plans and under existing regulations, Suriname will forego tens of millions of dollars in annual revenues—up to 10 percent of GDP—and risk social and environmental upheaval.

But, this report documents, if the Government implements the concessions as proposed in the contracts and investment plans and under existing regulations, Suriname will forego tens of millions of dollars in annual revenues—up to 10 percent of GDP—and risk social and environmental upheaval. Indeed,

- The proposed concessions total more than 143 percent of the area of all of Suriname's current, domestically-owned concessions, representing a similar increase in needed monitoring and regulatory capacity where practically none exists.

Table 1. Proposed New Forestry Concessions in Suriname

	MUSA	Berjaya	Suri-Atlantic
Area (ha)	1,150,000	1,150,000	1,150,000
Proposed Investment (US\$)	149,000,000	100,000,000	78,000,000
Proposed Annual Roundwood Production (m ³)	664,000	657,000	490,000
Roundwood for export (m ³)	100,000	0	100,000
Sawn Timber (m ³)	420,000	90,000	140,000
Plywood (m ³)	200,000	466,667	80,000
Moldings (m ³)	0	45,000	80,000
Furniture (m ³)	0	2,880	90,000

Note: Estimates for processed timber are given in roundwood equivalents.

- The three largest concessions would increase Suriname's total roundwood production by 15 to 20 times and increase export volumes by 300 to 350 times.
- There are no estimates of net revenue (other than that calculated for this report) and its distribution over the life of the proposed concessions available at this time.
- The several thousand Maroons and Amerindians who inhabit the proposed concession areas have no well-defined land or resource rights, but do have a tradition of resistance to outsiders.
- The proposed concessions cover areas well south of the current accessible forest zone so new roads would have to be built into Suriname's interior, making monitoring even more difficult.
- Southern Suriname's hilliness puts the region at high risk of soil erosion and damage to watercourses, even as difficult access adds to logging costs.
- The Suriname government is offering the companies tax incentives to invest large amounts in processing facilities but has not quantified the economics of local processing options. In Indonesia, such subsidies have resulted in excess capacity and inefficient mills that exert heavy pressure on the remaining forest resources.
- The companies expect to export timber of many lesser-known species, as well as the 20 or so currently exportable species. As a result, the rate of cut over the entire concession area could be higher and therefore more ecologically disruptive.

As Parts III and IV of this report show, in the medium- to long-term, government revenues could be far greater than under the proposed concession agreements, and potential negative social impacts considerably reduced under alternative forest plans. For this reason, we strongly recommend that the Government of Suriname put the proposed large-scale concession agreements on hold and, with immediate help from the international donor community, examine other development options for its forest resources.

“

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The options presented can't fully meet the challenges that the Government of Suriname is confronting, but they are feasible and pragmatic within the prevailing political and institutional context. Suriname's forest sector can provide substantial net revenues that could help finance the country's transition to economic stability and sustainability *if* investments are made in forest stewardship and world-class expertise is enlisted to help Suriname's government manage relations with foreign investors. The international diplomatic, donor, non-governmental, and business communities also have an important role to play if reforms are to succeed.

1.3 HISTORICAL CONTEXT AND POLITICAL CONSTRAINTS

Suriname was settled by the British in the 1630s and alternated between Dutch and British possession until 1815, when the Treaty of Vienna formally awarded it to the Dutch. West African slaves were transported to the new colony to work in extreme hardship on sugar plantations. Many rebelled and fled to the interior—the beginning of a long history of instability and bloody strife. From 1760 on, those escaped slaves negotiated peace treaties granting them freedom and tribute from the Dutch in exchange for a cessation of attacks on Dutch plantations and the return of other escaped slaves.⁴ After slavery was abolished in 1863, large numbers of laborers were encouraged to migrate from India and the then Dutch East Indies (now Indonesia). These waves of migrants throughout the colonial period account for Suriname's extraordinary ethnic diversity now.

In December 1954, the country became an autonomous member of the Kingdom of the Netherlands with freedom to set its own domestic policy. In 1975, it was granted independence and about 40,000 Surinamers (equivalent to almost half the workforce) took up the option of Dutch citizenship and moved to the Netherlands. Most of the political parties, largely divided along racial lines, came into being during this period. Today, Hindustanis mostly support the Progressive Reform Party (VHP), Creoles support the National Party of Suriname (NPS), and Javanese support the Party of National Unity and Solidarity (KTPI).

Five years after independence, the elected government was overthrown by senior military officers, and there were six coup attempts over the next three years. After counter-insurgency attacks on Maroon villages in 1986, free elections were held a year later. In 1989, a peace treaty—the Kourou Accord—was negotiated with the Maroons, but the armed forces opposed the accord and stopped cooperating with the government. Meanwhile, guerilla activity by an Amerindian group called Tucayana Amazonica began in the west and instability escalated when three other armed groups began supporting them.⁵

Democracy remained fragile, and another military coup occurred in December 1990. Following on the heels of international outrage, elections were held in May 1992 and the New Front Coalition (made up of the three major ethnic parties and the Surinamese Labor Party) won 30 of the 51 seats in the National Assembly. Ronald Venetiaan was elected President by the Assembly and has governed peaceably since.⁶

With independence, Suriname and the Netherlands signed an agreement in 1975 whereby the former would receive about US\$1.5 billion (“treaty money”) in grants and soft loans over fifteen years. Of this, some \$500 million has not been released because the Dutch have imposed various conditionalities—initially related to democracy and human rights and more recently to lack of progress in implementing macroeconomic reforms. Dutch humanitarian assistance, around \$50 million per year, continues. In addition, Surinamers who emigrated to the Netherlands remit an estimated \$50 million home to relatives and friends each year (estimate from 1993).

Late 1994 saw tensions escalating once more with riots and protests in Paramaribo. Demonstrators vented fury over the continuing economic downturn, declining salaries, and the increasing cost of food. The President, generally viewed as highly committed to promoting social reform, will be up for reelection in May 1996. It will be a tough election. Venetiaan and his fragile coalition government find their backs to the wall: to balance the books, they must reduce the number of public employees (estimated at 40 to 65 percent of the total workforce) even though the many Creole public servants constitute the President’s principal power base. Encouraging foreign investment to increase revenue through mining and logging concessions and thus to reduce the deficit and maintain the public sector in the months preceding the elections is tempting indeed.

Suriname’s relatively low natural population growth rate is 1.86 percent.⁷ In the face of economic decline and political instability, the emigration rate is high. Hindustanis (East Indians) make up 37 percent of the population; Creoles (of mixed African origin), 31 percent; Javanese, 15 percent; Maroons, 10 percent;⁸ Amerindians, 2.6 percent;⁹ Chinese, 1.7 percent; with the remainder of Latin and European descent.

The country’s 1993 estimated Gross Domestic Product (GDP) was \$1.17 billion (at official exchange rates). Per capita income in the same year was \$2,800 and the GDP growth rate was -2.2 percent, with an unemployment rate of 16.5 percent and inflation of around 292 percent.¹⁰ The currency was devalued by 90 percent between September and October 1994, amid continuing balance-of-payments difficulties and a scarcity of foreign currency. (*See Table 2.*) Inflation in 1994 continued to climb, and was estimated at 500 percent for the year. Foreign exchange reserves are exhausted.

The economy is dominated by primary and extractive industries. More than 70 percent of Suriname’s export earnings and 15 percent of GDP come from bauxite mining and refining. The international slump in the prices of bauxite and related products from the late-1970s to the mid-1980s contributed to Suriname’s economic decline. Agricultural and fisheries products are also significant, especially shrimp, fish, rice, and bananas. Wood and wood products accounted for less than \$1 million of exports in 1993.

Table 2. Recent Economic Trends in Suriname

Indicator	1989	1990	1991	1992
Gross Domestic Product ¹ (millions of Surinamese guilders)	2755.0	3099.0	3441.0	4360.0
Gross Domestic Product ² (millions of US\$)	1531.0	1722.0	1912.0	2422.0
Parallel Exchange Rate (Suriname guilders/US\$1)			17.0	25.0
Inflation ¹ (percent)		22.0	26.0	44.0
Government Spending ³ (percent of GDP)	30.5	24.9	29.2	31.8
Foreign Exchange Reserves ³ (millions of US\$)	75.5	101.2	72.4	44.6
Foreign Debt ³ (millions of US\$)	216.4	228.7	261.9	287.4
Total Exports ¹ (millions of US\$)	558.3	508.9	403.9	400.0
Total Imports ¹ (millions of US\$)	606.6	603.4	656.1	594.6

Data provided by U.S. Embassy, Paramaribo.

1. Originally from the Surinamese Ministry of Planning.
2. These figures use an official exchange rate of 1.8 Surinamese guilders per US\$1.
3. Originally from the IMF.

1.4 SURINAME'S FORESTS—USE, POLICIES, AND INSTITUTIONS

The extraordinary abundance of forest in Suriname results from a variety of factors. Some 65 percent of the small population of about 410,000 lives in and around the port capital of Paramaribo, and the extremely sparse (0.2–0.3 people per square kilometer) hinterland populations of around 45,000, mostly traditional Amerindians (about 6,000 people) and Maroons (about 41,000), are scattered along the major rivers. Access to most of the hinterland is possible only by canoe or light aircraft. There are very few roads, and none at all in the southern half of the country. Rapids impede river transport.

Suriname's total forest area of approximately 148,560 square kilometers can be broken down into accessible forest to the north of the hill country with presently inaccessible forest further south. (A total of 75 percent, or 110,660 square kilometers, of all Suriname's forests is considered inaccessible—see *Table 3*). Of the accessible forest, 60 percent is potentially exploitable for timber extraction (including valuable *Virola* stands, ridge forest, parts of the hydrophytic forest, high savannah forest and plantations). The remainder is constituted of mangroves, swamp forest,

low savannah forest, and some parts of the high savannah and high dryland forest. More generally, Suriname's southern half is also quite hilly and therefore more prone to erosion under forestry.

The almost intact primary forests of Suriname, the general richness of the flora of the Guianas, and dramatic topography towards the south—Sipaliwini District—have made the country rich in biological diversity for its size. The flora and fauna include 674 species of birds, 200 mammal species, 130 species of reptiles, 99 amphibians, and about 4,500 plant species (including 300 orchids and 800 woody species).¹¹ The Government has a strong conservation tradition, dating from the Dutch administration. There are fifteen protected areas ranging in size from 100 to 220,000 ha and totalling 5 percent of the country.¹² Existing concessions for timber extraction comprise the largest land-use category followed by protected areas, mining, and agriculture. (*See Table 4.*)

The more accessible forests correspond to the old coastal plain (nutrient poor, white sand ridges with loam and clay swamp in between) and the savannah belt (coarse bleached and unbleached sands or sandy clays), only 7 percent of which is actually open savannah. The less accessible forests spread

Table 3. The Forest Resources of Suriname

Type of Forest	Area (ha)
Accessible, Unexploitable Forests	1,550,000
Accessible, Exploitable Forests	2,239,400
Total Accessible Forests	3,789,400
Inaccessible Forest	11,065,600
Total Forest Estate	14,855,000

Data provided by Government of Suriname (1994).

south over the Guiana shield (pre-Cambrian granites and granito-schists with dolomite intrusions).¹³

Deforestation has not historically been an issue in Suriname. Recent estimates prepared by the United Nations Food and Agriculture Organization state that the rate is around 0.1 percent per year (13,000 ha).¹⁴ The Suriname Forest Service suggests that the rate is 0.17 percent per year and that shifting cultivation results in 16,000 ha per year deforestation, though

Table 4. Land Use in Suriname

Type of Use	Area (ha)
Concessions and Cutting Permits	2,414,800
Protected Forested Areas	804,000
Proven Timber Reserves	407,000
Other Forested Land	11,228,800
Total Forested Land	14,854,600
Shifting Cultivation	150,000
Permanent Agriculture	90,000
Permanent Pasture	15,000
Total Agriculture	255,000
Other uses (mining, lakes, etc.)	1,290,000
Total Land Area	16,399,600

Data provided by Government of Suriname (1994).

where human population density is low such losses are only temporary. (After two to five years of cultivation, the small swidden plots revert to secondary forests and fallow with high species diversity almost immediately.)

Approximately 2.4 million hectares of forest in the accessible or "economic belt" has been awarded to about 150 local concessionaires since 1947. The largest (440,000 ha) is the Bruynzeel Timber Company, a Dutch private company turned Surinamese state-owned enterprise.¹⁵ The other concessions are all less than 50,000 ha each.

The Government of Suriname earns almost no revenue from the 150 local concessions. Most of the tax collected is paid on exported timber (less than 5 percent by volume of total production) and the export levies set as a percentage of "free on board" (FOB) value. FOB values were fixed in local currency below world market prices in 1992 following negotiations between the Ministry of Finance and the private sector and have since fallen further behind thanks to inflation.

The FOB values used in dockside calculations in Paramaribo are less than half the real-world prices. The values result from negotiations between industry and the government rather than objective valuations. More to the point, almost none of the timber is exported. Other fees paid by concessionaires are fixed and have been eroded by inflation to almost nothing:

Area fee	
(concession rights):	US\$0.02 per ha per year.
Royalty:	US\$0.005 - \$0.02 per log.
Export taxes:	5 to 10 percent of FOB.

Even if all area fees were collected, they would total only \$48,000 per year for 2.4 million hectares currently in forest concessions, and the royalty would probably yield a similar amount. In all, total gross revenues (before collection costs are factored in) are certainly less than \$100,000 per year and probably less than \$50,000.

Each year, selective logging takes place on approximately 25,000 hectares, and the harvest generally falls below 20 cubic meters per hectare. Logging is fully mechanized, felling is done with chainsaws and the logs are skidded out of the forest using crawler tractors, wheeled log-skidders, or both. Logging trucks then carry the timber to the nearest river

landing from where it is transported by slingboat or barge. Road transport is thought to be increasing.

Suriname has some 40 sawmills with installed input capacity ranging from 1,000 cubic meters per year to 60,000 cubic meters per year each. Bruynzeel is the only company that can fully process for plywood (production capacity of 3,500 cubic meters per year), and particle board (also with a capacity of 3,500 cubic meters per year). Because mill layout is poor and machinery old, recovery rates are only 20 to 50 percent. The need to produce a large range of product sizes to satisfy the local market further reduces efficiency.

Production has fallen dramatically over the past 10 to 15 years due largely to the violent unrest in the interior that ended in 1992. Total annual removal was about 320,000 cubic meters in 1980 and fell to 107,000 cubic meters by 1991. (See Table 5.) Almost all production has been to supply the local market of Paramaribo and the surrounding area, with only about 1 percent exported, mostly to Europe (especially the Netherlands and Great Britain), the Caribbean (most to the Dutch and French islands), and Central and

South America (Venezuela, Nicaragua, French Guiana, and Guyana).¹⁶ (See Table 6.)

New legislation directly governing forest management, exploitation, and primary wood processing was published in the Official Gazette in 1992,¹⁷ replacing the older 1947 Timber Act.¹⁸ (See Box 1.) The legislation allows for three types of concessions to be granted:

1. Short-term for 1 to 5 years up to 5,000 ha. Reserved for small, local contractors.
2. Medium-term for 5 to 10 years and not more than 50,000 ha. The applicant must also own a sawmill and can sub-contract extraction.
3. Long-term for 10 to 20 years and up to 150,000 ha. These concessions are reserved for vertically integrated processing and export industries. The law clearly states that total holdings for one corporation, even if it has various subsidiaries, cannot exceed 150,000 ha.

Trade in non-timber forest products is significant. As the legal export of wild flora and fauna from many Latin American countries becomes increasingly difficult, international wildlife traders have turned to Suriname. Preferred species are parrots,

Table 5. Timber Production in Suriname

Type of Production¹	1980	1985	1990	1991	1992	Projected 1996²
Industrial Roundwood	n/a	189.9	114.8	105.2	118.8	1,924
Square Piles	n/a	23.3	0.6	0.9	1.7	1.1
Minor Products	n/a	2.7	0.5	0.4	1.4	0.8
Fuelwood & Charcoal	n/a	1.6	0.4	0.4	0.4	0.4
Total Roundwood Production	320.0	217.5	116.3	106.9	122.3	1,926.3

Data provided by Government of Suriname (1994).

1. All figures are in thousands of cubic meters of roundwood equivalent.

2. Figures for 1996 Projected Industrial Roundwood were created by adding the average production for 1990–1992 to the estimated annual production for the planned Berjaya, MUSA, and Suri-Atlantic concessions. Projected 1996 figures for square piles, minor products, and fuelwood and charcoal are averages of 1990–1992 production.

n/a = not available.

Table 6. Timber Exports from Suriname

	1987	1988	1989	1990	1991	1992	1993
Volume (m ³)	8,582	16,200	8,800	2,200	1,400	6,000	6,100
Value FOB ('000 Sf)	3,858	6,137	4,106	1,233	860	2,701	3,287
Value FOB ('000 US\$ at the parallel exchange rate)			241.5	49.3	18.3	13.6	
Exports (as a percent of total production)				1.89	1.31	4.91	

Data provided by Government of Suriname (1994).

macaws, parakeets, songbirds, and a variety of reptiles, amphibians, and orchids. Since 1981, all exports have had to be accompanied by an export permit and a CITES¹⁹ permit for species considered endangered. In 1987, Suriname instituted an export quota system for all legal exports. Now dealers must possess a license before they can collect, trade, and so on.

Suriname has also become an important player in international biodiversity prospecting. A Surinamese pharmaceutical firm, BGVS, and the National Herbarium have established a five-year partnership with Conservation International and others, including Bristol-Myers Squibb and the Missouri Botanical Garden, under the sponsorship of the U.S. National Institutes of Health, National Science Foundation and Agency for International Development to look for anti-HIV and anti-cancer compounds. The agreement calls for profit sharing with Suriname and with the traditional peoples who will provide much of the knowledge guiding plant collection.

Subsistence use of the forest is the lifeline for most of Suriname's Amerindians and Maroons (about 10 percent of the country's population). These groups use a tremendous diversity of plant and animal products in daily life.

Suriname's land-use planning and zoning legislation, considered to be neither clear nor comprehensive, is widely ignored. Lands are divided up without an effective over-arching policy and legal framework to guide the use of state property. Only recently, under the auspices of the FAO and the Pro Tempore Secretariat of the Amazon Cooperation Treaty, is an

Box 1. Key Provisions of Suriname's 1992 Forest Management Act

- Forest concessions in Suriname can be granted to nationals or foreigners with a locally incorporated company. The same rules and regulations apply to each for areas up to 150,000 ha. Areas over 150,000 ha are not covered under the existing Forest Law. Concessions larger than 150,000 can be acquired only through approval by majority vote of the National Assembly representatives.
- Secondary processing in Suriname is promoted for all medium- and long-term concessions.
- Forest inventories are required before concessions are awarded.
- Management and exploitation plans must be prepared prior to logging. The latter must include technical specifications for wood harvesting and state maximum and minimum annual cuts.
- Concessions may be extended only once, for an equal period of time.
- The "common law rights of the inhabitants of the interior... will be respected as much as possible." (Article 41.1.a.) If such law is breached, an appeal may be made to the President.
- Communal forests are to be established for the benefit of tribal groups.
- Maximum penalties are up to four years in prison or a fine of up to 500,000 Surinamese Guilders (about \$1,000 as of March, 1995).

“

Subsistence use of the forest is the lifeline for most of Suriname's Amerindians and Maroons.

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economic and ecological land use zoning project getting off the ground.

Suriname's Forest Service, once the pride of South America, was transformed during the early 1980s. With the widespread unrest in Suriname's hinterland, the Forest Service lost almost all of its field infrastructure and the famous Celos low-impact timber-harvesting and silviculture experiments were abandoned.

The Forest Service has also suffered from economy-wide ills. Salaries have dropped dramatically, staff are poorly motivated and apt to abandon the Service to work for private logging companies or in other sectors of the economy. The Head of the Forest Service earns less than \$50 per month. Many of the 550 staff on the Forest Service payroll make as little as \$10 per month. The annual Forest Service budget is only about \$20,000–\$30,000, of which about 80 percent goes for salaries and 15 percent for office supplies and vehicle-maintenance costs. As of early 1995, the Forest Service counted only three professional foresters and six forestry technicians among its ranks. The Inspection Division, which oversees concessionaires' activities in the forest and enforces regulations, has only 14 trained staff, not all of whom work in the field. Even the large Bruynzeel conces-

sion is not regularly inspected. Field inspectors have little incentive to make site visits when the salary “bonus” for such hard work away from their families is less than US\$0.10 cents per 24 hours spent in the bush. The Forest Service has only one four-wheel drive vehicle in good enough repair to travel the rough interior roads out to the concessions and two canoes with outboards. It is widely believed within the Service that field inspections are not wholly objective; further, an estimated 30 percent of timber cutting is undeclared, with 10 to 15 percent of logs being smuggled into Suriname from Guyana and French Guyana.

Other institutions besides the Forest Service do or could play important roles in development of the forest sector. The quasi-governmental Stinasu carries out ecotourism and management activities in the country's protected areas, working very closely with the Forest Service. In addition, the three-year-old NGO Forum's more than 50 institutional members have diverse goals, such as macro-policy intervention, local institution building, and strengthening democracy. The Forum organizes training workshops, collects data, and conducts research. Conservation International-Suriname—staffed entirely by Surinamers and headed by the former Director of the Suriname Forest Service—is implementing biodiversity-prospecting projects and strengthening shaman traditions among Amerindian groups in the south and working with the government to consolidate the protected areas network with funds from the Global Environment Facility. Other groups include the Foundation for a Purer Suriname, Organization of Indigenous Peoples (OIS), and Moiwana '86 (the most prominent human rights advocacy and watchdog group), as well as several private sector federations.

II. THE NEW FOREST-CONCESSION PROPOSALS—THE BIG QUESTIONS

2.1 WHO IS INVESTING AND WHY?

There are probably many factors behind the movement of Malaysian, Indonesian, Chinese and other companies into the forests of Suriname and its near neighbors. Low royalty rates, limited tax collection capacity, and more than three years of peace all contribute. So may improved law enforcement, and tax increases in some major timber-exporting countries, as well as Suriname's position vis-a-vis international trade agreements. (See Box 2.)

As of February 1995, at least five foreign investors were seeking forestry concessions for timber production that are greater than the maximum size of 150,000 hectares permitted under the 1992 Forest Management Act. Of these, three requests—from The Berjaya Group, MUSA, and Suri Atlantic—were for over one million hectares each, with total projected investments of around US\$300 million. (See Figure 1.) With stakes this high, a basic step in assessing the proposals is reviewing information about the investors' track records. A summary of the small amount of information that has been made public about the three largest investors is given below.

1. Berjaya Timber Industries Suriname N.V. (wholly-owned subsidiary of Berjaya Group Berhad)

Berjaya's ownership structure and some of its past practices are well-documented. It is a large, diversified Malaysian conglomerate controlled by the Malaysian businessman Vincent Tan Chee Yioun. Holdings include seven public and about 200 private companies involved in gambling, textiles, tourism, hotels and property development. Total group assets, according to the conglomerate's 1994 Annual Report, were around US\$2.2 billion.²⁰ Timber and the related processing industries are relatively new interests for Berjaya.

Some recent incidents cast a shadow over Berjaya's corporate responsibility. In July of 1994, Tony C.T. Yeong, the managing director of Berjaya Group Limited in the Solomon Islands, was expelled from the

country for allegedly attempting to bribe the Solomon's Minister of Commerce, Employment and Trade.²¹ According to press reports, the Berjaya official offered approximately US\$3,200 to the Minister when meeting to negotiate the company's request to take over a local logging company. Berjaya Group denies the allegation and Yeong claimed that the offered funds were merely "a gift." Yeong has since resigned from Berjaya Group and taken full responsibility for the accusations.

The Berjaya Group has been accused by Malaysian environmentalists of destroying coral reefs off Rendang Island, Malaysia, to develop coastal property. In an unrelated case, the Berjaya Group withdrew from a plan to develop a forested area following protests from environmentalists.²²

2. N.V. Mitra Usaba Sejati Abadi (MUSA) Indo-Suriname

MUSA, unlike the other prospective investors, has already been operating a 150,000 ha concession in Suriname for over a year. The company claims to have invested more than \$20 million. Unfortunately, MUSA's ongoing operation in Suriname has repeatedly come under fire in the local press and internationally. Recent accusations in the press in Suriname center on massive illegal logging outside the concession area and pay-offs to community leaders aimed at bypassing logging authorities. MUSA is thought to be a consortium of about eighteen Indonesian companies.

3. Suri-Atlantic Industries N.V.

The joint owners of Suri-Atlantic are three Indonesian companies: P.T. Tritama Unggulestari, P.T. Antang Permai Plywood Industry, and P.T. Pelayran Utamalestari Bahari, all based in Banjarmasin. Little else is known about the company.

2.2 HOW MUCH REVENUE WILL THE CONCESSIONS GENERATE?

The Government of Suriname proposes to earn revenue from the concession agreements through

Box 2. Why are Foreign Timber Companies Turning to Suriname?

1. Log export bans in effect in Malaysia, Indonesia, contemplated for the Solomon Islands, and being introduced in Papua New Guinea

Peninsular Malaysia banned exports of logs of ten species in 1972. Indonesia outlawed all log exports in 1985. The Malaysian state of Sabah temporarily banned log exports in 1993, and will do so permanently by 1996.¹ The Malaysian state of Sarawak has limited log exports and log production since 1993, resulting in a 35 percent decrease in exported logs by volume.² The Forest Minister in Papua New Guinea has voiced plans to ban log exports by the year 2000. The Prime Minister of the Solomon Islands has announced a moratorium on all logging and sawmill licenses, foreshadowing an eventual ban on log exports.³

Companies that process foreign timber must look outside Southeast Asia for logs. This group includes not only the Japanese, Taiwanese, and Korean processors that have historically been the main importers of tropical logs, but also the huge Malaysian and Indonesian timber companies that have diversified into timber processing and now need larger supplies of logs so they can expand and compete.

2. Incentives in home countries for investment in timber processing

Malaysia and Indonesia have used tax incentives and grants to encourage domestic investment in sawmills, plywood, molding, and furniture factories. Rimbunan Hijau of Sarawak, for example, has made plywood processing the core of their corporate strategy and is now Malaysia's largest plywood and veneer producer.⁴ With Papua New Guinea and the Solomons limiting their log exports in the near future, the growing Malaysian and Indonesian integrated timber companies must look further abroad for raw logs.

3. More effective law enforcement and tax increases in Malaysia and Indonesia

A recent study by the Asian Development Bank notes that current revenue collection in Indonesia totals only about 20 to 50 percent of the potential maximum, but that "This situation represents an increase with respect to the period 1985-1987, when rent capture accounted for only about 10 percent of the potential." In other words, while companies can still earn outsized profits from logging in Indonesia, the profit margin has shrunk dramatically over the past decade. The reforestation fee (the largest share of forest levies) was first imposed in 1980 at \$4 per cubic meter, raised to \$7 per cubic meter in 1989, and then to \$10 in 1990. The current rate is about \$22 per cubic meter.⁵

Governments in Southeast Asia are just beginning to hold logging companies accountable for their illegal logging and accounting practices.⁶ In late 1992, fines and jail terms were increased for illegal loggers in Malaysia and companies were warned that, if convicted of logging illegally, they would have their equipment confiscated and be made to pay compensation for felled logs.⁷ In Indonesia, the Forestry Ministry has revoked concession permits in the wake of unsound logging practices. Most of these repossessed concessions had been depleted and abandoned and the companies responsible have not been fined or forced to pay for land rehabilitation.⁸ But even though few loggers have been convicted, tighter rules demonstrate that logging practices are coming under closer scrutiny in Southeast Asia.

The accounting practices of these companies are also being more closely examined.⁹ Recently, the Malaysian government has taken steps to recapture the revenues lost due to transfer pricing. (See below.) Twenty timber companies were recently assessed large back taxes. (One owed as much as US\$40 million.) Malaysia's Minister of

Primary Industries recently stated that, based on a number of investigations, transfer pricing has been reduced to a "bearable minimum."¹⁰

4. *New concessions as equity for leveraging loans to finance aggressive takeover bids*

A company that secures a promising new timber concession will likely see its credit rating rise. For this reason, a new concession can serve as equity for securing multi-million dollar loans to expand operations.

5. *Fear of losing market share*

As international prices for raw logs rise, suppliers that can provide lower-priced raw materials for the large milling operations in Asia and elsewhere can increase or at least maintain their market share. Suppliers sensing the rising prices and declining availability may now be prepared to take relatively greater risks with investments, look farther afield, and pay higher transport costs.

6. *International trade accords*

Suriname's position among existing and evolving regional and international trade accords may attract companies outside the region seeking preferential market access. Suriname has applied for membership in the Caribbean Community (CARICOM) regional free trade zone and already benefits from the Lomé Treaty—a trade and aid agreement to remove tariffs (around 10 percent for processed timber products) on most exports to the European Union. Negotiations are also progressing toward an Americas-wide free trade zone. Companies located in the region could benefit enormously from the booming economies of neighboring Brazil, Colombia, Peru, and the Southern Cone. Early investment in the region, on the scale proposed by the newcomers in Suriname, might enable them to beat competition from other parts of Latin America.

Notes

1. Rachel A. Crossley, "A Preliminary Examination of the Economic and Environmental Effects of Log Export Bans." Draft manuscript, (Washington D.C.: World Bank Environment Department, 1994).
2. Adam Schwartz and Jonathan Friedland, "Green Fingers," *Far Eastern Economic Review*, March 12, 1992: 42–44.
3. *Sydney Herald*, August, 1994.
4. Raphael Pura, "Timber baron emerges from the woods." *Asian Wall Street Journal*, February 15, 1994: 1.
5. Indonesia, Ministry of Forestry, "Resource Rent and Implications for Sustainable Forest Management," Sector Study Working Paper No. 3, ADB Project Preparation Technical Assistance No. 1781-INO (Jakarta: Ministry of Forestry, 1994).
6. The Auditor-General of Malaysia has said that "imposing fines on such offenders [illegal loggers] under the existing laws is inadequate, and as such more deterrent punishments should be introduced by the legislative body." Quoted from, Alex Choong and Sivakumar Kuttan, "Illegal Logging: State-Owned Companies Biggest Culprits" *New Straits Times*, November 25, 1992.
7. Shariff Hamid, "Cabinet Wages All-Out War on Illegal Logging" *Business Times*, January 28, 1993.
8. Her Suharyanto, "Greening Indonesia: Timber Cutters Come to Party" *Indonesia Business Weekly*, August 13, 1992: 23.
9. "Transfer Pricing of log exports was common, allowing timber merchants to realize most of their profits in privately held offshore companies and reduce their Malaysian tax exposure." (Raphael Pura, "Timber Companies Blossom on Malaysian Stock Market" *Asia Wall Street Journal*, November 30, 1994: 12).
"Privately, some timber industry executives and bankers acknowledge that the practice [of transfer pricing] was widespread." (Raphael Pura, "Planned Malaysian Listing Draws Attention of Tiongs" *Asia Wall Street Journal Weekly*, February 21, 1994: 16).
10. Raphael Pura, "Planned Malaysian Listing Draws Attention of Tiongs" *Asia Wall Street Journal Weekly*, February 21, 1994: 16.

income tax on corporate profits; a royalty based upon the volume of timber produced; export tax on raw logs; and a dividend tax on investment earnings.

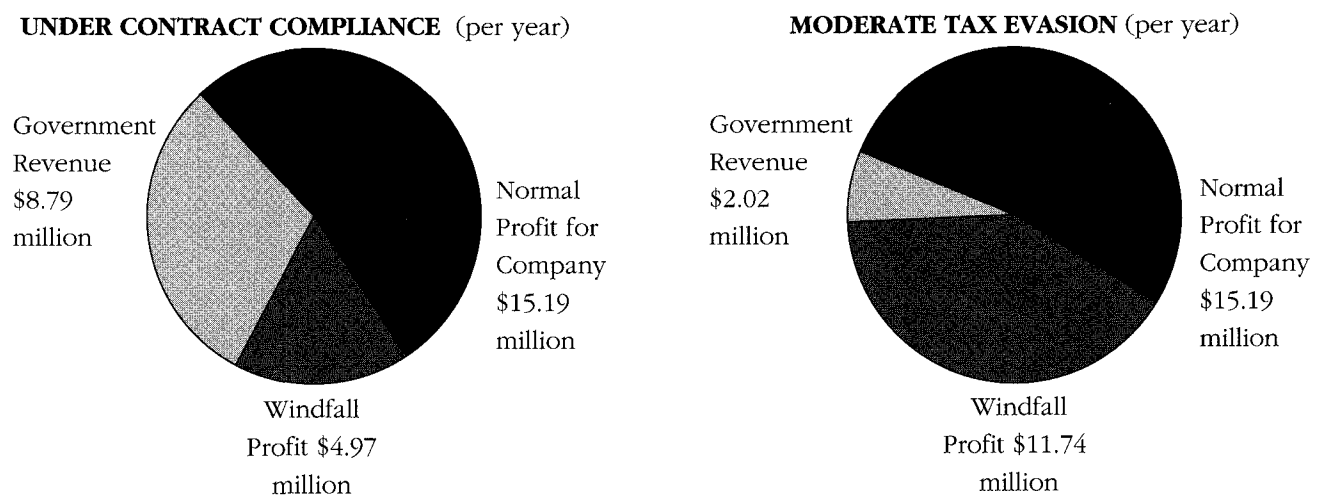
Using available information about current timber market prices at the port in Suriname and data from the draft contracts and investment plans provided by the Government of Suriname, we have assessed the annual contribution of the three proposed concessions to government revenue and corporate profits during the first five years of the 25-year contract period. (See Appendix for details.) Key findings are:

1. **Taking the Berjaya contract as an example, the largest share of net revenues from forest exploitation will go to the timber company, not the government.** (See Figures 2 and 3.) The government will receive an average of \$8.79 million per year in tax revenue compared to corporate profits of \$20.16 million. As the “owner” of the resource, the government could earn as much as \$4.97 million per year more (\$13.76 million total) by raising taxes and reducing annual corporate profits to a “normal” 30-percent rate of return.

2. **Tax collections depend heavily on how honestly companies report profits to the government.** Assuming a 20-percent over-reporting of costs and a 20-percent under-reporting of revenues, government tax collections from the Berjaya contract would fall by nearly 80 percent to \$2.02 million due to the heavy dependence on income tax. Under this scenario, foregone government revenue would increase to \$11.74 million and corporate profits to \$26.93 million—nearly twice the normal rate of return. The large drop in government revenue reflects the disproportionate share (71 percent) of total government revenue made up by income taxes. (See Figure 4.) Income taxes from Berjaya, in this scenario, fall from \$6.26 million to \$0.90 million. (See Table 7.)

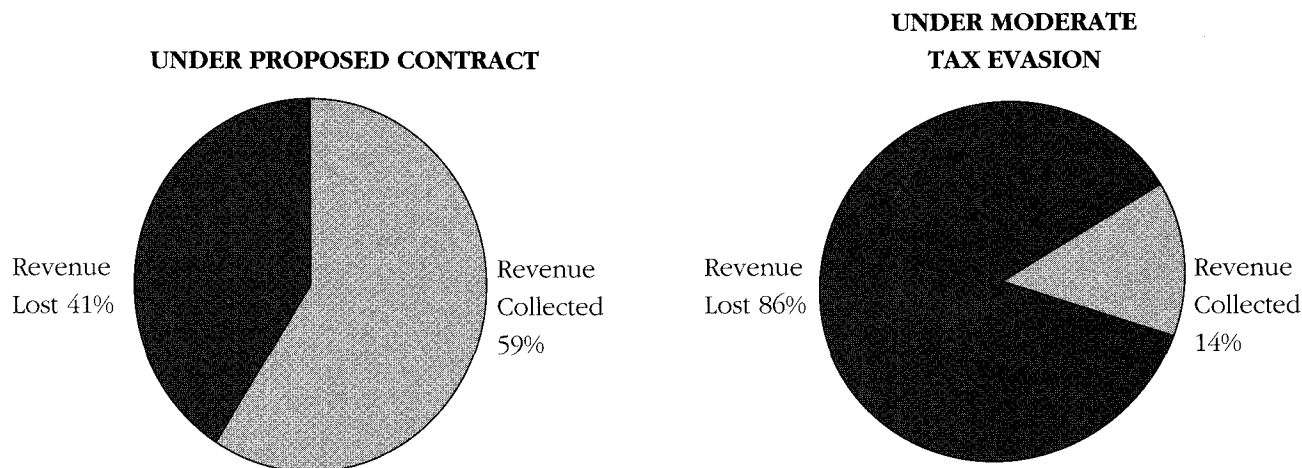
3. **For all three together the amount of government revenue “foregone” will be at least double the wages paid by companies to local mill workers.** Government wants foreign investments to generate high-paying local employment in wood processing. Meanwhile, companies demand lower taxes to compensate for these investments. But, we esti-

Figure 2. Who Will Benefit Most from the Proposed Berjaya Concession?



The figure on the left shows who will benefit from the Berjaya concession under full contract compliance—the company makes windfall profits of \$4.97 million over and above normal operating profits. The figure on the right shows that, with moderate tax evasion, the windfall profits would increase to a hefty \$11.74 million.

Figure 3. Potential Government Revenue from the Berjaya Concession



The figure on the left shows that even under full compliance with the proposed Berjaya contract, the government will collect only 59 percent of potential revenues, losing \$5 million annually. Based on experience elsewhere, the figure on the right shows a more likely scenario of moderate tax evasion, under which the government will collect only 14 percent of taxes and lose \$12 million annually.

mate, the resulting employment will cost the government far more than it receives in terms of annual wages. Company investment plans for Berjaya, MUSA and Suri Atlantic indicate that workers will earn an average wage of \$1,190 per year, compared to foregone tax revenues of \$2,806 per job—2.4 times the average wage. This cost rises to \$6,734 per job, or nearly 6 times the average wage, if companies over-report costs and under-report revenues, as assumed above, for argument's sake, and provide 20 percent less mill employment than originally projected. The estimate of revenue foregone per job created is almost certainly a dramatic underestimate as real salaries in Suriname are likely to be much lower than those stated in the company documents.

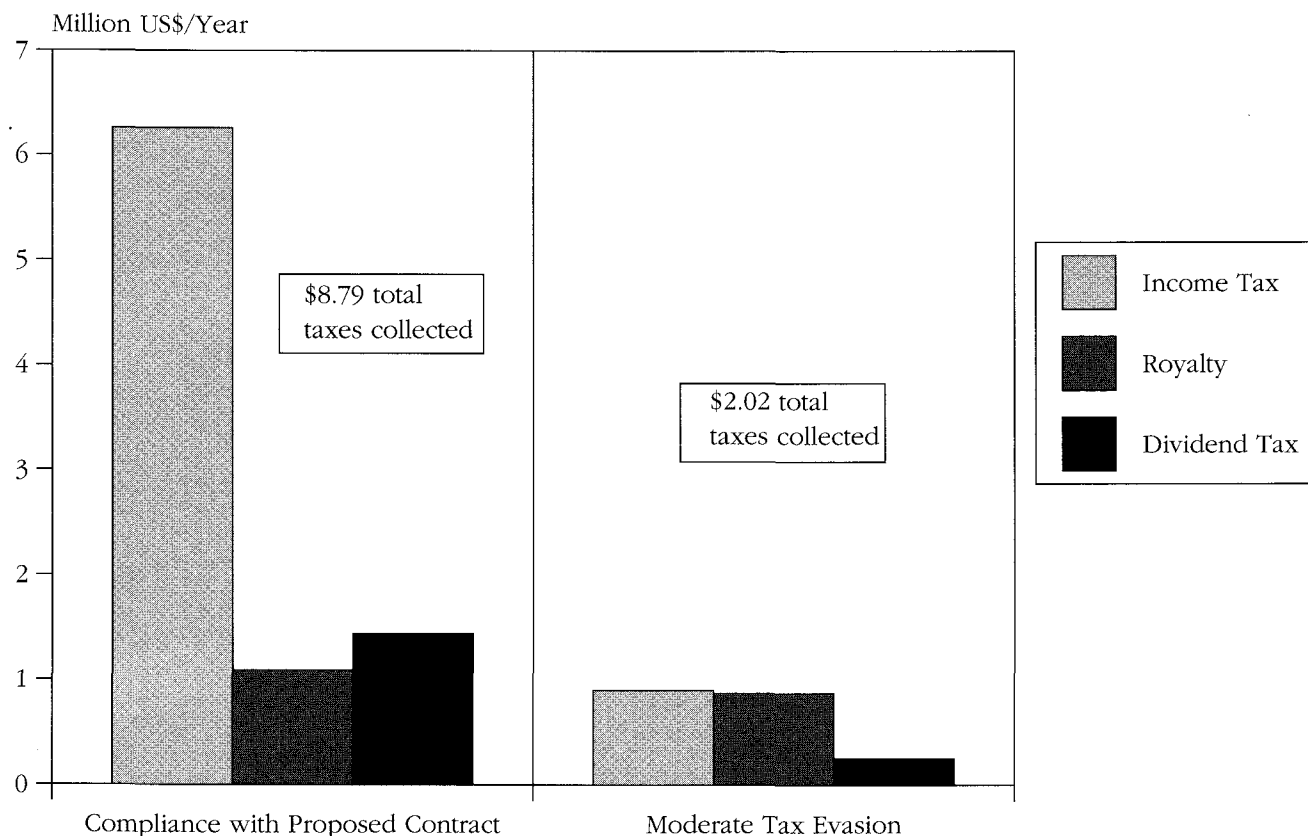
4. The amount of revenue foregone from the three large proposed concessions could be sufficient to eliminate the government's budget deficit, which reached 10 percent of GDP in 1994. A preliminary assessment of the impact of implementing all three concessions indicates that foregone government revenues would rise to nearly \$50 mil-

lion per year with modest contract evasion. The government, in this case, would be taxing its own citizens or cutting services further to reduce the deficit, while sacrificing the needed revenue to foreign companies.

An important caveat to this analysis of the impact of the proposed tax system on government revenues is that the data used were provided to the Government of Suriname by the investors. As such, some estimates of production potential, rates of harvest per unit area, and so on are likely to be over-estimates as the companies are seeking to make the deals appear as attractive as possible to the government. If experiences in the region are any clue, true values could be much less than those presented.

Past experiences with major natural resources exploitation contracts between developing countries and international investors show that, significant income for the country aside, profits are rarely divided fairly. Among the most lopsided profit splits are those between developing countries and transnational corporations.²³

Figure 4. Revenues Lost from Contract Evasion



If Berjaya complies with its contract it would pay \$8.79 million annually to the government. With moderate tax evasion, it will pay only \$2.02 million. Under the proposed contracts, income tax payment depends on the honesty of the companies.

Table 7. Summary of Economic Analysis of the Berjaya Timber Concession Proposal

	With Contract Compliance	With Contract Evasion
Government Revenue (millions of US\$/year)		
Actual	8.79	2.02
Foregone	4.97	11.74
Corporate Profits (millions of US\$/year)	20.16	26.93

Suriname's "brain drain" since independence has taken a toll, along with the country's relative inexperience in negotiating large logging contracts. (The only other comparable contract was negotiated with Bruynzeel nearly 50 years ago.) No wonder the negotiation table is heavily tilted toward foreign investors.

In other countries, unscrupulous companies have resorted to various ruses to increase their profits net of tax and other deductions. Some have thwarted government officials in, for example, Indonesia, Malaysia and the United States, where enforcement capacity is relatively good and experience with such problems considerable. A 1983 report to the U.S. House of Representatives describes how companies with long-term contracts in the Tongass National Forest, Alaska, had underpaid almost \$100 million in taxes through "anti-competitive bidding practices, price manipulations and fraudulent invoices and reports."²⁴

Frequently, transfer pricing designed to shift profits to parts of the company located in countries with more generous tax laws is used to maximize profits. Logging outside of concession areas, under-declaring the volume of timber exported or reporting high-valued species as lower-valued species, and over-declaring the depreciation of equipment and other investments are also common.²⁵ A variety of means is also used to cut labor costs thereby also reducing public revenues (through losses in workers' income taxes). (See Box 3.)

The tax-evasion strategies described in Box 3 can be viewed as merely a hint at the enforcement and monitoring challenge Suriname's government must take on if it is to ensure contract compliance. Add to them weak contract terms, a fee structure that inadvertently facilitates tax avoidance, and severe limits in the Suriname Forest Service's capacity. Indeed, Suriname's natural resources policy debate has long been marginal, and the Suriname Forest Service can't even regulate, monitor, and enforce contracts, codes, and policy in the 47-year-old Bruynzeel concession, much less the proposed concessions.

Tax evasion problems have plagued Suriname's mining sector too,²⁶ and can be at least partially addressed through a balanced system of incentives and the decision to untie resource rent charges from actual or declared gross and net revenues. (See Part III.)

2.3 WILL THE CONCESSIONS PROMOTE DEVELOPMENT IN THE HINTERLAND?

The Government of Suriname is committed, through the 1992 OAS-brokered peace treaty, to promoting development and providing government services in the interior. Information on the numbers and distribution of the inhabitants of Suriname's poorly-accessible interior south of the existing forestry concessions is very limited. But anthropologist Gary Brana-Shute, who has 20 years of experience in Suriname, has made useful estimates for the three largest proposed concessions. (See Table 8.)

The traditional communities of Suriname's interior have little contact with the outside world. They basically subsist—hunting, fishing, practicing small-scale swidden agriculture and harvesting plant and animal products. Experiences in Brazil, Guyana, and other parts of South America demonstrate that efforts to assimilate traditional cultures into the "national culture" are often disastrous. Problems encountered include:

1. Traditional peoples have no training or skills to equip them for employment in the national labor force. Where they have been employed, productivity rates have often been low, and the regimented work is highly stressful.

Table 8. Estimated Numbers of People by Ethnic Group Living in the Three Largest Proposed Concessions

Berjaya:	8,000 Ndjuka Maroons 1,500 Paramaka Maroons 900 Mayana Amerindians 300 Boni Maroons (tribal capital in French Guiana)
MUSA:	300 Carib, Arowak and Maroon hunters and transients, no established villages
Suri Atlantic:	As for MUSA. Also abuts homelands of 3,000 Matawai Maroons, 500 Kwinti Maroons and 500 Carib Amerindians.

Box 3. Tax Evasion and Other Cost-Cutting Practices in the Logging Industry

Many mechanisms have been used by governments to earn revenue from timber companies. These include export taxes, cutting licenses and transport permit fees, corporate income tax on net income, fees or royalties charged annually on a per unit area basis, customs duty, and tax on dividends paid to foreign stock owners. Many such measures are hard to enforce, and some are almost impossible to apply, even with well-equipped and highly motivated tax collectors.¹ Some common tax-avoidance techniques include:

A. Under-declaration of gross and net profits

1. One technique is "transfer pricing." Holding company A incorporates wholly owned subsidiaries B and C. B exports logs to C, which is located in a tax haven such as the British Virgin Islands, at a lower price than the real market price. Company C then sells the timber at a high profit, but pays little tax. The country in which B is operating loses revenue. A holding company issues a letter of credit to pick up logs for a declared price. The holding company then sells the logs at another, higher price to the foreign processors.
2. Transfer pricing can also mean overstating the depreciation costs of equipment. One way is to import used machinery and report it as new, and then depreciate the full cost of new machinery and subtract the "loss" from gross revenues.²
3. Transfer pricing can also involve over-invoicing supplies from and commissions to the parent company. In many multinational companies, the logging operation buys many imported goods (e.g., machinery for transport and processing) and services (e.g., legal and technical advice) from other subsidiaries of the same parent company. Verifying whether the expenses charged on these transactions reflect the true costs can be very difficult for government officials. Over-invoicing reduces declared profits and, it follows, corporation or income tax revenues.³

4. Manipulation of debt flows and repayments among the various subsidiaries also presents opportunities for the local logging company to reduce income tax payments. The parent company can shift some of its debt burden to the subsidiary logging operation, a practice known as "debt-loading." Interest payments are then considered a cost, and the transfer of capital to the lenders to service this debt is not considered a transfer of profits. Depending upon the concession contract and local tax laws, such repayments may be deductible for income tax purposes.⁴
5. Under-reporting the number of logs or the volume of processed wood during export is another common form of under-invoicing. Here again, the country loses export tax revenue.⁵
6. Mislabelling of valuable species as less valuable species achieves the same end as under-declaring volume harvested.
7. If import taxes must be paid on goods brought into the country by the logging company, unregistered machinery may be brought in, thus avoiding import taxes.⁶
8. Cutting logs and reporting them as stolen allows a company to under-report its harvest.

B. Means to reduce effective "Area Fees"

One of the commonest taxes applied to the logging industry is the area fee—an amount payable by the company per unit area of concession. Area fees can be avoided by:

1. Logging illegally outside the concession area.⁷ Loggers in Malaysia have been known to use helicopters and mobile phones to identify patches of forest and to move in and out quickly before the forestry department can locate them.
2. Contracting with other local landowners or communities to buy logs cut in native areas. This may involve little more than paying the head of a community to gain access to community lands.⁸

3. Entering into contracts with private landowners to log private land registered with the government, but then harvesting nearby timber on public land.⁹
4. Stealing logs from other loggers working in the vicinity.¹⁰ Conviction for illegal logging requires the logs as evidence—difficult since most are sold quickly or processed.¹¹

C. Reducing effective labor costs

Indirect revenue to the government—workers' income taxes and social security payments foregone as new employment is generated—may not be as high as expected if companies follow the practices listed below:

1. Tying workers' pay to production goals. In Guyana, more than two thirds of the average worker's salary on the new Barama concession comes from production incentives.¹² This practice increases productivity but risks the safety of the workers who opt to work extremely long hours to increase pay, operating heavy machinery and harvesting at high speed while fighting fatigue. This practice also is likely to increase the environmental impact of harvesting, as tired machine operators are less careful.¹³
2. Investing too little in job training. This decreases immediate costs but increases injuries and fatalities.¹⁴
3. Opening jobs to local people as independent contractors not necessarily eligible for such worker benefits as medical coverage and accident compensation.
4. Price gouging in company stores in very remote areas where workers depend upon the company to meet all their needs. This practice offsets the cost of labor.¹⁵

D. Corrupting government inspectors

In countries where public employees receive very low salaries and are often demoralized and poorly motivated as a result, the possibilities for corruption are great.¹⁶ A few examples:

1. Bribing low-level officials to avoid punishment for poor forest management practices, and to under-declare volumes of timber and species being transported or exported.
2. Bribing officials to grant concessions or persuade others to.¹⁷
3. Paying and coercing lawyers and officials to incorporate multiple limited liability companies so that each can apply for concessions, thereby bypassing laws that limit the concessions any one firm can hold.

Notes

1. For an alternative account see, Debra J. Callister, *Illegal Tropical Timber Trade: Asia-Pacific* (Sydney, Australia: Traffic International/World Wildlife Fund, UK, 1992).
2. Roman Grynberg, David Wigston and Siva Ram Vermuri, "Transfer Pricing and Trade Malpractice in the Papua New Guinea Log Export Industry," *The Journal of Interdisciplinary Economics*, 1988, vol. 2: 215–243.
3. *Ibid.*
David N. Smith and Louis T. Wells Jr., *Negotiating Third World Mineral Agreements: Promises as Prologue* (Cambridge, Mass.: Ballinger Publishing Company, 1975).
4. Roman Grynberg, David Wigston and Siva Ram Vermuri, "Transfer Pricing and Trade Malpractice in the Papua New Guinea Log Export Industry," *The Journal of Interdisciplinary Economics*, 1988, vol. 2: 215–243.
5. Kieran Cooke, "Log-Jam Along the Rajang River" *Financial Times*, July 6, 1994.
6. Alex Choong and Sivakumar Kuttan, "Illegal Logging: State-Owned Companies Biggest Culprits" *New Straits Times*, November 25, 1992.
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8. Margaret Scott, "Loggers and Locals Fight for the Heart of Borneo" *Far Eastern Economic Review*, April 28, 1994: 44.
9. "New Method Used by Illegal Loggers Exposed" *New Straits Times*, December 28, 1992.
10. P. Parameswaran, "Loggers' 'licences' to steal timber" *Business Times*, July 1, 1991.
11. Shariff Hamid, "Cabinet Wages All-Out War on Illegal Logging" *Business Times*, January 28, 1993.
12. Interview with a Samling executive, *Stabroek News* Georgetown, Guyana, July 28, 1994.

Box 3. (continued)

13. "The truck drivers work until 11 pm and then they're wakened by the foreman at 2 am to work again." Malaysian, Harrison Ngau, a Marudi activist quoted in Stan Sesser, "Logging the Rain Forest" *New Yorker*, May 27, 1991: 42-66.
14. "Though less than 5% of the Sarawak workforce is employed in logging, the industry, in 1983, accounted for 67% of all fatal occupational accidents in the state. Over the last 17 years more than a thousand workers have been killed, 94 in 1989 alone. In 1980, one in five workers suffered injury and one in four hundred were killed... These figures indicate a rate of accidents twenty-one times higher than what was reported for the logging industry in Canada." (The researcher quoted is Wade Davis in Stan Sesser, "Logging the Rain Forest" *New Yorker*, May 27, 1991: 42-66).
15. Interview with a Samling executive, *Stabroek News* Georgetown, Guyana, July 28, 1994.
16. Francois Nectoux and Yoichi Kuroda, *Timber from the South Seas: An Analysis of Japan's Tropical Timber Trade and its Environmental Impact* (Gland, Switzerland: WWF International, 1989); Charles Barber, Nels Johnson, and Emmy Hafild, *Breaking the Logjam: Obstacles to Forest Policy Reform in Indonesia and the United States* (Washington D.C.: World Resources Institute, 1994).
17. Azmi M. Anshar, "Timber Thief Tells the 'Inside' Story" *New Straits Times*, October 28, 1991.

2. Where forestry concessions have been established on and around communal lands, often with good intentions on the part of the company to respect community territories and traditions, the outcome has been social conflict, elevated operating costs, and harsh public criticism of operations as a result. These issues are illustrated by experience in Guyana. In 1991, the Barama Timber Company Limited²⁷ was granted a 1.9-million ha concession ("timber sales agreement") in the northwest of Guyana for 25 years on various Amerindian territories, recognized and unrecognized. The company has employed some Amerindians, but has been dissatisfied with their productivity and lack of discipline. Meanwhile, some communities claim that logging has occurred or is planned on their lands without permission. No accurate and up-to-date demographic survey of the Barama concession and its zone of influence exists, and there are perhaps twice as many Amerindian communities within the concession area as initially stated or thought.²⁸

3. The roads and other infrastructure that tend to accompany large forestry concessions can have a far greater indirect impact than the concession itself. Unplanned "development" often follows new infrastructure with colonists taking advantage of easier access to place land claims, thus establishing an informal frontier economy. Deforestation and social problems result—witness many well-documented infrastructure-development projects in the Brazilian

Amazon.²⁹ Unpredicted health impacts can be a major cost. Blocked waterways and stagnant water on skidder trails invite increases in malaria vectors, for example. Reduced dry season runoff as the forest cover shrinks impairs river navigability, perhaps even isolating communities and endangering lowland agriculture and vulnerable wetlands as salt intrusion at river mouths increases.

Some of the risks described above may well be worse in Suriname, where community lands are very poorly demarcated and not officially recognized. In any case, if recent history and contemporary events are any guide, the community lands issue in Suriname is one that will be ignored at the peril of the government and the logging companies. Experiences from the construction and operation of the Brokopondo hydroelectric dam and, more recently, the Goldenstar Resources gold-mining concession have shown that where communities are not carefully consulted and included in planning activities the whole project can be jeopardized. Paramount chiefs, representing Maroons, have recently spoken out against developments in Suriname's hinterland that have only left them poorer.³⁰

In the case of the Brokopondo dam, members of some of the displaced communities have since disrupted the operations of the development to protest the lack of compensation and government assistance provided since resettlement. The Goldenstar Resources mine, still in the preparation and exploratory phases,

has already suffered serious threats of armed violence by young Maroons who live in the zone of influence.

One of the companies vying for a large logging concession, MUSA, has a poor record so far in dealing with both traditional communities and its own employees. In at least two cases reported in the press, the company has negotiated contracts with community leaders outside its existing 150,000-ha concession to buy timber from community lands at very low prices.

2.4 WILL ECONOMIC GROWTH AND SOCIAL DEVELOPMENT BE ACHIEVED WITHOUT MAJOR ENVIRONMENTAL IMPACTS?

The Government of Suriname has very limited capacity to monitor even the current forestry concessions, let alone those proposed, and equally little capacity to enforce the laws on the books, much less the more complex environmental provisions contained in the draft contracts and their technical annexes. Furthermore, logging can be very damaging to the environment, especially where enforcement capacity is limited, as it is in Suriname.

Even when tropical logging is practiced with the utmost care, as in experimental settings, controversy surrounds its environmental impact. Selective logging practices take a heavy toll on the forest, altering local patterns of biological diversity and such ecosystemic functions as evapotranspiration rates, nutrient cycling patterns, and forest humidity.³¹

Studies in French Guyana have demonstrated dramatic impacts on forest-dwelling birds following episodes of selective logging. Populations of some species swell while those of others shrink. Game birds and doves that inhabit the forest's understorey and are particularly significant in the diets of traditional communities³² were 94 percent less frequent in the forest 8 to 12 years after logging than before, while some living on the forest edge or in large gaps (species of very little subsistence value) were 575 percent more frequent after the same interval.³³

Knowledge of the ecology of tropical rain forest trees is very limited, even for greenheart and other commercially important species. For many of the

The Government of Suriname has very limited capacity to monitor even the current forestry concessions, let alone those proposed, and equally little capacity to enforce the laws on the books, much less the more complex environmental provisions contained in the draft contracts.

lesser known species, some of which the concessions propose to commercialize, scientists don't even know the regeneration requirements. Nor have growth rates and the impacts of silvicultural treatments, such as enrichment planting and vine cutting, been studied much. Even the Celos system of natural forest management developed in Suriname has only been tested on an experimental scale.³⁴ Those who developed the system (in which post-logging treatments promote the growth of desired species) believe that it will allow continuous timber harvesting on a 25-year cycle. But Celos has never been tested at the scale of a commercial concession, and companies who propose to use it on new concessions have little incentive to carefully follow through with the costly recommended treatments, and little chance of being caught by the government if they don't.

Other damages are even more likely. Designing logging roads poorly, using inappropriate types of skidders for extracting logs and thereby compacting the soil more, and logging on steep slopes lead to soil erosion and disrupt local watercourses. If perennial streams are dammed during road construction and waterways permanently altered, the ecology of large areas of forest can be upset, perhaps even reducing potential for the local regeneration of economically important species.

These impacts can be dramatically reduced by using low-impact logging techniques and implementing "best practice" in road design and construction. But knowledge of such techniques and best practices

is sorely lacking in Suriname. Since late 1994, the United States Forest Service has been lending some of its expertise to Surinamese officials by working with them to plan measures to reduce the environmental impact of logging activities, including soil erosion, stream disruption, habitat loss, and industrial emissions. But, clearly, such assistance is expensive and a long-term program of institutional strengthening is needed if the Suriname Forest Service is to address these issues through the course of implementation of new concessions.

Best practice logging and sustained efforts to minimize industrial residues from processing plants are rare throughout most of the world. Ensuring that such practices are widely used and respected by the logging companies in Suriname is even less likely considering how weak public institutions are and how limited technical capacity for establishing standards and monitoring is. And an even more complex issue is the indirect impact of logging industry expansion, including colonization along new roads and pollution from the processing plants.

III. OPTIONS FOR STRENGTHENING SURINAME'S FOREST-CONCESSIONS POLICY

3.1 OPTIONS FOR INCREASING RENT CAPTURE

Many forest concessions around the world produce little government revenue.³⁵ The fee structures are too complex, contracts and laws are poorly structured making revenue calculation and collection difficult. In addition, the fees are too low and are not adjusted with inflation. Fees are often set administratively rather than according to what the market will bear, logging and the invasion of concessions are poorly controlled, resources are wasted and corruption abounds.³⁶ All of these problems are at play in Suriname to some extent.

If most of the revenue owed is not collected, opportunities for providing incentives via the tax system to reduce the negative environmental and social impacts of harvesting and processing are lost. The fees that Suriname currently collects on concessions operating in its northern region are extraordinarily low. In his authoritative report to FAO on Suriname in 1974, F.J. Schmithusen noted, "It would be difficult to find other examples of tropical countries where the forest fees have remained unchanged for such a long period."³⁷ But recommendations made then have *still* not been implemented.

The rate of taxation should ideally be set through the market. That way, it will be the highest that competing companies are prepared to pay to purchase access to the resource, given predefined environmental and social constraints. The market-based approach must be complemented by special provisions developed to promote community forestry and co-management by communities and the private sector.

The revenue-collection scheme proposed has six components:

1. **Establish an auction system** whereby forest concessions are awarded to companies that offer the highest bid to win the right to manage the resource. A minimum bid, or "floor" price would ensure a reasonable upfront pay-

ment to reduce the impact of collusion among bidders. Prospective bidders would pay an application fee to cover the cost of assessing their eligibility to participate in the auction. Eligibility would be based on an independent review of financial data and of the firm's record in the forestry business, including its history in environmental and labor issues.

2. **Implement a system of end-product *ad valorem* royalties** based on estimates of extraction, transport, and processing costs, as well as information on market prices, to bring projected profits down to "normal" rates for foreign investors.
3. **Require companies that win a concession to pay two types of "performance bond" totaling not less than about 10 percent of the estimated investment.** The first bond would last the life of the agreement and be forfeited to the extent necessary to pay remediation costs related to negative environmental and social impacts. The second would help ensure that the company invests what it says it will invest, perhaps being released over time as the company fulfills its obligations.
4. **Consider removing all incentives and subsidies for secondary processing of timber** in Suriname and reconsider whether a ban on log exports makes economic or environmental sense.
5. **Charge reduced fees for community-based forestry initiatives and co-management efforts** to help catalyze such schemes.
6. **Privatize some fee collection and information gathering activities (such as inventories and cost studies).**

If royalty rates are based on accurate price and cost data and if institutions are restructured to ensure that royalties are actually paid, government revenues from the proposed concessions could be more than doubled using the system proposed here. In addition,

a concession-awards system based on auctions tends to discourage speculation and discriminates against companies that have less efficient operations. In short, auctions help the government allocate resources to those who value them most and who will probably use them most productively.³⁸

An auction system also creates an incentive for government to strengthen its capacity to gather information about the natural resource base. The more detailed the information on forest composition, transport costs, soil types, hydrology, and so on that the government can provide, the higher the bids are likely to be since solid data minimize investor risk. Contractors employed by the government could collect some of the needed information, and the information could be sold to participating companies to cover the costs of gathering it.

Concessions would be significantly smaller than the million-hectare contracts being sought by Berjaya, MUSA, and Suri Atlantic without affecting economic efficiency. As a rule of thumb, concessions would have to be large enough to attract well-capitalized foreign corporations, but not so large that few companies can afford to bid. Optimal size would probably range from 50,000 to 200,000 ha—close to the maximum envisaged in the 1992 Forest Management Act.

Unless companies are prepared to offer more than the floor price, timber sales would, in effect, be subsidized as they are in many parts of the United States.³⁹ In such cases, it would clearly not be in the public interest to award concessions at all. Excluded areas would be those with high access costs, excessive hills, poor timber stocks, or great social or ecological importance.

The shift away from the current system which depends upon administrative discretion, would reduce opportunities for bribery. Where auctions are inappropriate or information on potential concessions is terribly scarce, fees should instead be based upon rates set at auctions elsewhere in the country—a composite system.

Several auction types are in use for various resources around the world. The most common is the *English auction*, or *ascending-price auction*. In it, a low initial bid is increased until the item is sold to the last and highest bidder, and all the bidders can see each other's bids. Other types include the *Dutch*

auction, or *descending-price auction*, also an open process, and *first-price* and *second-price auctions*, which are both sealed bid processes.

At auctions, sellers always want to get the highest possible price for the resources on the block and to limit the potential for collusion. A recent review by the International Monetary Fund suggests that the English auction format usually yields the highest prices because the bidders have more information available to them during the auction and are more likely to reveal their reservation prices, but this format is also the most susceptible to collusion.⁴⁰ The best way to eliminate such collusion among bidders is to increase the number of bidders. Thus the key to success is marketing the concessions to ensure that many investors participate in the offering.

Realizing the high dividends that auctioning concession rights in Suriname could bring means designing and implementing a complex auction process, which in turn requires top-notch international assistance. Given the expected size of the increased revenue collection, it is clearly in the government's interest (possibly with donor support) to make this investment.

In an auction system, the proposed application fees would fund the verification of the company's financial data and the assessment of the firm's ability to make the proposed investments. Environmental and fiscal track records would also be investigated. Companies unable to meet predetermined eligibility criteria would be eliminated from the competition. Application fees for foreign investors would be higher to cover relatively greater verification costs. Corporate intelligence consulting services could be retained to vet this data.

Once concessions have been awarded, the simplest and most effective royalty system vis-a-vis revenue collection is a flat *ad valorem* rate assessed on the value of the final product. The rate should be based on real FOB prices in Paramaribo and vary by product type—raw logs, sawnwood, furniture, moldings, and so on. A more complex system would apply *ad valorem* royalties on finished products with different rates for different species. This system would be used to increase revenues from more valuable timbers and also establish species-specific conservation incentives. In other words, sought after

species in danger of over-exploitation would go for very high rates.

As noted in Part II, companies may try to under-declare volumes, or mislabel valuable species as less valuable ones. A good defense against this abuse would be to have royalties collected on commission by a private company, which would want to collect as much revenue as possible. A precedent for such a system exists. In the 1980s, the Government of Indonesia hired a Swiss company specializing in independent auditing to collect import and export taxes at Indonesia's ports, a move that dramatically increased the revenues collected.

Performance bonds provide a relatively simple means of environmental protection. Such bonds would be held in a guaranteed interest-bearing international investment account and released when the contract expired. The concession and processing operations would be inspected to ensure that cutting limits, investment promises, and management plans were observed, and that, if they weren't, offending companies would forfeit the bond to pay fines and repair damages to roads, culverts, etc. The bonds could also be used to compensate communities if trees on their land are illegally cut by the companies or other damages are sustained.

The rate of exhaustion of performance bonds can also be a measure of "corporate responsibility." Companies whose bonds are quickly dissipated could be barred from or handicapped in future concession auctions. Once a bond is exhausted, operations would be suspended by the government until the bond is replenished. Government could also decide to terminate a contract if a bond is exhausted because a company consistently violates good practice.

Even under conditions of relative macro-economic stability and low inflation, fees, royalties, and taxes should universally be indexed. Given Suriname's current economic instability, such an indexing system should be updated frequently. Various systems have been developed and successfully applied to this end in Brazil. Indexing to a major hard currency (such as the U.S. dollar) can also be used, though erosion due to annual inflation of even 2 to 4 percent is still significant.

Many countries have imposed log export bans and provided incentives to companies to promote sec-

ondary processing in the country. Subsidies for plywood production in Malaysia are but one example. In Suriname, the government is interested in following similar policies. Restricting log exports increases the value added to timber in the country, thereby generating increasing returns to the domestic forestry industry. Countries with a rich forestial endowment may not, however, have any comparative advantage in processing—whether processing efficiencies, economies of scale, or marketing capacity.⁴¹ According to a recent World Bank study of several countries, "The economic consequences of imposing log-export restrictions have been negative, both from the perspective of the forestry sector and the country as a whole. No analysis exists that demonstrates any positive impacts."⁴² Environmental results have been disappointing so far too. Log export restrictions depress local prices for logs, and low prices can invite overharvesting and waste. The development of a protected and inefficient local processing industry only exacerbates both. Furthermore, the World Bank study showed removing log export restrictions can have a second round of environmental impacts as a sudden increase in local log prices adds further incentive to overharvest. On the other hand, as other studies have suggested, encouraging local processing can generate much-needed employment and discourage particularly "rapacious" investors from establishing operations to supply processing plants elsewhere. The analysis performed for this report shows, however, that the cost of foregone revenues accepted by the government in order to spur investment in processing operations far outweigh the benefits of increased employment. (*See Part 2.1.*) Similarly, there are more effective ways to discourage irresponsible companies: strict vetting procedures, higher taxes, and better law enforcement.

Better rent capture also ties in with community development. The options outlined in the next section for reducing development's negative impacts on traditional or small communities would return to community control significant stretches of forest currently under sole control of the state. Given the double benefit to government of earning revenue and generating income for communities, if local forest management initiatives are developed (perhaps in partnership with outside investors) low-interest loans, grants, or tax-exemption should be awarded.

3.2 OPTIONS FOR REDUCING NEGATIVE SOCIAL IMPACTS AND CREATING BETTER JOBS

Local, traditional, and indigenous communities living in Suriname's forests depend to varying degrees upon the forest for their physical survival, cultural integrity, and psychological well-being. These groups are vulnerable to changes in land-use policy given the almost total absence in Suriname of legally recognized land rights, community lands, or mechanisms for establishing and demarcating such lands. As things stand, the central government can decide to turn community lands over to other interests, such as industrial mining and logging.

To date, the Government of Suriname has done little to ensure that community rights are recognized or built upon through community-development programs. But with the prospect of development of the hinterland's forest and mineral resources at hand, opportunities to implement dialogue with the communities take on added urgency. Funds could come from the increased fees paid by concessionaires and from international donors, some of whom are quite willing to consider proposals for community-lands demarcation. The Government of Suriname could ride atop the wave of change in policies dealing with traditional peoples and compete well for donor funds by adopting the most progressive policies.

As a matter of legal fact, the Government of Suriname is already obliged under national and international law to recognize and protect the land and resource rights of the estimated 10,000 Maroons and 1,200 Amerindians in the three largest forest concessions, as well as those who could be affected by the smaller proposals. The peace agreement brokered in 1992 by the Organization of American States between the Government of Suriname and the five armed groups in the interior provides for full land titling based on demarcation of traditional lands.⁴³ In addition, the 1992 Forest Management Act states that tribal land should be declared "communal forest" for the "benefit of the tribal inhabitants."

Internationally, Suriname is a signatory of the International Labor Organization Convention (Number 169) Concerning Indigenous and Tribal Peoples in Independent Countries. Promulgated in 1989, ILO 169

recognizes rights of ownership over lands traditionally occupied and the need to protect those rights effectively. Furthermore, Article 7.1 specifically states that "The peoples concerned...shall participate in the formulation, implementation and evaluation of plans and programs for national and regional development which may affect them directly."

From the narrower perspective of promoting foreign investment, responsible multinational companies now have clear corporate policies that would make investing in forest concessions in Suriname well-nigh impossible without first resolving community land rights issues and defining property rights. In neighboring Guyana, the major U.S.-based pulp, paper, and building materials company, Georgia-Pacific Corporation, has refused to enter into a long-term stable agreement to buy plywood from the Barama concession, mainly because community lands within the concession are so poorly defined.⁴⁴ Clearly, if the Government of Suriname is to encourage responsible foreign investors with good track records to contribute to forest sector development, it must first define property rights.

Community land and development are sticky issues. Consultation and negotiation are difficult when some parties are unable to read or are politically disenfranchised, isolated, or culturally separate from the mainstream as many traditional communities are. These complicating factors underscore the need to address community issues early in the development process and to keep up the dialogue with gradual progress in mind. (*See Box 4.*)

Even more fundamental issues are sure to surface in any debate over the future of forest resources and forest peoples. Can the interests of these groups be reconciled with those of the nation? Can those who live in Suriname's interior participate fully in decision-making in Paramaribo? And how can a functional, integrated state, be constructed? In this sense, any dialogue started on forest concessions and development could serve larger national purposes including democratization. (*See Part IV.*)

With their sophisticated knowledge of biodiversity and rain forest agriculture, the Amerindians and Maroons have much to contribute to resource-use plans for the hinterland. Various Surinamese institutions should ensure communication between the gov-

Box 4. Proposal for Reducing Negative Social Impacts and Creating Better Jobs

1. The need to improve **information collection, information sharing, and consultation** is pressing. Especially critical are data on community size, location, demographics, local resource-use needs, and organizational and representational mechanisms. This could be achieved partly by expanding the ongoing work of the Organization of American States in Suriname. Officials should promote information sharing through dialogue and consultation as a basis for all actions and distribute development proposals broadly through existing channels such as the District Councils and the Council for the Development of the Interior.

2. To make sure that concessionaires comply with contracts, the Ministry of Natural Resources and the Ministry of Regional Development must be able to **continuously monitor logging operations** and start a communal lands protection program focused on areas where development activities are planned or underway.

3. **Social impact assessments** should be carried out by the government for all concessions that border on community lands or areas that may become community lands. Such assessments should

be performed by local or foreign experts of international quality, independent from the interested parties.

4. A **community lands demarcation** program should be started using the mechanisms established in the Peace Accord of 1992 and mechanisms for resolving conflicts between communities and outside interests should be strengthened. This work could be an extension of OAS' current activities.

5. **Technical and financial assistance** should be provided to communities to help them better satisfy their own needs through micro-enterprise development.

6. Industrial forestry concessions and processing enterprises should follow **minimum employment standards** established by the companies in consultation with government and labor organizations. Training and apprenticeship programs should be integrated into corporate workplans.

7. The Government of Suriname should ensure that concession workers have the freedom to organize themselves into **free and independent labor unions** with legally protected rights to collective bargaining and to strike.

ernmental authorities and community leaders. These include the Council for the Development of the Interior, the Association of Village Leaders in Suriname, and the decentralized District Councils. Through these organizations, informative documents explaining government proposals should be circulated widely in the hinterland.

Basic demographic and social information for much of Suriname's hinterland barely exists. Yet, sound data should form the basis for designing an effective program of consultation. The Organization of American States has been trying to implement a demographic and land-use survey of traditional communities in the hinterland, though more donor support is needed to do it effectively. Such information could serve as the baseline, helping government to monitor changes in resource use and community needs as development proceeds.

Once enough information has been collected and consultations have begun, community lands can be demarcated or otherwise recognized. Through contractual partnerships with communities, the labor costs of boundary marking can be reduced—witness the success of such programs in Brazil. As for inhabitants of communal lands, they would take responsibility for conservation and management of the natural resources under the basic contractual agreement. Global positioning system technology (for accurately locating points in the earth using signals from satellites) is also being used in parts of Latin America to plot land boundaries quickly and accurately, and such a system could be an integral part of the land-use zoning exercise described above. Expertise could be borrowed from neighboring Brazil, where such techniques are now well developed. The Pro Tempore Secretariat of the Amazon Cooperation Treaty,

of which Suriname is a member, could also share its experience with demarcation and consolidation of indigenous lands in Amazonia.

Building upon the baseline information, representatives of the Ministry of Regional Development should periodically visit communities and assess their needs. In this way, any potential conflicts can be identified in time to adjust development and investment plans accordingly.

Social impact assessments can be incorporated into environmental impact assessments to predict how forest concessions' development will affect communities in the vicinity. Any potential negative impacts should be discussed with community members, and the course of action agreed upon may be to halt the investment.

A new unit could be established by the Government of Suriname to deal with complaints and disputes related to community lands. The unit should be able to respond quickly, and it should be widely regarded as an independent arbiter of conflicts. The unit should also ensure that cases of criminal misconduct, such as violent attacks on communities or theft of community-owned timber, are dealt with expediently and that appropriate compensation is awarded (possibly derived from the performance bonds recommended in the previous section when concessionaires are liable).

Small community-development projects can often be started with as little as a few hundred dollars for a piece of processing equipment. The Amazon region now boasts literally thousands of examples of small community initiatives, many of which have made participants' lives palpably better. Many exploit the diversity of fish or fruit species. Some are based on small-scale agriculture and processing. Others involve tourism or artisanal activities. Groups such as the NGO Forum could help gather information on other experiences and could administer small loans programs, the best of which elsewhere enjoy rates of return far exceeding those of large projects.

Rather than simply trying to maximize productivity, companies should be required to follow minimum standards to promote safe and just employment. These could be set by reviewing standards in other sectors and countries and negotiating with employees and investors. They might include minimum

wages and maximum overtime limits, as well as provisions for training programs. If salaries are very closely linked to productivity, employers might be tempted to allow machine operators to work long hours, putting themselves in physical danger and lowering the quality of production.

Since independence, the country has lost out as much of its educated workforce has migrated to wealthier countries. Foreign investors should, however, be obliged to hire mostly local workers. To reduce risk of accidents and raise product quality, apprenticeships or basic training in safe operation of all types of machinery are needed for all workers.

3.3 OPTIONS FOR REDUCING ENVIRONMENTAL IMPACT

Policy options relating to environmental protection and management are not separate from those addressing revenue optimization. Forestry operations that damage watersheds, increase sedimentation or make water flows more erratic have real, measurable economic impacts. Siltation of hydrodam reservoirs and water storage lakes, increased flooding, and drought damage all have high costs.

Concessionaires who buy the right to harvest timber from public land are expected to return the forest to the public with the same productive characteristics that it had to start with. If they don't, then the government and the public lose. If environmental controls and guidelines make logging financially unattractive, government would be encouraging subsidized timber sales by granting licenses anyway.

Environmental protection is not a luxury hard bought to satisfy a small green constituency of voters and donors; rather, it is a fundamental component of any country's development strategy. The Government of Suriname has embraced this concept by adopting the Rio accords and by passing its Forest Management Law of 1992. But, as Box 5 makes clear, the provisions in the Forest Management Law need to be complemented and reinforced through simple win-win synergies between economic development and environmental protection.

Any agreement between concessionaires and the government should rest on a contract to manage the forest resources according to a nationally applied

Box 5. Proposal for Reducing Environmental Impacts

1. Investors should be awarded **“forest management concessions,”** not “logging” or “timber harvesting and processing concessions.” Forest-management responsibilities should include using watersheds as the basis for management planning, using low-impact harvesting systems, and setting aside parts of large concessions for pure conservation.
2. Require the preparation of an **environmental impact assessment** by independent experts for all concessions over 10,000 hectares.
3. Allow for the **concessions to be transferred** under government scrutiny and if the financial viability and track record of investors acquiring the concessions are assessed first.
4. **Annual release of the next block** of forest within a concession should be dependent upon performance in the previous block, including payment of all taxes and implementation of the forest-management code.
5. Part of the revenues from timber harvesting should be set aside as an **“environmental fee.”**

code of best practice based on up-to-date knowledge of forest processes and the environmental impacts of logging. The code would stipulate low-impact felling based on detailed planning of roads, skid trails and landings, strict standards for road construction, and minimum grading standards. The types of equipment to be used, such as tracked or wheeled skidders, and use of winches should also be specified. The Celos harvesting system developed in Suriname may be most appropriate.⁴⁵ (Complementary experience from Costa Rica and Brazil may also be valuable.⁴⁶)

Knowledge of watershed boundaries and structures should drive extraction planning and concession layout so as to protect the interests of downstream users of the forest and water. Concession boundaries should also follow watersheds, and the

crossing of rivers should be kept to a minimum.⁴⁷ Detailed forest-management codes should be prepared by the Suriname Forest Service and updated as new information and technology become available.

Environmental impact assessments should be employed more widely in the forest sector. They take account of, for instance, road-building to improve concession access, as well as hydrology and soil erosion. How credible environmental impact assessments are depends upon how technically competent and independent those performing the assessment are. International consulting companies or local non-governmental organizations with no ties to the investors could be employed for this task.

Under current regulations in Suriname, and in many other countries, concessions cannot be sold to another owner. Instead, they are simply returned, often quite degraded, to the government. If concessions could be transferred, the logging industry would have an incentive to maintain the parcel's value, which derives from its timber stock, its ecological health, its well-maintained infrastructure, and good relations with nearby communities. Of course, forest-management responsibilities would be transferred along with rights. All transfers would need to be registered with the Forest Service and the purchasing company vetted for eligibility, as in the initial bidding process.

If experiences in Asia and elsewhere are a guide, the investors courting the Government of Suriname probably have little incentive to follow the spirit of the forest management concession scheme outlined here and in Suriname's national legislation.

Suriname's government can exert considerable leverage over the concessionaire by imposing strict conditions on access to new blocks of forest for harvesting. Permission to start the next season's operations

should be given only if the applicant strictly followed codes and guidelines during the current season.

Suriname's quest for fiscal independence from the international community includes financial independence to fund its own conservation programs. Accordingly, a small percentage, say 5 percent, of revenues from concession fees could be invested in a conservation trust fund for long-term financing of protected areas and other conservation measures. A successful precedent exists. The Government of Indonesia, through a small "reforestation fee" on all timber-extraction activities, has established a billion dollar fund for forest restoration and conservation activities.⁴⁸

If experiences in Asia and elsewhere are a guide, the investors courting the Government of Suriname probably have little incentive to follow the spirit of the forest management concession scheme outlined here and in Suriname's national legislation. If such investments are to go ahead, institutions in the Government of Suriname need to be fortified so they can monitor activities and enforce compliance. Indeed, far wealthier countries with much more trained local expertise (such as Indonesia, Brazil and Venezuela) have been hard-pressed to enforce contract compliance or national legislation governing timber-extraction activities in tropical forests.

IV. INSTITUTION BUILDING, CROSS-SECTORAL ISSUES, AND ALTERNATIVE DEVELOPMENT OPTIONS

4.1 STRENGTHENING MECHANISMS FOR PUBLIC PARTICIPATION IN DECISION-MAKING

A constant frustration of the inhabitants of Suriname's interior has been their almost complete isolation from decision-making in Paramaribo and from such basic public services as health care and education. National integration has therefore been a major preoccupation of the interior communities.

Large-scale development initiatives—whether timber concessions or mining and energy infrastructure—appeal to the central government and to interior groups partly because such investments would

improve roads and communications infrastructure, thus linking the interior to the capital and making services and political institutions more accessible. While such developments could further integration and participation, strengthening democratic institutions is likely to yield the greatest progress at the lowest cost.

At least four mechanisms already exist in Suriname to promote interior peoples' participation in decision-making. (See Box 6.) Most came into being to help quell the unrest in the 1980s but all are too strapped for funds to function.

If funded properly, these four mechanisms could all help protect traditional peoples' access to natural

Box 6. Existing Mechanisms to Promote Hinterlanders' Participation in Decision-making

1. *Eleven District Councils* corresponding to the country's eleven subdivisions were established under the 1987 constitutional reform to decentralize power. Sipaliwini District, which covers most of the southern two thirds of Suriname, is divided into four Departments, each with three or four elected representatives who form the District Council. The Council has never met since there are no funds to cover the airfares.
2. *The Council for the Development of the Interior* is an urban-based representative organization established under Article 4 of the OAS-brokered peace treaty of 1992. Representatives of the communities from the interior are included, along with those from the private sector and government. In theory, the Council provides advice to the Minister of Regional Development on development issues, including healthcare, education, social welfare, energy and water, infrastructure redevelopment, land rights, mapping, and demobilization and disarmament of

the opposition forces. But this group has never met because it has no funds to cover travel costs.

3. *The Association of Village Leaders in Suriname* was also created under the OAS peace accord and spontaneously came into being with participation of Carib and Arowak Indian representatives. (Maroons have so far chosen not to participate).
4. *Ad hoc Meetings of the Paramount Chiefs of the Maroons* take place occasionally—at the central government's discretion since the chiefs have no budget of their own.¹

Note

1. Some of the younger Maroons engaged in gold mining do in fact have significant financial resources but these are not available to the Paramount Chiefs. The latter receive small grants from Paramaribo but are expected by their associates to use the funds for social occasions and festivities. (Gary Brana-Shute, personal communication.)

resources and ensure that development decisions don't benefit only a tiny minority of the population. Given this institutional framework and potential, **a key part of any international assistance package to Suriname to address forest and rural development issues should be support for re-establishing and implementing these four basic representational and participatory mechanisms.**

4.2 ESTABLISHING THE CAPACITY TO DESIGN, PROMOTE, AND IMPLEMENT SUSTAINABLE DEVELOPMENT IN THE FOREST SECTOR

The poor state of the Suriname Forest Service in terms of salaries, morale, and infrastructure mirrors that of all of Suriname's natural resource sector, with the possible exception of bauxite. (See Part I.) If any of the proposals and options presented here are to be implemented and Suriname's forest sector is to be re-established as a productive, profitable enterprise that generates employment and government revenues, then investment in basic institution-building is required.

There may be many ways of designing a capacity-building program. Five components are essential:

1. Participation and consensus building capacity.

The Ministries of Natural Resources and of Regional Development need the budget and skills to consult with the range of stakeholders concerned with natural resource and forest issues, the capacity to communicate effectively and widely so as to keep the public informed about forest development plans and issues, a means for including all stakeholders in discussions, and educational activities for empowering the various groups to act effectively in their own interests.

2. Policy, strategy and planning capacity. Basic training for government technicians in policy analysis and the comparison of development or investment options is required. Government needs to know about all available options, and it must be equipped to compare them and to design a sector-development strategy for implementing the best options efficiently. These tasks can be assigned to international consultants, but since markets, environmental and social constraints, funding levels, and the availability of

human resources change constantly, permanent local policy and planning capacity is also essential and can add perspective and staying power to sometimes-generic recommendations from outsiders. In particular, ecotourism development, biodiversity prospecting initiatives, and the promotion of investment in environmentally sound and socially responsible enterprises (perhaps including natural forest management for the production of "green seal" certified timber products) need an informed and stable indigenous team of experts.

3. Technical implementation, monitoring, and enforcement capacity. Sorely lacking within Suriname's Ministry of Natural Resources and the Forest Service are such basics as forestry expertise, inventory and monitoring skills, and the capacity to plan infrastructure. Additional skills are also needed in negotiating with foreign investors, marketing non-timber forest products, assessing wood-processing technologies and picking among alternative harvesting and forest-management techniques. Monitoring and enforcing activities in current timber concessions in northern Suriname alone has proven beyond the Forest Service's current capacity. A recent study suggested that to police and monitor only one of the proposed million-hectare timber concessions would cost on the order of \$1 to \$2 million per year.⁴⁹

4. Protected areas and community lands establishment and consolidation capacity. Forest Service staff also need training in conservation biology and reserve design, as well as in land-line mapping and inexpensive land-demarkation techniques. The same cadre (and technicians from other departments) also need training in community relations, village-level consensus building, and conflict resolution.

South-south transfer of experiences and expertise with other countries in Latin America and the Caribbean—such as Costa Rica, Jamaica, and Brazil, where there is considerable knowledge and a history of innovation—may be more cost-effective and appropriate than training in North America and Europe for Suriname to acquire some of the capacity described above. Partnerships with the Central American Commission on Environment and Development, the Association of Amazonian Universities (based in Brazil), and other regional technical bodies could be the most appropriate channel for such transfers.

4.3 CROSS-SECTORAL ISSUES

4.3.1 *Economy-wide reforms*

In Suriname, forestry reforms are needed within a general framework of economic stabilization that also includes mining and agriculture. To be sure, forestry alone will not meet all Suriname's economic development needs. At issue here is whether large-scale timber-concession proposals contribute anything over the long term: they draw down public assets (in this case forests) to finance excess public and private consumption and thus generate short-term revenue by depleting the capital stock (forest reserves)—in reality, a net *loss* of assets that is clearly unsustainable.⁵⁰ Without economic stabilization, the prevailing financial incentives for forest users will overwhelmingly promote unsustainable resource “mining.”

A detailed discussion of Suriname's structural adjustment needs is beyond the scope of this study, but consider two issues of specific relevance to forestry. The first is revenue collection. A key component of economy-wide reform programs is reducing the public deficit by cutting government spending and increasing tax collection. A prime opportunity is reform of revenue collection from the forestry sector, as discussed here.

The second issue is property rights. As recent studies suggest, poorly defined property rights can attract irresponsible foreign investors, creating a “comparative advantage” (for the foreign investors, not for the host country!) that sparks bilateral trade based on artificially low resource prices. Suriname's basically open access to forest resources in the hinterland is a case in point. Trade and foreign investment only add to the problem, making the over-use of forest resources all but certain. Given this constellation of forces, property rights issues should be accorded greater attention in the design of Suriname's structural adjustment program.⁵¹

4.3.2 *Improving land use in Suriname's “Economic Zone”*

Before establishing new forestry concessions, the Government of Suriname might first reform the administration of the 2.4 million ha of existing concessions and cutting permits in the more accessible

“economic zone” in the north of the country. Current royalty rates and fees have been so devalued by inflation that they generate less for the treasury than they cost to collect. Timber sales are below cost, so the country is losing more money with every harvest. Fees could be increased by *a factor of over one hundred* and still fall below rates charged in some countries⁵²—*reason enough to justify a comprehensive review of the fees and fee structure.*

A major obstacle to greater productivity and competitiveness in domestic forestry operations is low capitalization. As a result, machinery is out-of-date and inefficient and operators are poorly trained. Foreign investment in forestry in the economic zone could be promoted. At the same time, donors could finance loans to local producers for upgrading, together with a package of training and marketing assistance. Again, such reforms will succeed only if Suriname streamlines its financial services sector and exchange controls as part of economy-wide reform.

Fortunately, the economic zone is not a black box. Inventories of forest resources have been performed throughout the area, and good data exist on timber transport and processing costs. This zone also has a decent infrastructure base for transport. Investor interest permitting, making good on the plans outlined above for expanding the forestry sector and building institutional capacity could pave the way for concessions further south.

Suriname's economic zone also has agricultural potential. Nationally, agricultural production has declined dramatically in recent years, even though the coastal zone is considered ideal for intensive production. Reforms in this sector could perhaps provide much of the revenue and employment needed without moving forestry operations into the inaccessible and ecologically and socially sensitive hinterland.

4.3.3 *Other forest uses*

Forests are much more than stores of timber. International interest on the part of pharmaceutical companies in Suriname's biodiversity and non-timber forest products, and Suriname's relatively high revenues from “eco-tourism” in the 1970s testify to many forms of forestial wealth. Revenues from so-called “alternative” development options can also be significant. For example, ecological tourism is now Costa

Rica's largest foreign exchange earner, contributing more to its economy in absolute terms than the entire mining and forest sectors contribute to Suriname's. Admittedly, only a well coordinated effort over several years would make Suriname a major tourist destination. But even if forestry development is quicker, it should be planned with other slower-moving prospects in mind.

4.3.4 Land-use zoning and planning

Comprehensive land-use zoning and planning could start in Suriname with an ecological-economic zoning exercise like those recently completed successfully in parts of Brazil, Bolivia, Colombia and elsewhere.⁵³ Such an assessment would reveal the potential for forestry, agriculture, mining, tourism, and other commercial activities. It could also highlight areas of great biological or social sensitivity—whether a zone of rare biological diversity or the lands of a traditional people. A land-use zoning program should be a prerequisite for expanding forestry activities further south in Suriname.

4.4 ALTERNATIVE FINANCING MECHANISMS FOR ALTERNATIVE FOREST USES

Developing-country politicians have long called for payments from the rich “developed” countries to the poorer “developing” countries to finance tropical forest conservation. Various analysts have suggested that it makes economic sense for citizens and companies in the richer countries to pay poorer countries and their forest owners to conserve forest cover, particularly to maintain stored carbon in biomass so it doesn't escape into the atmosphere as carbon dioxide—a potent greenhouse gas.⁵⁴ To a limited extent, such payments are already made in the form of Global Environment Facility funds and other forms of assistance,⁵⁵ and transfers of funds are also possible under the “Joint Implementation” provision of the Climate Convention signed at Rio. Meanwhile, some U.S. utility companies are entering into agreements with Latin American countries—notably, Costa Rica—to develop experimental carbon-offset schemes.

Suriname's comparative lack of population growth, migration, and infrastructure development may be an

advantage as the government competes for funds with Ecuador, Peru, Guyana, and Brazil and other heavily forested countries where pressures to convert forest to other land uses are much greater. Suriname could aggressively seek financial transfers to offset the opportunity costs of conserving its forests to the fullest extent. It could emphasize the country's strong conservation tradition and the high probability that relatively small cash transfers will keep its forests intact.

Other possible funding sources are debt-for-development programs, green venture capital, and green investment funds. Debt-for-development funds could facilitate the sale of Suriname's foreign debt on the secondary market in exchange for government investment within Suriname in sustainable development. Green venture capital and investment funds could bolster conservation or sustainable enterprises or spawn new ones. Some institutional investors may want to invest in operations with “subnormal” profits simply to give a “shade of green” to their overall investment portfolio; others are simply looking for a good return. Managers of green funds—many of which have millions if not tens of millions of dollars in assets—are more interested than ever in companies that can implement sustainable forest management. The Government of Suriname could offer concessional terms to such companies with a reasonable prospect that major investments might follow.

A relative lack of investment in forestry in Suriname so far can also be turned to the country's advantage. Compared to most other forest-rich countries, including the United States, Indonesia, Brazil, and Guyana, it has little invested in and earns little from the traditional unsustainable timber industry. (In fact the largest producer, Bruynzeel is a loss-maker.) Since it doesn't have significant profitable industries based upon unsustainable timber extraction from natural forest, Suriname doesn't face a tough transition from unsustainable to sustainable forestry. Rather, its choice is between developing a traditional industry, along the lines of the investment proposals of Berjaya, MUSA, and Suri Atlantic, or seeking investors whose business-development strategy centers on more sustainable, independently certifiable “green seal” timber harvesting and processing.

The green timber market is new but it is already large enough for investors to begin seeking opportu-

nities. In Europe, the 1995 Group of various businesses that trade in wood products is committed to “sourcing” all of its timber from sustainable producers by the end of 1995, and in the United States, changes are being proposed in the national building code that could require all builders to use timber from well-managed sources, immediately creating a billion-dollar market.

Given the importance of this emerging market and Suriname’s special position as a country that is almost entirely blanketed by tropical rain forest but has almost no existing forest industry, promoting their country as a producer of timber and non-timber forest products from well-managed forests could pay off handsomely for the government and the public.

4.5 RECOMMENDATIONS FOR THE INTERNATIONAL DONOR COMMUNITY AND THE SPECIAL ROLE OF THE INTER-AMERICAN DEVELOPMENT BANK

Donors seeking to respond to Suriname’s requests for forest-sector assistance are on the horns of a challenging dilemma. Without doubt, Suriname’s forests are of global significance and donors would do well by their conservationist constituencies to support efforts to promote sustainable forest use. On the other hand, high inflation, a feeble Forest Service, and weak non-governmental groups thwart the delivery of aid. When the Government of the Netherlands faced this dilemma and its goal of fostering various sectors, it imposed conditions on its donated funds, tying the release of the approximately US\$500 million held in “treaty funds” to the implementation of a structural adjustment program. The result has been an uncomfortable standoff between the two governments, with Suriname unable to muster sufficient votes in the National Assembly to push through the needed reforms, and The Netherlands unable to cut off aid completely for humanitarian reasons. In any event, donors should continue a dialogue with the Government of Suriname, seeking opportunities to provide strategic support as the government begins to implement structural adjustment within the context of a broad program of technical assistance to the forest sector.

Some of the options suggested in this report would take years to implement fully. For this reason, these options could incur significant opportunity costs in the short- and medium-terms when compared with the relatively quick, short-term gains of accepting Asian investors’ concession proposals. The Government of Suriname thus finds its back to the wall. It desperately needs revenue to fund public services and pay the large civil service, and probably until the next elections in May 1996 it can’t embrace the recommended macroeconomic remedies the international community is promoting. Despite the major social and environmental risks involved and the large amounts of revenue that would be foregone compared to what could be earned from a more carefully developed and slowly implemented forest sector development strategy, Suriname will be sorely tempted by foreign investors’ offers.

The Government of Suriname has many times declared its desire to follow a sustainable development path but with the wolf at the door, how long can it hold out?

Many months of analysis and conversations with both donors and interest groups in Suriname have convinced us that the international donor community should immediately join forces to offer relatively unrestricted balance-of-payments and budget support to the Government of Suriname, together with a package of forest sector, natural resources, and rural development technical assistance. Such a program would ease pressures on the government to accept investment proposals that are not in Suriname’s long-term interest and would help it begin to strengthen the institutions and mechanisms that will make forest sector development more productive and just.

In response to the concerns raised in this study and other sources, the Inter-American Development Bank (IDB)—the multilateral institution established to finance development in the region—is now taking the lead in designing the assistance package—a move deserving strong support. The IDB, unlike some other donors, maintains a positive open dialogue with the Government of Suriname and recently played a key role in facilitating discussions about structural adjustment. Indeed, the IDB is probably the only international financial institution that can discuss frankly with the government the complex and deli-

cate issues of Suriname's forests and economic crisis. Still, other donors, particularly the various European governments with interests in the region, as well as the United States and Canada, should contribute to the multilateral assistance package.

Any success in establishing biodiversity prospecting, carbon-offset deals, or private investment in independently certifiable natural forest management for timber would, of course, complement the multi-

donor effort by making funds available for capacity building and increasing government revenues.

The proposals put forth here can't be considered or implemented in haste. But with the fate of some of the world's greatest tropical forests and thousands of forest-dependent peoples hanging in the fray, policymakers and donors must both watch the clock. They have at most a matter of months before two development paths—only one of them sustainable—fork.

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APPENDIX. ECONOMIC ASSESSMENT OF THE TIMBER-CONCESSION PROPOSALS

Prepared with assistance from Diji Chandrasekharan and
John Reid, Conservation International, Washington D.C.

The following is a description of the calculations and sources of information used in our economic assessment. Tables 1 and 2 list the prices and production volumes used in our analysis while Table 3 presents a summary of potential, actual, and foregone government revenue and corporate profits (assuming full compliance with the draft timber agreements). Table 3 also shows the impact of contract evasion on government revenue and corporate profits. A discussion of our general approach to the analysis, our data sources, the products and taxes examined, and our calculations and assumptions follows.

General Approach

Our assessment examines how the proposed concession agreements between the Government of Suriname and Berjaya Timber Industries will affect government revenue and corporate profits. We used the Berjaya draft agreement and timber investment plan¹ as a base for our analysis. Our primary analysis assumes full compliance with the stated terms of the draft contract agreement. We further assumed that the two remaining companies, MUSA and Suri Atlantic, would adopt similar investment plans. The impact of company under-reporting of revenues and over-reporting of costs was also examined.

Table 1. Average Product Prices

	\$/m³ of final product
Raw Logs	85.00
Sawnwood	315.00
Plywood	375.00

Data Sources

All costs used in our assessment were taken from the Berjaya investment plan. Final product-export prices were obtained from Conservation International's office in Paramaribo (and then checked against recent prices published by the FAO). Production volumes were taken from the Berjaya investment plan.

Taxes

Our analysis examined three sources of government revenue: 1) a royalty (or retribution) of 5.5 percent assessed on undressed timber; 2) an income tax of 40 percent assessed on adjusted net revenue; and 3) a 10-percent tax assessed on corporate dividends. Time kept us from considering two taxes stipulated in Suriname's 1992 Forestry Law, an area fee and a volume-based royalty, in our calculations. Neither of these taxes is large enough to affect the analysis. The area fee is \$0.02 per hectare per year and the royalty is \$0.005 to \$0.02 per m³.

Products

Two products were considered in our calculations: 1) sawnwood, and 2) plywood. At the time our analysis was conducted, Berjaya had no plans to export logs. Due to a lack of reliable data, two additional products, furniture and moldings, were left out of our assessment.

Prices

Average product prices were used to calculate total revenue for each of the three products noted above. (See Table 1.) The averages were derived from a range of current export prices obtained from Conservation International's office in Paramaribo. These prices compare favorably to the average prod-

Table 2. Production Volumes, by Concession and Product

Product	Berjaya	MUSA (m ³ logs)	Suri-Atlantic	Total	
				(m ³ logs)	(m ³ product)
Log Exports	0	100,000	100,000	200,000	200,000
Sawnwood	90,000	420,000	140,000	650,000	325,000
Plywood	466,667	200,000	80,000	746,667	268,800
Total	556,667	720,000	320,000	1,596,667	793,800

uct prices for Suriname wood-product exports published by the United Nations Food and Agriculture Organization (FAO *Yearbook: Forest Products, 1995* In Press, FAO: Rome).

Volumes

Final production quantities, or product volumes, were used in calculating total revenues and costs. (See Table 2.) The roundwood-to-final product conversion factors, taken from the Berjaya investment plan, are 0.5 and 0.36, respectively, for sawnwood and plywood.

Total Revenue

Total revenue for sawnwood and plywood were calculated by multiplying product price by volume:

$$(1) \text{ Total Revenue} = \text{Final Product Price} \times \text{Final Product Volume}$$

Costs

The components of total costs included in values listed in Table 3 are described below.²

Logging³ and Manufacturing Costs include the fixed and variable costs associated with logging and final product manufacturing. Fixed costs include capital depreciation, as listed in the Berjaya investment plan.⁴ Variable costs include operations costs, labor costs, and debt payments (*i.e.*, all costs listed except raw material inputs). Debt-payment calculations are discussed separately below.

Debt Payments are the interest paid by companies on borrowed capital. The Berjaya concession agreement states that up to 70 percent of total investments can be financed through loans (Article 2, Paragraph 2) and that a lending rate of LIBOR (*i.e.*, the

London Interbank Offer Rate) plus 7 percent should be used for tax purposes (Article 51). The interest (or debt) payments included in Table 3 were calculated using an interest rate of 12 percent, which is the rate shown in the Berjaya investment plan.⁵ The debt payments were calculated using Equation 2 below:

$$(2) \text{ Debt Payment} = 0.12 \times [0.7 \times (\text{Initial Capital Investment})]$$

The initial capital investment, for each product, was taken directly from the Berjaya investment plan.^{6,7} For simplicity, we assumed a constant level of debt payment over time. This assumption probably results in a modest overstatement of the company's costs in later years.

Export Costs were listed separately in the Berjaya investment plan. They are presumably the costs associated with preparing products for export, such as mill-to-port shipping and port charges.

Total Costs is equal to the sum of all costs:

$$(3) \text{ Total Cost} = \text{Logging Cost} + \text{Manufacturing Cost} + \text{Export Cost} + \text{Debt Payment} + \text{Depreciation}$$

Net Revenue

Net revenue is the difference between revenue and total cost.

Normal Profit

Normal profit is the minimum companies are willing to accept to invest in timber production in Suriname. In this analysis, we assumed that companies would require a normal profit equal to 30 percent of average yearly investment (AYI):

Table 3. Impact of Contract Evasion on Government Revenue and Corporate Profit from the Berjaya Proposed Concession

	Contract Compliance	Contract Evasion
A. Summary (\$ million/yr)*		
Revenue	64.58	51.66
Total Cost	41.10	46.19
Net Revenue	23.48	5.47
Normal Profit	15.19	15.19
Potential Government Revenue	13.76	13.76
Actual Government Revenue	8.79	2.02
Foregone Government Revenue	4.97	11.74
B. Government Revenue (\$ million/yr)*		
Royalty	1.09	0.87
Income Tax	6.26	0.90
Dividend Tax	1.44	0.25
Total	8.79	2.02
C. Corporate Profits (\$ million/yr)*		
Normal Profit	15.19	15.19
Windfall Profit	4.97	11.74
Total	20.16	26.93

* All yearly figures were calculated as an average of the first five years.

Part A, above, shows the effect on government revenues of 20 percent over-reporting of costs and 20 percent under reporting of revenues. In the right hand "Contract Evasion" column, the Revenue, Total Cost, and Net Revenue lines are figures that would be reported by the company. The Actual Government Revenue shows the amount of taxes that would be paid based on the misreported earnings. True Potential Government Revenue and Normal Profit are based on true costs and revenues and so are the same in the two columns of figures. Foregone Government Revenue under contract evasion is the difference between the Actual Government Revenue (reduced by inaccurate reporting) and the true Potential Government Revenue.

(4) Normal Profits = $0.3 \times AYI$,

where,

(5) $AYI_i = [(AYI_{i-1} + YI_i) + (AYI_{i-1} + YI_i - DP_i)]/2$
and YI_i and DP_i are annual investment and depreciation, respectively.

Potential Government Revenue

Potential government revenue is the economic rent from logging and wood processing, or the maximum revenue available to the government. It is the difference between net revenue and normal profit minus debt payments.

Actual Government Revenue

Actual government revenue is the total revenue collected through taxes. As noted, four taxes were considered in our analysis: a royalty, an income tax, an export tax, and a tax on corporate dividends. The calculations used in estimating each tax are described below:

Royalties charged under the terms of the contract are 5.5 percent of the value of "undressed" timber. For log exports and sawnwood, the value of undressed timber was assumed to be the market price of log exports (\$85/m³). Plywood was assumed to

require two “grades” of undressed timber, 85 percent with a value equal to the unit cost of log production (\$27/m³) and 15 percent with a value \$20/m³ less than the market price of log exports (\$65/m³):

(5) Plywood Undressed

$$\text{Timber Value} = (0.85 \times \$27/\text{m}^3) + (0.15 \times \$65/\text{m}^3)$$

Income Taxes. According to the Berjaya contract, for the first three years of the contract period, income taxes will equal 40 percent of adjusted net revenue calculated as follows:

$$(6) \text{Income Tax}_i = 0.4 \times [(0.8 \times \text{Revenue}_i) - \text{Total Cost}_i - \text{Royalty}_i - \text{Export Tax}_i] \quad (i = 1,2,3)$$

In subsequent years, the contract allows for a modification of the 20-percent reduction⁸ in revenue shown above. We assumed that no reduction in revenue would be allowed in the calculation of income taxes in subsequent years:

$$(7) \text{Income Tax}_j = 0.4 \times (\text{Revenue}_j - \text{Total Cost}_j - \text{Royalty}_j - \text{Export Tax}_j) \quad (j = 4, \dots, 24)$$

Dividend Taxes were calculated as follows:

$$(8) \text{Dividend Tax} = 0.1 \times [\text{Revenue} - \text{Total Cost} + \text{Depreciation} - \text{Annual Investment} - \text{Royalty} - \text{Income Tax} - \text{Export Tax}]$$

Corporate Profit

This category aggregates the profit collected by timber companies. It is composed of normal profits and windfall profits, and windfall profits are equal to foregone government revenue.

Caveats

A few caveats related to our analysis are in order:

- Prices used to assess taxes and fees in Suriname have traditionally been set at levels substantially below world market prices, (e.g., in calculating royalties for the current MUSA concession). If this trend continues, the government will capture an

even smaller share of available revenues than estimated here. In our assessment, we assumed prevailing prices for final products.

- When calculating the royalty for plywood, we assumed that 85 percent of the raw log inputs had a value equal to the unit cost of log production, (i.e., that these logs had no ready market other than plywood). This may understate the true value and result in a modest understatement of government revenues.
- We did not calculate the revenues from moldings and furniture. These represent a sizable fraction of total planned exports and have a high unit value. Prices up to \$800/m³ have been reported for moldings from Guyana sold in Europe (*Timber Trade Journal*, May 1994). If these prices are accurate, adding revenues from these products would likely increase both government revenue and corporate profit. However, based on prices and costs included in the Berjaya Investment Plan, adding these products to our assessment increased costs substantially but added relatively little to revenues. As a result, with contract evasion, net revenue actually declined, as did overall government revenue.

NOTES

1. *Investment Plan for a New, Fully Integrated Factory for the Production of Saun Timber, Plywood, Mouldings and Furniture* (Berjaya Timber Industries Suriname, N.V.i.o., July 1994).
2. To estimate production costs for MUSA and Suri-Atlantic using costs listed in the Berjaya investment plan, we first calculated a unit cost (in \$/m³ of roundwood) for each of the cost categories used in our analysis and then multiplied by the log volume of final output for each product produced by the two companies.
3. Logging costs are listed separately in the Berjaya investment plan. Since the Berjaya contract does not provide for log exports, these costs were assumed to represent the logging costs required to supply their secondary processing facilities. To allocate these costs between sawnwood and plywood, we first calculated a unit cost of logging (based on Berjaya’s total roundwood requirement for all products) and then multiplied by the quantity of roundwood used in sawnwood and plywood.
4. Total depreciation used for sawnwood and plywood includes a logging and manufacturing component. Manufacturing depreciation is listed separately by product in the Berjaya investment plan and was taken directly from the plan. The logging component was estimated by first

calculating a unit cost of depreciation for logging equipment and then multiplying by the log volume used in plywood and sawnwood production.

5. A lending rate of 12 percent implies LIBOR of 5 percent. The current (January 13, 1995) LIBOR is 7.2 percent.
6. The initial capital investment is the investment that the company makes in land, factories, and equipment in the first two years. The capital investment, by product, is reported in the respective appendices of the investment plan under interest expense.
7. The capital investment used in calculating debt payments for each product was composed of a logging compo-

nent and a manufacturing component. As noted, logging costs (including capital investment) shown in the Berjaya investment plan represent the logging costs associated with all secondary processing. To allocate these costs between sawnwood and plywood, it was necessary to calculate a unit capital investment cost and then multiply by the log volume used in making each product.

8. For MUSA and Suri-Atlantic the reduction in revenue is 10 percent. Therefore, the adjusted net revenue is calculated by using 0.9 instead of 0.8 in equation 6.

NOTES

1. Forest concession policies in some other Latin American countries, as well as Suriname, will be analyzed in more depth in a forthcoming World Resources Institute report to be published in mid-1995.
 2. Murray Hiebert, "A Kinder, Gentler Laos," *Far Eastern Economic Review*, March 29, 1990, pp. 25–26; Michael Hayes, "The Malaysian Business Connection," *Phnom Penh Post*, January 27, 1995, vol. 4, No. 2: 13.
 3. Companies active in Guyana include Samling Corporation, Leeling Timber and The Berjaya Group, all from Malaysia, and Sunkyong Limited of South Korea.
 4. Wim Hoogbergen, "The History of the Suriname Maroons," in ed. Gary Brana-Shute, *Resistance and Rebellion in Suriname: Old and New*, Studies in Third World Societies, vol. 43: 65–102 (Williamsburg, Virginia: College of William and Mary, Dept. of Anthropology: 1990).
 5. The other illegally-armed groups were known as the Angula Movement for Liberation, the Mandelass, and the Koffiemakas.
 6. For an excellent and up-to-date analysis of Suriname's recent history and probable political future see Gary Brana-Shute, *Suriname: The Nation against the State*, (Philadelphia: Current History Inc.) *Current History*, vol. 94, no. 589: 86–90.
 7. World Resources Institute in collaboration with the United Nations Environment Programme and the United Nations Development Programme, *World Resources 1994–5* (New York: Oxford University Press, 1994), Table 16.1.
 8. Also known as "bush-negroes"—descendants of West African slaves who rebelled against the Dutch masters at various times up to 300 years ago, they have since lived the traditional life of their ancestral tribes in the hinterland. They are divided into six groups: Saramaka, Ndjuka, Matuwai, Paramaka, Kwinti, and Boni. The Boni's base is in French Guiana, but some live on Suriname's side of the border.
 9. The Amerindians are divided into five principal tribes: the Akuriyos, the Arowaks, the Caribs, the Tiriós, and the Wayanas. A sixth tribe, the Warao lived in Suriname in historical memory, but are now found only in Guyana and Venezuela. The Caribs and Arowaks are found nearer to the coast and have a long history of contact. The others have had very little or no contact except recently with Protestant missionaries. They are now entering the cash economy and being converted to western religion. For more detail see: E. Basso, *Carib-Speaking Indians—Culture, Society and Language* (University of Arizona Press, Tucson, Arizona: 1977); Mark Plotkin, "Ethnobotany and Conservation in the Guianas: The Indians of Southern Suriname," eds. Frank Almeda and Catherine M. Pringle in *Tropical Rainforests: Diversity and Conservation*, (San Francisco, California: California Academy of Sciences, and Pacific Division, American Association for the Advancement of Science, 1988).
 10. United States Department of State, *Country Commercial Guide 1993: Suriname*, (Washington D.C.: 1993).
 11. Russell Mittermeier et al. *Conservation Action Plan for Suriname* (Paramaribo: Stinasu, Conservation International, Suriname Forest Service, World Wildlife Fund and University of Suriname, 1990).
 12. Ibid.
 13. Mark Plotkin, "Ethnobotany and Conservation in the Guianas: The Indians of Southern Suriname," eds. Frank Almeda and Catherine M. Pringle in *Tropical Rainforests: Diversity and Conservation*, (San Francisco, California: California Academy of Sciences, and Pacific Division, American Association for the Advancement of Science, 1988).
 14. World Resources Institute in collaboration with the United Nations Environment Programme and the United Nations Development Programme, *World Resources 1994–5* (New York: Oxford University Press, 1994), Table 19.1.
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15. The Bruynzeel contract is due to expire in 1996, as it was renewed for 25 years when it first expired in 1972.
16. The five most important exported species up to 1993 were: *Dicorynia guianensis*, *Hymenolobium flavum*, *Qualea coerulea*, *Vatairea guianensis*, and *Tabebuia serratifolia*.
17. Official Gazette of the Republic of Suriname, Forest Management Act, 1992.
18. Other key pieces of legislation are the 1950 Timber Export Act, the Agrarian Act and the 1954 Nature Preservation Act.
19. The Convention on Trade in Endangered Species (CITES) is an international treaty, signed in Washington D.C. in 1973. It includes mechanisms for monitoring, controlling, and even prohibiting the international trade in species in danger of becoming extinct.
20. Berjaya Group Berhad Annual Report to Stock Shareholders. Kuala Lumpur, Malaysia, 1994.
21. "Solomons Logging Project to go Ahead Despite Bribery Allegations," *Timber Trades Journal*, September 10, 1994.
22. Doug Tsuruoka, "Vanishing Coral Reefs: Plundering Threatens Tioman and other Asian Tourist Centers," *Far Eastern Economic Review*, January 7, 1993: 24–25.
23. David N. Smith and Louis T. Wells Jr., *Negotiating Third World Mineral Agreements: Promises as Prologue* (Cambridge, Mass.: Ballinger Publishing Company, 1975).
24. Memo dated October 9, 1981 and entitled "Summary of Potential Damage Calculations," from the Regional Forester, Alaska Region, to the Chief, U.S. Forest Service. In appendix to "Timber Industry Practices in the Tongass National Forest, Alaska." U.S. House of Representatives. Serial No. 98-19, 1983.
25. Francois Nectoux and Yoichi Kuroda, *Timber from the South Seas: An analysis of Japan's Tropical Timber Trade and its Environmental Impact* (Gland, Switzerland: WWF International, 1989).
26. David N. Smith and Louis T. Wells Jr., *Negotiating Third World Mineral Agreements: Promises as Prologue* (Cambridge, Mass.: Ballinger Publishing Company, 1975).
27. Barama is a wholly owned subsidiary of Sunkyong of Korea (owns 20%) and Samling Timbers of Sarawak, Malaysia (80%).
28. The Amerindian Research Unit, University of Guyana, and Marcus Colchester, personal observations.
29. Accounts include: Anna Luiza Ozorio de Almeida, *The Colonization of the Amazon* (Austin: University of Texas Press, 1992); Marianne Schmink and Charles H. Wood, *Contested Frontiers in Amazonia* (New York: Columbia University Press, 1992); Anthony L. Hall, *Developing Amazonia* (Manchester: Manchester University Press, 1989).
30. Granman Aboikoni luidt noodklok: Toestand in binnenland is precair, *Weekkvant Suriname*, 9–15 March, 1995: 3.
31. Nels Johnson and Bruce Cabarle, *Surviving the Cut: Natural Forest Management in the Humid Tropics* (Washington D.C.: World Resources Institute, 1993).
32. John G. Robinson and Kent H. Redford (eds.), *Neotropical Wildlife Use and Conservation* (Chicago: University of Chicago Press, 1991).
33. J.-M. Thiollay, "The Influences of Selective Logging on Bird Species Diversity in a Guianian Rain Forest," *Conservation Biology*, 1992, vol. 6, 47–63.
34. Arend J. van Bodegom and N.R. de Graaf, *The Celos Management System: A Provisional Manual* (The Netherlands: National Reference Center for Nature, Forests, Landscape and Wildlife/Forestry Department, Wageningen University/Foundation for Netherlands Forestry Development Cooperation, 1991).
35. Many of the recommendations presented in this section draw upon experiences in other countries similar to Suriname in key respects, such as weak institutions, a poor information base, and low public employees' salaries. Published analyses which served as helpful references were: Robert Repetto and Malcolm Gillis, (eds.), *Public Policies and the Misuse of Forest Resources* (New York: Cambridge University Press/World Resources Institute, 1988); Robert Repetto, *The Forest for the Trees? Government Policies and the Misuse of Forest Resources* (Washington D.C.: World Resources Institute, 1988); Mikael Grut, John A. Gray and Nicolas Egli, *Forest Pricing and Concession Poli-*



- cies: Managing the High Forests of West and Central Africa* (Washington D.C., 1991). World Bank Technical Paper 143; Malcolm Gillis, "Forest Concession Management and Revenue Policies," in ed. Narendra P. Sharma, *Managing the World's Forests: Looking for Balance Between Conservation and Development* (New York: Kendall/Hunt Publishing Company and the World Bank, 1992).
36. Mikael Grut, John A. Gray and Nicolas Egli, *Forest Pricing and Concession Policies: Managing the High Forests of West and Central Africa* (Washington D.C., 1991). World Bank Technical Paper 143.
 37. F.J. Schmithusen, *Forestry Development, Suriname Forest Legislation*. (Rome: United Nations Food and Agriculture Organization, 1974).
 38. Robert A. Feldman and Rajnish Mehra, "Auctions: Theory and Applications." *International Monetary Fund Staff Papers*, 1993, vol. 40., no.3: 485–511.
 39. Robert Repetto and Malcolm Gillis, eds. *Public Policies and the Misuse of Forest Resources* (New York: Cambridge University Press/World Resources Institute, 1988).
 40. Robert A. Feldman and Rajnish Mehra, "Auctions: Theory and Applications." *International Monetary Fund Staff Papers*, 1993, vol. 40., no.3: 485–511.
 41. Jeffrey Vincent, *The Tropical Timber Trade and Sustainable Development*, June, 1992, *Science*, vol. 256: 1651–1655.
 42. Rachel A. Crossley, *A Preliminary Examination of the Economic and Environmental Effects of Log Export Bans*. Draft report to be published by The World Bank, cited with permission of the author, 1994.
 43. Article 10 of the 1992 "Agreement for National Reconciliation and Development" entitled "Right to Land" states:
 - "1. The Government shall endeavor that the citizens who live in tribes acquire a real title to the land for which they have applied in the areas in which they live.
 - "2. The demarcation and size of the areas mentioned in the first paragraph shall also be determined on the basis of a study carried out with respect thereto by the Council for the Development of the Interior.
 - "4. Around the area mentioned in paragraph 2, the Government will establish an economic zone where the communities and citizens living in tribes can perform economic activities, including forestry, small mining, fisheries, and hunting."
 44. Information based upon personal communications of senior executives.
 45. Arend J. van Bodegom and N.R. de Graaf, *The Celos Management System: A Provisional Manual* (The Netherlands: National Reference Center for Nature, Forests, Landscape and Wildlife/Forestry Department, Wageningen University/Foundation for Netherlands Forestry Development Cooperation, 1991).
 46. The work of CATIE in Costa Rica and of IMAZON and the University of São Paulo in Brazil, in developing low impact timber harvesting techniques should be examined for its applicability in Suriname.
 47. Kenneth Brooks et al. "Watershed Management: A Key to Sustainability," in ed. Narendra P. Sharma *Managing the World's Forests: Looking for Balance Between Conservation and Development* (New York: The World Bank/Kendall-Hunt Publishing Company, 1992).
 48. Charles Barber, Suraya Afiff, and Agus Purnomo, *Integrating Biodiversity Conservation and Development: Lessons and Strategies from Indonesia* (Washington D.C.: World Resources Institute, Indonesian Forum for the Environment and Pelangi Institute, In Press).
 49. Andrew Howard, Assistance Package for the Forest Sector of Suriname—Concept Paper. February, 1995.
 50. For a more detailed account of the economic implications of natural resource depletion, see Raul Solórzano et al. *Accounts Overdue: Natural Resources Depreciation in Costa Rica* (Washington D.C.: Tropical Science Center and World Resources Institute, 1991). Also, see *Forest Resource Accounting: Stock-Taking for Sustainable Forest Management* (London: International Institute for Environment and Development, International Tropical Timber Organization, and World Conservation Monitoring Center, 1994).
 51. Graciela Chichilnisky, "North-South Trade and the Global Environment," *The American Economic Review*, 1994, vol. 84, no. 4: 851–874.

52. Malcolm Gillis, "Forest Concession Management and Revenue Policies," in ed. Narendra P. Sharma, *Managing the World's Forests: Looking for Balance Between Conservation and Development* (New York: Kendall/Hunt Publishing Company and the World Bank, 1992).
53. The Government of Suriname did request preparation of a proposal to perform such an exercise two years ago. The United Nations Food and Agriculture Organization and the Pro Tempore Secretariat of the Amazon Cooperation Treaty helped to prepare the proposal which waited for a formal request from the government for implementation for almost two years.
54. Robert Schneider, *The Potential for Trade with the Amazon in Greenhouse Gas Reduction* (Washington D.C.: World Bank, 1993) LATEN Dissemination Note no. 2; Nalin Kishor and Luis Constantino, *Sustainable Forestry: Can it Compete?* (December 1994) *Finance and Development*: 36–39.
55. Suriname is currently in the planning phase of a multi-million dollar project supported by the Global Environment Facility to consolidate the national protected areas system.



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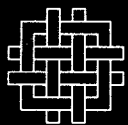
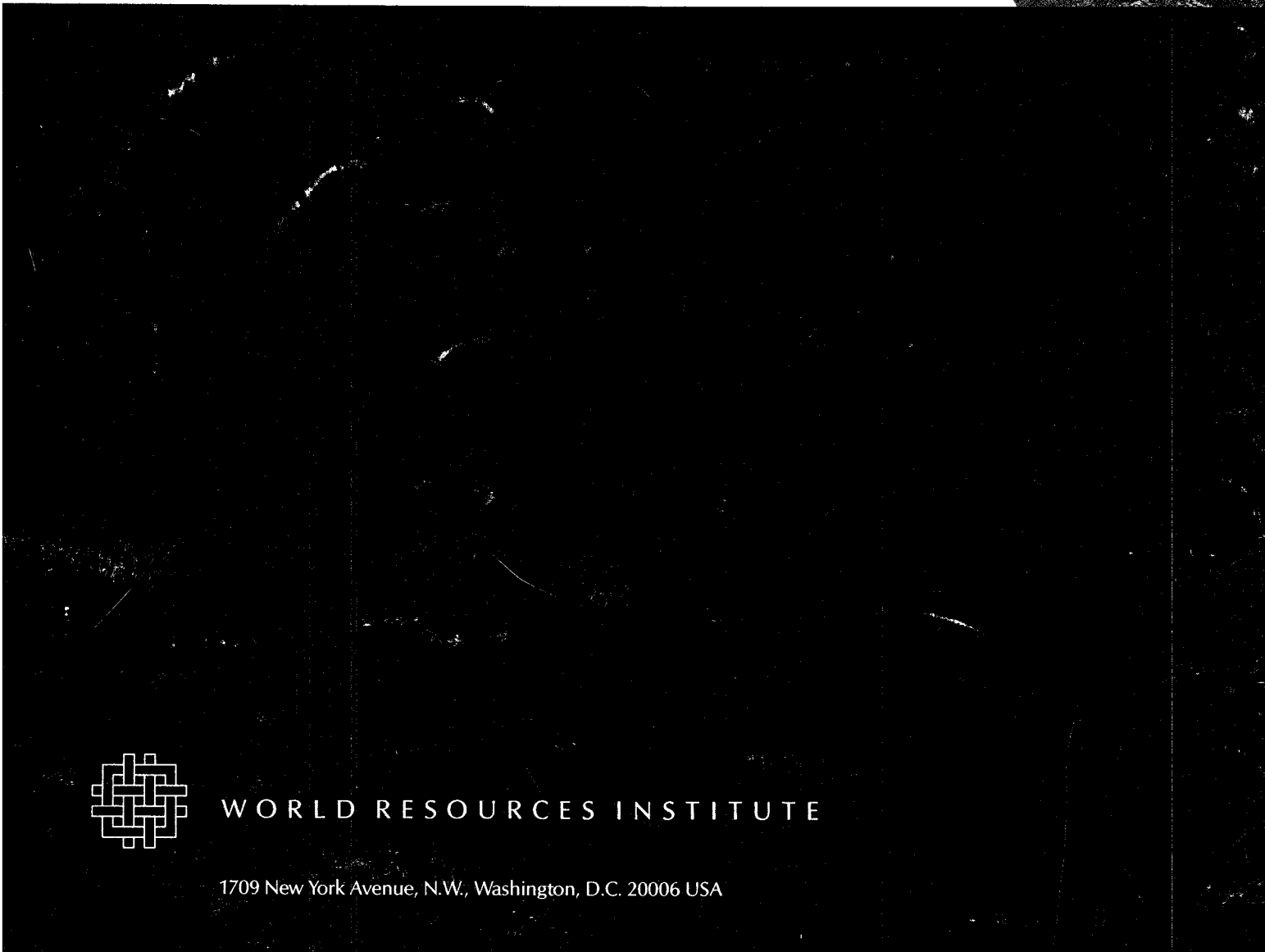
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